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HISTORY AND PURPOSE OF NABET

This organization is in its thirty-third year of existence. It formerly was known as APUBEF (The Association of Pennsylvania University Business and Economics Faculty). It was founded by a small group of Economics professors of the fourteen state universities comprising the Pennsylvania System of Higher Education. Their goal was to provide a platform for sharing and exploring scholarly work among the business faculty of the fourteen state universities in Pennsylvania. As a result of their efforts, the organization has sponsored an academic conference each year for the past 30 years.

Over the years, the fundamental goal of NABET/APUBEF has been to target the business faculty of the small business colleges in Pennsylvania, and surrounding states. The organization has been successful in achieving this goal for the past several years. In 2006 the Executive Board determined that the APUBEF organization should be renamed as NABET and become regional in scope. As a result, the October 2007 annual meeting presented 87 scholarly and pedagogical papers and workshops over two days. It featured authors from eight states including 53 different colleges and universities. The organization continues to grow, every year exceeding the previous year in participation.

The original founders also established a referred journal, the Pennsylvania Journal of Business and Economics (now renamed as the Northeastern Journal of Business, Economics and Technology). The journal applies a double blind review process and is listed in Cabell's Directory. It is published at least once each year, and has a devoted editorial staff supported by an excellent corps of reviewers.

A NOTE ON POTENTIAL OF VIRTUALIZATION IN THE CLASSROOM AND BEYOND

Mohamed Albohali, Indiana University of Pennsylvania

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ABSTRACT

Virtualization is a computer running another computer in a logical sense. Virtualization is one of the main technologies and driving forces in the Information Technology (IT) industry at present. While an old concept, it is mainstream in ways it was never before. Virtualization offers several benefits many of which can be extended to an educational setting to improve curricular instruction in an IT-oriented program. This research explores the use of virtualization to enhance student learning in an IT-oriented program at a public university. It proposes a layout that may be best suited for instruction and discusses some potential limitations that may affect the proposed setup. This setup is under construction and would be followed up with a pilot study. The results will be reported in a future manuscript.

INTRODUCTION

Virtualization is an old concept in computing. The concept was first implemented by IBM in early 1970, when it offered its VM (Virtual Machine) operating system (Creasy, 1981; Varian, 1997). Since that time virtualization has been used in a variety of forms like in Java Virtual Machine that provides a sandbox within an operating system to run the Java Byte Code (Tolksdorf, 2005). Virtualization is seeing a resurgence after being in the shadows for several years. There are several reasons for this, the first being the increased capacity and capability of hardware. This increased capability can lead to underutilization of the server depending upon load conditions, and running more than one server on the hardware leads to better capacity utilization. There is also an issue of server sprawl stemming from servers for everything throughout the data center. Virtualization allows server consolidation and better control and server management (Morgan, 2008; Savage, 2008). Push for virtualization has also come from cloud computing and Platform as a Service (PaaS) providers like Amazon Elastic Cloud 2, where virtual servers can be provisioned on the fly and allocated to companies on a near real-time basis (Hinchcliffe, 2008). On the Green computing front, virtualization is a key in reducing power/energy consumption (Network World, 2003; Morgan, 2008). It would be fit to say that virtualization is in some sense leading a new revolution in Information Technology (IT) Infrastructure today (Overby, 2008).

A simple definition of virtualization is having a computer running on a computer in a logical/virtual sense. A typical computer runs one operating system that controls its hardware resources. In virtualization, a logical hardware abstraction is created which is used by other guest operating systems that constitute a virtual computer/machine. Virtualization allows multiple operating systems to run on a piece of

hardware. Depending upon the hardware it is possible to run 3 to 50 virtual machines on a computer with an x86 processor. Virtualization is being used in several novel applications. As mentioned before in a cloud computing environment it is being used to provide near real-time capacity provisioning. On the client side, it can be used to provision workstations to the end users that reside as a virtual machine on a server. This last application is the primary interest in this research.

While virtualization has gained much traction in several business sectors/segments its use in education appears limited. Its use in supporting student computing and curriculum instruction has not been explored fully. This research proposes to delve into these areas and explore certain novel ways to use virtualization to improve instruction.

RESEARCH QUESTIONS/PROBLEMS

An IT-oriented curriculum typically uses several types of software to support various courses. Many of these software packages are available free through participation in various academic alliances or at a reduced rate. Due to licensing associated with the academic programs, such software can only be run on university lab computers in a controlled fashion. The operating system requirements for the software may also require installation of server software and require a more powerful computer as compared to a typical workstation that a student uses. Additional considerations would include software upgrades, security issues, etc. Physical access to lab machines running these software packages is usually restricted due to use of labs for classes and limited operating hours for the lab. The research question/problem statement to be addressed is to design a setup that offers students access to a server running all the software needed for various courses, and that is accessible 24X7 in an anytime, anyplace fashion.

Additional considerations for the setup are:

- a) Ease of manageability: Ability to manage various servers from a central location and ensuring operating system and software upgrades, license renewals and license installation, and backup and restoration.
- b) Open Learning Environment: Provide an environment where students can experiment with various aspects of different software and new software. Current lab setup is locked down and prevents any modification to the software on the machine including installation of new software.
- c) Resources: Due to budget constraints, the whole setup has to be cost effective. Attempts to leverage existing hardware, support personnel, and physical space would be the key.
- d) Policies and Regulations: Due to liability issues, computing in universities has become more and more locked down. The proposed setup has to comply with existing policies and regulations and possibly runs the risk of being isolated from the main network and inability to access other university-wide network resources. This may cause inability of off-campus access to the setup. This may be a real issue given that this is a faculty-driven initiative rather than a university administration-driven initiative.

Based on the survey of use of Virtualization in the IT industry, it is apparent that such a setup could be afforded through the use of a virtual environment running virtual servers (Tolly, Bruno, and Montoya. 2006). Various companies are implementing Virtual Desktop Infrastructure to provide centralized and controlled access to the corporate desktop applications over Virtual Private Network (VPN) or in a browser. A similar setup could be used to provide access to each student to either one or multiple virtual machines (both server and workstation) running the required software in a 24X7 manner from on-campus and off-campus locations.

At the atomic level, the design and implementation of this setup can be further broken down to certain specific questions.

- a) Which software is the best choice to provide virtual servers? There are several vendors that provide virtualization software. These include MokaFive, VMware, Microsoft, XenSource, Virtual Iron, Parallels, and others. A detailed survey of the capabilities and offerings of these software packages would be needed. One should note though that these offerings and capabilities are a moving target.

- b) Hardware capabilities of individual machines to set up the environment. The specific question here is related to level of distribution of functionality between different machines with few powerful machines running more servers vs. more commodity machines running fewer servers. The first option reduces maintenance overhead while the second is more budget-friendly. Questions of backup and redundancy need to be addressed.
- c) Network capacity for off-campus access needs to be addressed since the current networking setup may pose a restriction. Subnetting the setup and having IP address-based flow control for increased bandwidth may be one of the possibilities explored.

INITIAL PROPOSED SETUP

To investigate the possible solutions to the problems proposed above, an initial setup is proposed. For purposes of brevity, the rationale for this setup is summarized here:

- a) Budget: Given the budget is a constraint either open source virtualization software and/or that which could be procured through existing academic alliance was obtained.
- b) Training: The students and faculty training material is available at a low cost for the options chosen. From a curriculum point of view, this makes training more cost-effective.
- c) Commodity Machines: To reduce budget and allow flexibility, commodity machines were used. The virtual machines were distributed amongst these machines. These machines would serve virtual servers as well as serve as a test bed for students to administer and maintain these virtual machines.
- d) Integration with Existing University Technology Platforms: The university infrastructure is predominantly based Microsoft unless dictated by the application requirements. Integration with this infrastructure can only be achieved if the proposed setup is predominantly based on Microsoft technologies. Some of the integration envisaged is a domain for the setup that trusts the university domain and hence can use resources like network accounts and passwords.

Proposes Setup Details

The proposed setup is detailed in Figure 1. As an initial setup that is experimental, the setup is isolated from the university network. Private class C addresses are assigned to each of the machines. All machines are on the same network segment. Any

internet connectivity needed is provisioned through Network Address Translation (NAT). Setup elements are listed below.

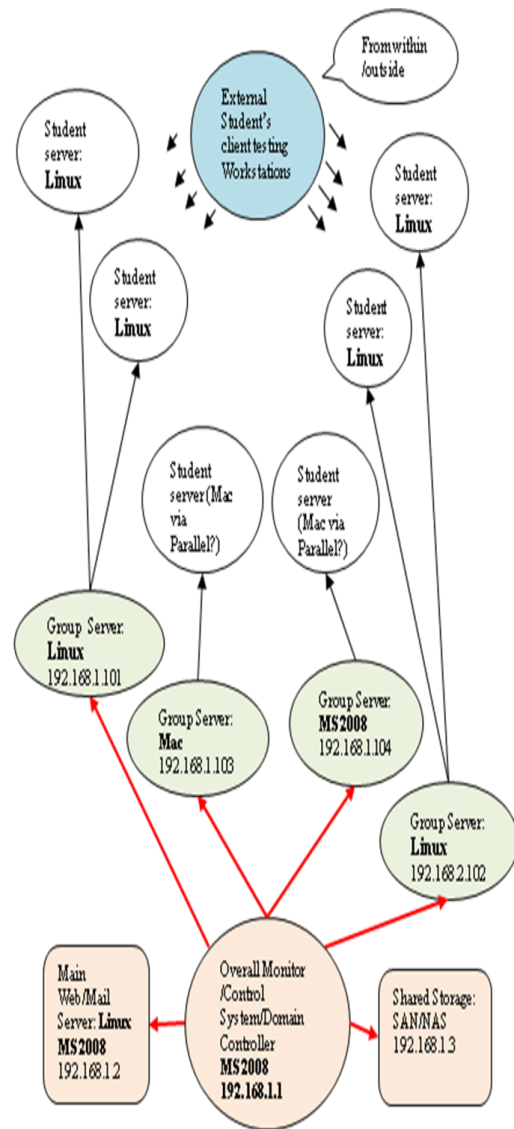


Figure 1: Proposed Virtualization Lab Setup

Students' Servers: Each student's server will consist of a light weight LINUX distribution initially (Ubuntu or PCLinux, etc.) in order to conserve resources on the physical server and in order to house as many virtual servers as possible on only one or two physical servers (if possible). Each student server is expected to be between 2GB and 10GB in their physical file-size on the hosting server. This is sufficient space for a practical workstation with all needed software for software testing and development and other practical office related

activities along with a small individual web server. In later stages, workstations and servers based on Microsoft technologies will be provisioned.

Group Servers: The group servers will house the software to control and monitor the virtual machines on student servers in a centralized fashion. The purpose of these servers is to provide virtual machine administration experience to students. Students will work in groups on these servers. This is where IT groups can demonstrate their ability to work, cooperate, and organize discussion and planning sessions regarding performance etc. Each group will consist of two to four students who will be assigned a group server which controls two to four students' servers. These group servers will be a mix of Linux and MS 2008 servers. Group servers may each be assigned a hypothetical department within a corporation and hence each student's server would be subject to a certain policy or regulation that the group should decide upon and implement. It should be clear that individual students' servers may very well be the hypothetical departments instead and the group servers would be assigned corporate entities such as News/media, Education, Business, etc.

Shared Storage Server: This may be a network attached storage (NAS) or a server with ample storage with either a RAID 5 or 6 configuration, which will primarily be provision storage to the network for snapshot backups and core machine images. Dynamic quota allocation will be used with some limitation and a tape backup would be provided.

Main Web/Mail Server: The main web server and email server will provide web services and mail services that will be accessible to the whole setup. The web server will display server uptime status and other statistics in a centralized fashion.

Main Control System: The main control system is a domain controller for the setup. This will run MS Server 2008 R2 and will hold account information, a DHCP server, and a gateway to the Internet. For integration purposes it is envisaged that it will trust the university domain (vice versa may be an issue due to security and other reasons) and possibly contain an active directory extract of user accounts from the main domain which may be refreshed on a periodic basis or a push basis.

STATUS OF THE PROPOSED LAB

At this stage, the domain controller, the web/mail server, one group server, and a student server have been procured. These are primarily existing machines which will be moved from current use to use in the lab. The lab is being setup in a networking lab and is isolated from the main university network. The installation and configuration of the domain server is underway. To enhance student learning and experience, student participation in the setup is being explored. The proposed mode of involvement is to offer independent studies to a group of identified students. This independent study will fulfill the requirement of an elective course in the curriculum.

CONCLUSION AND FUTURE DIRECTION

The undertaking and the setup proposed here is quite ambitious and there is an obvious resource constraint. The distributed nature of the proposed setup will allow for implementation in a phased fashion. A pilot setup will be implemented first. This will consist of only one group server and student server. After successful implementation of the pilot, requests for internal competitive grants will be filed along with request for additional resources from the university administration. The time line for the pilot implementation is set for Summer of 2011. While this may risk some technology obsolescence, the risk is not perceived to be too great. It is hoped that in a couple of years this lab will come to fruition and will enhance the curriculum and learning experience of the students enrolled in the MIS program.

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ALTERNATIVE WIND AND SOLAR ENERGY SUBSIDIES REQUIRED FOR PUBLIC ADOPTION

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ABSTRACT

The BP Gulf of Mexico drilling disaster of 2010 emphasized another of the negative consequences of the United States' dependence upon fossil fuels. In addition, there have been other disasters on land during the summer of 2010 while drilling in the Marcellus Shale region with significant environmental consequences further highlighting problems with our quest to expand fossil fuel production. While it is clear that we must rely upon fossil fuels in the short run, there is a growing consensus that alternative energy production will be of expanding importance. The current difficulty with much of the non-fossil fuel alternative energy options is its lack of economic viability without significant government subsidies. This study explores the forms of alternative energy adoption and their challenges and will compute the subsidies necessary to make the alternative energy options of wind and solar comparable with commercially produced electricity and explore the public benefits from that subsidy.

INTRODUCTION

The BP Gulf of Mexico oil drilling disaster on April 10, 2010 and the drilling Marcellus Shale drilling disasters in West Virginia and Pennsylvania in June of 2010¹, have increased the public interest in the promotion of non-fossil fuel alternative energy solutions to the nation's energy needs. "The disaster in the Gulf only underscores that even as we pursue domestic production to reduce our reliance on imported oil, our long-term security depends on the development of alternative sources of fuel and new transportation technologies," Obama said."² In addition to the problems within the United States, there are other catastrophes throughout the world such as seen in Nigeria that may dwarf the impact of those in this country.³

While there is some controversy regarding the impact of the use of fossil fuel on climate change, there is little argument that fossil fuel is a finite resource. Many argue that world-wide we have already reached the peak-oil point where production will begin to

decline.⁴ Clearly within one or two generations the demand for fossil fuel will exceed the production.⁵ When that happens, the pressure to convert to alternative energy resources will obviously accelerate.

Another driving force promoting the adoption of alternative energy implementation is the pressure for the United States to adhere to the Kyoto Protocol adopted in December 1997 with the adoption mechanisms agreed upon with the Marrakech Accord in 2001. While the Kyoto Protocol was signed by the President of the United States, it has not been ratified by the United States Senate. Consequently, the Protocol is not legally binding upon the United States. However, it remains a goal of the Presidency to achieve the goal of the treaty of reducing CO₂ emissions to seven percent below the 1990 level.⁶ Solar and wind alternative technologies can go a long way toward meeting that goal. For example, it is estimated that widespread adoption of residential solar hot water heating would reduce CO₂ levels enough to account for a quarter of the targeted reduction.

This paper will examine the costs to homeowners for acquiring solar and wind energy and compute the public and private subsidies required to make the cost of the systems compatible with electrical energy provided through power grid connections. This paper

¹ "Accidents bring calls to suspend shale drilling", Tuesday, June 08, 2010, By Don Hopey, Pittsburgh Post-Gazette, <http://www.post-gazette.com/pg/10159/1063980-455.stm#ixzz11iKiut7w>

² "Amid Focus On Spill, Obama Touts Alternative Energy", by Scott Horsley, May 26, 2010, NPR, <http://www.npr.org/templates/story/story.php?storyId=127122705>

³ "Nigeria's agony dwarfs the Gulf oil spill. The US and Europe ignore it" by John Vidal, guardian.co.uk, *The Observer*, <http://www.guardian.co.uk/world/2010/may/30/oil-spills-nigeria-niger-delta-shell>

⁴ Hubbert, Marion King (June 1956). "Nuclear Energy and the Fossil Fuels 'Drilling and Production Practice'" (PDF). Spring Meeting of the Southern District. *Division of Production. American Petroleum Institute. San Antonio, Texas: Shell Development Company*. pp. 22–27. Retrieved 2008-04-18.

⁵ Gwyn, Richard (2004-01-28). "Demand for Oil Outstripping Supply". *Toronto Star*.

⁶ http://unfccc.int/kyoto_protocol/items/2830.php

will also estimate the public benefits to the taxpayer for providing homeowners those subsidies.

OVERVIEW OF SOLAR AND WIND TECHNOLOGIES

Wind

Wind Power is results from the indirect use of solar power. The maximum amount of power or kinetic energy (KE) that may be harnessed from any particular wind is approximated by the following formula:

$$KE = .61 \times V^3$$

Where V = the Velocity of the Wind

Consequently the amount of energy that may be harnessed by the wind goes up by a factor of eight when the velocity of the wind doubles. However, the most efficient windmills are unable to harness all of the kinetic energy of the wind. In practice, windmills are able to only harness from about 16% to 46% of that energy⁷ depending upon the number of blades and blade types. To further complicate the analysis of wind power, the larger the number of blades, the more raw power that may be harnessed. However electrical generation from that raw power requires a higher blade tip to wind speed ration that may be achieved only with fewer blades. Thus water pumping from wind power works well with larger number of blades while making electrical power works better with only two or three blades.

Another complicating factor for the production of electricity from wind power is the height of the bottom of the blades above any obstruction such as a home or trees. This height should exceed at least ten feet above the obstruction or there will be a significant loss in the efficiency of the wind turbine due to turbulence from the obstruction. To add to the height issue, the higher above the obstruction the greater the wind speed. Wind speeds would typically double by increasing the tower height from 30' to 120'. Referring back to the power formula above that would result in eight times the power output.

Solar

Direct use of the sun's radiating energy to the earth takes four possible forms. First is that energy to provide light during the day. Second is the direct transfer of that radiant energy to heat water. The third

is the use of that energy to heat the interior of the home. Finally, is the use of that energy to produce electrical power.

Solar Lighting: Most homes use at least some amount of natural lighting through the windows. However, often the lighting is muted by the use of window treatments such as tented windows, draperies, and blinds and then the light is supplemented by electrical lights. Another application of solar lighting is the use of skylights and solar tubes that bring indirect sunlight directly into the ceiling.⁸ Outwardly it appears somewhat like an electrical light but it requires no power to operate. On a sunny day it will bring in more than adequate lumens into the room.

Solar lighting has only moderate energy savings. In a study for the California Energy Commission, the Heschong Mahone Group estimated that the energy savings about \$.05 per square foot for office space based upon 2003 electric utility rates.⁹ This would be an upward estimate for residential use. However, researchers have found that there are other significant benefits from solar lighting including health benefits as well as productivity benefits.¹⁰ In similar studies, sunlight was found to improve worker health, improve worker productivity, increase retail sales in a retail environment, improve student health¹¹, and dramatically increase student learning.¹² Recent advances in florescent lighting may provide similar benefits.

Solar Hot Water. In an average home, hot water heating accounts for 12% of the energy use of the

⁸ Skylights have more heat loss than solar tubes due to the increased surface area of skylights.

⁹ Heschong Mahone Group, *Windows and Offices: A Study of Office Worker Performance and the Indoor Environment* Public Interest Energy Research, California Energy Commission, 2003.

¹⁰ Op. Cit.

¹¹ W. E. Hathaway, J. A. Hargreaves, G. W. Thompson, and D. Novitsky, "A Study Into the Effects of Light on Children of Elementary School Age-A Case of Daylight Robbery," (Edmonton, Alberta, Canada: Alberta Education, 1992)

¹² Heschong Mahone Group, *Windows and Classrooms: A study of student performance and the indoor environment*, Public Interest Energy Research, California Energy Commission, 2003.

⁷ R. Wilson and P. Lissaman, *Applied Aerodynamics of Wind Powered Machines*, Oregon State University.

home.¹³ Solar hot water heating can dramatically reduce the energy required for hot water heating in just about any climate in the continental United States.¹⁴ The United States Department of Energy estimates the average energy savings from solar water heating is 50% to 80%.¹⁵ Solar hot water heating systems for climates where freezing temperatures are seen require a non-freezing heat transfer liquid and a heat exchanger.

Solar Heating. Solar heating may be either an active system where solar heat panels are used to heat liquid in a storage tank that is most commonly used to heat a radiant heat system. Passive solar heating is also another popular form of solar heating. Passive solar systems take advantage of southern facing windows that create greenhouse heating of an absorber surface of a thermal mass. Passive solar systems take advantage of overhangs over southern facing windows that shade the windows during the summer where the solar angle is great and allow the sun to penetrate the window during the winter when the solar angle is lower.

COSTS AND BENEFITS OF DISTRIBUTED DELIVERY

In 2003, a cascading blackout resulted in a massive loss of power for about 50 million people in the United States and Canada.¹⁶ This event exposed the vulnerability of the power grid to catastrophic failure and the weakness of a centralized power delivery system. Centralized power delivery systems have significant cost advantages from economies of scale as well as normal reliability since minor outages can usually be compensated for by rerouting power from other grids.

¹³ 2007 *Buildings Energy Data Book*, Table 4.2.1., 2005 energy cost data.

¹⁴

http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=12850

¹⁵

http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=12860

¹⁶ "THE GREAT 2003 NORTH AMERICA BLACKOUT," CBS NEWS, BROADCAST DATE: AUG. 14, 2003
<HTTP://ARCHIVES.CBC.CA/SCIENCE TECHNOLOGY/ENERGY PRODUCTION/CLIPS/13545/>

Distributive delivery systems where the homeowner generates solar and wind power are less vulnerable to widespread power outages since the power is generated on site. In distributive delivery systems the on-site system can be connected to batteries to provide power when wind and solar power is inadequate for the instantaneous demand. The systems may also be able to be connected to the power grid for reserve power as well. In areas that have net metering, the power grid becomes a storage device in addition to or in lieu of batteries. A grid-connected system may reduce the amount of battery storage necessary for the homeowner. For example, a completely off-grid home power system may want to have many hours or even days of reserve battery power, depending upon how likely would the system be to be unable to generate sufficient power. However, if it is connected to the power grid, then the reserve battery power need to be only enough to sustain the household during any common brown or blackouts.

ELECTRICAL SYSTEM COSTS AND UTILITY SAVINGS

To select a solar and/or wind system for an average home is not an easy task. For purposes of this study two systems will be examined. First, a Photovoltaic (PV) system optimized for Central Florida will be explored. Second, a hybrid Wind-PV system for Clarion, Pennsylvania will be used. For the Northern climates, a hybrid system will be required. During the winter months, the amount of solar electricity that can be generated is limited due to the snow and cloud cover. However, in those same areas, the wind is much higher. In the summertime, the wind is significantly reduced but the PV array can produce at near maximum. Both systems will have an appropriate battery storage system to provide sufficient power during periods when the sun is not shining and enough reserve capacity to provide power for 48 hours. Both systems will be grid connected and will be able to sell their power back to the utility company. Both systems assume a monthly power consumption of 1000 KW¹⁷. Reserve battery power was estimated to provide four days of power using only the batteries. Below in Table 1 are the

¹⁷

http://www.eia.doe.gov/emeu/repse/enduse/er01_us.html puts use of 10,654 kW-hrs/year per household "Electrical Energy." The New Book of Popular Science. 2000 edition. Grolier Incorporated, 1998.

costs of complete systems sized to provide 1000 KW average year round power.¹⁸

Table 1
Total Costs of Systems

	FLORIDA	PENNSYLVANIA
PV Array	\$ 22,821.91	\$ 26,510.91
Wind Turbine	\$0.00	\$8,000.00
Installation	\$ 5,878.89	\$ 10,162.60
Total	\$ 28,700.80	\$ 44,673.51

The wind turbine production for the Pennsylvania system was estimated assuming an average annual wind speed of 9 MPH. For comparison purposes with locations with more wind, the system prices estimated in the Table 2 below for an average wind speed of 12 MPH and 15 MPH:

Table 2
PA System Costs in Higher Wind Areas

	12 MPH	15 MPH
PV Array	\$ 22,558.41	\$ 20,713.91
Wind Turbine	\$ 8,000.00	\$ 8,000.00
Installation	\$ 8,130.16	\$ 6,859.84
Total	\$ 38,688.57	\$ 35,573.75

¹⁸ These costs were estimated using prices found from Sun Electronics out of Miami Florida on October 17, 2010 (<http://sunelec.com/>). The system priced was a complete Grid-tie system using the suggested configuration and hardware substituting the proper number of panels for the given power requirements and using 170 watt PV panels. The wind turbine selected was a Skystream 3.7 2.4 KW system and pole. The PV panel requirements were estimated by calculating the number of panels needed to produce the required average output given an average solar day of 5.67 for Tampa, Florida and 3.28 for Clarion, Pennsylvania. The inverter loss was 5%. The power generated by the wind turbine was estimated assuming an average annual wind speed of 9 MPH.

To compute the utility savings from the alternative energy electrical systems above, the following assumptions were made. First, since both Florida and Pennsylvania rates will be unregulated by next year, the utility rates were estimated assuming no change in rates, a 3% average annual increase, and a 5% annual increase in rates. The utility rates have been unregulated for several years in Florida. The average annual rate of increase over the last four years has been 4% in Florida. Thus, 3% and 5% rates of increase were plausible. Finally a 5% discount rate was chosen since that is an average mortgage rate available for financing. The savings were estimated over the average 25 year life of the system. The present values of the savings are summarized below in Table 3:

Table 3
Present Values of Savings

% INCREASE	FLORIDA	PENNSYLVANIA
0%	\$21,773.45	\$15,711.98
3%	\$29,484.16	\$21,276.12
5%	\$36,782.86	\$26,542.95

Net Cost of Systems

The net cost¹⁹ of the electrical systems for a homeowner consuming an average of 1000KW of power per month is shown below in Table 4 with the same assumptions on annual utility price increases:

Table 4
Net Lifetime Cost of Systems

% INCREASE	FLORIDA	PENNSYLVANIA
0%	\$6,927.35	\$28,961.53
3%	(\$783.36)	\$23,397.39
5%	(\$8,082.06)	\$18,130.56

Upon examination of the above table, it would pay people in Florida to adopt the solar panel technology

¹⁹ The net costs of the systems were computed by subtracting the costs in Table 1 from the savings in Table 3.

without any state or federal subsidy. In the Pennsylvania case, public subsidies are definitely needed.

ENERGY SUBSIDIES

Currently there are state and local energy subsidies available in Pennsylvania. In addition, there are Solar Renewable Energy Credits that may be sold to the utility companies. Currently the Federal tax credit on both systems is 30%. For the State of Florida offers a \$4 per watt rebate on solar systems.²⁰ The State of Pennsylvania offers a \$1.25 per watt grant. The prices vary for the sale of the Solar Renewable Energy Credit but at least one company advertises the purchase of those credits for \$1.15 per watt.²¹ These credits, grants, and rebates lower the initial out of pocket cost of the Florida system to (\$3,425.02). *The net effect is to actually pay the homeowner to install the system without the consideration of the future value of the energy savings from Table 3 assuming that the state rebates are paid.* The Pennsylvania net cost of the system is reduced to \$11,759.26. The Pennsylvania cost of \$11,759.26 does not include any financing cost or any opportunity cost to the homeowner for the purchase of the system. Financing cost and opportunity costs for the Florida homeowner are not relevant since the system pays for itself initially. After computing the value of the savings on utility bills, the net costs for the two systems are reduced to the following as seen in Table 5:

Table 5
Net Costs after Energy Subsidies

% INCREASE	FLORIDA	PENNSYLVANIA
0%	(\$25,198.47)	(\$3,952.72)
3%	(\$32,909.18)	(\$9,516.86)
5%	(\$40,207.88)	(\$14,783.69)

²⁰ This rebate program has been seriously underfunded by the Florida State Legislature. However, to date, the State has backfilled the budget from Federal Stimulus money and still paid the rebate. With the potential for the stimulus money ending, this rebate is in question.

²¹ From calculator estimates from company web site: <http://www.astrumsolar.com/calculator/estimate/41611/baa3bfb720>

Given the possibility that the Florida rebate program will end and the State of Florida defunding the program, the Florida costs will then be as follows:

Table 6
**Net Costs of Florida Systems
without State Subsidy**

% increase	Florida
0%	(\$1,682.89)
3%	(\$9,393.60)
5%	(\$16,692.30)

Given that in both cases, the existing subsidies should be sufficient to encourage widespread adoption of alternative energy, the question becomes, "Why has the public not been vigorously adopting the technology?" Is this an educational/marketing problem or is it due to other pragmatic challenges that impede adoption?

PRAGMATIC CHALLENGES TO WIDESPREAD ADOPTION

Zoning and Building Codes

One challenge to widespread adoption of alternative energy such as wind and solar electric and heating are zoning and building code restriction. For wind power, the efficiency of the wind turbine is significantly influenced by the height of the turbine tower. Clearly the tower height should not be so great as to fall upon the neighbor's property or public right-of-way should the tower fail. Likewise, the tower height should not interfere with aviation. However, many zoning and building codes in urban areas restrict the tower height to a less than optimal height or preclude the erection of the towers completely. In a similar vein, there are some communities that restrict or preclude the placement of solar panels for esthetic reasons. There is some hope for property owners in this situation from new products that integrate the solar cells into the building windows²² and shingles.²³ In addition, thin film solar

²² http://news.cnet.com/8301-11128_3-10235480-54.html

²³ <http://ezinearticles.com/?Solar-Cell-Roofing---Energy-Producing-Shingles-That-Look-Like-A-Normal-Roof&id=833973>

panels may be applied directly to metal roofs²⁴ in communities that allow metal roofing.

Site Issues

Vegetation. There is a natural conflict between tall trees and the use of solar and wind. The esthetic and natural warming and cooling benefit of trees surrounding a home have long been extolled. However, those same benefits impair the use of solar and wind technologies. Tower heights should extend 20-30 feet above the tallest trees near the tower. Tall trees shade the solar panels limiting their efficiency. In addition, falling leaves can fall on the panels and further limit the panels efficiency. In Florida, the rash of damaging hurricanes has made some homeowners fearful of having tall trees near the building. In communities that will issue tree cutting permits, some homeowners have removed the trees opening up the opportunity for wind and solar.

Site Orientation. The ideal location for solar is a southern facing roof expanse. In particular, a southern facing roof at the rear of the home is preferred due to esthetic reasons. Homes that lack a southern facing roof are forced to place the panels on either east or west facing roofs. Alternatively, the homeowner could, in communities that would allow it, place the panels on a separately erected structure at both and added economic and esthetic cost. For wind turbines, site placement is also important. Tall buildings and trees can block the wind from a site. In addition, properties in a dip or gully may also suffer from sufficient wind potential. Paradoxically, in some urban areas, the tall buildings sometimes create a wind tunnel between the buildings that offer an increased opportunity for wind generation.

Size Limitations. The major issue of site size limitations impact the use of wind power. Wind turbine towers should not be so tall that, in the event of a tower failure, the tower would fall outside the property owner's property. Consequently this usually limits wind turbines to properties of at least a half of an acre.

State Subsidies

The final pragmatic challenges to widespread adoption of alternative energy opportunities are the existence of state subsidies. On the surface state subsidies do increase the demand for alternative energy. The difficulty exists in that some states have much larger subsidies than other states as seen in the example of the state subsidy differences between

Florida and Pennsylvania. This creates market anomalies where some homeowners wishing to adopt alternative energy systems end up having to pay a premium because the supplier has a reduced incentive to negotiate a lower price. This anomaly will continue to exist until there is sufficient supply to meet the potential demand. For example, just prior and during the Governor Gray Davis administration, large state subsidy programs were implemented in California²⁵. These subsidies were in response to a serious lack of sufficient capacity for the electrical grid in that state that led to rolling blackouts in 2000 and 2001. Today these subsidy programs have resulted in California leading the nation with more than 666 megawatts of installed capacity²⁶. Unfortunately, these subsidies dramatically increased the demand for solar cells while the supply was limited. This resulted in significantly higher prices that limited adoption in other states with lesser subsidies. Fortunately, several initiatives²⁷ were begun by the Department of Energy to increase the supply of solar cells in this country. Those initiatives have proven successful with significant increases in production capacity occurring in 2008, 2009, and 2010²⁸. Additional supply is coming on line in 2011. As a result in these significant increases in supply, prices have fallen dramatically and in some cases as much as 50-75%²⁹. New developments in technology have offered a promise of even lower production costs. Oddly enough, there is still a pervasive "wisdom" that solar and wind technologies are not yet cost competitive^{30, 31}.

Initial upfront cost. Another difficulty inhibiting the widespread adoption of alternative energy is the

²⁵ <http://www.sunlightelectric.com/pvhistory.php>

²⁶ <http://www.gosolarcalifornia.com/>

²⁷ http://apps1.eere.energy.gov/news/news_detail.cfm/news_id=12000

²⁸ http://en.wikipedia.org/wiki/Solar_cell#Crystalline_silicon

²⁹ <http://www.earth-policy.org/index.php?/indicators/C47/>

³⁰ <http://www.sciencealert.com.au/opinions/20090202-18747.html>

³¹ <http://www.solarbuzz.com/StatsCosts.htm>

²⁴ <http://www.technologyreview.com/Energy/21365/>

high initial installation cost. While the present value analysis of system costs suggest that even with no increase in utility grid costs, the alternative energy systems are cost beneficial, the initial upfront costs appear to be a barrier. This barrier may well be because of the consumer's lack of information about the costs and benefits of an alternative energy system. It may be that the homeowner's expected tenure in the property does not seem to warrant the investment. The problem with this is that the homeowner is probably unaware of the impact on the value of the property that the alternative energy improvement brings^{32, 33}. The barrier may also simply be that the homeowner does not have the capital to invest. This barrier may create opportunities for businesses to up front fund the improvements in exchange for the tax credits, grants, and production credits.

THOUGHTS FOR THE FUTURE

The potential for alternative energy options to solve the world's dependence upon fossil fuels is huge. For example, if harnessed, enough sunlight hits 50% of the Gobi Desert in Africa to provide for the entire energy need of the world³⁴.

With the rapidly decreasing production costs of solar cell technologies, PV will soon (if it has not already) have a cost advantage over traditional grid provided generation. If homeowners were able to increase their alternative energy production on home bound systems, they may be soon able to drastically reduce even their fuel consumption for their cars. Hybrid automobile technologies are already available. Recent introductions of the Chevrolet Volt or the Nissan Leaf provide opportunities for homeowners to radically reduce their commuting costs. (Federal automotive requirements coming into effect in the near future will require that hybrid automobiles be able to be plugged in to recharge and operate for limited distance on battery power only. The homeowner may wish to increase the size of their system to provide additional power for the commute to work.) It may well be in the near future that America's dependence upon imported oil ends. Environmental benefits will be very significant as well.

³² Nevin, R. and G. Watson. "Evidence of Rational Market Valuations for Home Energy Efficiency." *The Appraisal Journal*. October 1998, 401-409.

³³ Nevin, R. and C. Bender, H. Gazan. "More Evidence of Rational Market Values for Home Energy Efficiency." *The Appraisal Journal*. October 1999, 454-460.

³⁴ Joshua Pearce, "Photovoltaics – A Path to Sustainable Futures", *Futures* 34(7), 663-674, 2002. http://www.pbs.org/wgbh/nova/teachers/programs/images/2102_gobi_1.jpg

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DO CLICKERS CLICK IN THE CLASSROOM?

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ABSTRACT

Classroom response systems (CRS) are interactive technologies that enable teachers to streamline administrative tasks, conduct real time assessments, and initiate conversations with students. A number of studies have examined student and faculty attitudes towards classroom response systems, and their impact on pedagogy. This research evaluates the impact of CRS technology on student learning outcomes through the use of a randomized experiment using four sections of Managerial Accounting over two semesters. Student Learning was measured using in-class and on-line quizzes, papers, mid-terms and final exams. The research finds no evidence that CRS technology improves student learning outcomes relative to the use of a low tech alternative.

INTRODUCTION

This study examines the impact of classroom response systems (CRS) on student learning outcomes in undergraduate Managerial Accounting classes. Randomized experiments were conducted over the course of two semesters, comparing learning outcomes between two treatments. One treatment involved the use of CRS to engage students and provide real time assessment of student learning. Students in this group used CRS to respond to lecture embedded concept check questions. The second treatment involved the use of a low-tech alternative, manually polling students with index cards, to solicit student responses to the same lecture embedded concept questions. The concept check questions consisted of conceptual and quantitative multiple choice questions embedded into PowerPoint lecture slides. The questions were designed to encourage student engagement throughout the class, and provide students and the lecturer with real-time feedback on student comprehension.

Prior research related to CRS falls into three broad categories. The first focuses on the need to adapt classroom pedagogy to a more synchronous mode to fully realize the benefits of CRS technology. The second broad class of research measures student perceptions and attitudes towards the use of CRS technology. The third line of research attempts to assess the impact of CRS technology on student learning outcomes. This study builds the third line of assessment research, but differs in an important respect. It attempts to separate the impact of CRS technology from the impact of CRS related pedagogy, which generally provides students with more immediate feedback, and involves greater student engagement than traditional classroom pedagogy (Johnson, 2004).

CRS Pedagogy

One of the biggest barriers to the successful adoption of CRS may be that faculty must learn new classroom

skills and adjust their teaching methods, and students must adapt to active learning (Johnson, 2004). CRS technology engages students in active learning, and upends traditional asynchronous teaching model in which information flows in a single direction from faculty to students, and feedback is obtained via exams, quizzes, and homework assignments. With CRS, the controlled asynchronous lecture environment is replaced with a synchronous classroom model in which faculty use CRS to gather real-time data to evaluate student beliefs, attitudes, and understanding. This synchronous mode requires greater faculty flexibility, responsiveness and creativity. To realize the full benefits of a CRS faculty must allow students to shape classroom discussions and be willing to adapt lesson plans on the fly in response to student feedback (Birdsall, 2002). Significant increases in student understanding of concepts in science courses were shown to occur when an interactive pedagogy was employed (Cooper, 1995; Hake 1998).

Beatty shares insights gained from CRS teaching and mentoring in physics courses (Beatty, 2004; Beatty, 2006). CRS should be used for more than administering endless series of quizzes. The effective use of CRS engages students both inside and outside of the classroom. Brief quizzes at the start of class can allow faculty to push descriptive material out of the classroom and encourage students to come to class better prepared. CRS-based pedagogy leaves more class time for exploring core concepts and developing deeper levels of understanding. This transition however requires a shift in the focus of classroom planning from lecture note presentation to CRS question design. Beatty argues that apart from brief content based assessments; effective CRS questions should be limited to those that have clearly identifiable pedagogical goals such as:

- Making students aware of their own and other's perceptions

- Discovering points of confusion or misconception
- Distinguishing between related concepts
- Realizing parallels or connections between different ideas
- Elaborating on the understanding of a concept
- Exploring the implications of an idea in a new or extended context

Shifting from simple computational or fact based questions to ones that require deeper understanding also often requires adjustments on the part of students. Students may perceive questions that involve ambiguities as being unfair or trick questions. Thus it is important to communicate with students the purpose of the questions (learning), and to balance correct answers with participation when evaluating CRS results.

Student Attitudes and Perceptions

A wide variety of research provides evidence of positive student attitudes towards the use of CRS technology. Edmonds (2006) use CRS as a bonus system in a managerial accounting class, and finds positive student responses related to attendance, classroom participation and engagement. In an attitudinal survey of students in a real estate course, Blazer (2007) find that more than 60% of students agree with the statements that CRS added value to their learning experience, encouraged them to pay attention, and increased classroom participation. On-the-other-hand, the CRS had little impact on their effort outside of the classroom. Sixty-seven percent of the students reported no change in how they prepared outside of class, and only 22% agreed with the statement that CRS motivated them to keep current with readings and homework. Chan (2009) finds students have positive attitudes regarding the impact of CRS on their learning, learning environment, and course performance in introductory managerial finance courses. Barnett (2006) examines student attitudes towards the use of CRS in large section biology and physics courses, and finds the majority of students report that CRS increased interactivity and feedback, and they had an overall favorable experience.

CRS Technology and Student Learning Outcomes

Chan (2009) compares learning outcomes across two managerial finance classes. The classes followed a

traditional lecture format, and one class used CRS to administer short announced quizzes at the beginning of class, while the other administered the same quiz but without the use of CRS. Quiz scores accounted for roughly 8% of the student's final grade in the CRS class, while quiz grades in the non-clicker class were based solely on participation. A regression model was estimated using performance on three exams to measure student learning. After controlling for GPA, prerequisite course grades, major, class standing, sex, and employment hours, they find no statistically significant relations between the use of CRS and learning outcomes. The major limitation of the study is that CRS was simply used to shorten the feedback interval on a series of multiple choice quizzes. CRS was not integrated into the course with a change in pedagogy.

Matus (2010) compares learning outcomes across three sections of a senior level capstone business strategy course, an online section and two traditional lecture classes. Identical multiple choice quizzes were administered in each class. Students in the online class were not provided direct feedback, only scores, but have three tries at each quiz. Answers in the non-CRS traditional lecture format class were solicited orally, and using CRS in the remaining class. The study found no significant difference in learning outcomes as measured by performance on the ETS Business Field Exam. The study's major limitation was that CRS was simply used to administer a series of multiple choice quizzes, it was not integrated into the course with a change in pedagogy.

Yourstone (2008) uses a randomized block experiment to evaluate the impact of CRS technology on student learning across 4 sections of undergraduate Operation Management classes. They find evidence that the immediate feedback provided by CRS technology, on in-class quizzes, led to improved learning outcomes. Learning outcomes were measured by differences in test scores on midterm and final exams. A limitation is that the authors could not rule out a possible interaction between instructors and the CRS technology. In addition, CRS was used only to administer multiple choice quizzes, but was not used to effect a change in pedagogy. In fact, an effort was made to standardize lecture materials between classes and instructors.

THE STUDY

The focus of the study is on the impact of CRS technology on student learning outcomes using CRS technology relative to student learning outcomes

relative to the use of low tech manual polling of student responses. Prior research suggests that increased student participation and feedback improve student learning, and supports a link between the use of CRS and improved student learning outcomes. However, there is no evidence that improved learning outcomes are the result of CRS technology. The improved student learning may simply be related to a pedagogy that increases student participation and provides students with more immediate feedback. This study differs from previous studies in that it attempts to separate the impact of CRS technology from the impact of CRS related pedagogy that provides students with more immediate feedback than traditional pedagogy. Specifically this paper employs randomized experiments to compare student learning outcomes when using CRS technology with learning outcomes when using a low-tech alternative of manually polling student responses with index cards.

Hypothesis

To test the link between CRS technology and student learning outcomes the following hypothesis is tested:

H₀: Student learning, as measured by performance on mid-term and final exams, will be higher using CRS technology than when using a low-tech alternative of manual polling with index cards.

METHODOLOGY

The study was conducted as two separate experiments using four sections of Managerial Accounting over two semesters. In the first semester (Fall 2007) CRS was used in two sections on an alternating chapter by chapter basis. In each section student responses to lecture embedded concept check questions were polled using either CRS technology or manually through the use of 3x5 index cards. The concept check questions were embedded throughout each chapter's PowerPoint slideshow presentation. The treatment (CRS or index cards) applied to each section was alternated throughout the semester. Student learning associated with each treatment was measured by performance on mid-term and final exams. In the second semester (Spring 2008) CRS was used as an exclusive treatment in one section, and index cards were used as an exclusive treatment in the second section. Student learning was measured by performance on quizzes, Excel assignments, a paper, and exams.

Fall 2007

The two fall semester classes met twice a week for 75 minutes over a 15 week semester. All students were

required to purchase CRS clickers. Daily attendance was taken at the start of each class using CRS, and CRS was used on an alternating (chapter by chapter) basis to evaluate student performance on lecture embedded concept check questions. Classroom participation accounted for 10% of the student's final grade, and was determined on the basis of classroom attendance (25%), and performance on concept check questions (75%). Student performance on concept check questions was not tracked (recorded) on chapters using index cards as a treatment, and thus not included in the calculation of classroom participation grades. The PowerPoint slides for each chapter had an average of 12 multiple-choice concept check questions, with a roughly even split between quantitative and qualitative question. Students did not receive any points if they failed to bring their CRS clicker to class.

To provide students with an opportunity to learn how to use the CRS clickers, CRS was used in both the 8:00 and 9:30 sections for the first chapter. For successive chapters CRS was used as a treatment on an alternating basis. The 8:00 section received the CRS treatment for chapters 2, 4, 6, 9, and 11. While the 9:30 section received the CRS treatment for chapters 3, 5, 8, 10, and 12.¹ Students were provided with 3x5 index cards, and asked to prepare five responses (A-E) for use during non-CRS treatment chapters. The same pedagogy, instructional materials, problems, quizzes, and exams were used in each class. The blocking variable was the use of either CRS technology or manual index cards to poll student responses to concept check questions.

How concept check questions and CRS were used:

Concept check questions for each chapter were displayed via PowerPoint slides and students were asked to respond using either their CRS clickers or index cards. The questions were embedded throughout the lecture slides. The time allotted to

¹ Neither treatment (CRS or index cards) was employed for chapter 7 on budgeting. The material was covered using a hands-on multi-step demonstration problem, an approach that did not lend itself to the use of PowerPoint slides with embedded concept check questions. The use of a single treatment (index cards) was employed in both sections for chapter 13 on cash flow statements. The use of identical treatments (CRS in chapter 1 and index cards in chapter 13) provides additional evidence on the relative impact of CRS verse manual polling on student learning.

each question varied depending on the type and difficulty of the question. Generally students were provided 1 minute for conceptual questions, and 2 minutes for questions requiring computations. The allotted time was adjusted to ensure most students had an opportunity to respond. When CRS was employed the number responses was displayed on the projection screen, and after the polling a histogram summarizing student responses and providing the correct answer was displayed. The amount of time spent reviewing each question depended on how many students missed the question and the variability of student responses. A similar process was followed when index cards were employed to poll student responses. The classes were small enough (30 -35 students) to ensure full participation.

Final grades for the course were calculated on the basis of classroom participation (10%), discussion board postings (7.5%), on-line quizzes (15%), Excel Homework (12.5%), a paper (10%), two mid-term exams (25%), and a final exam (20%). The mid-term and final exam included both conceptual and quantitative questions, and the format consisted of multiple choice questions and problems. After each exam was administered exam questions were categorized by chapter. The first mid-term covered chapters 1-6, the second mid-term covered chapters 1-10 with an emphasis on chapters 7-10, and the final exam was cumulative covering chapters 1-13.

Spring 2008

The two spring semester sections were night classes that met once a week (Monday or Wednesday evening) for 3 hours over a 15 week semester. Students in the Monday night class were required to purchase and use CRS clickers. CRS was used throughout the semester to poll student responses to the lecture embedded concept check questions, and to administer weekly chapter quizzes. The weekly quizzes accounted for 10% of the student's final grade. CRS was not used in the Wednesday night class. Students did not receive any points if they failed to bring their CRS clicker to class. CRS was not used in the Wednesday night class. Low-tech index cards were used to poll student responses to the lecture embedded concept check questions, and weekly chapter quizzes were paper based. The PowerPoint slides for each chapter had an average of 12 multiple-choice concept check questions, with a roughly even split between quantitative and qualitative question. The same pedagogy, instructional materials, problems, quizzes, and exams

were used in each class. The treatment was the use of CRS technology verse index cards.

Final grades for the course were calculated on the basis of chapter quizzes (10%), on-line quizzes (8%), Excel homework (12%), a paper (7.5%), two mid-term exams (35%), and a final exam (27.5%). The mid-term and final exam included both conceptual and quantitative questions, and the format consisted of multiple choice questions and problems. The first mid-term covered chapters 1-6, the second mid-term covered chapters 1-10 with an emphasis on chapters 7-10, and the final exam was cumulative covering chapters 1-13.

RESULTS

To test the hypothesis that student learning is higher when using CRS technology compared to a low-tech alternative of manual polling, student learning outcomes between the two treatments are compared. For the fall semester sections student performance on mid-term and final exams were compared for each treatment on a chapter by chapter, and an overall basis. For the spring semester sections student performance between sections was compared on each component of their course grade and on the basis of their final course grade. All comparisons are made on a non-curved percentage basis.

Fall Semester

The fall semester sections had initial enrollments of 29 students in the 8:00 class and 35 students in the 9:30 class. After excluding students that officially dropped or withdrew from the course, or did not take the final exam, the final sample sizes were 17 and 24 students respectively. To evaluate differences in student learning outcomes between the CRS and index card treatments, the midterm and final exam questions were grouped by chapter, and percentage means were compared between groups on a chapter by chapter basis. In addition, for each section the chapter scores were grouped by the type of treatment applied, to form composite CRS scores and composite index card scores. The mean composite scores for each treatment were then compared.

The result of a one-way ANOVA comparing average exam performance between treatments for each chapter and student appears in Table-1. The average exam score for each chapter for the CRS group was 58.5%, compared to 54.1% for the index card treatment, with a p-value of .110.

Table-1 One-Way ANOVA
Difference in Avg. Percentage Test Scores by Chapter

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Avg.</i>	<i>Variance</i>
CRS	205	119.99	0.585	0.0751
Index Cards	205	110.81	0.541	0.086

ANOVA		P-value = .110		
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>
Between Groups	0.205	1	0.205	2.563
Within Groups	<u>32.681</u>	<u>408</u>	0.080	
Total	32.887	409		

Table-2 presents mean exam scores by chapter for each treatment and the associated p-values for a one tailed tests of the difference in means. For 7 of the 10 chapters the mean exam scores for the CRS treatment were higher than those receiving the index card treatment. However, none of the chapter by chapter differences were significant.

Table-2
Chapter by Chapter Performance for
CRS vs. Index Card Treatments
as Measured by Average Exam Performance

Chapter	CRS	Index Card	Difference in Means	p-value*
2	58.6%	51.2%	7.4%	15.0%
3	65.0%	59.5%	5.5%	23.2%
4	62.7%	66.3%	-3.6%	39.3%
5	58.9%	68.2%	-9.3%	8.6%
6	62.9%	60.0%	2.9%	29.8%
8	55.7%	56.1%	-0.4%	47.4%
9	43.0%	41.2%	1.8%	36.8%
10	71.6%	69.7%	1.9%	36.3%
11	37.3%	29.2%	8.1%	19.6%
12	61.5%	48.5%	12.9%	17.3%

* One tailed t-test, assuming equal variances

A two-way ANOVA, comparing the average exam performance between the two treatments, and using chapters as a blocking variable appears in Table-3. After controlling for chapter differences the but the

difference was not statistically different with a p-value of 32.3%.

Table-3 Two-Way ANOVA
Difference in Avg. Percentage Test Scores by Chapter

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Avg.</i>	<i>Var.</i>
CRS	10	5.851	.585	0.011
Index Cards	10	5.409	0.541	0.016

ANOVA		P-value = .0004			
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>
Chapters	0.225	9	0.025	12.56	.0004
Treat.	0.004	1	0.004	1.87	.2047
Error	<u>0.018</u>	<u>2</u>	0.002		
Total	0.247	19			

Spring Semester

The spring semester sections had initial enrollments of 28 students in the Monday night class and 31 students in the Wednesday night class. After excluding students that officially dropped or withdrew from the course, or did not take the final exam, the final sample sizes were 15 and 19 students respectively. To evaluate differences in student learning outcomes between the CRS and index card treatments the performance of the Monday night and Wednesday night classes are compared.

The result of a one-way ANOVA comparing average total course grade (percentage) between treatments appears in Table-4.

Table-4 One-Way ANOVA
Difference in Avg. Percentage course Grades

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Avg.</i>	<i>Variance</i>
CRS	15	10.55	0.703	0.0250
Index Cards	19	13.341	0.702	0.0078

ANOVA		P-value = .978		
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>
Between Groups	0.000	1	0.000	0.0008
Within Groups	<u>32.681</u>	<u>408</u>	0.080	
Total	32.887	409		

The mean overall course grades were nearly identical between treatments, a 70.3% for Monday night students (CRS), and 70.2% for Wednesday night students (index-cards).

Table-5 compares each of the components of a student's final grade, and reports the associated p-values for one-tailed t-tests.

Table-5
A Comparison of Section Performance
as Measured by Course Requirements

	CRS	Index-Card	Difference in Means	P-value*
Quizzes	46.3%	45.0%	1.3%	39.9%
Excel HW	79.3%	84.4%	-5.1%	20.7%
Pageout	63.3%	64.6%	-1.3%	42.0%
Exam 1	75.3%	70.0%	5.3%	21.6%
Exam 2	70.2%	74.1%	-3.9%	24.7%
Final	71.6%	70.1%	1.5%	40.4%
Paper	81.2%	77.5%	3.8%	24.1%
Total	70.3%	70.2%	0.1%	49.0%

*One-tailed t-test of the difference in means.

Students in the Monday night section (which received the CRS treatment) scored higher on in-class quizzes, the 1st mid-term, final exam and paper, but none of the differences were statistically significant. Students in the Wednesday night section (which received the index-card treatment) scored higher on Pageout quizzes, the 2nd mid-term, and Excel homework, but again none of the differences were statistically significant.² Overall there was no statistically significant difference in performance between the two sections.

² Pageout is an on-line assessment tool offered by McGraw-Hill. No difference in performance on Pageout quizzes were expected as students were required to take the Pageout "pre-quizzes" prior to our covering a chapter in class. The pre-quizzes are intended to encourage students to read and prepare prior to attending class. The Excel homework consisted of self-correcting Excel worksheets keyed to end of chapter exercises and problems from the text.

CONCLUSION

This study through the use of a randomized block design experiment finds no statistically significant evidence to support the hypothesis that using CRS technology to poll student responses improves student learning outcomes relative to the use of index cards, a low-tech alternative. Prior research (Yourstone, 2008) found statistically significant evidence that CRS can have a positive impact on student learning as measured by test scores, but the study was unable to separate the impact of CRS technology from the pedagogy that accompanies its use. That is the impact of providing students with immediate feedback. This study isolates the impact of CRS technology on student learning from the impact of using a pedagogy that provides students with immediate feedback. It provides statistically significant evidence that the improvements in student learning associated with CRS are related to pedagogy rather than CRS technology. The same improvements in student learning outcomes can be achieved through the use of index cards, a low cost a low-tech alternative.

Despite the findings of this study, CRS can play an important roll in the classroom. It streamlines administrative tasks such as grading and taking attendance. Furthermore attitudinal surveys (Blazer, 2007; Edmonds 2006) provide evidence that students enjoy using CRS, perceive that it adds value to their educational experience, and recommend its continued use. Additionally the findings of this study are likely limited to small to medium sized classes. Visually polling student responses with index cards in large lecture halls would be impractical. Alternative technologies using laptops and cell phones for polling student responses are emerging and are areas for further research.

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ASSESSING THE EFFECTIVENESS OF A BUSINESS SIMULATION AS A CAPSTONE INTEGRATING TOOL - A PROGRESS REPORT

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ABSTRACT

In 2008 our undergraduate business program adopted a business simulation as a centerpiece in the capstone core course. This change was made to address data from assessment that indicated our graduating students needed a better understanding of the processes of business. Our graduates showed proficiency in their disciplines, but lacked an understanding of how functional areas work together to accomplish the overall objectives of the firm. After adoption, early results showed a significant improvement of student perceptions of this objective. After ten semesters, several key changes in content and assessment have been made, following student feedback in course evaluations. Students report a greater understanding of business, financial analysis, and perceived value for their future employment.

INTRODUCTION

Our undergraduate business program contains a discrete set of core courses all students must complete to provide them a common body of knowledge in the functional areas of business. These courses include introductory level offerings in marketing, management, finance, accounting, business law, information systems, and global business. Because the actual practice of business crosses these functional areas, our program contained a final core course, known as a capstone course that was intended to integrate the other functional courses to give students a better understanding of the way each discipline interacts with the others to accomplish the work of business. At our school, the management faculty had historically been assigned to this course, and strategic management was the integrating topic. This view from the highest levels of an organization provided students with an understanding of the strategic planning process, but lacked a focus on many of the business processes that make up the majority of work in a firm. Order fulfillment, procurement of materials, human and financial resources, new product development, and customer service are all critical to an enterprise' success (Spanyi, 2007). Our school adopted a business simulation as an integrating tool for the capstone course. Simulations have been used successfully for years in the business curriculum (Doyle & Brown, 2006; Faria, 1998). Simulations also help students develop and improve critical thinking and decision-making skills. They can provide a dynamic, competitive, and imperfect environment, typical of business situations. And experiential learning offers higher levels of student participation, and thereby higher levels of learning (Boyatzis, Cowen, & Kolb, 1995).

It was hoped that the use of such a program in our undergraduate capstone course would bring a better understanding to students of the processes found in

all business organizations. Expectations for students also included better performance of financial analysis and a positive experience in team-based decision-making. Use of a simulation as the centerpiece for the course also provided the opportunity to study student perceptions of the effects of an experiential learning based application versus the more traditional lecture-based capstone strategic management course. Other changes included opening the course to faculty from disciplines other than management.

A business simulation called "Capstone" provided by Capsim Management Simulations, Inc. of Northfield, IL was selected after a team of faculty reviewed various commercial offerings. Capstone offers a high-growth, closed industry environment. The simulation can be administered either individually, or as team-run companies. Decisions are required in each round (which represents a single year of operation) in many different areas of the firm, including R&D, marketing, production, finance, human resources, and total quality management (TQM). Capstone offers many training options for both faculty and students, it is widely used in business academia, it provides online and telephone support, and it's reasonably priced. This simulation is still in use in all sections of the course (CMI, 2008).

STUDENT FEEDBACK

Students have participated in a course evaluation at the end of each semester since the simulation was added. Respondents offer their impressions of course strengths, weaknesses, areas for improvement, and advice for students just beginning the course. Responses have been consistent over the period. Typical comments from student course evaluations include the following:

Strengths

Many of the student comments about the strengths of the course related to the integration of the functional

areas they'd studied. Comments also tended toward a feeling of confidence from gaining a better understanding of business and financial analysis. Here are some of those comments:

"...I feel more prepared and confident about the future than I ever have before."

"As sad as it is to say, I can honestly state this was the first class in a long time I actually enjoyed going to each day."

"This has been one of the most influential classes in my college career."

"[This course] brings together concepts from all business classes and shows the 'behind the scenes' of running a company."

"I will say this course is invaluable to the business curriculum and is a must-take... the capstone exercise makes all the previous courses more relevant and worthwhile as well."

"This course gave me a better understanding of how accounting, management, and finance come together."

"The strengths of this class were the simulation and the group experience that comes with the class... I just wish it was longer."

"One of the strengths of this class is that it is very hands on, unlike most classes..."

"In the beginning the course seemed overwhelming, then something began to happen. I found myself actually learning and interested in what was being taught in class."

"I think this course gives students their greatest opportunity to gain real-world experience in the classroom. I feel confident now in fields I didn't major in."

"After taking this course and effectively running a business for three months, I am much more confident in my overall knowledge as a business major."

Weaknesses

Most of the students' perceptions of course weaknesses related to the learning curve of the software. Here are some of those comments:

"I think if I'd known more about the program itself it would have helped me understand... quicker, and I would have been able to contribute more in the competition round."

"A weakness of this course is the simulation needs more explanation in the beginning."

"This class was a ton of work and demanded a lot of time and effort... the one thing the class lacked was proper training on how to accurately operate the Capstone game."

"I would add more instruction to the class so that students can grasp the concepts [of] this new software program..."

"Perhaps it could be set up somehow so for part of the semester students are running a service company."

KEEPING SCORE

One of the anticipated student benefits became apparent after only a few classes. In order to measure success, the students had to learn how to keep score in business. This provided a perfect atmosphere to re-introduce financial analysis, which most students hadn't studied since their sophomore accounting classes. Students were eager to understand their performance in relation to the other student-run companies. From the first day of class, performance in the simulation was only discussed in terms of financial results and ratios. The three key financial statements- the income statement, balance sheet, and cash-flow statement, became the scorecards as teams made their business decisions and analyzed results.

A module that included a refresher on interpreting these statements as well as a review of key financial ratios was added during the second semester after adoption. Included in this module was an exam to measure students' understanding and use of these critical business tools. By the end of the course, students from every major talked comfortably and confidently in terms of financial performance. A 'stockholder presentation' completes the cycle for teams in the competition round. Teams prepare a 15-minute review of performance over the eight-year cycle of the game.

THE LEARNING CURVE

Student comments in course evaluations were used to make changes to the course in both content and organization. It became obvious that students needed more time and instruction in the software itself if they were going to use it effectively. More class time at the beginning of the semester was devoted to demonstrations, rehearsals, and tutorials. Homework that required students to read material and respond to quizzes helped to insure students were learning the software quickly. Originally, the class was divided

into teams of five students at the beginning of the semester and these teams remained in place for the balance of the semester, through both practice and competition rounds. This organization was administratively efficient, but many students either chose to allow other teammates to make all the decisions, or were dominated by teammates who insisted on taking control. The result was many students who scored poorly on the final exam, which included running a simulation company through four business cycles. The organization of the practice rounds was changed to individual student-run companies. This had the effect of forcing each student to learn the software well enough to make all the decisions necessary for at least four rounds, and made for much stronger teams when the competition rounds began.

Another change that resulted from student input was the use of mulligans or do-overs in practice rounds. Initially limited to one or two per semester, eventually this morphed into unlimited repeats of practice decisions, with the positive result that students were much better prepared for the competition rounds, where mulligans are not used. Many students completed a full eight-round cycle in practice. Understanding the software is key to focusing on running the business in the competition rounds.

Smaller teams in the competition rounds have become the rule as well. Instead of five or six, team size is set at three students, with an occasional two-student team to balance the class roster. These smaller teams, made up of students who gained experience running individual companies in practice, are more collaborative and more likely to organize so there is little duplication of effort, making them more efficient. Teams that perform well know the software, take the time to scan the competition, and use all the information available to make informed decisions.

CONCLUSIONS

In the ten semesters since a business simulation was adopted for the capstone course in our undergraduate program, student feedback in course evaluations has been almost entirely positive and in some cases, enthusiastic. Students are required to do more work, teach themselves, work together, and dig into memory banks from classes long ago.

Students spend class time working on decisions that impact their multi-million dollar public firms, competing against both computer-run and classmate-run companies in high growth industries over an eight-year period. Teams decide on a strategy for their business. They make marketing decisions on the four P's: product, pricing, promotion, and place. They forecast revenue in multiple market segments. They need to manage a significant capital investment in plant and equipment to optimize capacity and automate to manage costs. Student-companies can spend money on TQM improvements to drive down labor, materials, and administrative costs, as well as reducing R&D cycle times. Teams learn to finance their spending with a balance of equity and debt, and learn to manage cash balances. By the end of the semester, every student is able to describe company performance in terms of financial statements and ratios.

Students report they are much more comfortable with their own understanding of business processes and financial analysis. Significantly, they report a more confident attitude as they approach interviews for jobs after graduation.

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PERSONAL CHEF SERVICES: A LUXURY FOR AMERICAN HOUSEHOLDS

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ABSTRACT

This paper provides insights into the business environment of the personal chef industry. It begins with a definition of the personal chef industry using information and data from two professional associations which support the industry in addition to a review of the literature and business news. It then estimates prospects for growth and proposes likely target markets for personal chef businesses. The research shows that the size of the industry can be estimated using online directories of personal chefs. The data in the directories helps determine the most likely target markets for personal chef services. The analysis compares the number of personal chef businesses operating in large cities to the number of personal chef businesses operating in affluent cities to determine the influence of demographics on likelihood of success in the business.

INTRODUCTION

There is evidence that the personal chef industry is emerging as a luxury household service. The evidence shows the following: 1) the total number of personal chef businesses is very small in the United States 2) More personal chef businesses are listed in directories of affluent cities as compared to large cities and 3) the cost of personal chef services is very high. This suggests that aspiring personal chefs may be more successful establishing a business in an area where there is a concentration of affluent households. This finding has significant implications for the owners of personal chef businesses and should influence the way they market and position their services.

There is no evidence that personal chefs will become as commonplace to American households as house cleaning services or lawn cutting services. The current weekly cost of a personal chef service is very high: from \$250 - \$425 per week. Personal chef businesses using the current business model and current pricing would be considered a luxury for American households.

RESEARCH METHODOLOGY

The research is a review of the literature, news and published data on the personal chef industry, personal chef profession and consumer of personal chef services.

DEFINITION

The personal chef profession has been defined by two professional associations supporting the industry: the United States Personal Chef Association (USPCA) and the American Personal and Private Chef Association (APPCA). Each has defined the profession in the following way:

The USPCA definition: "A personal chef offers a professional service of meal preparation. A client's individual tastes and dietary restrictions or goals drive the creation of their customized menu. These personalized meals are prepared in a client's home and then packaged, labeled and stored in the refrigerator or freezer. A typical service includes: Customized Meal Planning, Grocery Shopping, In-Home Meal Preparation, Easy to Heat or Help Prepare Instructions, Storage and Clean-up."¹

The APPCA definition: "A Personal Chef as Today's Culinary Entrepreneur is a leader in the community who creates value to clients by offering superlative personal service through preparation and safe storage of palate specific wholesome, delicious food. Personal Chefs as Culinary Entrepreneurs identify and capitalize on a specific market opportunity by organizing their resources effectively to accomplish positive change in people's lives. Personal Chefs as Today's Culinary Entrepreneurs embrace a high level of personal, professional and financial risk to pursue opportunity. Culinary Entrepreneurs create their own destinies and reap the benefits. They are take-charge, creative, insightful professionals who influence American food ways of tomorrow."²

There is agreement among experts that there is a difference between a "private chef" and a "personal chef":

"A private chef is employed by one individual or family full time, and often lives in, preparing up to three meals per day. A personal chef serves several clients, usually one per day, and provides multiple meals that are custom-designed for the clients' particular requests and requirements. These meals are

¹ *Uspca.com*. United States Personal Chef Association. Web. 20 Dec. 2009.

² *Personal chef.com*. American Personal and Private Chef Association. Web. 20 Dec. 2009

packaged and stored, so that the client may enjoy them at his or her leisure in the future.”³

INDUSTRY ANALYSIS

Industry Organization

There are two organizations providing support for the personal chef profession: United States Personal Chef Association (USPCA) and American Personal and Private Chef Association (APPCA)

The associations provide member benefits such as information and resources for starting a personal chef business, advice for growing the business and succeeding in the industry, free online listings of personal chef businesses on the association web site (online directory of personal chefs by geographic region) and access to group rates for professional liability insurance. The associations were established in 1991 to support the new food service professionals called personal chefs. Previous to 1991, the food service industry recognized caterers and private chefs as valid food service professionals but personal chefs remained undefined. To date, there is no North American Industry Classification System (NAICS) code specifically for personal chefs. Some are listed as “caterers” (NAICS code: 722320) and some are listed as “all other personal services” (NAICS code: 812990).⁴

There are supporting services for personal chefs such as Chefs Line: a small business that provides on-demand cooking advice to home cooks. Owner, Jennifer Beisser describes her business as one that is “able to help with any cooking question or party planning need.”⁵ Members receive cooking and menu planning advice from professional chefs either by phone or the internet.

The industry is organized for certification through the USPCA and they believe the certification helps personal chefs gain clients. Through the association, a member can obtain the federally recognized trademarked designation of Certified Personal Chef (CPC) and join the elite ranks within the industry. A CPC designation lets potential clients know that the

professional they want to hire is credible and has the skills required to be a personal chef. The USPCA remains the only association who holds the Federally Trademarked “Certified Personal Chef” designation.

The USPCA is nationally recognized by the government to administer the designations of Certified Personal Chef (CPC).⁶ This CPC designation was the first certification for personal chefs listed in the Federal Government’s employee certification database and to have participation from the industry.

Industry Size

Personal chef businesses are small businesses operating with one or two individuals. The small business service sector is diverse with many entrepreneurs involved in many services that deliver beneficial services to the American household. Although the personal chef profession is organized through professional associations, it is like many small businesses in the U.S.: data on the industry is limited. Detailed industry analysis is not available and the information reported by the professional associations contains limited information. The industry information posted on the association web site is limited to general information about starting a personal chef business and general data on the number of personal chefs in the United States. No historical data or trend information is available to non-members of the professional associations.

According to the AAPCA there are approximately 7,000 personal chefs in the U.S. serving 72,000 customers. They predict the number to double in the next 5 years.⁷ In terms of businesses operating in the U.S., it is estimated that about 5,000 personal chef businesses are operating in the U.S. and Canada; more than triple the amount in 1997.⁸ In 2006, Entrepreneur magazine reported that the personal chef profession was the fastest growing profession in the United States.⁹

³ Ibid

⁴ “NAICS - North American Industry Classification System Main Page.” *Census Bureau Home Page*. Web. 20 Dec. 2009. <<http://www.census.gov/eos/www/naics/>>.

⁵ “Smart Ideas, Professional Help.” *Entrepreneur* July 2006: 106-08. Print.

⁶ *Uspca.com*. United States Personal Chef Association. Web. 20 Dec. 2009

⁷ Ibid

⁸ Craver, Richard. “Rising Service: More local families are discovering they can save time and eat healthier meals with a personal chef.” *Winston-Salem Journal, N.C. McClatchy-Tribune Business News*, 08 Sept. 2008. Web.

⁹ “Smart Ideas, Professional Help.” *Entrepreneur* July 2006: 106-08. Print

It is difficult to measure growth in the personal chef industry since reliable historical data is not available. Although there has been reference to growth in the industry by business and industry publications, the facts supporting the growth of personal chefs or personal chef businesses is limited. The industry became organized in 1991 with the two professional associations but trend data on membership is not available.

Some personal chefs believe that personal chefs will soon become as commonplace in the American home as house cleaners. "While few middle class families employed a cleaning person a generation ago, their services are now very common."¹⁰ There is no evidence to support this prediction. This paper shows that the industry is emerging as a luxury service for the following reasons: 1) the total number of personal chef businesses is very small in the United States 2) more personal chef businesses are listed in directories of affluent cities as compared to large cities and 3) the cost of personal chef services is very high.

To determine size of the industry and demographic trends, the directories from the two industry associations, USPCA and APPCA, were used. The directories are useful for this analysis because as a benefit of membership, the members of each association have the option to list their business in the online directory of chefs.¹¹ U.S. Census data of the largest U.S. cities was used to compile a list of the top 15 U.S. cities by population. Graph 1 displays the total number of personal chef businesses in large cities.¹²

Graph 1



Affluent cities were then searched for personal chef businesses using the same online directories. To compile a list of affluent areas, a combination of lists was used: Forbes list of affluent neighborhoods,¹³ The Elite 100: America's Highest Income Neighborhoods from the Higley 1000¹⁴ and Business Week's, "Where the Rich Still Live"¹⁵. Graph 2 shows personal chefs in 15 affluent cities that appeared on at least two of the referenced lists of affluent neighborhoods:

¹⁰Whittaker, Stephanie. "Chef replaces cleaning lady: Former Loan officer will buy groceries, cook gourmet meals you freeze for later." *The Gazette* [Montreal] 18 Nov. 2002: B1. Print

¹¹ *Uspca.com*. United States Personal Chef Association. Web. 5 Oct. 2010. *Personalchef.com*. American Personal and Private Chef Association. Web. 5 Oct. 2010

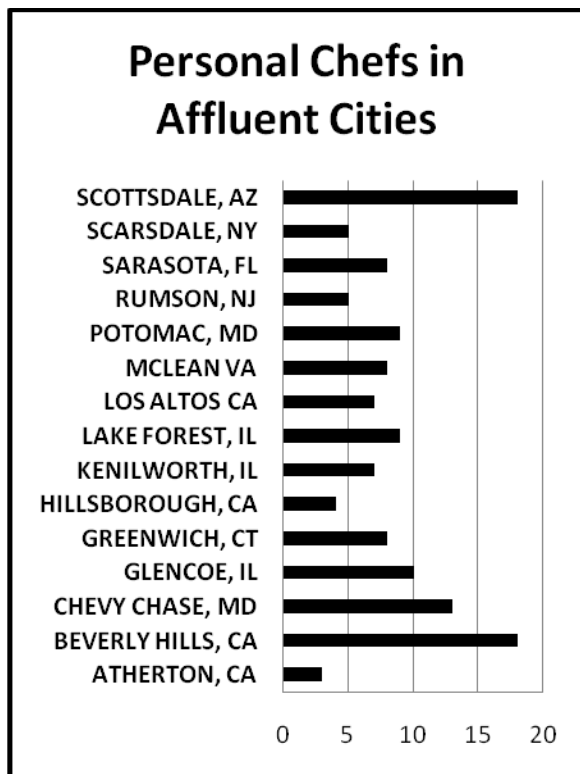
¹² *Census Bureau Home Page*. Web. 09Oct.2010. <http://www.census.gov/>

¹³ Sherman, Lauren. "Twenty Most Affluent U.S. Neighborhoods." *Forbes.com*. Forbes, 09 Dec. 2008. Web. <http://www.forbes.com>.

¹⁴ "The Elite 100: America's Highest Income Neighborhoods." *The Higley 1000*. Stephen Higley. Web. 14 July 2010. <<http://higley1000.com/archives/44>>.

¹⁵Gopal, Prashant. "Where the Rich (Still) Live." *Businessweek* March 17 (2009). Print.

Graph 2



Relative to the populations in the cities, the affluent areas have more personal chefs per person. For example, in Philadelphia, PA there are 14 personal chef businesses serving 1.5 million people and in Greenwich, CT there are 8 personal chef businesses serving 62,368. In New York, NY there are 40 personal chef businesses serving 8.3 million people and in Beverly Hills, CA there are 18 personal chefs serving 34,316 people.¹⁶

The Consumer

The Culinary Business Academy describes the consumer as the following: busy professionals, families on the go, people with specific dietary needs and affluent seniors.¹⁷ The news articles support this description: personal chefs asked to describe their clientele respond with comments such as: "Mostly,

busy professionals who are looking to eat well and stay healthy"¹⁸

Personal chefs also describe their clients as people who travel frequently on business and want a good meal waiting for them when they get home.¹⁹ One personal chef described her clients in the following way: "Personal chefs are in demand among dual-income middle class people who are time starved, and single people and empty nesters as well."²⁰

"It's like having a private chef without having to pay the salary 365 days a year."²¹ Good, nutritious meals, ideal portions and an opportunity for families to sit down together and talk about the day is only part of the benefit for clients. In addition to family time with good food, some clients consider the service cost-neutral when you factor in shopping, cooking, freezing the meals by themselves.²² "For busy single mothers the price of hiring a personal chef is offset by cost by the time and irritation saved by not having to deal with the "what's for dinner" problem."²³

One client compared her personal chef service to the convenience of popular diet plans. The meals from her personal chef are freshly prepared and low calorie and helped her lose 16 pounds in 4 weeks.²⁴

An alternative to full service caterers with higher overhead expenses and equipment, rates for private

¹⁸ King-Cohen, Sylvia. "Where to get no fuss home-cooked meals." *Newsday* [Melville] 08 Sept. 2009. Print.

¹⁹ Craver, Richard. "Rising Service: More local families are discovering they can save time and eat healthier meals with a personal chef." *Winston-Salem Journal, N.C. McClatchy-Tribune Business News*, 08 Sept. 2008. Web.

²⁰ Whittaker, Stephanie. "Chef replaces cleaning lady: Former Loan officer will buy groceries, cook gourmet meals you freeze for later." *The Gazette* [Montreal] 18 Nov. 2002: B1. Print

²¹ King-Cohen, Sylvia. "Where to get no fuss home-cooked meals." *Newsday* [Melville] 08 Sept. 2009. Print.

²² Craver, Richard. "Rising Service: More local families are discovering they can save time and eat healthier meals with a personal chef." *Winston-Salem Journal, N.C. McClatchy-Tribune Business News*, 08 Sept. 2008. Web.

²³ Atoji, Cindy. "Personal Chefs cater to the time-starved." *Boston Globe* 04 Mar. 2007: D2. Print

²⁴ Winslow-Claunch, Shannon. "Spice of Life: Chef service brings restaurant dining home." *The News Herald* [Panama City] 23 Dec. 2009. Print.

¹⁶ *Census Bureau Home Page*. Web. 09Oct.2010. <http://www.census.gov/>.

¹⁷ Culinary Business Academy, *Uspca.com*. United States Personal Chef Association. Web. 5 Oct. 2010

parties can be more affordable with personal chef services. Small businesses have reported using personal chefs to host dinners in the home of company presidents as a way to saying thanks to the staff. Compared to dinner in a restaurant it is much cheaper and provides a more "genuine" atmosphere for socializing with co-workers.²⁵

One personal chef provides the following perspective on her customer's benefit of having a personal chef – "it is like having a private chef without having to pay the salary 365 days a year. Once meal menus are approved, the personal chef does all the food shopping, the preparation in the home of the client, packaging, storage in the freezer and clean-up"²⁶

Consumer Pricing

Including groceries, personal chef services cost about \$300 - \$400 a week for four portions of five entrees and side dishes. This is about 20 dinner size servings or a price equivalent to a family eating out 4 to 5 nights per week at a family restaurant.²⁷

Some personal chefs add groceries to labor charges which come to about \$50 per hour. Another pricing alternative is a personal chef cooking individual dinners in the home and for a four course meal the cost would be from \$250 - \$375 (including the cost of the food).²⁸ Parties are priced according to labor, groceries and service required for the party or event. A typical event/party for 80- 100 people (brunch) would cost a little over \$1000.²⁹

Per meal, this would not be considered inexpensive: between \$10 and \$20 per person.³⁰

Personal chefs in the New York metro area are offering five four serving entrees that include at least one side dish for \$400-\$425.³¹

²⁵ Jules, Marie. "Party On, but don't break the bank." *Boulder County Business Report* [Boulder] 18 Sept. 2009: 21A. Print.

²⁶ Atoji, Cindy. "Personal Chefs cater to the time-starved." *Boston Globe* 04 Mar. 2007: D2. Print

²⁷ Ibid

²⁸ Ibid

²⁹ Chef Ala Maison, Newtown, PA

³⁰ Craver, Richard. "Rising Service: More local families are discovering they can save time and eat healthier meals with a personal chef." *Winston-Salem Journal, N.C. McClatchy-Tribune Business News*, 08 Sept. 2008. Web.

Based on the range of \$250 – \$425 per week for this service, it does not seem likely that personal chef services will become commonplace among typical middle class families.

LIMITATIONS OF THE RESEARCH

This paper relies heavily on news and information from the two professional associations supporting the industry. Objective and relevant data on the personal chef industry is limited to the information available from the professional associations. This makes it difficult to analyze the demand for personal chefs accurately because the professional associations rely on membership for revenue and continued growth and this bias could be reflected in the information they report. Scholarly research on the personal chef profession and industry could not be found.

The absence of credible historical data makes projections for the future of the industry limited to assumptions based on the limited current facts available.

CONCLUSION

There is evidence of success in owning and operating personal chef businesses. Although the income varies widely, there is evidence of personal chefs in large cities and affluent areas making a very good living. This paper shows there is evidence that there are more personal chefs in affluent areas (as a proportion of the total population) than in large cities. Although more analysis is required, this suggests that aspiring personal chefs may be more successful establishing a business in an area where there is a concentration of affluent households.

There is no evidence that personal chefs will become as commonplace to American households as house cleaning services or lawn cutting services. Although the personal chef industry has been organized for almost twenty years, it is a small industry with no more than forty-five personal chef businesses operating in the best markets for personal chefs. There is evidence that personal chef businesses are concentrated in affluent areas, not large cities with high populations. Finally, the current weekly cost of a personal chef service is very high: from \$250 - \$425 per week. Personal chef businesses using the current business model and current pricing would be considered a luxury for American households.

³¹ King-Cohen, Sylvia. "Where to get no fuss home-cooked meals." *Newsday* [Melville] 08 Sept. 2009. Print.

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USING THE MSLQ TO MEASURE COLLABORATION AND CRITICAL THINKING IN AN MIS COURSE

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ABSTRACT

An increasing number of college faculty members are adding the use of collaboration technologies such as Microsoft SharePoint to the learning experience. Since final grades are based upon a variety of evaluation techniques which often vary from teacher to teacher or from year to year, we determined that grades may not be the best tool to explore the outcome of student learning. This paper explores the Motivated Strategies for Learning Questionnaire (MSLQ) as a tool for examining the cognitive factors involved in learning collaboration and critical thinking skills (Pintrich et al, 1993). A pre/post experimental design was used to determine if collaboration or critical thinking skills improved in a management information systems (MIS) course. Findings include significant enhancement of peer learning skills, a component of the MSLQ, resulting in enhanced performance in team-based cases and chapter quizzes. However, the MSLQ was found to be deficient in accurately measuring the impact of collaboration skills, which are becoming more important in social networking and group work.

INTRODUCTION

As college faculty strive to improve the delivery of knowledge, they plan and make changes to course content and pedagogy, conduct the class, and evaluate the impact of the changes after the semester concludes. Often the primary indicator of success is the improvement (or lack thereof) in final grades. If grades improve dramatically, then the changes become the new norm. Thus, the grading policy shifts, and life continues on.

So, how do faculty determine the efficacy of slight changes to the content and pedagogy, or slight differences that individual faculty make to content and pedagogy? Or, in a larger sense, how do instructors in general determine the efficacy of their content and pedagogy where there is no real grade component?

This very question puzzled us and is reported in two previous papers where the authors explored improving critical thinking and collaboration skills in a Management Information Systems (MIS) course (Eddins & Strouse 2009; Eddins, 2006). At that time, the primary emphases of the changes in content were the inclusion of critical thinking approaches which hopefully would be stimulated by means of the application of intermediate decision support and database tools. In fact, it appeared that critical thinking skills did improve (Eddins & Strouse, 2009) as measured by The Motivated Strategies for Learning Questionnaire (MSLQ). The MSLQ was chosen as an indicator of success in course delivery because it is independent of final grade, is modular, and is free because it is in the public domain. Also, the MSLQ is a cognitive approach to learning making the scale a desirable measure of outcomes in non-

college settings such as corporate training and online training.

BACKGROUND

Originally, the emphasis of changes to content made to the MIS course was on improving critical thinking skills (Eddins, 2006). Since the MSLQ is modular, the components of the scale that seemed to support the evaluation of initial learning behaviors were selected for use. Those components in the MSLQ are rehearsal, elaboration, and organization. Of course, the component of the MSLQ used to evaluate the improvement of higher level learning skills was the critical thinking component. Finally, the MSLQ components of peer learning and help seeking were used to evaluate improvements in collaboration skills. Peer learning and help seeking were added almost as an afterthought because our initial objective was to evaluate the acquisition of critical thinking skills.

Table 1 shows averages of responses to selected components in the MSLQ using a pre-/post-survey experimental design. The initial learning skills as measured by the components of rehearsal, elaboration, and organization were not significant. However, the critical thinking component was significant. These findings seem to indicate that our pedagogy significantly improved critical thinking skills, while the initial learning skills were not improved. We concluded that the initial learning skills did not improve because our students have the skills in place to initially learn some domain of knowledge. Finally, the components used to evaluate improvement in collaboration skills were significant indicating, at least for this pilot study, improvement in collaboration skills (Eddins & Strouse, 2009).

Table 1 - Avg Responses to MSLQ						
MSL Q Comp	Reh	Elab	Org	Crit Think	Peer	Help
Sig?	No	No	No	0.0	0.0	0.0
Pre	4.13	5.5	4.29	3.43	1.83	4.19
Post	4.34	4.63	4.29	3.88	3.54	4.97

On the next round of using the MSLQ as reported in this paper, we became more excited about the potential of collaboration tools to improve learning behavior. In our endeavors as educators to prepare our students to function in response to the economic factors that are currently driving employment in the twenty-first century (Reich, 1991), the addition of collaboration to our existing teaching pedagogies appeared to be essential.

In our ongoing efforts of continuous improvement, we attempted to enhance learning via the addition of collaboration. As a methodology for measuring the impact of adding collaboration, we decided to focus on measuring improvement in lower-level skills. To do this, we agreed to give students quizzes on each chapter. Quizzes were chosen as a pedagogical tool to force students to study before class and to reinforce test-taking behavior. In support of this pedagogy, we used Kroenke's *Using MIS* text which restates chapter objectives in the form of focused questions. Thus, the format of the chapter objectives as questions was particularly appealing to our needs (Kroenke, 2009). In addition, Kroenke devotes a significant amount of the text to the discussion of using collaboration tools in business. Finally, we agreed to more heavily employ collaboration tools, specifically Microsoft SharePoint (SP) in our pedagogy.

RESEARCH

This paper is the result of ongoing research in measuring the impact of modifications made to teaching pedagogies when educators change course methods and content in an attempt to improve student learning (Eddins & Strouse, 2009; Eddins, 2006). Outcome assessment using the MSLQ has shown some efficacy in the past and its continued use needs to be assessed in light of newly emerging learning methods such as social networking and collaboration.

EXPERIMENTAL DESIGN

An *a priori* design was utilized comparing student responses to MSLQ questions as well as objective grades received on case study assignments, quizzes

and exams. The course was structured so that collaboration using Microsoft SharePoint was added at the semester midpoint. MSLQ questions were administered and responses gathered just prior to the addition of collaboration and again just prior to the end of the semester. Case studies, quizzes and exams were equally distributed with half occurring before collaboration was added and half after. Students were informed that two or three of the seven focused questions addressing chapter objectives would be asked on each quiz. During the first half of the semester, students worked individually on case studies and preparing for chapter quizzes. For the second half of the semester, students were assigned to teams and allowed to use collaboration within-team to prepare for the focused questions on quizzes by posting and elucidating possible answers. Although students were allowed to collaborate when preparing for quizzes, all quizzes and exams were taken individually without interaction or collaboration of any sort at the time the quizzes and exams were taken. Additionally, during the second half, cases were assigned to teams rather than individual students and SharePoint was used by the students to post, refine, edit and submit solutions to assigned cases. Two sections of an MIS course were used for the study. Each section had 24 students for a total of 48 students. Of those students, 37 completed both pre- and post-surveys and are included in this sample.

There were 26 questions on the pre- and post-surveys for a total of 1,924 responses (37 x 2 x 26). Students responded to the MSLQ survey using a Likert-scale response structure of one through seven. Responses to MSLQ questions were treated as ordinal data for pre- and post-treatment comparisons using a nonparametric related sample (repeated measures) Wilcoxon Signed Ranks Test which yielded a Z statistic (Z_{STAT}) with alpha set at 0.05 ($\alpha=0.05$).

A similar related sample (repeated measures) design was utilized for grades received on case studies, quizzes and exams with the exception that since this data was of type interval/ratio, parametric paired sample *t* tests yielding a *t* statistic (t_{STAT}) with alpha set at 0.05 ($\alpha=0.05$) were used.

Finally, student grades on case studies, quizzes and exams were examined for the impact of possible gender bias due to the addition of collaboration technologies using parametric paired sample *t* tests yielding a *t* statistic (t_{STAT}) with alpha set at 0.05 ($\alpha=0.05$).

FINDINGS

The pre-/post-MSQL survey comparisons were made using SPSS's nonparametric Wilcoxon signed ranks test for differences with the outcomes indicated for each component in Figure 1 with a combined graphical overview shown in Figure 2. The analysis indicated that only the Peer Learning component of the MSQL displayed a significant difference (p-value = 0.002) at $\alpha=0.05$ ($Z_{STAT} = -3.059$) between the pre/post-treatment testing. Further testing in accordance with the planned statistical design indicated that only two of the three questions within the peer learning component were significant at the $\alpha=0.05$ level (See Figure 3).

Analysis of student grades achieved during the pre-/post-treatment periods indicated significance at the $\alpha=0.05$ level for both cases and quizzes ($t_{STAT} = -4.666$, p-value = 0.000 and $t_{STAT} = -2.125$, p-value = 0.039 respectively). See Figure 4 showing the outcomes of student grade analysis for cases, quizzes and exams.

Of additional consideration in the original experimental design was the concern of a possible gender bias that might result with the introduction of technology supported collaboration. No such bias was evidenced at an $\alpha=0.05$ level of significance (See Figure 5).

CONCLUSIONS

Although all MSLQ components experienced an increase (See Figures 1 and 2) as evidenced by the pre-/post-administration and analysis of MSLQ components, only the Peer Learning component (#14) was significant at the $\alpha = 0.05$ level yielding a $Z_{STAT} = 3.059$ and a p-value of 0.002 (See Figure 1). No evidence of statistically significant improvement was found in any of the MSQL components except peer learning which was to be expected. The authors' expectation of a greater improvement in the critical thinking component was unsupported and was likely due to already having developed a learning approach or cognitive pattern (schema) for quizzes, cases and exams specific to this course during the first half of the semester and therefore improvement in this area was minimal.

When the peer learning component of the MSQL was examined more closely by comparing the pre-/post-responses to the specific questions within this category it was found that only two of the three questions evidenced significant improvement (See Figure 3). Questions 45 and 50 were found to be

significant with Z-statistics of 3.195 and 2.966 and p-values of 0.001 and 0.003 respectively. Although these questions can loosely be associated with collaboration they do not adequately describe the specifics of collaboration. This is especially true for question #34 which states: "When studying for this course, I often try to explain the material to a classmate or a friend." This question connotes or carries the implied meaning of students studying together and attempting to explain the material to each other while working to establish a "shared understanding" instead of already possessing a shared understanding and having something to contribute. In many instances, as in this one, a shared understanding of what is required already exists and there is no need to "explain" the material to other collaborators. In situations like these, collaboration usually implies a shared understanding as the starting point and that further ideas, formulations, suggestions and outcomes are shared and combined to create a synergistic result. Use of the words "when studying" and "try to explain" confuses the issue and makes the question inadequate for specifically addressing collaboration when a "shared understanding" of the problem or endeavor already exists.

Only question number 45 of the peer learning component comes close to adequately identifying collaboration. The question which reads: "I try to work with other students from this class to complete the course assignments." somewhat embodies the concepts associated with collaboration but fails to address synergistic learning effects such as enhanced breadth and depth of topic knowledge as evidenced in the study by improved grades on focused questions about chapter topics.

As shown in Figure 4, both case study and quiz grades improved significantly (t -statistics 4.666 and 2.125 and p-values 0.000 and 0.039 respectively). Although exam grades also improved the improvement was not significant. The authors felt that improvement was evidenced in two ways. First, the quality, depth and thoroughness of case study solutions reflected dramatic improvement when the students worked as a team instead of submitting case study solutions as a single individual. Secondly, students' ability to demonstrate their depth and breadth of learning and understanding of chapter topics when responding individually to topic-focused questions on quizzes was also enhanced by adding collaboration. Improvement was evidenced even though the course material, especially the case studies, became more difficult and complex toward the latter part of the semester.

Although an analysis of possible gender bias was conducted in accord with the *a priori* experimental design, no significance at the $\alpha=0.05$ level was evidenced between the pre-/post-grades on case studies, quizzes or exams (See Figure 5).

The authors believe that further investigation into the development of additional MSQ questions or a new MSQ component configured to specifically address the use of collaboration is necessary.

In closing, the authors found the addition of collaboration and the use of technologically supported collaboration tools enhanced the individual student's ability to answer topic-focused questions. Further, the addition of team-based collaboration using these same tools evidenced a synergistic effect in improving the quality, depth and thoroughness of students' case study solutions. And finally, the MSQ as it currently exists is inadequate for measuring the impact of collaboration on learning.

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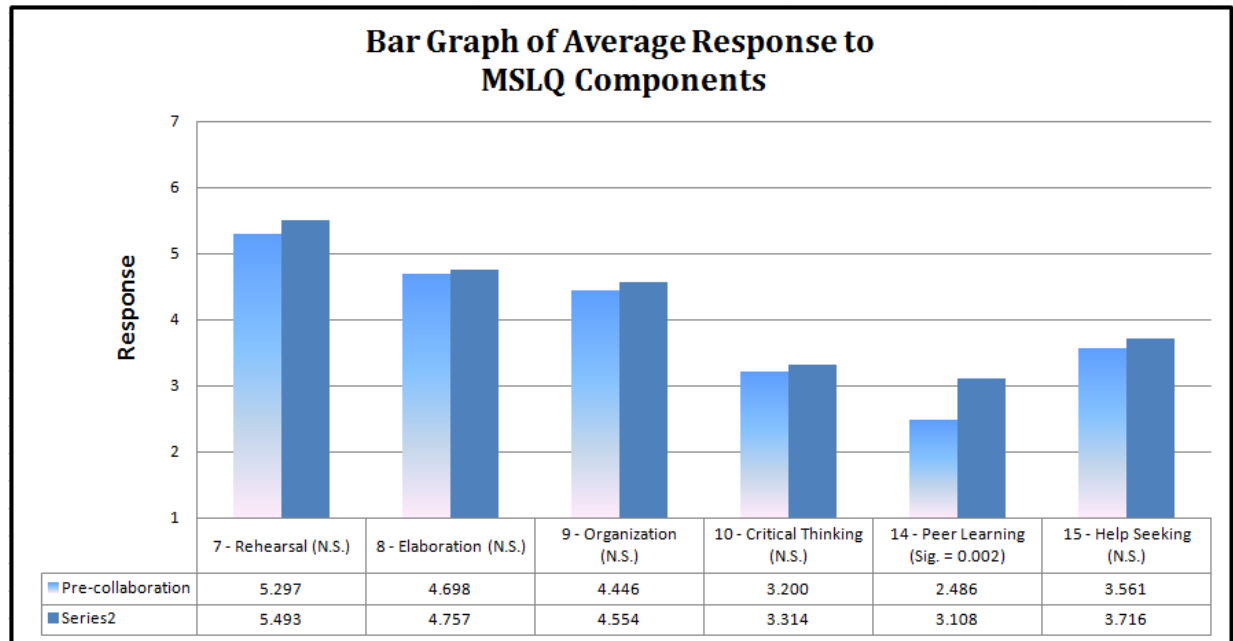
APPENDIX

Figure 1 - Pre versus Post Comparison of MSLQ Components

MSLQ Components Pre-Collaboration versus Post-Collaboration (Ordinal Data, Paired Samples)		
Component	Z_{STAT}	p-value
#7 Rehearsal	1.105	0.269
#8 Elaboration	0.944	0.345
#9 Organization	0.202	0.840
#10 Critical Thinking	0.813	0.416
#14 Peer Learning	3.059	0.002*
#15 Help Seeking	1.416	0.144

*Significant (2-tailed) at $\alpha=0.05$

Figure 2 - Graphical comparison of MSLQ components



*Significant (2-tailed) at $\alpha=0.05$

Figure 3 - Results of individual Peer Learning question analysis

Analysis of MSLQ Peer Learning Component Questions Pre-Collaboration versus Post-Collaboration (Ordinal Data, Paired Samples)		
Component Questions	Z_{STAT}	p-value
#34 When studying for this course, I often try to explain the material to a classmate or a friend.	0.449	0.653
#45 I try to work with other students from this class to complete the course assignments.	3.195	0.001*
#50 When studying for this course, I often set aside time to discuss the course material with a group of students from the class.	2.966	0.003*

*Significant (2-tailed) at $\alpha=0.05$

Figure 4- Results of Student Grade Analysis

Student Grades Pre-Collaboration versus Post-Collaboration (Interval/Ratio Data, Paired Samples)				
Type of Grade	Pre-Collaboration Mean (\bar{X})	Post-Collaboration Mean (\bar{X})	t_{STAT}	p-value
Cases	80.15	90.20	4.666	0.000*
Quizzes	72.00	76.94	2.125	0.039*
Exams	70.65	72.19	0.729	0.470

*Significant (2-tailed) at $\alpha=0.05$

Figure 5 - Results of Gender Comparison Analysis

Gender Comparison of Student Grades Pre-Collaboration versus Post-Collaboration (Interval/Ratio Data, Independent Samples)		
Type of Grade	t_{STAT}	p-value
Cases	1.058	0.296
Quizzes	1.483	0.145
Exams	0.803	0.426

WAGNER'S LAW REVISITED: AN ECONOMETRIC ANALYSIS

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ABSTRACT

This study aims at examining the relationship between public expenditure and income using vector error-correction (VEC) approach on annual data spanning the period between 1993 and 2006. First, the stationarity properties of the data and the order of integration of the data are examined using Augmented Dickey-Fuller tests. Second, the hypothesis of cointegration between government spending and income is tested. The results show evidence supporting the existence of a long-run equilibrium relationship between real government spending and real income. Third, the Granger-causality between government spending and income is investigated using VEC and first difference VAR models. The results based on these tests provide no support for Wagner's hypothesis. These results seem to be consistent and compatible with the growth patterns of government spending and income over the period examined. The results also appear to be robust across the different lag length selected and across the different measures for government spending and income used.

INTRODUCTION

In the literature, three main reasons for the empirical relationship between government spending and income have been suggested. Firstly, industrialization would lead to a substitution of public for private sector activity. Secondly, increased wealth would lead to an increase in cultural and welfare services, which are assumed to be income elastic. Thirdly, government intervention would be required to manage and finance natural monopoly. Under this view suggested by Wagner (1877), a growing economy generates additional tax revenue and creates opportunities for policy makers to increase popular public sector expenditures and government subsidies. Such an increase in public sector activity continues to flourish even in times of recession (Aschauer, 1988 and 1989; Modigliani and Sterling, 1986; Karras, 1993; Kolluri and *et al.*, 2000).

Taking the Slovakian economy as an example for this phenomenon, this paper aims at examining the relationship between public expenditure and income using vector error-correction (VEC) approach on annual data spanning the period between 1993 and 2006.

LITERATURE REVIEW

There exists a broad literature on the relationship between income and public expenditure. One of the prominent examples, Thornton (1999) tested Wagner's law for six developed economies (Denmark, Germany, Italy, Norway, Sweden, and the United Kingdom) using annual data from around the mid-19th century to 1913. The results suggest that over the respective sample periods, with few exceptions, nominal and real Gross

National Product (GNP), nominal and real government expenditure, and population were nonstationary series in their levels but stationary in first differences. With the exception of Germany, the results also suggest that nominal GNP and nominal government expenditure and/or real GNP and real government expenditure were cointegrated in the remaining countries. Finally, Granger-causality tests suggest that unidirectional causality ran mainly from income to government expenditure. On the basis of these results, there appears to be considerable support for Wagner's law in 19th century.

Asseery and *et al.* (1999) test Wagner's law using disaggregated Iraqi annual data for the period 1950-1980. Their data set is truncated at 1980 in order to avoid the impact that the Iran-Iraq war may have had on public expenditure figures and to take into account the fact that there are breaks in the data in the post-1980 period. Their empirical results, and in particular their causality tests, suggest that there is some evidence for the existence of Wagner's Law when income and several forms of expenditure are used in nominal terms.

The chain of causality runs in the opposite direction when expenditure is examined in real terms. In the case of spending on economic services, there is unidirectional causality. Chletsos and Kollias (1997) investigate empirically the traditional Wagner's hypothesis in the case of Greece using disaggregated data of public expenditure for over the period 1958-1993. Employing error-correction approach yields evidence suggesting that Wagner's law is valid only in the case of military expenditures. The reported empirical results also suggest that the growth of government expenditure in the case of Greek is not directly dependent on and determined by economic growth as Wagner's law states. The other factors,

such as political processes and the Greek development model may be cited as possible explanatory variables for the increase of government expenditure.

Abizadeh and Yousefi (1998) use annual data for South Korea to test for the validity of Wagner's law and to examine the direction of causality between the growth of government expenditures and economic development. By excluding government expenditures from the national output, their test indicates that private sector's income Granger-causes expenditure growth. Next, they established, empirically, the validity of Wagner's law, that the income elasticity of demand for public goods is greater than unity. Their results indicated that government spending in South Korea has positively and significantly been affected by the private sector's income. Government spending has not been, however, affected by externalities measured by the urbanization ratio. An implication is that the urbanization ratio is not an appropriate proxy for externalities. Their results supported the positive and a statistically significant link between government spending and the dependency ratio. This finding is consistent with the results of earlier studies.

Kolluri and *et al.* (2000) examine the long-run relationship between Gross Domestic Product (GDP) and government spending in the G7 countries for the period 1960-1993. Their findings provide evidence showing that in the long-run, government spending tends to increase at a higher proportion than national income; that is, government spending tends to be income elastic in the long-run. In all of the G7 countries, the logarithmic values of the government expenditure and income variables are found to be stationary in their first differences and thus are integrated of order one. This is generally found to be true for all three categories of government expenditure, although two exceptions were detected. This clearly lends credence to the existence of a significant long-run equilibrium relationship between government spending and national income, thus supporting Wagner's Law.

The estimates of the long-run elasticities of government expenditure with respect to national income indicate that government spending, whether expressed as an aggregate or by type, is income elastic in the majority of the highly industrialized or G7 nations. Anisul (2001) has tested Wagner's hypothesis using USA annual data for the period 1929-1996. The reported results estimated using Johansen and Juselius cointegration and ergogeneity test provided strong empirical evidence of a long-run equilibrium relation between per capita real income

and the relative size of government. On the other hand, the short-run dynamics suggest that the relative size of the public expenditure is found to be a stable function of the progress of the economy with an estimated speed of adjustment of about 47% over a year.

Finally, causality tests show that causal linkage flows from real income per capita to relative size of government. Burney (2002) investigates the relationship between government spending and a number of socioeconomic variables in Kuwait for the period 1969-1993. The results corresponding to the cointegration tests provide little for the existence of a long-run equilibrium relationship between government spending and the relevant socioeconomic variables. Conversely, among the different variables considered in the analysis, there is some evidence that in the long-run government spending is influenced by GNP, and the Government's Disposable Revenues (GDR), degrees of openness of the economy, supply of revenues, population composition, and revenue constraint. Furthermore, the evidence does not lend support to the validity of Wagner's law.

DATA AND METHODOLOGY

In the present study, the relationships between public spending and income will be examined using annual data of Slovakia over the sample period from 1993 through 2006. The variables used are Gross Domestic Product (GDP), Consumer Price Index (1995 = 100), government expenditure, and population. All data come from the International Financial Statistics Yearbook (2002 and 2007) as well as World Bank WDI CD-ROM. These series are used to generate four data series: real GDP (y), real GDP per capita (py), real government spending (g), and real government spending per capita (pg). All variables are transformed to natural logarithmic form to achieve stationarity in variance and to make statistical testing procedures valid.

The basic hypothesis to be tested in this study is Wagner's law, which postulates that as real income increases during the industrialization process, the share of public expenditure increases. The most researchers who examine the existence of Wagner's law consider the regression equation (Oxley 1994):

$$Lg_t = \beta_0 + \beta_1 Ly_t + (1 - \beta_1)LPOP_t + U_t \quad (1)$$

where g is real government expenditure, y is real GDP, POP is population size, β_0 and β_1 are coefficients to be estimated, U is a serially

uncorrelated error term, and L denotes natural logarithms.

The main problem facing most previous studies is that much of the econometric theory has been based on the assumption that the observed data come from a stationary process (Hendry and Juselius 2000). The regression model involving nonstationary time series can induce statistical distortions. The distortion here implies that most of the statistics calculated from such regression do not follow the standard distributions. In more precise words, the F-statistics in the regression model involving non-stationary regressors has a substantial rightward shift under the null hypothesis of no causality. Thus the significance of the test is overstated and a spurious regression result is obtained (Chang, 2002).

Tests for nonstationarity of a time series (x_t) involve testing for the presence of unit root. In this study, unit root is tested using Augmented Dickey-Fuller (ADF) test. The test is the t- statistics on θ in the following regression:

$$\Delta x = \delta_0 + \delta_1 T + \theta x_{-1} + \sum_{j=1}^n \phi_j \Delta x_{-j} + \eta_t \quad (2)$$

here Δ is the first-difference operator, x_t is the series under consideration, η_t is a stationary random error, T is the time trend, δ_0 , δ_1 , θ , and ϕ_j are parameters to be estimated. The hypothesis of non-stationarity is rejected when θ is significantly negative. Here n must be selected large enough to ensure that η_t is a white noise. In this study, the Akaike (1974) information criterion (AIC) is used to determine the appropriate lag length n that will be enough to ensure the stationarity of the error term η_t . The AIC is defined as

$$AIC = T \ln (ESS/T) + 2k \quad (3)$$

where T is the sample size, ESS is the sum of squared error of the regression in equation 2, and k is the number of parameters, $k = n + 3$. The appropriate lag length selected by estimating equation 2 over a selected grid of values of n and finding that value of n at which AIC attains its minimum (Engle and Yoo, 1987).

Once a unit root has been confirmed for a data series, the question is whether there exists some long-run equilibrium relationship between public expenditure and income. While the theory of cointegration reveals a long-run equilibrium relationship among the dependent and independent variables, analysis of the short-run dynamics of the system is equally

important. An important issue in econometrics has been the need to integrate short-run with long-run equilibrium. The theory of cointegration addresses this issue of integrating short-run dynamics with long-run equilibrium.

Cointegration tests in this study are carried out using the method proposed by Johansen (1988). The Johansen method applies the maximum likelihood procedure to examine the presence of cointegrating vectors in nonstationary time series. Following Hendry and Juselius (2000b), a two-dimensional (2x1) vector autoregressive model with Gaussian errors can be expressed by

$$x_t = \phi_1 x_{t-1} + \phi_2 x_{t-2} + \dots + \phi_k x_{t-k} + \mu + \varepsilon_t, \quad t = 1, 2, \dots, T \quad (4)$$

where $x_t = (y_t \text{ and } g_t)$, and $\varepsilon_t \sim \text{i.i.d. } N(0, \Lambda)$. The covariance matrix of the error process, Λ , and the parameters ϕ_1 , ϕ_2 , ϕ_k , and μ are to be estimated.

By taking first differencing on the vector level, the model in error correction form is

$$\Delta x_t = \Gamma_1 \Delta x_{t-1} + \Gamma_2 \Delta x_{t-2} + \dots + \Gamma_{k-1} \Delta x_{t-k+1} - \Pi x_{t-1} + \mu + \varepsilon_t \quad (5)$$

where $\Gamma_i = (I - \phi_1 - \phi_2 - \dots - \phi_i)$ are short-run parameter matrices, $\Pi = (I - \phi_1 - \phi_2 - \dots - \phi_k)$, sub-index k is the lag-length.

The matrix Π conveys information about the long-run relationship among y_{1t} , y_{2t} , and y_{3t} . Testing for cointegration involves testing for the rank of Π matrix r by examining whether the eigenvalues of Π are significantly different from zero. Three possible conditions exist: (a) the Π matrix has full column rank, implying that x_t was stationary in level to begin with; (b) the Π matrix has zero rank, in which case the system is a traditional first-differenced VAR; and (c) the Π matrix has rank r such that $0 < r \leq 1$, implying that there exist r linear combinations of x_t that are cointegrated. If the condition (c) prevails, then Π matrix can be decomposed into two $2 \times r$ matrices, α and β , such that $\alpha\beta' = \Pi$. The loading matrix α represents the error correction parameters, which can be interpreted as speed of adjustment, while the vectors of β represent the r linear cointegrating relationships such that $\beta'Y_t$ is stationary.

Following Johansen (1988) and Johansen and Juselius (1990), the likelihood ratio will be used for testing the number of cointegrating vectors (or the

rank of Π). The likelihood ratio statistic for the trace test is

$$\text{LHR} = -T \sum_{i=r+1}^{p-2} \ln(1 - \hat{g}_i) \quad (6)$$

where $\hat{g}_{r+1}, \dots, \hat{g}_p$ are the estimated $p-r$ smallest eigenvalues. The null hypothesis to be tested is that there are at most r cointegrating vectors. That is, the number of cointegrating vectors is less than or equal to r , where r is 0 or 1. In each case, the null hypothesis is tested against the general alternative of $r+1$ cointegrating vectors. Thus, the null hypothesis $r=0$ is treated against the alternative that $r=1$, $r=1$ against the alternative that $r=2$.

Since cointegration tests are very sensitive to the choice of lag length used in carrying out such tests, the Schwarz (1978) criterion (SC) will be used to select the optimal number of lags required in estimating the cointegration test. The SC is defined as follows:

$$\text{SC} = \ln \Omega_n^2 + n \ln(T)/T \quad (7)$$

where Ω_n^2 is the maximum likelihood estimator of the residual variance obtained from a model with lag length n , that is $\Omega_n^2 = \text{SSE}_n/T$, T is the sample size, and n is the number of lags selected to numerically minimize SC in equation (7).

Engle and Granger (1987) show that if two nonstationary variables are cointegrated, the error-correction model is conducted for determining the causality. The error correction model of income and government spending is as follows:

$$\Delta g_t = a_1 + \theta_{11}^m(B) \Delta g_t + \theta_{12}^n(B) \Delta y_t + \alpha_1 \text{ECT}_{1t-1} + u_{1t} \quad (8)$$

$$\Delta y_t = a_2 + \theta_{21}^m(B) \Delta g_t + \theta_{22}^n(B) \Delta y_t + \alpha_2 \text{ECT}_{2t-1} + u_{2t} \quad (9)$$

$$M_{ij}$$

$$\text{where } \theta_{ij}^m(L) = \sum \theta_{ijL}^m L^L,$$

$$L=1$$

Δ is the first difference operator and B is the lag operator such that $BY_{1t} = Y_{1t-1}$, u_{1t} and u_{2t} are white noise terms, and ECT_{it-1} ($i = 1, 2$) is the error-correction term (lagged one period) derived from long-run cointegrating relationship to capture the long-run dynamics. The inclusion of these terms, which must be stationary if the variables are cointegrated, differentiate the error-correction model from the standard Granger causality test.

On the basis of error-correction models in (8) and (9), unidirectional causality from y to g is implied if not only the estimated coefficients on the lagged y variables in equation (8) are statistically different from zero as a group, but also the coefficient on the error correction term in equation (8) is significant, and if the set of estimated coefficients on the lagged g variables in equation (9) are not statistically different from zero. Similarly, g causes y if the estimated coefficients on the lagged g variable in equation (9) are statistically different from zero as a group, the coefficient on the error correction term in equation (9) is significant, and if the set of estimated coefficients on the lagged y variables in equation (8) are not statistically different from zero. Finally, feedback between y and g would exist if the set of estimated coefficients on the lagged y variables in equation (8) were statistically significant as a group and the set of estimated coefficients on the lagged g variables in equation (9) were also statistically significant as a group, and also the coefficients of error correction terms in both equations are significant.

EMPIRICAL RESULTS

Because cointegration equations require the use of nonstationary time series and error-correction equations require the use of stationary variables, each data series is first examined for the probable order of difference of stationary using the ADF unit root test. Following the recommendations by Dickey *et al.* (1986) and Miller and Russek (1990), the ADF tests are performed by estimating equation 2 when an intercept, and an intercept and trend are included. Equation 2 was estimated for all data series over a grid of $n = 1, 2$, and 3 to select the optimal lag structure that minimizes the AIC. This Criterion has proved its strength and efficiency in selecting the appropriate lag length.

Table 1 reports the results of nonstationary tests for real government spending (Lg), real GDP (Ly), real government spending per capita (Lpg), and real GDP per capita (Lpy) using augmented Dickey-Fuller tests. According to the applicable test statistics,

nonstationarity cannot be rejected for the level variables for all data series at the 5% significance level. In contrast when the data are differenced, nonstationarity can be rejected for all data series studied. This finding indicates that all the data series are integrated of order one (or I(1)). Table 1 also reports the minimum AIC(n), which provides the optimal order of the lag length, n, in equation 2.

See Table 1 in the appendix.

Since a unit root has been confirmed for all data series studied, the question is whether there exists some long-run equilibrium relationship between government spending and income. The cointegration test is carried out on 1-2 and 1-3 lag intervals and on the assumptions that no intercept or trend in CE or test VAR, and intercept (no trend) in CE- no intercept in VAR. Table 2 reports the results from the Johansen cointegration tests. The likelihood ratio statistic corresponding to equation 5, reveals evidence suggesting that there exists one cointegrating equation between real income and real government spending for all lag intervals used. On the other hand, the Johansen test statistic provides no support for the existence of any long-run equilibrium relationship between per capita real income and government spending per capita. This finding suggests evidence showing that only real government spending and real income in Slovakia would move very close from each other.

See Table 2 in the appendix.

Given the results of the cointegration tests, the procedure is as follows: since real government spending and real income variables are cointegrated the error-correction model is conducted for determining the causality. In contrast, the standard Granger regressions as indicated in equations (8 -9) without error – error correction terms are implemented to examine the causality between real per capita spending and real per capita income.

Table 3 reports the statistical analysis based on vector error-correction and first difference VAR Models on the causal relationships between government spending and income for Slovakia. The numbers in parentheses indicate the significance level. The results provide no support for the presence of a unidirectional Granger-causality from income to government spending or from government spending to income. The results are robust across the three different lag lengths selected and across the different measures used for government spending and income. The results based on the first-difference VAR model provide evidence showing that unidirectional Granger

causality running from real per capita income to real government spending per capita only at 10% significance level when either one or two lag lengths are selected. The empirical finding reported above provides no support for Wagner's law.

See Table 3 in the appendix.

CONCLUSIONS

In this study, two versions of Wagner's law are examined empirically by employing annual Slovakian data over the period 1993-2006. First, the stationarity properties of the data and the order of integration of the data are examined using Augmented Dickey-Fuller tests. Second, the hypothesis of cointegration between government spending and income is tested. The results show evidence supporting the existence of a long-run equilibrium relationship between real government spending and real income. Third, the Granger-causality between government spending and income is investigated using VEC and first difference VAR models. The results based on these tests provide no support for Wagner's hypothesis.

These results seem to be consistent and compatible with the growth patterns of government spending and income over the period examined. The results also appear to be robust across the different lag length selected and across the different measures for government spending and income used.

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Table 1. Augmented Dickey-Fuller Unit Root Tests

		Level			First difference				
Variable	Lag Order	Regression Assumption: Constant				Regression Assumption: Constant and Trend			
		ADF	AIC	Critical ADF and 1% 5%		ADF	AIC	Critical ADF and 1% 5%	
Lg	1	-2.5771	-4.5673	-4.5433 -3.5432		-2.6772* -2.3463**	- 4.7692	-2.6888 -1.7696	
	2	-2.9572	-4.6542	-4.7692 -3.7892		- 2.3463**	- 5.8653	-2.5655 -1.6706	
	3	-2.7653	-4.5433	-4.7655		-1.7647	- 5.8972	-2.5547	
Lpg	1	-2.4696	-4.3458	-4.6524 -3.6758		- 2.6859**	- 4.8762	-2.6564 -1.9575	
	2	-2.6677	-4.7657	-4.4563 -3.7655		-3.5295* -1.9764**	- 4.8752	-2.7666 -1.9585	
	3	-2.6788	-4.7655	-4.7662 -3.7602		- 1.9764**	- 4.3666	-2.6664 -1.9665	
Ly	1	-2.5678	-5.4564	-4.5637 -3.6883		-2.7423* -2.8972*	- 4.7762	-2.6656 -1.9856	
	2	-3.6504	-5.7982	-4.9836 -3.3356		-2.8972* -2.6432*	- 4.7654	-2.6665 -1.7678	
	3	-2.5434	-5.8602	-4.3345 -3.5433		-2.6432* -2.8753*	- 4.7633	-2.6763 -1.9664	
Lpy	1	-2.6584	-4.7983	-4.8645 -3.5454		-2.8753* 4	- 4.8766	-2.665 -1.9585	
	2	-3.7974	-4.6532	-4.5443 -3.4345		-2.8464* -2.4793**	- 4.3654	-2.6475 -1.6688	
	3	-2.6573	-4.7672	-4.5748 -3.7636		- 2.4793**	- 4.7653	-2.6663 -1.6765	

*(**) denotes rejection of the hypothesis at 5%(1%) significance level.

Table 2. Cointegration Test Results

Test Assumption: No intercept or trend in CE or test VAR: Variables Lg & Ly					
Eigenvalue	Likelihood Ratio	5% Critical Value	1% Critical Value	Hypothesized No. of CE(s)	Lag intervals
0.4456	14.6573	12.3425	15.1231	None *	1-2
0.0133	0.6573	3.5643	6.3334	At most 1	
0.4853	15.8683	12.3254	15.6433	None **	1-3
0.0735	2.2543	3.6433	6.543	At most 1	
Test assumption: intercept (no trend) in CE- no intercept in VAR: variables Lg and Ly					
0.5565	23.1473	19.4353	24.5345	None *	1-2
0.0565	1.4134	9.6433	12.6432	At most 1	
0.6765	31.1067	19.6332	25.5435	None **	1 -3
0.0933	2.5435	9.7743	12.9435	At most 1	
Test Assumption: No intercept or trend in CE or test VAR: Variables Lpg & Lpy					
0.0623	2.3653	12.7334	15.7563	None	1 -2
0.0243	0.6734	3.3453	6.7243	At most 1	
0.1365	3.7825	12.7674	15.3452	None	1 -3
0.0134	0.2965	3.2224	6.5723	At most 1	
Test assumption: intercept (no trend) in CE- no intercept in VAR: variables Lpg and Lpy					
0.2626	8.8832	19.3453	25.7542	None	1-2
0.0235	0.6745	9.2773	12.7743	At most 1	
0.2257	8.3933	19.9346	25.3223	None	1-3
0.0785	1.8366	9.2477	11.6333	At most 1	

*(**) denotes rejection of the hypothesis at 5% (1%) significance level.

Table 3. Granger-Causality test results using VEC and first differenced VAR models

Granger-Causality Tests Based on VEC Models: Variables VEC Lg & Ly				
Equation	Lag	Hypotheses	F	EC
8 9	1 1	$\theta_{121} = 0, \alpha_1 = 0$ $\theta_{111} = 0$	4.9877 (0.0411) 9.4321 (0.0123)	1.0542 (0.1231)
9 8	1 1	$\theta_{111} = 0, \alpha_2 = 0$ $\theta_{121} = 0$	9.4212 (0.0123) 4.4324 (0.4311)	-1.4321 (0.1231)
8 9	2 2	$\theta_{121} = \theta_{122} = 0, \alpha_1 = 0$ $\theta_{111} = \theta_{112} = 0$	2.5242 (0.3242) 0.4532 (0.5422)	1.5422 (0.4213)
9 8	2 2	$\theta_{111} = \theta_{112} = 0, \alpha_2 = 0$ $\theta_{121} = \theta_{122} = 0$	0.4321 (0.4211) 2.5432 (0.4211)	-1.4322 (0.5433)
8 9	3 3	$\theta_{121} = \theta_{122} = \theta_{123} = 0, \alpha_1 = 0$ $\theta_{111} = \theta_{112} = \theta_{113} = 0$	1.4311 (0.4321) 0.5431 (0.5321)	0.4211 (0.2311)
9 8	3 3	$\theta_{111} = \theta_{112} = \theta_{113} = 0, \alpha_2 = 0$ $\theta_{121} = \theta_{122} = \theta_{123} = 0$	0.4211 (0.4311) 1.2312 (0.52321)	-1.5123 (0.1231)
Granger-Causality Tests Based on VAR Models: Variables Lpg & Lpy				
8 9	1 1	$\theta_{121} = 0$ $\theta_{111} = 0$	3.6262 (0.0231) 0.2312 (0.4123)	
8 9	2 2	$\theta_{121} = \theta_{122} = 0$ $\theta_{111} = \theta_{112} = 0$	3.2312 (0.0654) 0.1893 (0.7321)	
8 9	3 3	$\theta_{121} = \theta_{122} = \theta_{123} = 0$ $\theta_{111} = \theta_{112} = \theta_{113} = 0$	1.7213 (0.8281) 0.7211 (0.8912)	

REWARD SYSTEMS: PERCEPTIONS OF FAIRNESS AND SATISFACTION IN PROJECT TEAMS

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ABSTRACT

Project managers are continually looking for ways to motivate team members to perform. Monetary reward systems are popular as motivational tools and the manner in which rewards are allocated can have an impact on team incentives. This research study evaluates perceptions of fairness and satisfaction when comparing a team reward scenario where each member receives an equal amount of bonus pay, versus an individual reward scenario where individuals receive a bonus amount determined by his or her proportionate contribution to the project. Based upon a survey of 64 MBA students, the results of this study suggests that (1) participants do not have a clear preference for the team- or individual-based reward scheme, (2) the order of the presentation of reward scenarios biases preferences, and (3) older participants are more receptive of the team-based reward schemes than younger participants, who gravitate toward the individual-based reward scenario.

INTRODUCTION

In today's competitive working environment, employees are often expected to do more with less. Frequently this requires working more effectively and efficiently to deliver quality products and services on-time, within a defined budget and project scope. As an incentive for increased productivity, reward systems are often used in addition to overall compensation. These rewards (or incentives) can be distributed in many different ways: paid time off, gift cards, and supplemental income money are all types of bonuses given to high-performing individuals (Dilworth, 1991).

With individual-based reward schemes, distribution might be fairly straightforward. If the person completes the project in a shorter amount of time than was originally planned or exceeds expectations on the project, they receive a reward. Reward structures in project teams differ in that the team's incentive may be based on the group's performance. In some teams this can lead to conflict. It is essential that everyone on the team feel that the rewards distributed are fair, otherwise job performance and motivation could decline and team members might become less cooperative and helpful to one another (Bamberger and Levi, 2009). Perceptions of the fairness of various reward systems can be based upon the rules used to allocate the rewards or the perceived fairness of how the rewards are distributed. These two types of justice-orientation are called Procedural- and Distributive-Based Justice respectively (Sarsfield-Baldwin, 1996). Each system is discussed further in the following sections.

LITERATURE REVIEW

Procedural Justice

Procedural-based justice focuses on the process of reward allocation, not the actual reward distribution. The perceived fairness of the allocation process in a reward system directly affects an employee's job satisfaction (Fields, Pang and Chiu, 2000). Even when an individual is not happy with an outcome, they might perceive the process as fair. As Authors note (2005), when a participant feels like he or she is treated with respect and their concerns are heard, they are more likely to judge the process as fair regardless of the outcome.

Perceptions of fairness and procedural justice topics have been studied in many different contexts, but most come to a similar conclusion that the perceived fairness of procedure is positively related to job satisfaction. The transparency of the process used to distribute rewards may be critical in the management of project teams. Team member satisfaction with the reward they receive, or their job in general, might depend on understanding the process by which rewards are distributed (Cloutier and Vilhuber, 2007).

Distributive Justice

Distributive justice research is based upon the writings of John Rawls (1971) and is often defined as how goods or services are dispersed to individuals, by an authority such as an employer, based on a set of standards. Typically the goods are given equally among the members unless there are reasons, good or bad, that suggest the dispersion should be scaled in

favor of one individual or group of individuals. With distributive justice, equity of the goods or services awarded will often depend upon the viewpoint of the individual assessing the situation. For example, the value of a good or service received may differ between the individual on the receiving end and an outsider assessing the situation.

In managing team members, there is a continuing focus on ensuring that the reward systems are as fair as possible for all those involved. Even with this effort, those receiving the benefits may find a way to conclude that the outputs are unfair to them. With Rawls' (1971) vision, each person "agrees to share one another's fate" meaning that no matter what the outcome, everyone shares the same results.

Perception of Fairness

The validity of a process may or may not be directly related to an employee's perception of fairness. An employee may consider the processes implemented to allocate rewards as valid or logical, but not fair. Such is the saying "life is not fair," employees may perceive rewards as unfair if they themselves do not directly benefit, but, as stated earlier, if the process of allocation is clearly defined it will alleviate much perceived unfairness.

There are challenges in developing individual- and team-based incentive systems that are universally perceived as fair. For instance, in a team-based reward system there is the risk of "free riding" or inequity in the contribution of members. This is especially true when a team has individuals who are highly motivated and assume leadership roles. However, peer pressure from the active team members tends to diminish free riding (Kandel and Lazear, 1992). A system that rewards individual team members who have not contributed may create internal strife and inevitably reduce the team's performance. Furthermore, small teams may be more suitable than large teams for team-based rewards because distribution of the reward is less complicated when there are fewer individuals.

Individual-based rewards are most appropriately implemented when an individual's contribution is apparent to all team members and the allocation process is transparent. Perceived fairness has a temporal dimension that requires consistency. If rewards are arbitrarily changed between projects, the inconsistency might be perceived as unfair (Li, Bingham, and Umphress, 2007). The assumed relationship between the amount of work performed and the amount of reward received is the prime determinant of an employee's perceptions of fairness.

RESEARCH METHODOLOGY

A questionnaire was completed by 64 MBA students attending required MBA courses. The instrument described a project-oriented fictional company called Harvest Pickers Incorporated, that offers services assisting farmers harvest crops, specifically in this case, apples. The instrument provided background information on the company, along with the introduction of two employees who were recently contracted to do a 2 week harvest of apples. One employee, Jerry, with 10 years of experience, served as a mentor to a newer employee of 2 years, Noah. Jerry was recently injured, which caused his production to decrease. However he continued to mentor Noah, helping him increase his on the job performance. Noah's productivity was twice as high as Jerry's productivity. After this background information was given, the following two scenarios were presented:

Scenario 1

The project was finished 3 days early with a bonus pool of \$300, so Jerry and Noah each received a \$150 bonus.

Scenario 2

The project was finished 3 days early with a bonus pool of \$300, so Jerry and Noah received a portion of the bonus pool based upon their own productivity. Jerry received a \$100 bonus and Noah received a \$200 bonus.

Scenario 1 is a team-based rewards scenario where the rewards are equally distributed. Scenario 2 is an individual-based rewards scenario where each individual receives a reward based upon their proportionate contribution to the project.

A counter-balanced repeated measures design was used. Two versions of the instrument were distributed. One version, TEAM-1st presents scenario 1, the team reward scenario, followed by scenario 2, the individual reward scenario. The other version, IND-1st, switches the order of the scenarios so scenario 2, the individual reward scenario, is followed by scenario 1. After reading each scenario, the participant was given a five point Likert scale survey that asked a series of questions. The responses were 1 = strongly disagree, 2 = slightly disagree, 3 = neutral, 4 = slightly agree, and 5 = strongly agree. The participants were asked to circle only one number (answer) per question. Table 1 in the appendix contains the questions for the scenarios.

DISCUSSION

This section presents the results of the study and discusses their implications. All statistics were calculated using a single-factor ANOVA. The significance level is set at $p=.05$. In the remainder of this section, the overall differences between the team- and the individual-based reward scenarios are discussed first; followed by an exploration of the effects of the reward scenarios presentation order; then the variation in reward allocation structure, where data is segregated by presentation order (questionnaire version), is analyzed; finally the impact of age is considered.

When comparing individual- and team-based reward systems we found no significant differences in the perceptions of fairness and preference for individual-versus team-based rewards. However when we asked how the participants believed the actors in our scenarios would view the reward allocation, we did find significant differences. The participants believed that (1) the high performer, Noah, would be more satisfied in the individual-based reward scenario ($p = .000$) and (2) the low performer, Jerry, would be more satisfied in the team-based reward scenario ($p = .000$). These responses have high face validity given each actor would maximize his own bonus payment in the corresponding scenario. Personally, the participants reported they believed that they would have a significantly higher motivational level if they were to work in the individual-based reward setting rather than the team-based setting ($p = .004$) (See Table 2 in the Appendix).

When comparing the two versions of the questionnaire (see Table 3 in the appendix), we found some interesting differences in participant response patterns. In the TEAM-1st version, where participants first read the scenario in which Jerry, the senior employee with the back injury and Noah, the recent hire, both received \$150, participants indicated neither the team-based or individual-based distribution was significantly more fair than the other. However in the IND-1st version, where the \$100-\$200 distribution was presented first, the participant response indicated a belief that the team-based distribution of \$150 each was significantly more fair ($p = .032$). Consistent with the overall analysis presented in Table 2 in the appendix, participant in both versions of the questionnaire believed the actors would be more satisfied when they maximized their own bonus (TEAM-1st, Noah $p = .000$; Team-1st, Jerry $p = .003$; IND-1st, Noah $p = .005$; IND-1st, Jerry $p = .000$). Likewise the responses to both versions of the questionnaire

suggest that the individual-based reward scenario is significantly more motivating (TEAM-1st $p = .044$; IND-1st $p = .039$).

Within each reward scenario (team and individual) we compare the responses by questionnaire version (see Table 4 in the Appendix). There are no significant differences between questionnaire versions when focusing on team rewards. However, there are significant differences when observing the individual-reward responses. In the individual-reward scenario, those who read the TEAM-1st version of the questionnaire thought the bonus was significantly more fair than those who read the IND-1st version ($p = .008$). This group of participants also thought Noah would be significantly more satisfied than those reading the IND-1st version ($p = .017$) and those reading the TEAM-1st version indicated a stronger inclination to work under the individual-base reward scenario than those reading IND-1st ($p = .002$).

In an exploratory analysis of the data, age presented itself as a significant factor. (See Tables 5 and 6 in the Appendix). When reading the individual-base rewards scenario, those under 27 had a stronger opinion than those 27 and over that an individual's contribution is important when determining the bonus allocation ($p = .015$). In only the team-based reward scenario, those 27 and over thought Noah would be more satisfied than those under 27 ($p = .009$). On the last question about motivation in both the individual- and team-based rewards scenarios, the answers of the under 27 and the 27 and over groups were significantly different. Whereas the older group felt that they would be more motivated in the team-reward scenario ($p = .017$), the younger group felt they would be more motivated in the individual-reward scenario ($p = .014$).

For those under 27, they believed Noah would be more satisfied with the bonus in the individual-base reward scenario ($p = .000$) and Jerry would be more satisfied with the bonus in the team-based reward scenario ($p = .000$). They also indicated that they would be more motivated working under the individual-base reward system ($p = .000$). In the 27 and over group, they felt that the team bonus was significantly fairer than the individual bonus ($p = .032$) and they also felt that Jerry would be more satisfied under the team bonus scenario ($p = .005$). One explanation for older groups' position on the fairness of the team-based reward allocation might center on indirect contributions to "the successful harvest". More seasoned participants are likely to identify with an individual's physical limitations, which are likely to develop with age. While

similarly, they can better appreciate the value of mentoring and the overall impact of best practices on end results.

Consequently, it is not surprising that those 27 and over found the team-based reward scenario more motivating than the individual scenario. Conversely, those under 27 found the individual distribution more motivating than the team-based distribution. The data suggests the older participants might identify with the seasoned employee and consequently the scenario where Jerry prospers more.

CONCLUSION

Overall there was not a significant difference in preference for either an individual- or team-based distribution scheme. The percentage of participants preferring the team-based versus the individual-based allocations are presented in Table 7 in the Appendix. However, when the team-based reward scenario was presented first, the participants tended to gravitate towards the team-based scenario as the preferred allocation scheme. It appears therefore that the order of presentation had an impact in the selection of team-based as the preferred incentive. This can be explained by Krosnick and Alwin's (1987), evaluation of Cognitive Theory on Response-Order Effects in Survey Measurements, in which the results of survey instruments may be influenced by the "framing of the problems or the context in which they are considered".

The literature review discusses how perceptions of fairness and satisfaction with outcomes are critical to the success of an incentive or reward system. This study shows how unpredictable reactions to any given reward scheme may be. Overall, the participants seem to be relatively indifferent to either reward scheme. However, as individuals, they may have strong preferences toward a specific type of allocation. Results suggest that one's own history with reward systems may be relative as evidenced by the order-effect observed where those who read the team-based reward system were more positive in all responses than those who read the individual-based outcome scenario first. The age of the participants also has a significant impact on perceptions of fairness and satisfaction with the allocation scheme. Older participants felt the team-based reward scheme was fairer than the individual-based scheme. Whereas, younger participants felt the individual-based reward scheme was fairer.

The participants felt that the actors would be most satisfied in the reward scenario that maximizes their own financial gain. If given the preference, the

participants indicated that they would feel more motivated working in an individual-base reward scheme. This preference suggests that the participants most likely consider themselves to be high performers. This is consistent with the profile of individuals who choose to pursue MBA degrees. Nevertheless, the participants' perceptions of fairness lean toward the team reward scenario and significantly so when the participants read the individual-based reward scenario prior to reading the team-based scenario.

Preferences for either a team-based or individual-based incentive scheme may stem from one's own performance level, the nature of the project (e.g. can individual performance be measured), whether the rules for allocation are clear, and if the team members have a voice in establishing the distribution scheme.

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APPENDIX

Table 1. Survey Questions that Followed Each Scenario

1.	The bonus given in the project was fair to all parties
2.	The bonus should be given based on experience
3.	The bonus should be given based on past and current performance
4.	The bonus should be based on how much the individual contributed to the project
5.	If you were Noah, you would be satisfied with the bonus
6.	If you were Jerry, you would be satisfied with the bonus
7.	You would want to work for a company that had this reward structure
8.	This reward structure would motivate you to increase your performance

Table 2. Team-based rewards versus Individual-based rewards

All Observations:	ALL		
Reward Allocation	TEAM	INDIVIDUAL	p-value
The bonus given in the project was fair to all parties	3.71	3.36	0.085
The bonus should be given based on experience	2.73	2.44	0.139
The bonus should be given based on past and current performance	3.41	3.30	0.606
The bonus should be based on how much the individual contributed to the project	4.17	4.14	0.839
If you were Noah, you would be satisfied with the bonus	3.42	4.30	0.000*
If you were Jerry, you would be satisfied with the bonus	3.94	2.92	0.000*
You would want to work for a company that had this reward structure	3.50	3.53	0.877
This reward structure would motivate you to increase your performance	3.36	3.98	0.004*

Table 3. Response differences between Questionnaire Versions

Observations by Instrument Version	TEAM-1st			IND-1st		
	TEAM	IND	p-value	TEAM	IND	p-value
The bonus given in the project was fair to all parties	3.83	3.77	0.827	3.61	2.97	0.032*
The bonus should be given based on experience	2.81	2.61	0.512	2.67	2.27	0.152
The bonus should be given based on past and current performance	3.65	3.48	0.586	3.18	3.12	0.840
The bonus should be based on how much the individual contributed to the project	4.26	4.06	0.387	4.09	4.21	0.573
If you were Noah, you would be satisfied with the bonus	3.58	4.55	0.000*	3.27	4.06	0.005*
If you were Jerry, you would be satisfied with the bonus	4.00	3.13	0.003*	3.88	2.73	0.000*
You would want to work for a company that had this reward structure	3.71	3.97	0.286	3.30	3.12	0.550
This reward structure would motivate you to increase your performance	3.58	4.16	0.044*	3.15	3.82	0.039*

Table 4. Reward Allocation Segregated by Questionnaire Version

Observations by Reward Allocation	TEAM REWARD			INDIVIDUAL REWARD		
	TEAM-1st	IND-1st	p-value	TEAM-1st	IND-1st	p-value
The bonus given in the project was fair to all parties	3.83	3.61	0.404	3.77	2.97	0.008*
The bonus should be given based on experience	2.81	2.67	0.641	2.61	2.27	0.205
The bonus should be given based on past and current performance	3.65	3.18	0.117	3.48	3.12	0.237
The bonus should be based on how much the individual contributed to the project	4.26	4.09	0.487	4.06	4.21	0.450
If you were Noah, you would be satisfied with the bonus	3.58	3.27	0.306	4.55	4.06	0.017*
If you were Jerry, you would be satisfied with the bonus	4.00	3.88	0.644	3.13	2.73	0.202
You would want to work for a company that had this reward structure	3.71	3.30	0.156	3.97	3.12	0.002*
This reward structure would motivate you to increase your performance	3.58	3.15	0.206	4.16	3.82	0.192

Table 5. Questionnaire version segregated by age

Observations by Reward Allocation	TEAM REWARD			INDIVIDUAL REWARD		
	Under 27	27 +	p-value	Under 27	27 +	p-value
The bonus given in the project was fair to all parties	3.60	3.95	0.214	3.48	3.14	0.296
The bonus should be given based on experience	2.83	2.55	0.360	2.57	2.18	0.167
The bonus should be given based on past and current performance	3.52	3.18	0.273	3.43	3.05	0.235
The bonus should be based on how much the individual contributed to the project	4.29	3.95	0.188	4.31	3.82	0.015*
If you were Noah, you would be satisfied with the bonus	3.14	3.95	0.009*	4.31	4.27	0.868
If you were Jerry, you would be satisfied with the bonus	3.83	4.14	0.270	2.81	3.14	0.325
You would want to work for a company that had this reward structure	3.33	3.82	0.107	3.55	3.50	0.875
This reward structure would motivate you to increase your performance	3.07	3.91	0.017	4.21	3.55	0.014*

Table 6. Team- versus Individual- Based Rewards Segregated by Age

Observations by Age	Under 27			27 +		
	TEAM Reward	IND Reward	p-value	TEAM Reward	IND Reward	p-value
The bonus given in the project was fair to all parties	3.60	3.48	0.627	3.95	3.14	0.032*
The bonus should be given based on experience	2.83	2.57	0.308	2.55	2.18	0.249
The bonus should be given based on past and current performance	3.52	3.43	0.695	3.18	3.05	0.739
The bonus should be based on how much the individual contributed to the project	4.29	4.31	0.886	3.95	3.82	0.654
If you were Noah, you would be satisfied with the bonus	3.14	4.31	0.000*	3.95	4.27	0.315
If you were Jerry, you would be satisfied with the bonus	3.83	2.81	0.000*	4.14	3.14	0.005*
You would want to work for a company that had this reward structure	3.33	3.55	0.371	3.82	3.50	0.393
This reward structure would motivate you to increase your performance	3.07	4.21	0.000*	3.91	3.55	0.331

Table 7. Reward Preferences

		TEAM-Based	INDIVIDUAL-Based
Version A	n= 26	38% (10)	62% (16)
Version B	n= 28	54% (15)	46% (13)
Total	n= 54¹	46% (25)	54% (29)

¹ 10 participant responses are excluded from this table because of missing data.

PURSUIT OF ACCREDITATION: IMPACT OF ACCREDITATION COSTS ON TUITION

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ABSTRACT

This paper examines the accreditation of collegiate business schools and programs. According to the latest statistics almost one-third of all college students in the USA are majoring in business. This means that whatever colleges or universities are doing in their business studies departments represents a large chunk of the resources of the school and begets policies likely to reverberate throughout the institution. A concrete example of this is when business faculty shift from a teaching load of 7 courses per year (or more) to a teaching load of 4 courses per year in order to provide adequate time for the scholarly research required for AACSB certification. The result of this is either larger classes or more faculty members, or both. Access to higher education is a critical public policy issue and tuition cost is a major factor in students' decisions regarding college attendance. As more and more schools pursue AACSB accreditation, which is strongly tied to faculty research and publication, the extent to which this drives up tuition can have a huge impact on the numbers of students able to pursue bachelors, masters, and doctorate degrees.

INTRODUCTION

AACSB accreditation of business schools/programs is a nongovernmental accreditation over and above the regional accreditation that schools must have in order for students to be eligible for government grants and loans. It is therefore voluntary. However over the last forty years the number of U.S. schools pursuing and achieving this accreditation has soared, from 150 in 1970 to 469 in 2010, and more schools are actively in the process of seeking accreditation. This represents 29% of all U.S. schools with business schools/programs, and another 19% of U.S. schools are accredited through the ACBSP and 8.8% through IACBE.

There are two strong forces at work pushing more and more schools into the accreditation pipeline. First is the perceived status that comes with accreditation, especially AACSB accreditation. There is ongoing discussion as to whether or not at some point so many schools have the accreditation that an institution is no longer distinguished by having it, but will be stigmatized if it does not. This debate is beyond the scope of this project. The second force, of immediate concern is the cultural and political push for standards and accountability in education at all levels. To the extent that colleges and their students believe that AACSB accreditation represents meeting minimum standards and accountability via periodic reaccreditation there is created even more of an impetus for all schools offering business programs to be accredited.

Accreditation is expensive. The paradigm for regional accreditation has changed from something that is "lived through" every ten years to an ongoing, systematic, continuous process (Bardo, 2009). This is something that virtually all colleges and universities in the U.S. engage in, with the costs factored into the budgets and then becoming part of

the calculation of student tuition. If schools are also chasing programmatic accreditation for their business programs then this adds to the costs which adds to the tuition bill. Business schools/programs represent only one portion of a college or university, but increasingly they encompass more and more of the students, almost one-third of all college students in the U.S. are majoring in a business discipline (AACSB 2010).

AACSB accreditation has been shown to increase faculty publications and it raises the salaries of the business faculty at accredited schools (Levermier and Miles, 1992). But to date no research has shown that student outcomes are improved in any way when a school becomes AACSB accredited. This raises several issues for public policy. Should programmatic accreditation be encouraged or discouraged, or will the government continue to remain neutral? There is evidence that the government intends to become aggressive about institutional accreditation and to increase its role in regulating higher education (Bardo, 2009; U.S. Department of Education, 2006). If programmatic accreditation, over and above institutional accreditation, is desirable how can it be achieved without raising, or substantially raising, tuition costs to students? Is programmatic accreditation more desirable if it can be shown to improve student outcomes? And if so, do we move toward a model of accreditation that encompasses all business programs to ensure that all students have access to the same education?

Higher Education Accreditation in the USA

The United States does not have a centralized authority that exerts control over postsecondary educational institutions in the country. The U.S. government does have a Department of Education and the head of this department is The Secretary of Education which is a cabinet level position.

Education has existed within a cabinet level position only since 1953 when it was part of the new cabinet position of Health, Education and Welfare, and then achieving stand alone cabinet status in 1979 when the cabinet position of Secretary of Education was established. Meanwhile postsecondary educational institutions have been engaging in accreditation activities using the peer review process since the latter part of the 19th century.

This peer review process of accreditation, specifically designed to be non-governmental and to forestall government intervention, remains the basis for virtually all accreditation of postsecondary educational institutions. Thus the USDOE is limited to recognizing accrediting agencies that have applied for recognition as follows:

“The U.S. Secretary of Education is required by statute to publish a list of nationally recognized accrediting agencies that the Secretary determines to be reliable authorities as to the quality of education or training provided by the institutions of higher education and the higher education programs they accredit. The Secretary only evaluates accrediting agencies that apply for recognition, and certain criteria for recognition that are unrelated to the quality of accrediting activities limit the scope of the Secretary's recognition activities.” (USDOE, 2010)

The USDOE recognizes accreditation agencies for the accreditation of postsecondary educational institutions only, and only for accrediting activities within the United States. Schools from outside the U.S. that are accredited by a recognized accrediting agency are not included in the USDOE Database of Accredited Postsecondary Institutions and Programs and the procedures used by the accrediting agency in evaluating the school have not been reviewed by the USDOE (USDOE, 2010).

There are seven regional accrediting organizations that collectively cover all 50 states and these seven organizations accredit the majority of postsecondary educational institutions and virtually all of the public colleges and universities and most of the private institutions as well. Because the criteria for USDOE recognition of an accrediting agency is so narrow, as acknowledged by the USDOE, many accrediting agencies first require that an institution be accredited by a regional accrediting agency as a condition of applying for accreditation from their agency. This ensures that the agency's accredited schools will be listed in the USDOE database since the regional accrediting organizations are all USDOE recognized.

The regional agencies provide accreditation for institutions as a whole and not for specific disciplines or programs, nor does the accreditation of the institution as a whole guarantee the quality of any program within the institution. Thus many postsecondary institutions pursue specific accreditation for programs for which it is required such as many health care related fields and legal studies programs as well as for programs that are competitive in nature either in initial entry or in which bachelor degree graduates are competing for spots in graduate programs.

Accreditation of Collegiate Business Schools and Programs in the USA

The USDOE does not recognize any of the accrediting agencies providing specific accreditation for schools of business within a university or college or business programs within postsecondary educational institutions. U.S. institutions that desire accreditation for their business schools or programs look primarily to three U.S. based accrediting agencies, and more recently some schools have pursued accreditation through the European Foundation for Management Development (EFMD).

Association to Advance Collegiate Schools of Business International (AACSB) is the oldest, best known, and still most prestigious (Cochran, 2007; Roller, Andrews, and Bovee, 2003) of the three business program accrediting agencies in the U.S. Started in 1917 by 17 elite institutions AACSB was the sole U.S. accrediting agency of business schools until 1988. Many schools joined AACSB as members but historically only a small fraction applied for and achieved accreditation. In 1988 AACSB had 260 accredited members, representing approximately 10% of the nearly 2400 institutions that had business programs (Cochran, 2007). These accredited schools tended to be large and research oriented (Roller, et.al., 2003). During this 70 year period the standards for accreditation were universal and placed a heavy emphasis on faculty research. Over the last 30 years AACSB has introduced a separate accreditation for accounting and revised their standards twice. First in the early 90's to accommodate smaller and more teaching intensive institutions mission-linked standards were introduced, and again in 2004 a change adding the PQ (Professionally Qualified) designation that would apply to faculty who did not have doctoral degrees in a business discipline but did have qualifications as a professional in their field. By 1996 AACSB had 326 accredited members and 551 in 2007 (Francisco, Noland, and Sinclair, 2008) and as of January, 2010

there were 579 accredited members of which 469 (81%) are U.S. schools and 110 (19%) are schools outside the U.S. (AACSB, 2010). The 469 accredited U.S. schools represents 29% of the U.S. schools offering business degrees at any level (AACSB, 2010).

In 1988 the Association of Collegiate Business Schools and Programs (ACBSP) was founded, in large part as a reaction to both the real and perceived inflexibility and research oriented bias of the AACSB accreditation standards. ACBSP was believed to provide an avenue for smaller and more teaching intensive institutions to receive accreditation for their business programs (Cochran, 2007; Roller, et.al., 2003). ACBSP is the only U.S. business school accrediting agency to give accreditation to 2 year programs (Associates degrees) and the institutions granting only 2 year degrees constitute 50% or more of ACBSP accredited institutions (Roller, et.al., 2003). Approximately 320 U.S. business school programs have ACBSP accreditation which is 19% of the U.S. schools offering business degrees at any level (AACSB estimates there are 1,621 postsecondary schools in the U.S. that offer degrees in business). 59 schools outside of the U.S. have ACBSP accreditation. In June of 2010 ACBSP changed its name to Accreditation Council for Business Schools and Programs (ACBSP, 2010).

International Assembly of Collegiate Business Education (IACBE) is the third U.S. based accrediting agency and was founded in 1998. While ACBSP addressed the issues of institutional size and teaching orientation in designing their accreditation standards their standards were still based heavily on those of AACSB and seemed still too rigid and prescriptive. IACBE focuses on "rigorous outcomes assessment and continuous improvement process" (Roller, et.al. 2003, page 198). As of September, 2010 IACBE has 162 accredited institutions with 140 in the U.S. and 22 in 13 other countries (IACBE, 2010). The 162 U.S. schools represent about 10% of all schools. (See Table 1 below)

Table 1

Agency	# schools Accred.	# schools outside U.S.	# schools inside U.S.	% accredited of all U.S. schools
AACSB	579	110	469	29%
ACBSP	379	59	320	19%
IACBE	162	22	140	10%
EFMD	128	125	3	<.1%

Much has been written about the impact of attaining accreditation; increased faculty salaries (Levernier and Miles, 1992), the changing nature of and evaluation of business school faculty work (Ehie and Karathanos, 1994; Henningger, 1998; Srinivasan, Kemelgor, and Johnson, 2000), and of course the effects of AACSB's modified standards (Jantzen, 2000; Yunker 2000; Francisco, et.al. 2008). Such discussions, while important, are beyond the scope of this paper.

However this paper is concerned with the increasing number of institutions seeking accreditation. Currently 58% of all U.S. postsecondary institutions offering business degrees are accredited by one of the three agencies.

Cost of Pursuing and Maintaining AACSB Accreditation

Heriot, Austin and Franklin in their 2009 paper actually put a dollar figure on AACSB accreditation. Based on their survey of 10 schools that had either achieved accreditation within 18 months or were formally in the active process of applying for accreditation they identified the costs of the initial application process as well as ongoing yearly costs directly related to maintaining accreditation.

The one-time costs were identified as consultants, mock review, peer-review team and infrastructure upgrades. The average total expenditure for all four items (summing the averages of each) was \$54,704.

The ongoing costs were identified as faculty salaries, recruitment, technology, professional development, library holdings and information access, and AACSB International dues and conference participation. The average increased annual expenditure (summing the averages of each) was \$413,743.

The impact of this on students is smaller than expected, with the cost per student of initial application \$13.76 and the cost per student of annual maintenance \$104.08. This calculation is based on the 10 schools surveyed with an average enrollment of 3,975 students. With college tuition costs averaging \$20,000 per year at public institutions and \$35,000 at nonprofit private institutions \$104 is not going to make or break the tuition budget on a per student basis (National Center for Education Statistics). If one school was to spend the maximum amount reported in every category then the initial cost could be as high as \$92,000 or \$23.14 per student and the annual costs \$985,000 or \$247.80 per student. Only in this latter case do we start to hit

numbers high enough to possibly impact student's ability to pay and attendance decisions.

These costs do not seem to be a deterrent to schools hoping to achieve accreditation as there were 156 schools seeking initial accreditation when the study was done (Heriot, et.al., 2009). It was noted that one school was facing an opportunity cost of \$400,000 per year in needing to reduce programs and thus forgo tuition revenue from these programs. Are the true costs of achieving and maintaining AACSB accreditation accurately calculated or could they be higher? As college costs have continued to increase at a pace that outstrips inflation what will the actual yearly costs of maintenance be in the future?

AACSB offers a separate and distinct accreditation for accounting programs, which far fewer schools have to date achieved. However a school choosing to pursue and maintain both accreditations could be doubling the costs, and thus the impact on tuition rates.

Implications for Faculty, Administrators, and Students

One of the primary concerns for business school faculty has to do with employability and standards for tenure and promotion. At one time it was required that accredited business schools hire only faculty with degrees from accredited schools. At this time virtually all U.S. institutions offering doctorates in business EXCEPT for for-profit and/or distance programs such University of Phoenix and Argosy are accredited. If accreditation becomes a de facto standard and all schools will hire only faculty with degrees from accredited institutions what happens to the for-profits? And what happens to those faculty who have already earned their degrees through these programs? Will faculty salaries be driven higher with increased competition from the smaller teaching intensive schools for the same faculty or the need to attract PQ faculty from outside academia?

This is further complicated when hiring faculty from different countries is involved. Will U.S. institutions accept faculty with degrees from institutions accredited by a European accrediting agency? And conversely would European institutions begin to prefer faculty from European accredited schools rather than American accredited schools? This could dampen even visiting positions and faculty exchanges.

Administrators have to worry about not only the faculty aspects of accreditation but the institutional requirements. Many schools have been accredited

for years and have invested significant time and money into the initial process and the yearly reviews and periodic renewals. Any significant change in the accreditation landscape could have huge cost implications for an institution needing to change agencies and create even more pressure on those schools not yet accredited. With 58% of U.S. business schools/programs accredited through one of the three U.S. accrediting agencies it seems likely that this number will continue to increase at a rapid rate. Will more European schools feel the need to seek U.S. agency accreditation or will this instead push them away from the U.S. agencies and encourage substantial growth in EFMD or formation of a competitive agency? Would schools eventually need dual accreditation if they wish to have foreign faculty and foreign students?

Students also face a conundrum. What happens to transfer students or even students who wish to study abroad for a semester or two? Will their credits easily be accepted when the institutions involved are each accredited by a different agency? This clash already occurs between schools accredited by a national agency such as the Accrediting Council for Independent Colleges and Schools and regionally accredited institutions (Bardo, 2009). How will this affect financial aid? For U.S. students enrolling at any institution with regional accreditation is sufficient to apply for government financial aid, could this requirement change to require programmatic accreditation?

Suggestions for Further Inquiry and Discussion

The majority of the discussion in the United States about business program accreditation has focused on the tension between smaller, teaching intensive institutions and the larger, research oriented institutions that until 1988 were the only schools with specialized accreditation. Much of this discussion has revolved around the prestige that accreditation is believed to bestow, whether or not this prestige is diluted as more schools gain accreditation, the effect of accreditation on faculty, and other topics that remain of interest primarily to the institutional participants. To date no research has been done to determine if students enrolled in accredited business programs have better outcomes than students at non-accredited institutions.

While some papers have explored the attitudes and beliefs of administrators at U.S. institutions regarding accreditation (Ehie et. al. 1994; Srinivasan et.al. 2000; Roller et. al. 2003) no parallel work has been done involving the administrators of institutions

outside the U.S. Of particular interest would be the reasons these schools chose to pursue accreditation through the U.S. accrediting agencies and how they perceive the emerging EFMD accreditation and the European Qualifications Framework. Are European institutions interested in dropping their U.S. agency accreditation in favor of a European standard?

This paper has focused solely on accreditation for business programs, but many disciplines have programmatic accreditations. Chemistry, Engineering, Psychology, Rehabilitation, Physical Therapy, Nursing and numerous other disciplines all have accreditation programs. Non academic areas of colleges such as libraries and student counseling and career services can also earn accreditations. What is the total cost to an institution of pursuing every available programmatic accreditation? If you cannot do all of them how do you choose which ones to pursue?

Last but not least is the issue raised by Bardo (2009) concerning the inherent conflict between disciplinary accreditation and state level licensing exams. Will graduation from an accredited program be required in order to take the exam as with most bar exams for attorneys? Or will the ability to pass the licensing exam be sufficient obviating the need for accredited programs?

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MENTORING TOGETHER: A LITERATURE REVIEW OF GROUP MENTORING

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ABSTRACT

Researchers have shown the benefits of mentoring in both personal and professional growth. It would seem that group mentoring would only enhance those benefits. This work represents a literature review of peer-reviewed articles that contribute to the theory and research of group mentoring. Four primary types of group mentoring emerged – peer group, one-to-many, many-to-one, and many-to-many. Despite over 20 years of research, significant gaps remain in the research methods, demographic focus, and fields of study. Future research recommendations include better gender balance and broader field representation in samples, more quantitative research, and a better established definition of mentoring in general and group mentoring specifically.

INTRODUCTION

Mentoring provides the capacity to learn wisdom and experience from another who has ‘been there and done that’ (Dansky, 1996; Russell & Adams, 1997). While mentoring is recognized today as having many personal and organizational benefits (Glass & Walter, 2000; Level & Mach, 2005; Wasburn, Wasburn-Moses, & Blackman, 2008), typically, mentoring is researched as a dyadic relationship (Dansky, 1996). If one of the goals of mentoring were to secure the wisdom and experience of others, it would seem that group mentoring – where the wisdom and experience of multiple people is available – would receive greater observation. However, a search of Academic OneFile, Academic Search Complete, and ProQuest databases suggests something very different. A search of these databases using the terms ‘collaborative mentor,’ ‘collaborative mentoring,’ ‘group mentor,’ ‘group mentoring,’ ‘mentoring circles,’ ‘mentoring communities,’ ‘multiple mentor,’ ‘multiple mentoring,’ ‘one to many mentoring,’ ‘peer group mentoring,’ ‘small group mentoring,’ and ‘team mentoring,’ produced only 34 full-text, peer-reviewed articles which contributed to the theory and research of group mentoring. Identifying relevant references from those articles produced another nine full-text, peer-reviewed articles that contributed to the theory and research of group mentoring. Three distinct perspectives to the study of group mentoring emerged from the research. This literature review summarizes the distinct perspectives that have been theorized and researched. It also reviews several typologies including peer mentoring, one-to-many mentoring, and many-to-one mentoring that have been identified in the research. Finally, it identifies significant gaps that exist in the study of group mentoring.

An appropriate first step would be to define ‘group mentoring’ for the purposes of this work. Bozeman and Feeney (2007) included more than a dozen definitions from mentoring research over a 20-year

period. Though each definition contained general characteristics that were similar, nuances throughout the definitions remained. Based on those differences, Bozeman and Feeney recommended several characteristics as a standard measure of mentoring. First, a mentoring relationship is between the mentor who is “perceived to have greater relevant knowledge, wisdom, or experience” (p. 731) and the mentee who has less of these characteristics. Second, a mentoring relationship includes the “the transmission of knowledge, social capital, and psychosocial support” (p. 731) primarily through informal communication. Finally, a mentoring relationship has direct significance to career and/or personal development. Based on these characteristics, studies identified with mentoring terminology but consisting of teaching or study groups were eliminated from the review. Adding the term ‘group’ to the word mentoring, does not make its definition any simpler. As can be seen in the search keywords noted earlier, there are many different designations for group mentoring (also, Ambrose, 2003; Eby, 1997). For the purpose of this work, studies identified with group mentoring terminology were included in the review if the population consisted of a polyad mentoring relationship of more than two people in which the interactions were simultaneous and collaborative. Thus, for instance, relationships where one mentee had two mentors that were never in contact with each other (e.g., Brown, 2005; Crocitto, Sullivan, & Carraher, 2005; Higgins, 2000; de Janasz & Sullivan, 2004; Mezas & Scandura, 2005) or relationships that involved one-to-one mentoring and included group components that the mentor did not regularly participate in (Adler, Martin, Park, Rey, & Tan, 2007; Utsey, Howard, & Williams, 2003) were not included in this review despite the use of similar terminology. Additionally, the term ‘group mentoring’ is used throughout this work as a general term to represent all of the different types of group mentoring including peer group mentoring (PGM), one-to-many mentoring (OTMM), many-to-one

mentoring (MTOM), and many-to-many mentoring (MTMM).

THE DEVELOPMENT OF GROUP MENTORING THEORY

Using nearly 10 years of research material, group mentoring theories developed in the mid-1990s. The development of these theories centered on attempts to take the strengths of one-to-one mentoring (OTOM) and combine it with the benefits of group learning.

The first and most often quoted theoretical work in group mentoring is Kaye and Jacobson (1995). In their work, they identified what became a common model for OTMM. They recommended placing four to six less experienced group members with a mentor to creatively approach topics, analyze personal and professional development, share advice, and meet psychosocial needs (p. 24). Kaye and Jacobson also identified five tasks for successful mentors: (a) be a guide, (b) be an ally, (c) be a catalyst, (d) be a perceptive insider, and (e) be an advocate.

Another theoretical work during this time was the case study of group mentoring by Limbert (1995). The mentoring group consisted of new female faculty at Penn State Shenango campus. Meeting times for this group were very flexible and locations varied. However, the consistent component was that every meeting shared personal and professional experiences of the women. The group recorded the professional sharing experiences and sent them to administrators who were mostly male. The group did this so that the administrators would be aware of the progress of the women. After these times of sharing, a discussion time focused on current interest items. Limbert identified ten advantages to the group mentoring model: (a) flexibility, (b) inclusiveness, (c) shared knowledge, (d) interdependence, (e) broader vision of the organization, (f) widened external networks, (g) provided a safe place, (h) developed team spirit and skills, (i) personal growth, and (j) friendships (p. 94-97). Limbert recommended additional study to confirm the results of the case study particularly in the field of female mentorship.

Holbeche (1996) helped differentiate between conventional OTOM and PGM. Due to flatter organizational structures, Holbeche found manager roles to have broader responsibilities. Employees also seemed to be more isolated and pressured which led to lower morale. Holbeche also suggested that due to increased employment competition, environments did not exist for vulnerable and honest recognition of gaps in personal and professional skills. As described by Holbeche, peer mentoring went beyond a network

group. Instead, a peer mentoring group of two or more individuals interacted for the purpose of specific forms of personal and professional development. Holbeche identified challenges to PGM success including suspicion of peers, the need for training, and the argument that peers cannot help each other get beyond their own professional or personal level. However, benefits noted were the collaboration of ideas, mutual understanding, and the development of lifelong learning.

Kaye and Jacobson (1996) built on their earlier work and expanded the theory of group mentoring. In this work, they described the mentor's role as facilitating several necessary components for successful group mentoring: (a) intentional learning, (b) examples of failure and success, (c), storytelling, (d) developing maturity, and (e) a sense of joint venture (p. 44). However, lest a mentoring group turn into a theoretical discussion with no practical application, Kaye and Jacobson recommended two specific ways to connect mentoring with members' job requirements. First, mentors should create learning assignments that include new skills, current task development, and exposure to other areas of organization. Second, groups should gain managers' contributions and recommendations for the group to gain management support.

Eby (1997) created a multi-dimensional differentiation of mentoring models so that typologies of mentoring could be classified. The two dimensions created by Eby were "the form of relationship" and "the type of skill development" (p. 129). Relationship forms identified whether the mentoring relationship was hierarchical or lateral. Skill development identified whether the mentoring intended to develop job-related or career-related skills. By cross-referencing these dimensions, several classes of mentoring could naturally be identified that assisted with categorization of the mentoring models. Eby included in this typology categorization group mentoring models along with non-group mentoring models. The inclusion of group mentoring models, however, provided researchers a means of relating group mentoring to other forms of non-group mentoring.

Seeking to strengthen the personal and professional development of minority students, Haring (1999) applied the group mentoring model to that demographic. The work described traditional mentoring as "grooming mentoring" (p. 11) and the relatively new development of PGM as "networking mentoring" (p. 11). Though not specifically identifying OTMM, MTOM, or MTMM, Haring's

identification of blended models suggested these other forms of group mentoring as well.

The networking characteristic remained prevalent in future theoretical development. Higgins and Kram (2001), for instance, used social network theory as a way of understanding the multiple relationship structure of PGM. Specifically, they cross-referenced network diversity and tie strength to create a multi-dimensional typology for group mentoring (p. 270). Based on that structure, they further suggested factors that shaped mentoring groups including work constraints, work opportunities, help-seeking behavior, interaction style, formal mentor power, orientation toward professional development, and emotional competence. Finally, they integrated these two ideas and showed the developmental consequences to the mentee in career change, personal learning, organizational commitment, and work satisfaction (p. 274).

The explosion of advances with internet technology eventually began to affect the field of group mentoring. Ensher, Heun, and Blanchard (2003) described face-to-face group mentoring and its benefits while comparing those benefits to hypothesized benefits of online mentoring. They suggested that a traditional group mentoring relationship could develop in an online environment albeit more slowly due to the slower development of online relationships. They also suggested that online mentoring could mitigate the difficulty of finding mentors to match with mentees as the internet was significantly less constrained by location, costs, equalization, and demographics (p. 280). They recommended several research propositions focused on the compatibility of traditional approaches to group mentoring and an online environment.

At the same time, Packard (2003) was cultivating the same group mentoring soil as Ensher, et al. (2003). However, Packard applied the concept of web-based mentoring to the specific demography of college women in specialized fields. Due to the small number of women in these fields, Packard stated that mentoring opportunities for these women were limited, primarily by geography and availability. Packard maintained that a non-traditional approach to mentoring in the form of web-based group mentoring provided for both the communalistic approach that women preferred and the connection with similar peers despite geographical separation (p. 57-58). Packard noted that one of the limitations of web-based group mentoring was the lack of advocacy and sponsorship that is typically present in a face-to-face environment. Additionally, she also noted the slower

development of relationships that seemed to be present in online interaction. Despite these limitations, she recommended future research on training and resources – especially for mentors - to overcome these limitations.

Clifford (2003) applied the theory of group mentoring to the female university faculty population. She noted research suggesting that women leaders were underrepresented in a university faculty environment. Additionally, she pointed to studies that highlighted the male bias towards female faculty. Within that context, Clifford theorized that a facilitated group mentoring program would assist female faculty to mitigate these barriers to their success. In theory, the group context would spread the limited mentor resources to more women. Additionally, the group environment would assist women to deal with the separation and partiality that can be felt in a university faculty environment.

As technology increased the opportunity for group-based mentoring, collaboration within mentoring groups gained a greater focus. The research by Wasburn and Crispo (2006) represents one of the first theories for collaborative based mentoring. They developed the Strategic Collaboration Model for businesses. Appreciative inquiry assisted in creating collaborative, trusting relationships within the mentoring group. Members would work together to develop a trusting relationship that nurtured four characteristics: (a) discovery of personal skills and contributions to the organization, (b) identifying ways those strengths can benefit the organization, (c) designing new directions that the organization can move in, and (d) creating an action plan (p. 38). The relationships repeated since they were defined as a circular process. Thus, at the completion of the action plan, the process began again with new information.

Building upon earlier studies, Burgstahler and Crawford (2007) also recognized potential benefits for mentoring through the internet. Their specific demographic were college bound youth with disabilities. Similar to Packard (2003), Burgstahler and Crawford stated that mentoring opportunities for youth with disabilities was limited primarily by geography and availability. They also recommended that establishing an online mentoring community would mitigate the geographical and availability issues. Additionally, they hypothesized that such an environment would create greater empathic connections as students with similar disabilities – though separated by geography – came together online to share their experiences. In the unique population of people with disabilities, they also

hypothesized that mentors would gain as much from the group mentoring relationship, again, due to the empathic nature of similar disabilities. Burgstahler and Crawford used an organizational case study of DO-IT (Disabilities, Opportunities, Internetworking, and Technology) as a working example of online mentoring for the disabled.

After over 20 years of group mentoring research and theory, Bozeman and Feeney (2007) provided an analysis of the theories as well as a critique. As already noted, one of their contributions is an overview of mentoring definitions over a 20 year period (p. 723). Their critique of group mentoring maintained that although benefits to the organization and/or individual may occur in groups, that those benefits cannot be extrapolated to suggest the necessary existence of a mentoring relationship. Their recommendation for defining mentoring was an informal dyadic relationship that required unequal knowledge, recognition of roles, fulfillment of the individual needs of mentor and mentee, and enhancement of work related knowledge (p. 735). Bozeman and Feeney represent the only example in the literature review of a complete dismissal of the group mentoring model as a valid form of mentoring.

Despite the concerns of Bozeman and Feeney (2007), the field of group mentoring continued to diversify its theory by focusing on specific populations of people. An example is Caldwell, Dodd, and Wilkes (2008) who used a case study from the author's personal experience in developing a group mentoring model for nursing students on practice placements. Though the information presented by Caldwell, et al. was not new, it helped to further the field in showing the unique implementation of current group mentoring theory to a specific field. The authors concluded that the model of group mentoring was a superior framework for clinical practice nurses.

Another example of the diversification of group mentoring theory to specific populations is the theoretical article by Wasburn, et al. (2008). They applied a business model of mentoring – Strategic Collaboration Model™ – to the field of teaching. Using a pilot program with female university professors as a case study, Wasburn, et al. suggested that the collaborative PGM model could be successful in reversing the high attrition rates for first year teaching faculty.

The initial theoretical articles on group mentoring began by delineating the differences in various types of group mentoring including PGM, OTMM, MTOM, and MTMM. Though one article critiqued

group mentoring as no different than training, study groups, or friendships, the rest of the literature was supportive of group mentoring and its benefits to organizations. As time went on, the theories began to specialize by hypothesizing the impact of group mentoring on specific demographics and field of studies.

DISTINCT TYPOLOGY IN GROUP MENTORING RESEARCH

Over the last 25 years, researchers have recognized group mentoring as a viable alternative for the development of personal and professional skills – the primary characteristics of mentoring. During that time, research has identified four types of group mentoring: (a) peer group mentoring, (b) one-to-many mentoring, (c) many-to-one mentoring, and (d) many-to-many mentoring.

Peer Group Mentoring

By far, the most referenced article in group mentoring is the research of Kram and Isabella (1985). Their research represents the starting point of group mentoring recognition in the field of mentoring. They hypothesized that peer relationships would be variably supportive and significant at early, middle and late career stages. The researchers chose participants from a large northeastern manufacturing company based on age (due to the career stage factor of the study), gender, tenure and willingness to participate. The six early stage participants were ages 25-35, the five middle stage participants were ages 36-45, and the four late stage participants were ages 46-65. The researchers conducted two interviews with each participant with the first interview intended to develop rapport. In the second interview, Kram and Isabella asked each participant through biographical interviewing to select two relationships that support personal and professional growth. Furthermore, each relationship identified in the second interview was also interviewed twice (once for rapport, once for biographical interviewing) to gain insight into those relationships with the study participants. The researchers used qualitative grounded theory to analyze all data. The data included three developmental peer relationship functions including career-enhancing, psychosocial, and special functions (p. 117). The data also identified a continuum of relationships including information, collegial, and special peers (p. 119). Kram & Isabella cross-referenced the data from the relationship continuum with the stages of career, which made possible the identification of dominant themes of peer relationships at successive stages (p.

125). They concluded by showing the common attributes between peer relationships and mentoring with two important distinctions. In peer relationships age differences and hierarchical levels are not as distinguished. In addition, in peer relationships, the research showed a clear two-way exchange contra the one-way exchange of dyadic relationships. This work laid the foundation for later PGM research.

Eleven years later, Dansky (1996) represented the first PGM study. She theorized that professional associations could function as a source of mentoring. To study this hypothesis, she sought to measure the influence that an affiliation with the Ohio Council for Home Care had on career outcomes. She distributed a survey to 150 women at the 1992 annual meeting of the association. The 88 respondents had a mean age of 41.2 years and a mean job tenure of 4.8 years. The survey questions focused on individual experiences, dynamics, and career outcomes associated with group mentoring. The reliability for the group mentoring scales was $\alpha=.92$. The research indicated that group behaviors promoted feelings of inclusion and belonging, which were a statistically significant predictor of job title. Additionally, role modeling was a statistically significant factor that contributed to salary level. The research suggested that characteristics of group mentoring contributed to job title and salary level.

With Kram and Isabella (1985) and Dansky (1996) as foundations, the research in group mentoring began to multiply much more quickly. Mitchell (1999) hypothesized that mentoring can occur in a group setting. However, when the group that Mitchell was using as a population eventually diminished to only 3-4 participants per meeting, she began to question why. In 1997, Mitchell made available a monthly meeting for mentoring to any member of the Women's Network. During the early meetings, the average attendance was 12. The meetings were informal and yet emphasized confidentiality. A meeting typically consisted of members introducing themselves, presenting a mentee topic and the others in the group participating as desired as mentor. At times, topics continued outside the meeting in OTOM formats. When the group dwindled down, Mitchell mailed a questionnaire to the 31 unique members who attended and received a 71% return. Mitchell did not report reliability or validation information. Data from the survey suggested that there were confidentiality issues for at least two respondents. Another factor was the changing roles within the group with a person likely taking on the role of both mentee and mentor in the same evening. Reasons for

discontinuation included time constraints and less breadth in advice due to the smaller group.

The focus of Glass and Walter's (2000) research was PGM with student nurses. They hypothesized that there was a relationship between personal and professional growth and peer mentoring. In 1995, they studied seven female nurses ages 26-45 years old in the second year of a three year nursing program at Southern Cross University, Australia. This group met weekly for 1 hour for a 12-week period. At each meeting, the group discussed issues from that week that were taken from journals and spontaneous sharing. At the end of the group mentoring time, Glass and Walter collected the reflective journals and interviewed each participant. The researchers transcribed the interviews and used qualitative thematic analysis on both the journals and the transcribed interviews. Glass and Walter confirmed analysis by giving it to participants to verify validity. All participants agreed that the material accurately represented their disclosure during the meetings. The data showed a strong relationship between the peer mentoring and personal and professional growth. Specifically, the support and strength of peer mentoring produced a sense of belonging, understanding of personal dualisms, verbalized vulnerability, validation of feelings, and acknowledgement (p. 157).

Mullen (2000) applied PGM to the field of researchers and university leaders. They hypothesized that mentorship would help to develop leaders in these fields. During the 1997-98 school year in The Florida State University School-The Florida State University, they created a group of 17 members including beginning and experienced teachers, professors, and other school faculty. They met bi-weekly throughout the school year. Researchers taped and transcribed the meetings for qualitative data analysis. Ultimately, they termed their mentoring model a collaborative model since it developed out of the interaction and end-result of the PGM. The data analysis identified several outcomes: (a) hierarchical distinctions were suspended, (b) creative insights were common, and (c) joint projects were pursued (p. 7-8). Regardless of hierarchical position, the participants considered all these beneficial. Given the positive outcomes, Mullen recommended a further pursuit of collaborative mentoring in the academic field.

Using qualitative grounded theory methods, Jackson-Bowers, Henderson, & O'Connor (2001) sought to evaluate the ALIA (SA) Mentoring Group in the Australian library system. The group met in 1998

with 26 participants at the initial meeting. Membership in ALIA was a prerequisite to participating and limited to graduates in library studies who were yet to be employed. With this filtering, the number of members became 17. Membership in the group was for 1 year and membership was open only once per year. The group met monthly for 2 hours and was self-driven and self-funded. Each meeting had a specific theme. In 1999, the researchers evaluated the group using focus groups of 6-7 members. The data analysis of these members clarified that the group provided social support and a safe place to share unemployment issues and develop networking. Despite these positive PGM outcomes, the group eventually evolved into a support group for employment issues.

Ritchie and Genoni (2002) also researched the impact of PGM in the Australian library system. They theorized that PGM would effectively transition new graduate students of library studies into their profession. On a more generalizable level, they suggested that mentoring implemented through a formally structured program with a facilitator would have a positive effect on personal and professional growth. The participants were new graduates in the library field in 1997. They held 11 two-hour monthly meetings with three groups. The experimental group had 23 participants and engaged in PGM. The two comparison groups consisted of a group with no mentor (18 participants) and 22 OTOM relationships. At each of the experimental group's meetings, the group addressed learning objectives. Between meetings, mentors made themselves available for OTOM. Mentors provided feedback to participants at every meeting in response to learning objectives and strategies presented. Additionally, each participant had an opportunity to peer mentor. The participants were encouraged to provide personal and professional support during the meetings. At the mid-year point, researchers conducted a process evaluation to assess participant satisfaction and learning. Ritchie and Genoni gave pre- and post-test questionnaires to participants of all three groups. In order to measure professional identity, the researchers used Hall's Professionalism Scale. Participants self-reported career development and the researchers measured this quantitatively. Through a self-assessment, participants indicated perception of self for psychosocial measurement. Researchers administered Noe's Mentoring Activities Questionnaire (a validated measuring instrument) at the conclusion of the program to confirm that mentoring activities occurred in the meetings. The data showed partial support for a significant difference in professional identity – a component of

professional growth - for those in the mentoring group. Specifically, there was a significant statistical difference in professional identity ($p < .017$) for those in mentoring groups in the areas of 'sense of calling' and 'professional association committees.' The research showed that activities that develop personal growth have a significant effect on developing professional identity. Additionally, activities that develop professional growth have a significant effect on professional identity but inversely. Ritchie and Genoni recommended that the personal and professional growth model developed by Kram and Isabella (1985) that much of the group mentoring research was based on was too restrictive. They recommended that there are three aspects of learning and development: (a) career development (job skills), (b) psychosocial development (personal skills), and (c) professional socialization development (a combination of the first two that assists people to socially fit into their organization).

However, as research continued this was not the only recommended change to the PGM model. Angelique, Kyle, and Taylor (2002) developed a new way of thinking about PGM through their work with a mentoring group at Penn State University's Capital College. There, a total population of 10-15 faculty members, predominantly white male between the ages of 35-55 with multidisciplinary degrees, met twice a month in a PGM relationship. Meetings typically consisted of 4-6 participants regularly attending from the total population of members. Each meeting was non-hierarchical and open to all new, untenured faculty. One meeting per month was social in nature and the other was discussion and job related. The case study presented by Angelique, et al. documented the results of this group. The group helped to ease the transition to post-graduate life, helped in understanding the political climate of the school, and supported participants personally and professionally. However, based on the experience of the group, Angelique, et al. recommended that PGM evolve past simply peer mentoring and become what they termed 'musing.' Where much group mentoring research up to this point sought to identify how to assimilate new workers into an organization, musing groups encouraged evolving participants into agents of change within the organization. This effectively meant that the organization would not shape participants but that the participants would shape the organization.

Following a more traditional route, Pololi, Knight, and Dunn (2004) hypothesized that PGM could facilitate scholarly writing in academic medicine. To test this, Pololi, et al. gathered 18 assistant professors

from a single medical school, 16 of whom held MDs and the other two PhDs. They provided them with a 3-day introduction of the goals and expectations of the program. Then the group held one meeting each month for six months for 9 hours per day. Sessions focused on values, career planning and advancement, knowledge, and skills. At least 75 minutes per session was devoted to scholarly writing by a facilitator who was a physician in medical writing. After each session written responses were collected that reflected on the experience of the session. At the conclusion of the period, each participant reported the number and type of manuscripts submitted and accepted. Interviews were given and taped. The researchers performed qualitative analysis including data reduction, data display, conclusion drawing and verification on all collected data. The data suggested several goals had been met: (a) barriers to academic writing were identified and minimized, (b) knowledge and skills for academic writing were increased, (c) developed individuated writing strategies, (d) fostered positive attitudes about writing, and (e) peer collaboration and feedback contributed to better writing (p. 65-67). Pololi, et al. recommended to situate future studies in a broader context to increase generalizability. Pololi and Knight (2006) would later use this same research to develop a model mentoring program in academic medicine for the US Department of Health and Human Services.

Level and Mach (2005) provided a case history of PGM in a tenured library faculty environment. Three tenure track library faculty initiated a mentoring group that met for 2 hours monthly for informal mentoring. Additionally, they set up a listserv and website to assist with their PGM. There was no formal evaluation and no research analysis done. The researchers collected remarks from participants. The value of this material rests in the positive experience of OTOM and PGM existing in the same organization. Though certainly research needs to be obtained to support this material, if accurate, it suggests that organizations are not in an either/or dilemma of deciding between OTOM and PGM or other group mentoring options.

The dissertation work of Haynes (2005) also contributed to an understanding of PGM. In this research, Haynes questioned how women form support systems within a small college environment and, more specifically, whether mentoring networks would suffice for that support system. Of the 53 women she asked to participate, 31 responded and she selected 20 based on critical incident and demographic surveys. In addition to these surveys, Haynes interviewed the women and had them

participate in focus groups. She performed a qualitative analysis for construct validity and triangulated reliability. The results of the research suggested that women needed support systems flexible enough to allow them to seek the types and places of support that they desired. Formal relations (such as OTOM) were not desired or effective. Depending on the issues at hand and the time of life, the women sought different sources of support at different times. Ultimately, Haynes stated that one of the strongest responses was that the women needed opportunity to meet others and build relationships.

Also attempting to understand the impact of PGM for women, McCormack and West (2006) collected data from female university faculty at the University of Canberra, Australia from 1999-2003. In that period, there were 122 women involved (103 participants and 19 facilitators). Groups of 8-10 women formed across staff levels. Two women from each group facilitated. Each woman had to develop a personal and professional development plan. There was a 1-day workshop and 2 day retreat to give assistance in this. Additionally, the PGM met every other week for 3 hours. There was an additional workshop at 6 months and a year-end celebration. Researchers collected data through questionnaires, focus groups, and interviews. McCormack and West analyzed all data qualitatively with content analysis and mapped the self-reported experiences against program goals. The interviews attempted to examine whether the career competencies of knowing 'why', knowing 'how,' and knowing 'who' contributed to their professional growth (de Janasz & Sullivan, 2004). The PGM met program goals in a number of areas: (a) interconnectedness enhanced outcomes, (b) mentees perceived multiple mentors as a key to success, and (c) using a career competency matrix facilitated evaluation of a mentoring program (p. 426-427).

PGM research was also international for the study by Barboza and Berreto (2006). They hypothesized that PGM was the facilitating mechanism for learning to develop both intra- and inter-groups. The study represented the largest group mentoring study to date with 2,143 participants covering 91 urban and rural areas in Chiapas, Mexico who were part of a micro-loan program. In this program, groups of peers met together and determined a product that the individual peers could produce and sell. The group took on the responsibility for repayment of the loan necessary to purchase materials for the product. This created an intense peer pressure to choose a product that could be sold. Data was from AISol's official transaction records of weekly payments from July 1999 up to the week of July 2, 2001. The researchers cross-

referenced twenty variables with four models of groups with *p* values provided for all of the 57 relevant correlations. In summarizing the research, the authors stated, “learning by association through peer mentoring is at the core of the micro credit success.” Additionally, their research showed that successful PGM groups had corollary positive effect on other groups that they came in association with.

For the study by Hadjioannou, Shelton, and Dhanarattigannon (2007), PGM returned to the educational field. They studied a mentoring group that formed within a doctoral program at a small university. The group consisted of four graduate students and a professor though the professor was not always present and the group functioned more as a peer group with some professorial input. Meetings were self-regulated and at the end of the PGM, written reflections were gathered. The researchers gave no information on the data analysis. Based on the feedback, the PGM encouraged instructional support, participation in the academic community, participation in an academic discourse, dealt with practical aspects of being a graduate student, improved writing, and fostered emotional support. To the researchers, this result seemed consistent with other similar studies that reported data analysis validity and reliability.

The research of PGM consistently supported the hypothesis of the researchers. In general, they sought to identify whether PGM had personal and professional growth benefits for participants. In summary, the primary benefit of PGM is in its broader network of collaborative input into personal and professional needs. However, researchers also realized that groups could easily get off track if there was not proper facilitation or dominating personalities.

One-to-Many Group Mentoring

Shortly after Dansky (1996) planted the seeds of PGM research, Burke (1997) was bringing the field of group mentoring in a different direction. For his dissertation work, he hypothesized that sociomoral reasoning development can be enhanced using group mentoring. His population consisted of 257 6th grade and 271 8th grade students in a medium sized New England community school. Twenty-seven (22 female, 5 male) to 31 (27 female, 4 male) university students served as mentors. The mentors trained in sociomoral reasoning and took the Defining Issues Test before and after training to assess changes in their moral reasoning. After this, mentors met 3 days per week with 3-4 students each for discussion and

Life Skills education. At the end of the period, all students took The Sociomoral Reflection Measure, The Interpersonal Reactivity Index, The Self-Perception Profile for Children, The Teacher-Child Rating Scale, and The Child Rating Scale – all of which are valid and reliable instruments. The results were not supportive of the hypothesis, as the data did not show superior gains over control groups though other populations have found a OTOM process to be effective. Reasons that Burke gave included possible environmental issues or different developmental stages from past research.

Similarly, Challis, Mathers, Howe, and Field (1997) were also pursuing new opportunities in OTMM. They evaluated the “efficiency (effort expended) and effectiveness (distance travelled) of a model of continuing professional development for general practitioners through individual portfolio-based learning” (p. 22) in OTMM. The research took place at the General Practice Continuing Medical Education Tutors in the Department of General Practice at Sheffield University in 1994. Thirty-four volunteers divided into two cohorts. One cohort participated in portfolio-based OTMM and the second took a normal post-graduate education route. During the course of six months, three meetings took place. The first meeting reviewed the format of the program and the consideration of developing educational plans. At the second meeting, each member shared with the rest of the group the learning plan they had developed. In the third meeting, members identified and articulated learning that had taken place over the six-month period. The researchers performed interviews of randomly selected participants from both cohorts at the period mid-point. Once the period was completed, Challis, et al. surveyed all participants on how they considered learning needs and objectives had been met, the amount of time involved, and the involvement of other members. They then transcribed all this material as necessary and qualitatively analyzed it using grounded theory. The analysis of the data revealed that although general practitioners are normally tentative in sharing gaps in their knowledge, the OTMM format allowed them to be more relaxed about this and collaborate with each other. The mentors indicated that eventually, this turned into a structure more like PGM than MTOM since the mentor could share their own learning needs with the group.

Another literature review item for OTMM did not surface for another 10 years. The research by Gareis and Nussbaum-Beach (2007) theorized that online mentoring is as effective as face-to-face in both

personal and professional outcomes. To prove this, they identified 13 novice teachers from interdisciplinary backgrounds from Virginia, Florida, and Arizona (10 female, 3 male, all Caucasian) who received a \$25 honorarium for their participation. Eleven veteran teachers with interdisciplinary backgrounds from Alabama, California, Florida, Michigan, Missouri, North Carolina, and Virginia served as mentors. The teaching experience of the veterans ranged from 5-31 years with an average of 20 years. The program lasted for 1 year. During this time, an online mentoring community was established where the mentees could present information to the mentors and the mentors would post material that would be relevant to the mentees. Garies and Nussbaum-Beach tracked who was communicating with whom, why they were communicating, and what they were communicating. The content was analyzed qualitatively with a coder reliability of .87 or greater. The data showed that participants communicated in a networked fashion rather than in a linear fashion. Additionally, mentors provided the primary function of communication since they were the primary posters. The function of why they were communicating consisted of modeling, questioning, prompting, and reflecting material. Finally, the content primarily related to professional competencies. Gareis and Nussbaum-Beach recommended further research that would compare this online material with face-to-face mentoring to see if there is comparable content and outcomes.

Kavanagh and Crosthwaite (2007), on the other hand, attempted to apply OTMM to students. They hypothesized that OTMM could strengthen technical knowledge, time management, and team participation skills in chemical engineering students. In 2004, the researchers assigned 4-6 students to chemical engineering faculty creating five mentoring teams. Each team had several meetings (usually three) throughout the semester that lasted for 30-60 minutes. In addition to this, there were weekly tutorials and workshops designed for cooperative learning. Prior to a mentoring meeting, each participant submitted a document reflecting on and evaluating his or her personal educational performance between meetings. During the meeting, mentors would initiate discussions regarding team dynamics. After the period, Kavanagh and Crosthwaite surveyed all the students. Additionally, they interviewed two of the groups due to their strong cohesiveness and dynamic. An outcome of the research was the identification of various roles for the OTMM mentor. Kavanagh and Crosthwaite identified these roles as mother, devil's advocate,

expert witness, and polymorph (p. 73). Since the researchers provided no validity, reliability, or analysis information in the article, whether these roles are generalizable is unfortunately unknown.

Another example of OTMM research is by Yeh, Ching, Okubo, and Luthar (2007). They hypothesized that PGM would dramatically increase social connectedness in high school age Chinese immigrants. Yeh, et al. analyzed the PGM developed with four high school students who acted as peer mentors for 23 other students (13 females and 10 males) in a New York City school. The mean age was 18 with a range from 17-20. The mentees were living in the US an average of 4.2 months and all were immigrants from mainland China. The researchers assigned each mentor 5-6 students based on linguistic and cultural match. Three graduate students pursuing degrees in counseling psychology trained the mentors. Additionally, the mentors received course credit and a small stipend. The OTMM met for one semester once per week after school. Additionally, the mentors met individually with each mentee once per week. Group activities, exercises, and monthly social events were included during the semester to build relationships and build support. At the beginning and end of the period, all mentees took the Academic, College, Career Help-Seeking Scale, and the Social Connectedness Scale, the Inventory of Parent and Peer Attachment (Trust and Need for Closeness modules). Yeh, et al. had each of these scales translated into Chinese following rigorous translation procedures. Paired samples *t*-tests compared mean differences between pre- and post-test scores. Data analysis showed that the mentees had significantly higher peer attachment trust scores at post-test ($M=3.38$, $SD=.58$) than at pre-test ($M=3.17$, $SD=.60$), $p<.01$. Additionally, mentees had significantly higher need for closeness scores at post-test ($M=2.57$, $SD=.73$) than at pre-test ($M=3.37$, $SD=.61$), $p<.01$. Other scores did not change significantly between pre- and post-test. Though the results did not support the significant differences in social connectedness that Yeh, et al. sought, it did underscore the advantage of peer attachment and need for closeness in the transition from one culture to another.

Another research study of the OTMM model in the education field was Darwin and Palmer's (2009) research. They theorized that a OTMM model could be more effective than other mentoring models in the population of university faculty. In 2006, they studied three groups of 6-8 participants (20 total participants). The participants represented both experienced and new faculty at the University of

Adelaide, Australia. Over a six-month period, the groups met eight times for two hours each with a mentor who gave advice, social support and shared information about the organization. One group stopped meeting before the end of the period. Darwin and Palmer gave a survey to all participants at the beginning and end of the period. In addition, they conducted focus groups with nine participants to explore issues from the survey. Responses suggested that the program was a good one but that time constraints would keep the participants from using it again in the future. Participants indicated concerns regarding the compatibility of personalities, lack of motivational material, no defined theme, and discomfort with the collaborative environment. Darwin and Palmer provided no data analysis or statistical significance information so generalizability of results is uncertain.

The research in OTMM has left more questions than it has answered. Three of the six studies were unable to support their hypothesis. Two additional studies gave no data analysis, reliability, or validity information, making the generalizability of the research uncertain. The one study that did provide data analysis and reliability was uncertain as to how its research compared with other forms of mentoring. In all, although it would seem as though OTMM would overcome some of the barriers inherent in PGM, the research that has been done to date cannot give any indication of whether that is accurate or not.

Many-to-One Group Mentoring

Still another direction pursued in the group mentoring research was the study of MTOM. The first article that appeared in the literature search was from Packard, Walsh, and Seidenberg (2004). Packard, et al. theorized that the best mentoring environment for college women would be through MTOM. They studied the mentoring of 261 college women from a liberal arts women's college in the northeast U.S. (146 first year students, 115 fourth year students). The researchers selected participants based on age (falling within the typical ages for first and fourth year students) and the presence of former mentoring experiences. They collected data using an online Likert-type scaled survey. If participants did not respond to the online survey, Packard, et al. sent a reminder five days prior to the close of the period. Packard, et al. reported reliability for each of the various sections of the survey (between $p < .05$ to $p < .0001$). The results of the research were not exactly what Packard, et al. anticipated. They found that first year female students preferred OTOM but that fourth year students preferred MTOM. They suggested that

the unexpected difference could be to developmental differences between the two age groups.

The research of Souto-Manning & Dice (2007) was also in the education field. They hypothesized that MTOM would decrease the attrition rate of inner city teachers of color. In that study, two university faculty experienced in inner-city teaching used collaborative action research as a mentoring model for a first-grade Latina teacher as she transitioned into an inner-city teaching environment. A school-assigned mentor proficient in primary grade education joined the group at times. During the first semester, this group met regularly and the Latina teacher documented her experience through a journal. In the second semester, other new teachers joined the group as they noted the Latina teacher's enthusiasm. The data from the journal and post-mentoring interviews were analyzed qualitatively using content analysis. The MTOM experience was of great encouragement to the teacher and professionally satisfying to the university faculty. All involved became learners moving beyond the power hierarchies that they came to the MTOM with. Other researchers would need to develop similar research on a much larger scale to determine its generalizability.

Though little research exists for MTOM, these two studies suggest that there are great opportunities for future research in multi-tiered mentor structures that allow for bi-directional collaboration to occur.

Many-to-Many Group Mentoring

Before providing the review of literature for MTMM, it might be helpful to define the difference between MTMM and PGM since the two may seem synonymous. This work identified MTMM when two or more people within the mentoring relationship were clearly distinguished in a mentoring role. For PGM, then, the role of mentor shifts within the group. For MTMM, on the other hand, the group has identified the role of mentor for the life of the group with two or more people within the group.

Allen, Russell, & Maetzke (1997) hypothesized that mentee satisfaction with a current MTMM would result in a greater likelihood of that mentee becoming a mentor in the future. Allen studied 68 full time, 1st year MBA students from a large southeastern university. Each group consisted of 4-5 of the 1st year students randomly coupled with two to three 2nd year MBA students from the same school. The groups met for an eight-month period after which Likert-type surveys were distributed with a 92% response. Tolerance for all factors, except age and full time work experience, which ranged from .37 to .93, fell

within standards. All of the patterns had statistically significant values ranging from .65 to .94 ($p < .05$) (p. 496). The results showed that the degree of personal and professional development within the mentoring relationship was related to satisfaction of that relationship. Allen, et al. also showed that satisfaction was not dependent on the amount of time spent but the quality of the time spent. The research showed that a beneficial mentoring relationship was positively related to willingness to mentor in the future. Finally, their research showed that female students were more willing than male students were to mentor in the future. Allen, et al. suggested that this last point might have been due to a difference in anticipated rewards of mentoring others.

The next example of MTMM surfaced in the literature search in the study of Levine, Hebert, and Wright (2003). They hypothesized that MTMM would provide experience for medical fellows to learn and practice skills related to effective mentoring while also assisting residents to overcome barriers to mentoring such as available mentors, time constraints, and limited mentor skills. At the same time, the researchers expected that MTMM would provide mentees with multiple approaches, viewpoints, and teaching values. The study consisted of combining two General Internal Medicine fellows and a faculty member with two residents. The group met for 18 months with the residents meeting with both the team and with individual mentors from the team. The mentors also met together to debrief and discuss improvement in the mentees. Levine, et al. conducted a qualitative analysis of experiential feedback, assessment of goal completion, and benefits and/or hindrances to professional growth. The data suggested that mentors were able to use MTMM as a means of 'training in action.' Additionally, the mentees felt significantly more supported in their scholarly work.

Another example of MTMM used in the medical field is the research of Chandler (2005). She hypothesized that MTMM could be used to develop leadership behaviors critical in the nursing field. The study combined an instructor in a school of nursing, a graduate teaching assistant, 20 sophomore teaching assistants, and 240 freshmen. The twenty sophomore teaching assistants mentored six to ten freshmen. The graduate teaching assistant and faculty instructor in turn mentored the sophomores. The primary topic of the mentoring was the development of curriculum for the freshman class. Chandler gave the sophomore teaching assistants a Conditions for Work Effectiveness Questionnaire before and after the period. Additionally, Chandler interviewed the

graduate teaching assistant and she transcribed the interview for qualitative analysis. The article does not specify the type of qualitative analysis. For the sophomores, the perception of support and relationship scores went from the lowest choices possible to the highest choice. Additionally, a waiting list after the program to become a sophomore teaching assistant seemed to demonstrate to the researcher that personal and professional growth had occurred. Chandler recommended that future study measure long term results adding RNs into the mixture of students. This, she suggested, could lead to other disciplines on campus using this same model.

Friedman & Wallace (2006) used a case study method to identify the impact of collaboration between English, education, and high school faculty. In Year 1, six education and English participants and three high school faculty met bi-weekly to share, read, and discuss topics relevant to their field. In Year 2, the education and English participants worked with each individual faculty to observe and mentor a student teacher. Finally, in Year 3, the group repeated a similar structure as Year 1. The researchers collected from participants recorded discussions, field notes, interviews, and reflective essays and then qualitatively analyzed the material using content and text/talk analysis. One of the primary outcomes of this study was that all participants of the mentoring relationship had identifiable gains through the relationship. For instance, the pre-service teachers had a better understanding of the environment they were entering through interaction with school faculty and administration. Additionally, the school faculty more quickly embraced the new teacher. Furthermore, the university faculty readjusted their curriculum to better prepare future students.

The last example from the literature on group mentoring – and specifically MTMM – is the research of Saarnivaara and Sarja (2007). They hypothesized that dialogic (encouraging exploration, experimentation, and risk taking) mentoring would assist in students transitioning into their field of study. To test this, Saarnivaara and Sarja studied five in-service groups of comprehensive schoolteachers from different schools. Groups were made of 1-3 experienced teachers and 2-5 new teachers. The mentoring group would elaborate on different action models that were available to the new teachers so that they could meet predefined goals. The experienced teachers act as mentors but in a non-hierarchical manner. The researchers recorded some of the meetings. After the period, Saarnivaara and Sarja interviewed the new teachers and mentors. They then

analyzed all data from a perspective of organizational discourse. From their observations, they suggested that dialogic mentoring in a MTMM model allowed for contradictions and difficulties to be raised which refocused the meetings on emotional engagement with the vulnerability that this refocus created. This format also allowed new teachers to modify their perspective of their organization with the support of the mentor. The data also suggested that MTMM assisted in developing collective engagement that the mentees identified as necessary for teachers to have.

The MTMM model has had positive results similar to the results of PGM including a broader network of collaborative input into the mentees' personal and professional needs. However, in MTMM, the researched weakness of PGM – the lack of a more experienced individual to guide the growth – is mitigated as multiple mentors are recognized to fill this role.

DISCUSSION AND FURTHER RESEARCH

Of the four mentoring types distinguished in the literature, it would seem as though MTMM has the most promise for future research. PGM has been the most researched (55% of research articles in this work) of the four models. It has identified both personal and professional growth benefits to participants. Perhaps its greatest contribution is the collaborative input that it provides for mentees. However, one of its greatest obstacles remains the opportunity for PGM to get sidetracked – either becoming something less than mentoring like a support group or losing direction through poor facilitation skills or dominant personalities. The research of OTMM has been either less than reliable or inconclusive as to the benefits and outcomes of this model of mentoring. MTOM has shown possible benefits but it is difficult to generalize given that only two studies surfaced for this model. However, MTMM has shown that it produces similar benefits to PGM without losing its focus because of dedicated and recognized mentor roles inherent in the model. Future research should seek to study further this model of mentoring in studies that are more generalizable.

When considering the demography of the studies and specifically gender, a vast majority of the studies have been mixed (79% of the research articles). Female populations have made up the other 21% of articles. Though the research seems to conclude that communal activity for women has positive effects both personally and professionally, researchers have not identified what benefits – if any - communal activity through group mentoring might gain for men.

This represents a tremendous gap in the research that needs to be bridged.

Another significant gap is revealed when examining the field of studies that have been researched in group mentoring. The educational (defined as research with populations made up of either students and/or teaching faculty), medical, and library fields represent 86% of the research articles (52%, 24%, and 10% respectively). Other research studied a manufacturing population and a micro-loan population. These populations could represent the business field (though social services may be a better field to identify the micro-loan population with). However, these two studies represent only 7% of the total research done. Excluding the educational field, more theoretical articles have been written than all the rest of the research fields in group mentoring. Future research should bridge this gap by identifying the benefits and barriers to group mentoring in other fields of study.

Additionally, a review of the analysis types used for data reveals a strong proclivity for qualitative analysis (48% of the research articles). Although a valid form of analyzing data, a more balanced use of qualitative research would provide a broader understanding to the models of group mentoring.

Finally, the researchers of group mentoring cannot ignore the lone critique of Bozeman and Feeney (2007). Not only must the field of mentoring come to a better definition of what mentoring entails but also it must then distinguish it between other similar types of learning opportunities such as training and small groups.

As one reads the articles on group mentoring, there seems to be little doubt that opportunities to enhance the field of mentoring exist by using group mentoring. However, there exist significant gaps in the understanding of the benefits and barriers to mentoring. Further research as recommended will assist in developing this tool so that its use is as effective as possible.

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EFFECTIVE DELIVERY OF ACCOUNTING COURSES UTILIZING ASYNCHRONOUS AND SYNCHRONOUS WEB BASED TOOLS IN ONLINE/HYBRID PEDAGOGIES

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ABSTRACT

Pedagogic delivery of accounting courses has steadily progressed from the traditional lecture/recitation format to the utilization of course management computer systems. Within this metamorphosis, course management systems have continually matured, providing the instructor with a number of asynchronous/synchronous tools. These allow both live and archived approaches to course presentation. This paper will examine these approaches and discuss best practices, usage of previously recorded archives and course content, and links to professional organizations. Challenges for instructors including startup learning curves, and student resistance will be discussed.

OVERVIEW AND DEFINITIONS OF LEARNING ENVIRONMENT

All schools to some extent have been influenced by the steady rise of technology in the classroom. Higher education institutions have continually put capital resources into electronic classrooms, computer labs, and software systems to support the various pedagogical efforts of schools, tracks, programs (McIntosh, 2005). Some colleges and universities have offered full online degree programs; this is not only the University of Phoenix, Capella, Walden's of the world, but also the traditional bastions of higher education. Certainly, some of this is financially motivated, but a wide range of programs and professors have determined this activity is useful for everyone involved.

The past ten years in higher education has seen a tremendous surge toward course management software, i.e., Blackboard (and its merger with Webct) and the open source Moodle application and additional supporting software such as Wimba, Camtasia, and many others, that provide exceptional functionality for the interface between instructors and students.

There are various names given to this electronic learning environment. Virtual Learning Environment (VLE) was defined in higher education as a system that controlled all aspects of a course through a consistent user interface standard throughout the institution. Within this VLE concept, software systems known as Learning Management Systems (LMS) were developed for the delivery, tracking and management of education offerings.

LMSs were defined as systems for managing educational records and distributing courses over the Internet and offering features for online collaboration. Finally, Learning Content Management Systems (LCMS) evolved as software for authoring, editing, and indexing e-learning

content (courses, reusable content objects). In any hosting environment controlled by a higher education institution, a LCMS may be structured to produce and publish course content, or it can host the content itself.

ENHANCING STUDENT LEARNING

A group at Winona State University reviewed fifty years of research on the methods employed by instructors, i.e., the methods of instruction and the ways students learn. Their objective was to identify practices, policies, and institutional conditions that result in powerful and enduring undergraduate education (Sorcinelli, 1991). They concluded the following seven principles related to good practice: 1) encourages student – instructor contact, 2) encourages cooperation among students, 3) encourages active learning, 4) gives prompt feedback, 5) emphasizes time on task, 6) communicates high expectations, and 7) respects diverse talents and ways of learning.

Applying these practice principles along with online best practices delivered later in this paper should promote successful accounting courses in online and hybrid environments. Additionally, using online tools with these practices can be utilized to augment the traditional classroom setting, providing additional tools for both the instructor and student.

ACCOUNTING FOCUS

This paper will focus on the impact of accounting program courses, both in delivery mechanics but also the use of supporting software from vendors, software companies, professional institutions, government, and publishers. These best practices are applicable to all levels of accounting education including: financial, managerial, intermediate, advanced, cost, auditing, AIS, taxes, fund/governmental, and ethics courses, at both the undergraduate and graduate levels.

The accounting programs have seen the development of increased media rich supporting products from the text book publishers. Each has a stable of Power Points, testing programs, instructor manuals, quizzes, tours of facilities, etc. Additional materials include McGraw Hill's Connect and Wiley's Wiley Plus online products, both of which offer for additional fees, the ability to conduct online homework assignments and/or quizzes. The results from these supplements can report in many different structures including performance, AACSB assessment results, plus many other levels of functionality and reporting. These offerings are often referred to as Computer Aided Assessment tools.

Certainly at our institution, we use both of the above plus others in supporting our Accounting program, and its assessments in meeting the various goals and objectives of our Balanced Scorecard initiatives, but also to support Middle States and AACSB accreditation efforts.

Additionally, there has been an impressive rise in the development of University Alliance programs offered by the commercial ERP/accounting vendors. SAP, Oracle, Microsoft, NetSuite, and others have developed formal programs for the integration of these software systems into the heart of the accounting courses for real-life experiences with live software. Some of these are somewhat expensive to implement, while others are free to the colleges within certain guidelines.

Still, there must be a "Project Champion" to diligently work to make implementing the technology learning tools a success. The "Project Champion" must learn the systems, proselytizing the benefits to attract other faculty, develop or modify databases and exercises, deal with updates and enhancements, and file reports. Access to all of these can be integrated with Blackboard. Examples and procedural approaches can be created in Wimba archive form to assist students in access and mastering fundamental aspects of the accounting programs. Some faculty also use social media software, such as YouTube to create instructional approaches to access via websites and materials, or simply for accounting blogs.

IMPLEMENTING ASYNCHRONOUS & SYNCHRONOUS ACCOUNTING COURSE MANAGEMENT

Startup leaning curves

Accounting faculty members have obvious requirements to be excellent instructors, develop research skills, have papers accepted for publications,

perform presentations at conferences, and conduct public/institutional service. In addition to these requirements, the last ten years has generally also seen an increasing need for acquiring and developing online instructional skills to deliver courses in an online or hybrid mode and do so effectively (Zabriskie & McNabb, 2007).

Definitionally, online courses are those that are delivered via distance education parameters and all activity occurs online, often using some type of course management software. Hybrid courses are those that mix online and traditional approaches. For example, a hybrid course may meet one day per week for a lecture or classroom problem solving experience and all other meeting activities occur online, including testing, discussions, exercises.

Accounting faculty members are presented with the challenge of not only delivering their courses in a very foreign manner, but also encountering a sometimes steep startup learning curve in using these software delivery systems. Certainly there are some fears and trepidations of looking less than expert in front of classes, whose members may likely possess better computer and Internet skills than the instructor. So it is essential that higher education institutions provide training, in various levels, as well as live support to help both the instructor and the students in this area (Geary, Kutcher, Porco, 2010). It could easily take 40 hours of instruction and preparatory work on the part of the instructor simply to take on the challenge of presenting an online/hybrid course.

Publishers have been helpful in this area through the offering of pre-developed course content for Blackboard that can be easily downloaded and installed on the college's system. The courses are feature rich and significantly reduce development time. But in many instances, the faculty member may find that a course does not exist, and many hours of development are necessary to create a viable product. That product will also be subject to continual modifications for errors, revisions to principles and standards, and enhancements (Grandzol, 2004).

Instructors brave enough to take on the role of an online instructor in a synchronous environment face even greater challenges. Online classes pose a threat to untenured faculty, since they often do not receive the same evaluation grade levels as the traditional classes. They must not only master a new technology for dealing with students in a live setting, where they really cannot see them or what they might be doing, in addition to effectively delivering the course materials. The blackboard of the traditional

classroom may not exist, but tools within the course management systems can easily facsimile the tools necessary, such as virtual whiteboards, examples in Excel, PowerPoint slides, and virtual “hands-up” tools.

Synchronous vs. asynchronous delivery

At first glance, synchronous and asynchronous are intimidating and possibly unknown words to the instructor. Asynchronous is the way most of us interface with a computer system. One participant enters material/data/email, and waits for a response. That response could be quick or delayed, depending on availability of the recipient. In synchronous activity, both parties are online and can respond to each other immediately, emulating very closely a “face-to-face” environment.

Each approach has its advantages and deficiencies, challenges and benefits. An instructor really has no idea if one or the other approaches will work until experiencing some instruction and live operation of course management systems under both approaches. Instructors must evaluate what type of courses and course content can successfully be conveyed using these methods.

Wimba

Wimba is one of a number of software applications solutions for collaborative learning and services to the education industry. Effectively, this is a web conferencing tool adopted to facilitate distance education delivery. These products extend past the use of web conferencing technology and provide solutions that improve and enhance the student learning experience, improve student engagement, and support business priorities in a timely and cost efficient manner. Each can provide multiple approaches, for example, does the instructor desire to be seen during the class by all students utilizing a web cam?

One benefit of using Wimba and similar products is that they are generally focused exclusively on education. The products and services are used by teachers, students, and administrators at schools and universities globally. Realistically, these products provide students, teachers, and administrators a comprehensive live collaboration environment. This environment can be utilized for dynamic instruction, efficient meetings, and effective delivery of academic and administrative help. Certainly accounting program faculty meetings can be conducted on line using this product without the need for onsite meeting coordination.

Technology tools needed

Teaching an online/hybrid course using a course management program similar to Blackboard and a conferencing tool comparable to Wimba requires that the instructor have a number of technology tools available for effective presentations. Some of these are software while others are hardware. It is highly recommended that both the students and the instructor access these online resources from a broadband Internet connection, unfortunately most of the tools are bandwidth intensive and a dial-up connection would be insufficient.

In terms of workstation hardware, a relatively new computer with at least 4 GB of memory is a good starting point. More memory, both RAM and permanent storage, i.e., hard disk capacity is always a positive for performance. Additionally, acquiring the newer versions of Windows operating system and Internet Explorer web browser with all appropriate updates and security patches should be a priority. The Microsoft Office productivity suite along with the proper conversion software for multiple versions of Word, Excel, PowerPoint, etc. will greatly enhance the experience. The use of Adobe Acrobat for the creation of PDF files is beneficial for sharing resources with your students who may not have access to the Microsoft Office applications. Avoid using clone Office systems they will be enough of a challenge when your students utilize them and forget to convert to the proper file formats. The choice of a laptop over a desktop offers the flexibility of being able to work virtually anywhere.

A synchronous instructional setting is greatly enhanced when a student has the ability to see their instructor as he/her is lecturing from within Wimba. The acquisition of a webcam (both embedded in a laptop screen and independent units) and microphone are essential. Many laptops now come equipped with embedded webcams or a standalone unit may be used. An instructor has the option of using the embedded microphone in a laptop, however using a high quality USB headset with a connected microphone that can be adjusted is the optimal solution for the best audio quality. It is important to remember to turn up the volume as you speak or record—students can always adjust the receiving volume on their end. Microphone position is also a consideration which is why we recommend that you avoid using microphones that are desk mounted. The sound quality is not the best, plus you must bend over to the microphone to do your speaking—this can be an ergonomic nightmare, if you are also holding down the control key while speaking in Wimba.

Consider the purchase of Dragon Naturally Speaking or similar voice recognition software offerings to promote your productivity in responding to questions or discussion posts that are asynchronous. Dictating the answers and having a Word file created automatically greatly improves your productivity. Also, a screen casting product such as Camtasia will be very helpful when you wish to create videos of some aspect of the course. Camtasia allows for editing your presentations prior to releasing them to the class. These can be embedded in Blackboard, Wimba or similar products and also social media sites such as YouTube.

Student resistance and drawbacks

As with any technology tool or environment, you need to anticipate that students will likely encounter some challenges and voice resistance with direct opposition or simply lack of participation. An immediate and known consequence of online courses is that the students never receive the face-to-face interactions with the instructor and other students. Courses that are offered online also present instructional obstacles that must be overcome in forming groups to complete assignments or study groups to master the material. Most non-verbal cues are lost in cyberspace when students cannot connect on a personal level with other students. Communication is easy; however the interpretations become more difficult.

Student learning styles have been studied for more than three decades in an attempt to improve the instructional design of courses and better understand how students learn. Historically, four approaches to learning have been explored: (1) personality, (2) information processing, (3) social interaction, and (4) instructional preferences, as part of Kolb's learning styles inventory (LSI) (McCarthy, 2010). These learning styles need to be considered in the development of accounting courses using online and hybrid delivery systems within a LCMS.

The personality approach describes personality types or character traits existing in students. The experiential learning model promotes a process where effective learning occurs when the learner experiences the entire four cycles. Each student develops their learning style preference favoring one part of the cycle over the other, although styles are not in concrete and may change. Social interaction examines the behavior of students in the classroom. Fuhrmann and Jacobs developed a model that identifies students as dependent, collaborative, and independent. Instructional preferences concentrates

on teaching methods and the learning environment (McCarthy, 2010). These four approaches need to be considered in the development of any online/hybrid accounting course.

Accounting faculty members face a challenge when trying to integrate different learning styles into an online course. However it is possible to develop instructional design to accommodate all learning styles. "Experiential learning, or active learning, interactive learning, or "learning by doing" has resulted in positive outcomes" (McCarthy, 2010). Most educational experts are in agreement that in situations where students take an active role in the learning process their learning is optimized (Smart & Csapo, 2007). Understanding experiential learning theory and linking these concepts to classroom practices will facilitate educators to promote learning utilizing better online classroom tools.

Technology is always the "100 pound gorilla" in online environments. Student must face and overcome challenges related to computing equipment, communication equipment, power issues, firewall constraints, software issues both in functional usage and different versions, Internet comprehension issues, operator failures, and simply the challenges of using products like Blackboard and Wimba. Finally, the user's learning curve in the various software packages and Internet environment is a factor. No one, including instructor or students, wants to look incompetent in front of the other course members, as they stumble through exercises and activities that others have presumably easily mastered.

Similar to traditional classroom settings, the instructor must address lack of participation, whatever the reason, by students in the online class. Likewise, the instructor must be vigilant to control the inevitable 2-3 students who can dominate all discussions and problem-solving activities. Instructional delivery methods may need to be modified to promote greater student engagement to elicit participation from all members of the class. Encouragement and support needs to be distributed to reluctant members. Many students are quiet by nature or uncomfortable with the technology, e.g. Wimba, but they must be encouraged and assisted in overcoming mistakes and missteps and provide a meaningful contribution to the collective learning experiences.

BEST PRACTICES

In a series of articles summarized in a special report from the online Faculty Focus website, Dr. Lawrence

Ragan, the Director of Instructional Design and Development for Penn State's World Campus, identified ten online teaching best practices to promote effective distance education delivery. As he indicates in his articles, the traditional delivery methods of our pedagogies have withstood the development and evolution over time, including syllabus, location of classroom, time frame for the course, etc. But in distance education, often these parameters are undeclared, not integrated with a mission statement or defined goals and objectives.

Some faculty find themselves inventing and innovating for the first time, while others have progressed to a "reinvention" of sorts and a constant evolution of the delivery method. One important aspect to consider is that by integrating best practices, the institution can eliminate uncertainties about responsibilities of the faculty member and the essential role that faculty should play in the online course. Schools need to clearly define and communicate expectations related to online performance and behaviors of faculty. In the following paragraphs, we will attempt to relate these best practices to an accounting course and discuss possible strategies for effectiveness. It is important to recognize, that there have been many pronouncements of "best practices", and generally they convey the same issues.

#1 Show up and teach

Instructors often have a fear of online classes because they are concerned they are shackled to the course 24/7 during the semester. It is a real concern! How much time should be devoted to the course, especially given that the Blackboard session can be kept live 24/7, and monitoring that course is a "click away"? This can easily lead to frustration and burn out. Likewise there is faction of faculty and administration that thinks the course teaches itself, and the workload is primarily on the student to perform, read the chapter, answer the questions, participate in discussion posts, take exams, etc. Instructors must clearly define expectations to their students in terms of the frequency of class logins and set realistic thresholds for response times to online communication that is received.

Accounting faculty members quickly realize that in traditional "face-to-face" course delivery, students have different motivational abilities and learn in different ways. Accounting problems and solutions/strategies often need to be shown and explained in more detail than the textbooks portray. Problems/exercises often need to be explained in the

context of the real world with examples. Certainly the various texts provide instructor manuals with solutions for all questions/exercises/problems/cases, but with little explanations and sometimes with inaccuracies.

Utilizing Blackboard and Wimba for an accounting class, foundation level to advanced classes requires a reasonable amount of invested time prior to the start of the course. For example, utilizing the Wimba archive capability, an instructor could create a series of Excel templates related to each chapter assignments in the syllabus. These can then be shown with recorded solutions and the strategies to accomplish the problem parts. A chapter with six assigned problems could be recorded in an hour or less with additional time for the Excel worksheet development. These can also be distributed to the students to work on while they listen/observe the archive demonstration. An alternative is to utilize an audio podcast and make these available for each assignment. Unfortunately, these do not provide the same step-by-step solution strategy. As an example, in the author's cost accounting classes, demonstrations of job cost sheets, production cost reports, standard cost variance analysis, calculations and comparisons of ROI/EVA/Residual Income are just a few areas where this technology becomes invaluable.

If instructor creates a chat room and established chat times, or online Wimba sessions, it is imperative that the instructor be present, answer questions, provide strategies for success, and provide additional instruction and guidance as necessary. To ignore these aspects of the course, only leads to frustration for the student, and subsequent poor ratings for the course.

One additional factor to consider in this area is to create a Frequently Asked Questions (FAQ) area for students. This avoids the constant overflow of email questions that a faculty member swore was answered one hundred times already. For example, courses requiring McGraw Hill's Connect or Wiley's Wiley Plus products could create a FAQ area answering all aspects of how to register and pay for the products, enter the system, answer the questions, and interpret the feedback. Once created, these are easily copied within a Blackboard section for subsequent semesters/courses.

As an online or prospective online instructor, it is imperative to understand the time pressures of the course management. The above archives should be created and organized prior to the start of the course.

If an instructor understands that a consolidation worksheet in Advanced Accounting is a typically difficult area to master, this should be a focus of these archives and developed prior to the week the material is covered in the syllabus. Course demands are too dynamic to allow this work to be put off until needed and then react in a JIT format.

#2 Practice proactive course management strategies

It is critical for the online instructor to take a very active role in course management, especially considering that there is a major shift in roles between the instructor and student in online courses. This can be an extremely frustrating factor in the course, especially for relative novices in online teaching. The student inherits a great deal of the course responsibilities, but the instructor needs to remind students about due dates, assignments, exams and suggest tools like the “Calendar” and “Announcements” in Blackboard. These can be used very effectively to keep students on track in accounting courses.

A key point here that Ragan emphasizes: “the challenge for the online instructor is to find the degree of interaction and intervention that works with the dynamics of their online classroom. The goal is to structure the course management strategies so that the online learner is able to control their own learning experience.”

In an accounting course, especially using Blackboard and Wimba, plus a product like Connect from McGraw Hill, the course is very structured with due dates in the syllabus. Now, the instructor can augment this learning by conducting Wimba online sessions to meet with the class and progress through PowerPoint slides, use live excel spreadsheet analysis, highlight captured “white-board” notes, or simply create a series of Wimba archive presentations with recorded voice or video to demonstrate key strategies or solutions. Additionally, using breakout chat rooms, students can be broken into groups for projects, and discussions. The instructor can easily switch from one chat room to another and support the discussion live, or simply listen. The instructor may determine how active or passive their interaction needs to be in the class.

Much of this instructor/student interaction is a function of class size and instructor time. This instructor finds that he always spends more time in online classes than the traditional courses. Regardless, the key to a successful course is communication. The instructor needs to be very

vigilant in clearly defining and communicating expectations and course deliverables. Instructors generally become more adept at this process as they gain experience in this course delivery mode.

#3 Establish patterns of course activities

There are four key elements to this best practice: 1) establish and maintain a predictable course pattern of activities, 2) use syllabus or course information page for communication, 3) use dynamic communication methods to inform class of unplanned schedule changes, and 4) provide an instructor “work schedule” related to the course and instructor availability.

These elements are critical if the instructor is to maintain any degree of sanity. Without these, the online instructor will feel “chained to the course” and exhibit degrees of exhaustion trying to maintain a 24/7 schedule to be proactive to the needs of the course students.

These are relatively easy to establish in any accounting course. The first key is to create a very detailed syllabus, with work due dates and details. This syllabus development will be viewed favorably from AACSB accreditation perspectives, especially if some linkage is demonstrated between learning goals and assessment measures. Using Blackboard features such as the Calendar, Syllabus, Announcement, and Assignment tools will facilitate these activities.

Wimba, live and archive sessions, along with chat capabilities will help communicate these functions. Specifically using the calendar tool, chapters and homework assignments, term papers, discussion post due dates, assignments related to AIS related university alliance programs, and online quiz products from publishers can all be detailed with this tool, and greatly facilitate communication. Once due dates have passed, many of these elements can be hidden to help avoid confusion for the students.

#4 Plan for the unplanned

Online instructors encounter two types of unplanned events that can jeopardize the continuity and schedule of the course: 1) technology issues, making the online resources for the course unavailable for hours or days, and 2) personal issues such as travel, illness of the instructor or family members, deaths, conferences, etc.

In the first situation, having a “disaster” plan and policy in place and communicated at the beginning of the class, works strongly to avoid the plethora of

emails and anxiety of students when inopportune technology events happen, such as Internet provider issues, server disruptions, weather related events. Make certain to communicate a policy that indicates that if technology is disrupted for more than a few hours, due dates are automatically extended an additional day to treat students fairly. Accounting students also need to be aware of planning and executing activities and are constantly reminded that waiting till the last minute to complete assignments is a dangerous practice. Also, if these failures occur in the last hour or two of assignments, no additional time will be given.

One suggestion is to use a product similar to Wimba where lectures, PowerPoint presentations, solution strategies can be developed, and used repetitively for consecutive semesters. Additionally, a product like Camtasia can also be used to develop these archives. (Camtasia recordings can be edited for content while Wimba sessions can only be deleted in total and rerecorded—hence the rule to keep these relatively short in duration.)

This instructor has developed a series of these by chapter for managerial and cost accounting chapters. When the current semester Blackboard sections are created (for both traditional and online/hybrid courses) all previous Wimba archives also are recreated. The instructor then has the option to make these available to the students on an “as needed basis” or hidden from the students until needed, and can be activated quickly when personal issues arise. Additionally, calls to school/departamental support persons can also activate these in a pinch.

#5 Response requested and expected

An online instructor for any type of accounting course, traditional, online, or hybrid when using a course management tool such as Blackboard, must establish clear expectations for responses to issues. It is unrealistic for an accounting instructor who may be teaching four sections of three different accounting courses and have 140 students, to be available 24/7 for students, within the course.

Instructors should clearly institute the “one day” response rule to email inquiries. Instructors need to communicate the frequency of their online activities and how they will respond, both during the week and on weekends. Responding quicker than the established guidelines may be perceived positively by students. Also indicate that if students need greater discussion of their issues, to include a phone number that the instructor may call and the time frame for that call. If chat sessions are an integral part of the

course, then time frames for these should also be established and followed meticulously.

Finally, if a multitude of the same question, issue, problem, assignment error become apparent in emails, it may suggest a refinement to the instructions or the content, or the follow up for the instructor. A global response to all students may be required to ease anxiety. For example, recently in a publisher homework manager/quiz system, two multiple choice questions were discovered to have incorrect answers in a managerial group of classes. The instructor communicated in a global message to all students in all the sections of managerial accounting, that the two questions would be disqualified from the quiz, and “X” points were awarded to all students for the errors.

#6 Think before you write

One of the well-documented issues of online communications, e.g. email, discussion post responses, chat rooms, etc. is that the receiver of the communications cannot take visual cues from the sender, i.e., the demeanor, facial expressions, tone of voice. Often these communications do not promote the exact meaning of the discussion at hand, and there may be erroneous conclusions on both the sender and receiver’s perspectives.

Likewise, “netiquette” issues come into the forefront without any negative intentions, but may also be a generational issue. Certainly, what instructor has received an email with abbreviations in the document that leaves him/her confused as to meaning? Text messaging has its own language and if the instructor is not a persistent and fluent user of text messaging, the entire meaning of a communication may be unknown. Consequently students also bear some responsibility in these communications failings or difficulties. For example, a student may include the ubiquitous “LOL”. Does this mean “lots of love” or “laughing out loud” or any number of other meanings?

Regardless, accounting professors need to refine and improve communications at all times with their students online. The accounting professor needs to take the lead, and establish guidelines for proper online communications and etiquette particularly in public discussion posts and chats, anywhere in particular where the entire class may have access.

An aid to progressing through these issues may be a Blackboard or Wimba area or archive where a FAQ, or frequently asked questions can be available at all times. The advantage to Wimba, is that student can also see downloaded video along with the audio, and

can pick up on the visual cues. If the professor needs to modify these frequently, creation in Camtasia, where editing is possible, may be the appropriate choice.

In addition to FAQs, a database of feedback responses can be created to assist in communications with students. An additional tool many instructors find invaluable is a speech recognition application such as Dragon Naturally Speaking. This tool allows an instructor to dictate a response to an email or discussion post or a prevalent question. This software then converts the response to a Word file. A quick read of the Word file and a spell check should make a much fuller response available. Often when responding to 30+ discussion posts, instructors attempt to make these as brief as possible to not take an inordinate amount of time in typing responses. Unfortunately, key points may not be fully explained or discussed, again leading to miscommunication. Using the dictation tools should help mitigate this problem.

#7 Help maintain forward progress

Earlier in this paper, a one day response time was discussed as a reasonable parameter for instructor interaction with student communications. The issue then becomes; is this also reasonable for gradable submissions? Is two days reasonable to grade exams, especially when there may be a few stragglers, posting online homework/quiz software earned grades to the grade book, posting grades to extensive discussion posts when ten questions are asked, posting grades from audit practice sets that inherently take a significant amount of time to decipher? Certainly all accounting professors in all courses face these obstacles. Professors need to keep in mind that this is a “customer service” best practice proposition, which may be difficult for many more tenured faculty, especially new to online pedagogies.

Feedback parameters should be generally established in the face-to-face orientation class, along with syllabus review. However, these should be updated for each event, if the instructor feels it will be impossible to meet these, e.g. two day responses and postings of grades.

Students in online/hybrid accounting courses may feel some isolation, particularly in feedback of submitted work. Often they may only see a grade without any idea of mistakes made, errors in conceptualization, etc. Instructors need to provide answer files for students to review the recommended solutions vs. their submissions. Again, the use of screen casts or Wimba Live Classroom archives

becomes particularly effective. The instructor can create a presentation, reviewing the exam questions and demonstrate the correct responses and methods to achieve them. This can easily be accomplished in one hour or less, using Excel files or Power Points to demonstrate correct answers and solution strategies. Students can obviously determine their errors or misjudgments and correct for future submissions.

A facilitating suggestion here is to not use email for the responses, but instead use a discussion post area or an assignment tool area in Blackboard where deadlines can be “hard”, i.e., a student cannot submit once the deadline has passed because the system will “lock out” responses. Certainly students will attempt to bypass this with emails. A policy for this contingency needs to be established and communicated along with the dissemination of the gradable event. Likewise, the accounting professor needs to also identify exceptions to this guideline for illnesses, deaths, and similar excusable events.

In all situations, the accounting professor must determine if institutional policies, guidelines, standards or cultural practices exist and need to be considered.

An example of this difficulty is in our managerial accounting classes, where we employ McGraw Hill's Connect product for online quiz testing. We allow the student to make three, non-timed attempts to secure the highest possible score out of a possible 20 points for each of ten chapter quizzes. We typically have six to seven sections of managerial accounting on different day/time schedules, and often classes get ahead or lag, particularly in winter when weather conditions cause cancellations.

These are all traditional classes, but use Blackboard as a course management tools during the semester, often because most instructors are adjuncts. We provide no feedback after an attempt, which causes a great deal of frustration among the students. We were forced to take this action because of past unfavorable actions among students where the correct answers were guessed at and then the correct answers shared among the students, resulting in most students earning 20 points, but many doing unpredictably poorly in exams. When presented with alternatives, the students always overwhelming chose this approach rather than a “one-attempt” quiz/assignment with immediate feedback.

#8 Safe and secure

This best practice supports the concept of using embedded email systems within the course

management system, for all communications with students in the course. Certainly the instructor and the students may have one or more email systems. However in creating an audit trail of communications, it is imperative that the instructor require course related communications within the course capabilities. Trying to use some external email system complicates communication and makes it difficult to track a thread on some particular issue with one or more students.

Each course management system maintains the full breadth of communication history, including all emails, discussion posts, and assignment submissions. In addition, it also tracks accesses, postings, dates and times of transactions within the system. Using this approach, it becomes much easier to track and manage all student/instructor communication activity, especially if it becomes necessary to document these actions. Additionally, the entire course and all of its components and activity can be backed up/archived at the end of the semester, and reloaded to the host system if necessary in the future.

Therefore, the accounting instructor must define early in the course, the appropriate methods for students to interact with the course and submit assignments, receive and deliver communications, and receive feedback. The student also is protected to some degree in this best practice. Should the student submit any of the above, the student will also have a record of validation for these submissions. The systems ensure confidentiality and security, with the proper access to the system using userid/password validation.

Instructors and students need to be aware that unfortunately the use of embedded email systems within Blackboard prohibits the ability to check email from mobile devices and smart phones.

#9 Quality counts

When we consider the state of technology available to all persons, instant communications is available using all manner of digital devices, i.e., phones with video, flip recorders, and others. Additionally, social media sites such as YouTube and Twitter provide an almost instant public blog transmitted to a wide range of recipients. Consequently, the emerging technologies and capabilities of instant delivery provide a real threat to the quality standards of the course materials in an online/hybrid course.

Quality assurance takes on a paramount role, and instructors need to address the course quality and

integrity of the important course components: 1) content accuracy, 2) instructional design, and 3) overall system performance. As an accounting course offering, the accuracy of the overall content should be reviewed prior to the start of the course, preferably in a "peer review" perspective by another accounting faculty member or graduate assistant, as a set of "fresh eyes". If problems are found, they should be corrected before the start of the course. Once the course begins, communications indicating the error reporting by students is encouraged and supported.

Instructional design is more challenging and probably should be addressed after the course has been offered multiple times. An expert in design or a very experienced accounting faculty member could be engaged to review and make recommendations. Also, input from student course evaluations is critical to identifying these potential deficiencies. Quality of the system performance may be as simple as reviewing all icons and system links, verifying they all work properly. In Blackboard, the instructor would want to change to "student view" and observe how the functions operate for the student.

One of the very difficult challenges is using publisher's courses and homework/quiz additional sites. This is often exacerbated with the introduction of new text versions or major upgrades to existing course materials. Most resources from the major publishers such as McGraw Hill, Pearson, Wiley, Cengage and others undergo significant quality control before release, but errors are still discovered and should be reported to the publisher.

#10 (Double) Click a mile on my connection

The final best practice is somewhat a combination of a number of previously listed practices. Additionally, it is hoped that the educational institution provide internal control over compatibility issues. Difficulties with browser versions, firewall difficulties, software version compatibility are always prevalent. Hopefully instructional help sites, phone support and help lines work to resolve problems.

Some environments are generally very stable such as Blackboard, as a relatively mature information system. Other technologies such as Wimba, may not be as stable and confound students on occasion. We have found that some students always have difficulty with software regardless of their individual abilities. Web Browser plug-ins such as Java have a tendency to be problematic. It is always recommended that students take the time to run and mediate any issues identified in the vendor supplied browser checks. Other issues can be traced to simply insufficiency of

memory in their computers. Others have unstable internet connections. In some of these instances, using campus facilities will generally overcome the problems, but for distance education students far from campus, the problems may not be completely solvable, especially in business locations where in-house security concerns restrict various accesses or modifications.

Certainly nothing could be worse than an instructor who invests a great deal of time creating accounting chapter Wimba archive lectures and problem strategies, and willing participant students trying to access them, but for some technological reasons, is unable to do so, leading to frustration on both sides.

Professor prep time and getting over the initial “hump”

We have all experienced the anxiety over some speech, class, presentation, first-time attempts at anything new and challenging. Teaching online, especially in a synchronous environment will challenge your abilities unlike almost anything else you have experienced as a college professor. An accounting professor is challenged to stay current with accounting theory and practice changes as they occur or are proposed (Geary, Kutcher, & Porco, 2010). But teaching online adds another challenge in the delivery pedagogy. Consequently, there are a number of practices that you should consider to facilitate the online experience.

Understand that more than any other experience you have had teaching college accounting courses; you must spend more time in preparation than normal. It is strongly recommended that you take an opportunity to participate in an online synchronous event as a participant, to become oriented to the student's challenges and experience. Certainly, practice before your “live” experience. You will not be great the first time, but with some experience you will develop a confidence and comfort factor that will be noticeable to your students. Learn the technology in a low-risk environment before taking on full classes—do some short sessions, e.g. a chat room to get accustomed to the technology.

Learn to sense the tenor of the class, and although you will generally be unable to see the students, you can develop a sense of how well the class is going. Try to interject some type of participation with your students, at least every 5-10 minutes. Ask them to respond in Wimba with the hand icon to questions, etc. If possible (assuming you have funding from your institution), use a meeting/teaching assistant. Become aware of firewall issues that can create

extremely frustrating situation for both you and your students.

Insert “Any Questions” slides into your presentations. Understand that Wimba allows students to click on an icon to “ask a question” or get your attention. Additionally students can ask a question by typing it in an instant messenger type format as you speak—remember to monitor this area continuously, there are often great questions asked here.

If you are not using a webcam for the synchronous class, at least upload your picture to help humanize yourself to the students. Do a dress rehearsal for your classes until your confidence level and expertise rises. Accounting is difficult enough without be totally familiar with your course content for the class. Uncertainty with the accounting issues, combined with fumbling efforts with the technology could create disastrous results that are difficult to recover from.

It is recommended that you do not attempt to use all of the tools in the course technology during your first attempt—focus on the most important aspects; add the “neat stuff” later. Remember that you are similar to a radio broadcaster for a sports event. Try to think aloud so that awkward pauses do not develop.

During the actual class, you should login 10-15 minutes early, greeting students and put them at ease. Additionally, you can confirm your communications with them as a check. Have a contingency plan ready before the class, should difficulties arise. Engage your students continually during the class—nothing worse than bored and sleeping students in an online class. Schedule some breaks—take 5 minutes every 30-40 minutes of class time.

Everyone involved, you included, needs a high concentration level throughout, and the exhaustion factor may creep up on you. When you are finished with some content presentation, close it off and keep your computer environment clean. Ask if any students are participating in a public place – these may cause problems with firewalls, browser configuration issues, and security issues.

If you are conducting a synchronous online lecture, it is important to minimize any distractions that you may have while you are conducting the course. Turn off any audible notifications on your workstations that may introduce a distraction during your class. These may be from email clients, instant messaging software, or the operating system itself. It is also important to remember to silence both office and cell phones in the office or room that you will be teaching

from. Share these same recommendations with your students. Remind your students that if they are using a webcam they should be doing so in a private area as well.

You can assign groups of students to various chat rooms during the class to discuss an accounting ethics perceptive for example—this gets the students involved, and gives you a resting point where you can be more of an observer, than the focal point.

CONCLUSION

As discussed in the various best practice points, accounting professors have an opportunity to provide an excellent course using a non-traditional delivery method. Not only can the instructor conduct the course in a manner similar to traditional “face-to-face” environment, it can be done so virtually. Unlike the traditional classroom where accounting students are challenged not only to learn material and take copious notes for later reference, the LCMS environment allows for the recording of these lectures and problem solving session and keeping these in an archive area for later reference.

In addition to the learning environments, these LCMS also provide the opportunity for an accounting professor to conduct virtual office hours. These could be at any hour of the day to accommodate working students. Tutoring services can also be provided on a virtual basis. No longer would a student be required to physically attend a tutoring session at a physical location, subject to the facility hours, but this could be done online at critical times, e.g. nights before an impending exam.

Another benefit would be the inclusion of guest speakers into the class format, without the constraints of that person reserving time out of often busy schedules to make presentation to classes. Additionally, virtual tours of production facilities or office setting field trips can be accomplished without restrictive logistical challenges. In many cases, the only limitations are the imagination and creativity of the professor and availability of guests.

Although adopting this approach may cause some uncertainty at first, the products and environments are easily learned and implemented into both an online and hybrid delivery system.

OUTSIDE RESOURCES – LINKS TO PROFESSIONAL ORGANIZATIONS

The following are some of the links to accounting professional groups that can be embedded in your Blackboard course management system and facilitate students’ access to those links.

American Accounting Association – www.aaahq.org

American Institute of CPAs – www.aicpa.org

Accounting Web – www.accountingweb.com

AIS Educators Association – www.aiseducators.com

CPA trends – www.cpatrendlines.com

Institute of Management Accountants (IMA) – www.imanet.org

International Accounting Standards Board - www.ifrs.org/Home.htm

Financial Accounting Standards Board - www.fasb.org/home

U. S. Securities & Exchange Commission - www.sec.gov/

U. S. Securities & Exchange Commission / XBRL – www.xbrl.sec.gov/

XBRL International – www.xbrl.org

Beta Alpha Psi - www.bap.org/

WIMBA – www.wimba.com

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USING MULTIMEDIA RESOURCES IN ACCOUNTING AND FINANCE CLASSES

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ABSTRACT

There are vast amounts of resources available to educators on the web and through digital media. We are encouraged as educators to integrate new and different materials into our courses and learning experiences. The objective of this workshop is to stimulate conversation, sharing and ideas about integrating readily available media into accounting courses to create a more effective (and fun) learning environment for the students. The workshop begins with a review of the literature on the use of multimedia resources and humor in the learning of accounting and related subject areas. Examples of material currently used in courses and the related objectives will then be introduced. We will then proceed to identify learning objectives in various accounting courses and relate types of resources available on DVDs and commercial and professional websites.

INTRODUCTION

Educators are encouraged to explore innovative techniques in the classroom. By experimenting with different styles and techniques, we seek to engage our students and improve the learning experience. We suggest that integrating video clips and segments into the class presentation and assignments can engage a new generation of accounting students by improving retention of key learning objectives as well as accommodate different learning styles. The use of popular media can improve student motivation and create a fun learning environment.

The current generation of college students has been dubbed the “millennial” generation or “Generation Y”. Commentators and research suggest that members of this tech-savvy, connected generation have shorter attention spans and are far more attuned to visual effects than their predecessors (Masters, 2009). These observations suggest an opportunity to supplement the traditional “talk and chalk” presentation format with digital media resources.

LITERATURE REVIEW

Studies of multimedia use in accounting education are scarce. We will review these resources and then expand our coverage to research in other disciplines.

Ahadiat (2008) surveyed technology use by accounting educators and found that while presentation software was widely used (71.4%), film use in class or assigned outside of class ranked fifth from the bottom in surveys with only 62.5% usage. Frequent use of video in accounting class was limited to only 5.2% of the respondents, while 31% indicated that they frequently used presentation software. Audio use in class had the lowest utilization rate: 16.4% total usage. Ahadiat compiled data by primary teaching area, by accreditation type, degree

offered, respondent’s age, gender, academic rank and years of teaching experience. This survey indicates that there are significant differences in use of technology related to faculty age and years of experience, with technology use by younger faculty (under 45) significantly higher than that of the older group.

Butler and Mautz (1996) studied the impact of multimedia presentations and learning in accounting information systems. They found that overall, students had more positive attitudes towards the presentation and the presenter, but the impact of multimedia may have had more to do with a particular student’s style of learning.

Bates and Waldrup (2006) investigated the impact of PowerPoint presentations on students in an introductory-level accounting principles course. They conclude that there were no discernable effects on learning outcomes. They do suggest that other media might have a different impact on learning.

Cook and Hazelwood (2010) described a project in taxation, in which student groups chose from a list of popular movies and prepared a report addressing:

- Descriptive information about the project
- A comprehensive list of tax issues in the movie
- In-depth analysis of two issues
- A conclusion

This project is reported prescriptively; no experimental data are currently offered as to effectiveness. This well-structured incorporation of movies into tax curriculum should hopefully generate interest and further innovation.

The research conclusions on the impact of multimedia use upon learning are mixed. Researchers in other disciplines have concluded that video clips

can enhance learning by stimulating interest and providing focused information (Collett & O'Neil, 2006). Others suggest that learning style plays a significant role, with students who prefer graphical imagery benefitting from multimedia and suggest that those with a verbal preference may experience a hindrance in learning (Butler & Mautz, 1996). The research into the effect of multimedia has explored differing theories of how students process and represent information.

Dual Coding Theory includes symbolic subsystems for both verbal and nonverbal imagery (Paivio, 1986). The two coding systems can act independently, although activity in one system can trigger links between the two. Abstract terms are less likely to evoke imagery than concrete terms (Paivio, 1986). In their accounting information systems experiment, Butler and Mautz (1996) also considered that different individuals may have a preferred representation style, which could impact their research. They concluded that multimedia presentations do not affect recall in all situations; however, it did appear to improve recall in students whose style was imagery-based. An interesting aspect of the study was students in the multimedia presentations had more positive attitudes towards the presentation and the presenter, regardless of the students' preferences.

Collett and O'Neil (2006) suggest that short-focused clips support learning better than full-length videos or movies. When employing video in the classroom, it is important to avoid tangential material. Material which is interesting and entertaining, yet not relevant to the main point of the lesson is referred to as "seductive details" (Harp & Mayer, 1998; Mayer, Heiser and Lonn, 2001). The use of media works best when the seductive details are excluded and the portion viewed is clearly relevant to the lesson (Moreno & Mayer, 2000).

HUMOR IN ACCOUNTING CLASS

Can the use of humor enhance learning? Can a complex accounting concept be retained for a longer period of time if its explanation is combined with some form of humor (oral or visual)? Humor is part of the human experience. Teachers and educators of all levels and disciplines have praised the ability of humor to aid the learning process, to help students' understanding of key points, and to relax students in moments of anxiety and increased tension. What are the learning benefits of adding humor to an educational activity? This is a topic that is gaining some traction, and there does appear to be a connection between retention of material and humor.

IMPACT ON MEMORY/RETENTION

Anecdotal, many students report that they can remember a humorous comment in a lecture better than the lectured-on material. Researchers investigating humor's impact on memory have reported inconsistent results. Keith Carlson (2010) notes that despite some success in documenting a recall advantage for humorous material in educational settings. Several other researchers failed to find a reliable humor effect (See Chapman & Crompton, 1978 for a review).

Carlson also cites several studies that have shown a correlation between higher rates of recall and distinctive, bizarre, or self-generated stimuli. Some feel it is possible that humor falls into one of these categories, which in turn accounts for the higher recall experience (Hunt & Worthen, 2006). Others suggest that humor may depend upon understanding multiple uses of words and, therefore, requires a greater memory search, which in turn accounts for the higher recall. According to this theory, the greater memory search and not the humor itself account for the higher retention. A third theory is that a joke is often funny when it does not make sense at first and requires additional thought to figure it out. The premise is that the resolution of the apparent incongruity creates the memory advantage for humor (Bertch, Pesta, Wiscott, & McDaniel, 2007).

REDUCING TENSION & KEEPING STUDENTS FOCUSED

Jane Romal (2008) writes that today's students have changed from previous generations and view humor differently. Students have shorter attention spans (Snell, 2000) and are more accustomed to elaborate visual effects that shrink attention spans (Hoskins, 2004). Romal also writes that the accounting teacher would do well to consider strategies for the use of humor before proceeding. Effort is required because humor is a teaching technique and takes time and practice, but can help students relax and reduce anxiety over difficult concepts (Speath, 2001). Another prominent surviving theory is the relief theory, or psychoanalytic theory, which was introduced by Spencer and popularized by Freud. According to this theory, humor is a socially-acceptable way of releasing built-up tension and nervous energy.

The correlation between humor and effectiveness is not always clear. Does the humor itself allow for better retention or is it the fact that the humor created a "safe classroom" environment and, therefore, the

students felt more relaxed and willing to be open to new ideas. Recent studies have indicated that the use of humor is related to the effectiveness of a teacher (Lucy, 2002; Kher, Molsted, & Donahue, 1999). The question to be asked is as follows: Is the teacher more effective because he uses humor or does the use of humor create a more comfortable environment and, therefore, make the student more open to learning new material?

Romal (2008) goes on to observe that accounting teachers may well find that humor will add spark to lectures and other classroom activities. "Lecturing isn't necessarily communication" (Wulff & Wulff, 2004). The accounting teacher already knows what is important in the discipline; the students do not, but humor may focus their attention on important concepts and procedures.

Whisonant (1998), in his article, refers to Ziv (1988) who cites eleven sources concerning the impact of humor on college students, eight of which demonstrated that humor has no significant effect on learning. In a more recent study (Schmidt, 1994), undergraduate students remembered humorous words more often than non-humorous words. Humor was believed to have an arousal effect on the students, thus humor was a motivating factor.

The studies are many, as are the conclusions, but there does appear to be some connection between the use of humor and retention. Whether the reason for the connection is the safe classroom effect, the additional effort to understand the humor, or the resolution of semantic incongruity does not matter. The use of humor appears to be effective. While others continue to prove or disprove the link, we will continue to use it in our accounting classrooms. After all, we need to smile as often as we can in Intermediate Accounting.

MULTIMEDIA AND ACCOUNTING

PowerPoint presentations are now used pervasively in the college classroom. In fact, some commentators suggest that they may be over-used; students may view the experience as too passive, lacking in active content. Cases analysis, presentations, simulations, research papers and projects all have their place in accounting education. We are now seeing projects using motion pictures in tax class. Given the image-oriented generation in the class seats, we believe that incorporating video clips into class activities can create a friendly and motivating environment. Research suggests that many students benefit from multimedia imagery. Likewise humor in the classroom serves to improve retention and create a

relaxed atmosphere. Incorporating video clips, particularly humorous video clips, seems to be the most promising avenue in this regard.

Most "smart" classrooms which support PowerPoint presentations can support video use. A computer equipped with a drive capable of playing Digital Video Disks (DVDs), a sound system, internet connection, projector, and screen comprise the essential hardware. Practicing using the hardware in the classroom is essential; switches may need to be flipped and connection made and tested before class. It is also best to select the video scene on a DVD or access the website for streaming video ahead of time.

For traditional classrooms, uses of legitimate video media are protected under Section 110 (1) of the U.S. Copyright Act permits:

...performance or display of a work by instructors or pupils in the course of face-to-face teaching activities of a nonprofit educational institution, in a classroom or similar place devoted to instruction, unless, in the case of a motion picture or other audiovisual work, the performance, or the display of individual images, is given by means of a copy that was not lawfully made under this title, and that the person responsible for the performance knew or had reason to believe was not lawfully made...

Use of video in distance learning was addressed in 2002 by the TEACH Act, which amended section 110 (2) of the Copyright law. Because this section is far more restrictive in permitted use, it is recommended that faculty carefully study the distance learning provisions in detail and seek informed advice before incorporating video into class exercises.

COMPILING SOURCES

Currently, there are no searchable databases addressing accounting and finance topics in video media. This means that each instructor must develop a personal database or seek others in order to create a shared pool of information. Relating movie content to these topics is something of an art in itself. Personal experience with films and the ability to recall and relate particular scenes to learning objectives takes time and effort. Clearly this is an area which would benefit greatly from the pooling of ideas and resources.

Some examples of linking movie scenes to accounting topics are listed below in Table 1.

TABLE 1
Examples of Movies and Topics

Movie	Accounting Topics
The Producers (1968) (2005)	Ethics, Fraud triangle, Financial Fraud, Tax Fraud
Office Space (1999)	Systems Development, Interview anxiety, Perceptions of auditors, perceptions of consultants
Ghost Busters (1984)	Tax - Business Entertainment rules
Mad Money (2008)	Ethics, Internal Controls, Collusion
Catch Me if You Can (2002)	Ethics, Forensics, Fraud, Forgery, Audit Evidence
Enron: The Smartest Guys in the Room (2005)	Ethics, Fraud triangle, Financial Fraud, Audit Risk, Independence, Sarbanes-Oxley Act

There are vast amounts of video media available, both on-line and on DVDs. Television shows such as 60 Minutes, Nightline, Frontline, and the American Greed series offer much material on the topics of taxes, fraud, financial markets and governance. Specific searches of YouTube and Google on topics like “fraud” or “embezzlement” can yield diverse material on the search terms. For example, YouTube searches on the names of infamous fraudsters like Walter Pavlo and Barry Minkow provide a variety of interviews with and reports about them and their frauds. A list of suggested sources is contained in Appendix A.

DEVELOP THE LESSON

Selecting an appropriate video linked to an accounting or finance topic is merely the start. The instructor must now develop a detailed plan to introduce, link, and analyze the material presented to

specific learning objectives. The plan should encompass:

1. Introduction and discussion of the particular learning objectives covered in the video.
2. An introduction to the video, setting up the scene and if necessary, what transpired before it.
3. A list of thought-provoking questions the students should address while watching the video.
4. A discussion addressing the previous questions and linking the video to the objectives.
5. Optional – obtaining student feedback on the use of the video and its relationship to the material covered.

In planning the lesson, it is critical to avoid including those “seductive details” which might entertain, but have little relevance to the learning objectives.

For example, the instructor is covering fraud and the fraud triangle in a class. The video to be shown is from The Producers (Stroman, 2005). The selected scene is one in which Bloom and Bialystock discuss Bloom’s observation that “under the right circumstances, a producer could actually make more money with a flop than he can with a hit .”

1. Introduce the fraud triangle and the components: motivation, opportunity and rationalization.
2. Give a brief description of Leo Bloom, the accountant, and Max Bialystock, the producer, and his circumstances.
3. Tell the students to observe the scene and answer the following questions:
 - a. Find the components of the fraud triangle in this scene, describe them in terms of the characters and their behavior.
 - b. What is each character’s initial reaction to the idea?
 - c. How does this idea become a plan to defraud?
4. Watch the video, then debrief the class as to their observations, linking back to the objective of describing the components of the fraud triangle.
5. Ask the students to fill out anonymous comment cards on the relevance and perceived usefulness of the lesson.

Based upon the student participation, discussion and feedback, the instructor should add notes and make

appropriate revisions. Incorporating feedback into the lecture note and plan soon after the class, allows the instructor to plan for the next usage of this material, if at all.

NEXT STEPS

The current process is time-consuming and haphazard. Because each educator is left to seek out his or her own resources, little headway can be made. Communication and information sharing could support more innovation and resources. Eventually, a database or other clearinghouse would prove highly useful.

SUMMARY

We have found that using humor and media clips in accounting class creates a “safe” and welcome atmosphere for our students. There are numerous sources for clips on-line and in media libraries. By selecting appropriate material and tying it to learning objectives and outcomes, we have had many positive experiences. By going beyond PowerPoint in accounting and finance class, the educator can engage a new generation and facilitate real learning in the classroom.

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APPENDIX A – SUGGESTED SOURCES AND RELATED ACCOUNTING/FINANCE TOPICS

Type	Title	Potential topics	Site
Movie	Enron: The Smartest Guys in the Room (2005)	Financial Engineering, Ethics, Auditing, Investment Banking, Whistleblowers	
Movie	Office space (1999)	Auditing - perceptions of auditors AIS - perceptions of projects	
Movie	Ghost Busters (1984)	Tax - Documenting business entertainment, Client confidentiality	
Movie	The Producers (1968) (2005)	Auditing - Fraud, Tax - Fraud	
Movie	Mad Money (2008)	AIS, Auditing, Collusion, Internal Controls defeating controls	
Movie	Catch Me If You Can (2002)	Fraud, Fraud Triangle, Internal Controls, Check alteration, Check Clearing	
Frontline (PBS)	Breaking the Bank	Ethics	http://www.pbs.org/wgbh/pages/frontline/breakingthebank/
Frontline (PBS)	The Maddoff Affair	Investment Management, SEC regulation, Fraud, Ethics	http://www.pbs.org/wgbh/pages/frontline/madoff/
Frontline (PBS)	Black Money	Bribery, Ethics	http://www.pbs.org/wgbh/pages/frontline/blackmoney/
Frontline (PBS)	A Dangerous Business	Ethics, Governance	http://www.pbs.org/wgbh/pages/frontline/mcwayne/
Frontline (PBS)	Tax Me if You Can	Tax Shelters, Tax Fraud / Evasion	http://www.pbs.org/wgbh/pages/frontline/shows/tax/
CNBC American Greed	Party's Over - Tyco's Kozlowski	Ethics, Governance, Fraud	http://www.hulu.com/watch/46535/american-greed-partys-over--tycos-kozlowski
CNBC American Greed	Inside the WorldCom Scam	Investment Banking, Ethics, Fraud	http://www.hulu.com/watch/46554/american-greed-inside-the-worldcom-scam
Nightline (ABC)	CON Walter Pavlo Corporate Manager Steals \$6 Million	Ethics, Fraud, Internal Control	http://www.youtube.com/watch?v=sPUuHn5_L1g
60 Minutes (CBS)	Barry Minkow Master Mind of the ZZZZ Best Fraud	Ethics, Fraud, Internal Control	http://www.youtube.com/watch?v=JydqCyFsmS8&feature=related
Montel Williams Show	Teri Lyn Norwood "My Life as a Thief"	Ethics, Fraud, Fraud Triangle, Internal Control	http://www.youtube.com/watch?v=zOYUD4xTZqI&feature=related
History Channel	I.R.S. Tax Fraud & How To Hide Your Assets Offshore	Tax Shelters, Tax Fraud, Tax Evasion	http://www.youtube.com/watch?v=f72DwS9CxHQ

FROM SINGULAR TO GLOBAL, FROM PRIMAL TO DUAL: NEW USES FOR THE HERFINDAHL-HIRSCHMAN INDEX

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ABSTRACT

The Herfindahl-Hirschman index, traditionally used to measure seller market power in a single industry, is adapted to cover a group of industries or the entire economy. Also, a dual Herfindahl-Hirschman index is developed to measure buyer market power in an analogous way. The inverse of the global Herfindahl-Hirschman index is reinterpreted as the effective number of participants, rather than competitors only, as some can be complementary instead of competitive. Participants can be firms or entire industries. Manufacturing sector concentration data yield a total of about 400 to 500 firms as effective participants across that sector. Make-use data for industries show that there are about 50 effective primal producing industries and about 500 effective dual uses served by inputs.

INTRODUCTION

The Herfindahl-Hirschman Index (HHI), or sum of the squares of firms' shares of sales in a market, measures the degree of competitiveness of firms in that market. The HHI is used like a Pearson's chi-square goodness of fit test: the greater the difference between the observed HHI and that which would be seen if all the firms had the same share of sales, the greater the degree of concentration. The HHI is in fact equivalent to a Pearson's chi-square test. This paper extends the concept of the Herfindahl-Hirschman Index to measure a firm's participation across two or more markets. As a model for the extended HHI the two-dimensional Pearson's chi-square test is used.

Adelman (1969) identified the inverse of the HHI as the number of effective competitors in a market. Here, the inverse is the extended HHI is reinterpreted as the number of effective participants in a market. The more inclusive word "participants" encompasses the possibility of symbiotic relationships that can arise between firms.

Also, this paper introduces the concept of a dual HHI, or the degree of concentration of buyers in a particular market. Like the primal HHI, the dual HHI can be extended across markets.

We first show the equivalency of the HHI to a chi-square test, then develop the extended HHI. We also identify parallels between primal and dual HHI's and population ecology niche theory.

THE EQUIVALENCE OF THE HERFINDAHL-HIRSCHMAN INDEX AND THE PEARSON'S CHI-SQUARE

The Herfindahl-Hirschman index is

$$H = \sum_{i=1}^N s_i^2 \quad (1)$$

where s_i is the i th firm's share of sales in a market with N firms. The greatest possible degree of competitiveness exists when all firms have $1/N$ of total sales; in that case the value of H is $1/N$. At the opposite extreme, pure monopoly, the value of H is unity.

The Pearson's chi-square goodness-of-fit test for N firms against maximum competitiveness is

$$\chi^2 = \sum_{i=1}^N \frac{(s_{io} - 1/N)^2}{1/N} \quad (2)$$

where s_{io} is the i th firm's observed share of sales and $1/N$ is the expected value. On expansion of the quadratic, we obtain

$$\chi^2 = \frac{1}{N} \left(\sum_{i=1}^N (s_{io})^2 - 1/N \right) \quad (3)$$

which contains our HHI and is also, if multiplied by $(N-1)/N$, becomes the normalized HHI.

DERIVING THE EXTENDED HERFINDAHL-HIRSCHMAN INDEX

Let us suppose that we have N firms participating in the markets for M goods. We introduce a global HHI as follows:

$$H = \sum_{j=1}^M \sum_{i=1}^N \frac{V_{ij}^2}{D^2} \quad (4)$$

where V_{ij} is the volume of firm i for market j and D is the sum of volume over all markets.

The HHI for a particular market, or conventional HHI, expressed in terms of volume would be

$$H_j = \sum_{i=1}^N \frac{V_{ij}^2}{D_j^2} \quad (5)$$

where D_j is total volume in market j . Let j 's share of global volume be expressed as ρ_j . Then, the relationship between the global HHI and market HHI's is

$$\begin{aligned} H &= \sum_{j=1}^M \sum_{i=1}^N \frac{V_{ij}^2}{D^2} = \sum_{j=1}^M \frac{D_j^2}{D^2} \sum_{i=1}^N \frac{V_{ij}^2}{D_j^2} \\ &= \sum_{j=1}^M \rho_j^2 H_j \end{aligned} \quad (4)$$

which essentially says that the global HHI is an HHI-weighted HHI of market shares.

To see how we use the global HHI, let us consider an example. We suppose that 100 firms sell to 10 markets, that each market has the same total volume, and that all firms are the same size. If each firm sells in only one market, each market would have 10 firms, the HHI for each market would be 0.1, and the global HHI would be 0.01. The effective number of participants would be 100, which is expected since there are 100 firms.

Now suppose that each firm sells an identical volume in all markets. Then each market has 100 sellers, the HHI for each market would be 0.01, and the global HHI would be 0.001. The effective number of participants would be 1,000. Because of the advantages of specialization, we would not expect to see a large number of firms in one market when the same total volume could be handled by a smaller number, unless the firms differ in some way. They could differ by having differentiated products, but they could also differ in what types of customers or suppliers they have. The global HHI picks up all these differences, and its inverse can be the measure of the number of different economic niches that are occupied by firms. If we find that the effective number of participants is significantly less than the number of firms, we have conventional market concentration. If we find that the effective number of participants is significantly greater than the number of firms, we have evidence that firms occupy economic niches that reach across industries.

PRIMALITY AND DUALITY

The Herfindahl-Hirschman index is traditionally used to measure the degree of monopoly power, but since industries with monopoly power also may be able to exert monopsony power, the HHI can be used as an indirect indicator of the oligopsony power that an industry has. We have an alternative way to measure oligopsony, though. We can use the formulation of the HHI in Equation (1), but instead of measuring sales of a good, we measure purchases of a good, especially a good that is used as an input. Then s_i is one firm's share of total purchases of an input. The resultant HHI is a measure of monopsony power directed against that input; from the viewpoint of the producers of the input we could call it "market vulnerability" instead of "market power". Since sales are associated with the primal problem of a firm—maximizing profits—and purchases of inputs are associated with the dual problem of a firm—minimizing costs for a particular level of output—it is appropriate to refer to the conventional HHI as the primal HHI and the oligopsony HHI as the dual HHI.

PRIMAL AND DUAL ECONOMIC NICHE AND POPULATION ECOLOGY

Ecologists offer two definitions of a niche: functional and environmental (Whittaker and Lewin, 1975). The functional definition is the position of an organism or population within an ecosystem. The environmental definition is the particular part of the environment that an organism or population occupies. These two definitions turn out to be equivalent to primal and dual variables in the production process. The primal problem for an organism or population is to produce enough offspring to sustain itself, given predation. The dual problem is to extract food and other resources from the environment in the least costly way for a given offspring.

Hutchinson (1957) views a niche for an individual species of animal or plant as having a hypervolume in environmental factors affecting that species. We see here that the hypervolume is partly in primal space and partly in dual space. The primal dimensions encompass those organisms for which the species is a food source and the dual dimensions encompass those organisms that serve as food sources for the species. As some species may serve as food, or seek food, among many other species, and other species may have only one other as a source of food, or be the only source of food for another, we can expect firms to vary in specialization in their products, their number of kinds of customer, their number of

suppliers, or the number of kinds of inputs that they use.

FINDING THE NUMBER OF EFFECTIVE PARTICIPANTS

To find the number of effective participants, we use industry concentration data and commodity make-use data.

Industry Concentration Data

For the manufacturing sector, primal HHI data are available from the U.S. Economic Census of 2002 (U.S. Census Bureau, 2010) at the subsector level (three-digit NAICS classifications) and below. No concentration data are available for construction or mining. A choice of sets of HHI's is available, derived from value added or derived from total value of shipments. The total value of shipments data are used here. These data result in some multiple counting of intermediate goods, but were selected here to make the results compatible with the primal make-use results discussed below.

See Table 1 in the Appendix for the derivation of the effective number of participants among the 309,696 firms in the 21 industries in the manufacturing sector. For each industry is shown its total value of shipments, HHI, number of effective competitors, market share, and contribution to global HHI.

About half of the global HHI is accounted for by the transportation equipment industry; other large contributors are food, beverage and tobacco products, chemicals, and computer and electronic products. The sum of the number of effective participants across industries is greater than that derived from the global HHI because industries with large number of competitors, such as fabricated metal product manufacturing, have smaller shares of total manufacturing volume.

Make-Use Data

With national make-use data (Bureau of Economic Analysis, 2010) we can measure concentration without the problem of the intermediation of firms. Here, a niche is occupied not by a firm but an industry component or an industry. The Summary Make and Use Tables before Redefinitions show the distribution of production of 133 commodities across 133 industries and the distribution of use of those same 133 commodities. From the make table we derive the primal HHI. From the use table we derive the dual HHI.

See Table 2 in the Appendix for the top 25 commodities ranked by their contribution to global primal HHI.

Since industries are classified according to what they make, it is not surprising that their commodities' primal HHI's are high. The lowest HHI among the top 25 commodities is private sector hospital care, reflecting the significant contribution of the public sector.

The number of effective participants, 50.2, suggests that of the 133 different kinds of producers of goods and services, roughly 50 of them play a significant role in our lives.

See Table 3 in the Appendix for the top 25 commodities ranked by their contribution to global dual HHI.

The commodities' dual HHI's tend to be low because most inputs are purchased by a number of industries. Exceptions are oil and gas extraction and animal products, which are channeled through an additional stage of intermediate production—petroleum and coal products and food products respectively—before reaching the market at large.

The number of effective participants is roughly three to four times the number of industries, indicating that on average, a particular input has three or four different kinds of uses.

The ratio of the number of effective dual participants to the number of effective primal participants is 9.5, suggesting that, on average, an industry producing a product that has a significant impact on the economy is transforming 9 or 10 inputs to make that product available.

IMPLICATIONS OF THE RESULTS

A global primal Herfindahl-Hirschman index makes it possible to identify an effective number of participating firms, or an effective number of industries, for a whole economy, and a global dual Herfindahl-Hirschman index makes it possible to identify an effective number of uses for commodities. The primal index alone gives the impression that the output market has a high degree of market concentration, but the dual index shows that there is a high degree of diversification in the input markets. Both are needed to give a balanced perspective of the degree of concentration in the economy.

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APPENDIX

Table 1
Effective Participants in the U.S. Manufacturing Sector, 2002.

NAICS	Meaning of NAICS code	Companies	Value of Shipments	HHI	H ⁻¹	Share	Contribution to Global HHI
311	Food mfg	23,334	458,247,704	0.01187	84	0.117	0.00016262
312	Beverage & tobacco product mfg	2,534	105,456,615	0.07095	14	0.027	0.00005148
313	Textile mills	3,279	45,497,392	0.01056	95	0.012	0.00000143
314	Textile product mills	6,943	32,085,578	0.04030	25	0.008	0.00000271
315	Apparel mfg	12,550	41,917,182	0.01057	95	0.011	0.00000121
316	Leather & allied product mfg	1,459	5,906,231	0.01636	61	0.002	0.00000004
321	Wood product mfg	15,347	89,049,605	0.00484	207	0.023	0.00000250
322	Paper mfg	3,537	153,749,276	0.02593	39	0.039	0.00003999
323	Printing & related support activities	35,738	95,631,792	0.00452	221	0.024	0.00000270
324	Petroleum & coal products mfg	1,106	215,513,706	0.05434	18	0.055	0.00016466
325	Chemical mfg	9,659	462,438,453	0.00999	100	0.118	0.00013938
326	Plastics & rubber products mfg	12,318	174,658,909	0.00320	313	0.045	0.00000637
327	Nonmetallic mineral product mfg	11,514	95,062,097	0.00467	214	0.024	0.00000275
331	Primary metal mfg	4,150	139,420,726	0.01496	67	0.036	0.00001897
332	Fabricated metal product mfg	58,008	246,993,376	0.00102	980	0.063	0.00000406
333	Machinery mfg	25,526	255,285,673	0.00713	140	0.065	0.00003032
334	Computer & electronic product mfg	13,910	357,563,640	0.01350	74	0.091	0.00011260
335	Electrical equipment, appliance, & component mfg	5,498	102,812,274	0.01139	88	0.026	0.00000785
336	Transportation equipment mfg	10,518	636,690,679	0.05747	17	0.163	0.00151990
337	Furniture & related product mfg	21,523	75,823,941	0.00572	175	0.019	0.00000215
339	Miscellaneous mfg	31,245	125,289,959	0.00416	240	0.032	0.00000426
		309,696	3,915,094,808		3,267		0.00227793
	Number of Effective Participants						439.0

Table 2
Primal Concentration by Industry

Commodity Code	Commodity	Total Commodity Output	Commodity Primal HHI	Commodity Share of Output	Contribution to Global HHI
S007	General state and local government services	1,042,157	1.0000	0.05434	0.002952
S008	Owner-occupied dwellings	959,446	1.0000	0.05002	0.002502
4A00	Retail trade	908,295	0.9376	0.04736	0.002103
4200	Wholesale trade	871,529	0.9070	0.04544	0.001873
5310	Real estate	837,554	0.9434	0.04367	0.001799
52A0	Monetary authorities, credit intermediation and related activities	589,117	0.9721	0.03072	0.000917
6210	Ambulatory health care services	545,995	0.8953	0.02847	0.000726
5240	Insurance carriers and related services	451,911	0.9979	0.02356	0.000554
5500	Management of companies and enterprises	440,898	1.0000	0.02299	0.000528
3110	Food products	450,170	0.9407	0.02347	0.000518
2302	New residential construction	438,434	0.9181	0.02286	0.000480
2301	New nonresidential construction	445,033	0.8814	0.02320	0.000475
5170	Telecommunications	410,438	0.9998	0.02140	0.000458
7220	Food services and drinking places	470,376	0.7082	0.02452	0.000426
6220	Hospital care	471,640	0.6636	0.02459	0.000401
S005	General Federal defense government services	380,797	1.0000	0.01985	0.000394
5230	Securities, commodity contracts, investments, and related activities	323,928	0.7639	0.01689	0.000218
561A	All other administrative and support services	278,466	0.9246	0.01452	0.000195
3361	Motor vehicles	240,211	0.9676	0.01252	0.000152
2211	Electric power generation, transmission, and distribution	250,159	0.7426	0.01304	0.000126
336A	Motor vehicle bodies, trailers, and parts	218,503	0.9329	0.01139	0.000121
S006	General Federal nondefense government services	209,856	1.0000	0.01094	0.000120
5411	Legal services	205,688	0.9980	0.01072	0.000115
4840	Truck transportation	212,125	0.9144	0.01106	0.000112
3240	Petroleum and coal products	213,910	0.8672	0.01115	0.000108
	All Others	7,313,401			0.001546
	Total	19,180,034			0.019918
	Number of Effective Participants				50.2

Table 3
Dual Concentration by Industry

Commodity Code	Commodity	Total Intermediate Use	Commodity Dual HHI	Commodity Share of Intermediate Use	Contribution to Global Dual HHI
2110	Oil and gas extraction	183,042	0.5163	0.02181	0.0002457
52A0	Monetary authorities, credit intermediation and related activities	396,728	0.1094	0.04728	0.0002445
5240	Insurance carriers and related services	264,546	0.2315	0.03153	0.0002301
336A	Motor vehicle bodies, trailers, and parts	207,210	0.3070	0.02469	0.0001872
5310	Real estate	512,315	0.0441	0.06105	0.0001645
3110	Food products	189,431	0.2266	0.02257	0.0001155
5230	Securities, commodity contracts, investments, and related activities	210,063	0.1374	0.02503	0.0000861
1120	Animal products	96,550	0.6399	0.01151	0.0000847
5170	Telecommunications	212,696	0.1183	0.02535	0.0000760
5500	Management of companies and enterprises	406,066	0.0264	0.04839	0.0000619
4200	Wholesale trade	381,193	0.0252	0.04543	0.0000519
5418	Advertising and related services	235,736	0.0577	0.02809	0.0000455
2303	Maintenance and repair construction	148,830	0.1140	0.01774	0.0000359
561A	All other administrative and support services	258,689	0.0352	0.03083	0.0000335
5413	Architectural, engineering, and related services	143,683	0.0865	0.01712	0.0000254
1110	Crop products	75,564	0.3007	0.00901	0.0000244
3240	Petroleum and coal products	162,077	0.0608	0.01932	0.0000227
4A00	Retail trade	81,700	0.2232	0.00974	0.0000212
3251	Basic chemicals	109,594	0.1221	0.01306	0.0000208
3364	Aerospace products and parts	51,472	0.4468	0.00613	0.0000168
3254	Pharmaceuticals and medicines	72,509	0.2189	0.00864	0.0000163
3270	Nonmetallic mineral products	94,248	0.1089	0.01123	0.0000137
3210	Wood products	91,831	0.1113	0.01094	0.0000133
3221	Pulp, paper, and paperboard	66,805	0.2024	0.00796	0.0000128
3252	Resins, rubber, and artificial fibers	58,381	0.2491	0.00696	0.0000121
	All Others	3,680,257			0.0002240
	Total	8,391,214			0.0020865
	Number of Effective Participants				479.3

**SARBANES-OXLEY AND THE QUARTERLY EFFECT: THE CASE OF AGGRESSIVE EARNINGS
MANAGEMENT AND SOX SECTIONS 302 AND 906**
Stacy Mastrolia, Bucknell University

ABSTRACT

In the post SOX 302 and 906 environment, managers are required to certify the accuracy of the quarterly financial statements, and false certification carries new criminal penalties. This paper examines whether the SOX 302 and 906 provisions improve quarterly financial reporting quality for firms that exhibit aggressive earnings management in the pre-SOX period. Specifically, this paper studies whether, on a quarterly basis, the absolute value of performance-adjusted abnormal accruals decline following the implementation of SOX 302 and 906 for firms that exhibit aggressive earnings management in the pre-SOX period. My results indicate that firms exhibiting aggressive earnings management in the pre-SOX period do improve quarterly financial reporting quality post-SOX. Additionally, firms that exhibit low earnings management in the pre-SOX period show lower quarterly financial reporting quality post-SOX. These results suggest that SOX 302 and 906 might be more effective at constraining earnings management behavior for those firms that had used it most aggressively pre-SOX

INTRODUCTION

This paper examines whether quarterly financial reporting quality improves post-SOX 302 and 906 for firms that exhibit aggressive earnings management in the pre-SOX period. My results indicate that firms exhibiting aggressive earnings management pre-SOX 302 and 906 are associated with lower earnings management post SOX 302 and 906, indicating improved quarterly financial reporting quality.

Following disclosure of some of the most egregious corporate frauds in history,¹ Congress passed the Sarbanes-Oxley Act of 2002 (SOX). One of the primary goals of SOX is to improve financial reporting quality for public companies. The provisions of Section 302 require the CEO and CFO of a public company to personally certify the financial statements, including the effectiveness of internal control over financial reporting and any material changes in internal control (*Sarbanes-Oxley Act of 2002*).² Section 906 imposes severe criminal penalties for false management certifications made knowingly or willfully; these penalties far surpass the previous penalties for lying to the auditors. The Securities and Exchange Commission (SEC) clearly intends that managements' increased ownership of and liability for the accuracy of the financial statements, created by Sections 302 and 906, would improve quarterly (and annual) financial reporting quality. According to President George W. Bush, these SOX provisions were intended to hold a CEO to his word: "...the signature of the CEO should also

be his or her personal certification of the veracity and fairness of the financial disclosures. When you sign a statement, you're pledging your word, and you should stand behind it" (President Bush's Speech from Wall Street 2002).

However, it may be true that the personal certification requirement is no more than symbolic, as the provisions of SOX do not change the existing law related to officer liability for a company's financial statements. Even before SOX, antifraud law and the rules governing the disclosure of documents to the SEC placed responsibility on corporate managers and directors for both the accuracy and the completeness of financial statement disclosures, and stated the penalty for failing to disclose (Alverson 2005; Cunningham 2002; Fairfax 2002). Therefore, whether SOX Sections 302 and 906 actually affect a company's quarterly financial reporting quality is an empirical question, which I address in this paper.

In addition to determining quarterly financial reporting quality following the implementation of SOX Sections 302 and 906, I propose that, because these sections directly affect primarily the cost-benefit function of management (not the auditors), these provisions offer researchers a unique environment to try to disentangle the "joint measure of financial reporting quality" that a limitation in so much of our literature. In most research designs it is not possible to disentangle the separate effects of management and auditors on reporting quality and, as a result, most studies can only evaluate financial reporting quality as a joint measure of the quality of management reporting and the quality of the auditor. Because SOX 302 and 906 directly change primarily the consequences (liabilities) to managers, these

¹ Adelphia, Enron, Global Crossing, Tyco, Waste Management, WorldCom, and others.

² The scope of this certification surpasses the assertions previously made in the management letter provided to the auditor.

provisions, in the quarterly reporting environment, should allow us to try to separate these effects.³

Existing literature indicates that investors value quarterly earnings numbers and that managers appear to use earnings management techniques to avoid negative earnings surprises. This paper adds to that literature by providing evidence of the effect of SOX Sections 302 and 906 on quarterly earnings management, and, therefore, on quarterly financial reporting quality. Specifically, this paper measures quarterly financial reporting quality by calculating abnormal accruals using the performance-adjusted Modified Jones model (Dechow et al. 1995; Kothari et al. 2005) including the Ball and Shivakumar (2006) nonlinear specification. In this model, accruals quality is measured by the extent to which accruals are captured by fitted values obtained by regressing total accruals on changes in revenues, fixed assets, cash flows from operations, a binary variable indicating if cash flow from operations is negative, and an interaction term of the last two variables. In addition to evaluating the change in total abnormal accruals following the implementation of SOX 302 and 906, I separately examine firms with positive (income increasing) and negative (income decreasing) abnormal accruals in the pre-SOX period and firms with relatively high (aggressive) and relatively low abnormal accruals in the pre-SOX period. Because SOX focuses on financial reporting quality, the regulation does not differentiate between the various motivations for firms to engage in abnormal accruals, however, it is an empirical question as to whether SOX has a differential effect on positive or negative accruals or on firms that had relatively higher or relatively lower abnormal accruals pre-SOX.

The quarterly reporting environment is an ideal setting to look at managements' actions for two primary reasons. First, previous research indicates that quarterly financial statements are subject to more management judgment than are annual financial statements because Generally Accepted Accounting Principles (GAAP) allows some discretion in the

³ These provisions do not directly change the auditor's role in the quarterly financial reporting process; both before and after the implementation of these provisions, auditors are responsible for reviewing (not auditing) the quarterly financial statements on a contemporaneous basis.

quarterly timing of recording certain adjustments.⁴ Second, quarterly financial statements are reviewed but not audited by the external auditor, potentially allowing more management discretion (Mendenhall and Nichols 1988). I anticipate that Sections 302 and 906 will increase the quality of reported quarterly earnings both by providing an incentive to managers to improve their estimation process and by curbing deliberate earnings management.

The results of my tests indicate that quarterly financial reporting quality improves in the post-SOX period for the 40% of firms in my sample that exhibited the most aggressive earnings management in the pre-SOX period. These results are consistent for the full sample of aggressive earnings management firms in all four quarters and for the subsample of firms with aggressive negative (income decreasing) abnormal accruals in the pre-SOX period. For the subsample of firms with aggressive positive (income increasing) abnormal accruals in the pre-SOX period, the results are consistent for quarters 1, 2, and 4; there was no difference in abnormal accruals for these firms in quarter 3. Interestingly, quarterly financial reporting quality declines in the post-SOX period for the 60% of firms in my sample that demonstrated low earnings management in the pre-SOX period. These results are consistent for the full sample of low earnings management firms in all four quarters and for each of the subsamples of firms with both positive and negative abnormal accruals in the pre-SOX period.

The conflicting results for aggressive earnings management firms and low earnings management firms indicate that SOX 302 and 906 have a differential effect on firms based on their pre-SOX earnings management levels. While SOX does not specifically target aggressive earnings management firms, it is intuitive that the regulation curtailed the

⁴ While quarterly revenues are recognized on the same basis as annual fiscal periods, APB 28 allows certain costs, that must be expensed during the year, to be deferred or accrued at the end of an interim quarter based on managements' expectations about the results for the entire fiscal year. For example, certain expenses (management bonuses, warranty costs, advertising costs) may be recorded to expense in interim quarters based on forecasted annual sales and adjusted to actual sales at year end (Mendenhall and Nichols 1988).

earnings management behavior of these firms to a greater degree. It is more surprising, perhaps, that firms who exhibited low earnings management behavior pre-SOX would have increased their earnings management behavior in the post-SOX period.

This study makes several contributions to the literature. First, the goal of Sections 302 and 906 is to improve both quarterly and annual financial reporting quality and this study provides evidence that quarterly financial reporting quality improves for aggressive earnings management firms after the implementation of these provisions. Second, because SOX 302 and 906 primarily affect managements' incentives to improve quarterly financial reporting quality, and financial reporting quality improves for aggressive earnings management firms in interim quarters as well as the fourth quarter, this study provides some evidence that management has improved financial reporting quality separate from the effect of the auditor on the financial statements. Third, because my results indicate improved financial reporting quality for aggressive earnings management firms, this study provides some indication of an association between increased individual criminal liability and changes in managers' behaviors when faced with relatively higher potential personal cost versus relatively lower potential personal cost while holding the gain function essentially constant. The results of this study should be interesting to policy setters and regulators (SEC and PCAOB), auditors, investors, academic researchers, and managers.

The remainder of this paper describes the background of SOX, the importance of quarterly reporting, and the measurement of financial reporting quality followed by hypotheses development, research design including sample selection, model selection and variable definitions. Finally, I present and discuss the results, describe additional analyses and the related results, and conclude with a brief summary of the results, implications and limitations of this study.

BACKGROUND AND HYPOTHESES

As a response to the extensive corporate frauds of the late 1990's and early 2000's, and in light of the growing participation of millions of Americans in the capital markets, Congress signed into law the Sarbanes-Oxley Act of 2002 on July 30, 2002. SOX

was intended to reinforce corporate accountability and to restore investor confidence in corporate financial reporting. In his July 9, 2002 speech on Wall Street, President George W. Bush stated that he was "calling for a new ethic of personal responsibility in the business community, an ethic that will increase investor confidence" (President Bush's Speech from Wall Street 2002).

SELECTED SARBANES-OXLEY ACT PROVISIONS

SOX instituted many corporate reporting, corporate governance and auditor-related changes including Sections 302, 906 and 404. Section 302 of SOX became effective for all SEC registrants for fiscal years ending after August 29, 2002. Section 302 requires corporate executives (CEO and CFO) to certify in each annual or quarterly report filed with the SEC that:

1. the executive has reviewed the report filed;
2. based on the executive's knowledge, the report does not contain any untrue or misleading fact, nor does it omit any material fact necessary to make the filing not misleading;
3. based on the executive's knowledge, the financial statements and other financial information included in the filed report fairly present, in all material respects, the financial condition and results of operations for the relevant periods;
4. the signing executives are responsible for establishing and maintaining internal controls, have designed the internal controls to ensure that material information is made known to the executives, have evaluated the effectiveness of the internal controls as of a date within 90 days prior to the report date, and have presented in the report their conclusions about the effectiveness of their internal controls based on their evaluation as of that date;
5. the signing executives (a) have disclosed to the auditors and the audit committee all significant deficiencies in the design or operation of internal controls which could

adversely affect the company's ability to record, process, summarize and report financial data, (b) have identified any material weaknesses in internal controls for the external auditors, and (c) have identified any fraud, whether material or not, that involves management or other employees who have a significant role in the internal control process;

6. the signing executives have indicated in the report whether or not there have been any significant changes in internal control subsequent to the report date, including any corrective actions relative to significant deficiencies and material weaknesses.

CEO and CFO certifications under SOX Section 302 are publicly available at www.sec.gov.

Some legal professionals have stated that the provisions of SOX have "altered significantly the prosecutorial landscape on which the Justice Department and agency investigations will play out" (Clayton and Mackintosh 2002). Specifically, Section 302 targets the preferred defense of "who me?" offered by individual senior managers during a corporate fraud investigation. Using this defense, the senior manager usually demonstrated that he had no knowledge of the problem and would have remedied the problem if he had known and, the defense went, because the problem was a corporate issue not an individual issue, the senior manager should not be charged. Section 302 now requires by law that senior managers maintain a system of internal controls designed to ensure that material information concerning corporate activities are made known to them. Additionally, the senior management of a company is responsible for validating that the system of internal controls is functional. Fairfax (2002) states that the 302 certification requirement is not nominal, but rather subjects a senior manager, who signs the certification knowing that it contains material inaccuracies, to both civil and criminal liability.

Recently several accounting studies have looked at the impact of Section 302 on financial reporting. In June 2004, McEnroe (2007) surveyed CFOs of the Fortune 500 firms and 500 audit partners from the 33 largest audit firms by revenue and determined that the respondents perceived that SOX reduced earnings

management only a little more than 25% of the time. McEnroe hypothesized that Section 302 would result in improved financial reporting quality because managers could no longer use GAAP as a safe harbor defense against charges of creative accounting;⁵ however, his results indicate that the majority of CFOs and audit partners did not perceive an overall decrease in earnings management post-SOX.

A few studies examine companies disclosing material weaknesses under Section 302. Ge and Mc Vay (2005) provide a descriptive analysis of firms reporting at least one Section 302 material weakness. They find that poor internal control is usually associated with insufficient resources allocated to accounting controls. They also find that material weaknesses in internal controls are usually related to deficient revenue recognition policies, inadequate segregation of duties, deficiencies in the end-of-period reporting process, deficiencies in accounting policies and inadequate account reconciliations.

Doyle et al. (2007) examine the relation between accruals quality and internal controls for firms disclosing a material weakness under either Section 302 or Section 404 from August 2002 to November 2005. These authors determine that internal control weaknesses are generally associated with poorly estimated accruals that are not realized as cash flows.⁶ Interestingly, they also find that material weakness disclosures made under Section 302 seem to be more strongly associated with lower accruals quality than are those made under Section 404. They suggest that these findings are due to the increased level of scrutiny provided by Section 404; Section 404 requires that the external auditor provide an audit opinion on the internal control environment. This would suggest two things relevant to my study. First, the role of the auditor may have a significant impact on a company's accrual quality; this study examines the role of management (separate, as much as possible, from the role of the auditor) in improving financial reporting quality when there are new

⁵ SOX Section 302(a) explicitly states that fair presentation of the financial statements is not limited to the assertion of compliance with GAAP. Previous audit report language indicated that the financial statements were fairly stated when in compliance with GAAP.

⁶ These authors estimate accruals for the five years leading up to the passage of SOX (1996 – 2002).

incentives for them to do so. Second, as Section 404 has yet to be implemented by non-accelerated filers, the results of my study may inform the debate over whether Section 404 might improve financial reporting quality beyond the provisions of SOX that are already in effect for non-accelerated filers.

Similar to Doyle et al. (2007), Bédard (2006) examines the association between companies disclosing a material weakness under either Section 302 or Section 404 and unexpected accruals in the year of the material weakness disclosure.⁷ Bédard finds that the absolute level of unexpected accruals increases in the year a material weakness is disclosed. This author attributes these results to managements' reversal of earlier accruals that were too large, either voluntarily or at the auditor's request, indicating improved earnings quality. Together these studies would indicate that for companies disclosing a material weakness under either Section 302 or 404, generally accruals were poorly estimated during the period preceding the material weakness disclosure and accruals quality improved in the year of disclosure.⁸

Lobo and Zhou (2006) examine both earnings management and conservatism for the two years prior to SOX and the two years following SOX. These authors find that, similar to the studies above, firms are more conservative according to both measures post-SOX than they were pre-SOX.

Cohen et al.(2008) examine whether the time period leading up to the passage of SOX was characterized by a widespread increase in earnings management, or if SOX was precipitated primarily by a few highly publicized events, and whether the passage of SOX resulted in lower earnings management. These authors examine annual accrual-based earnings management as well as "real" earnings management⁹ during three time periods (pre-SOX, pre-fraud 1987 – 1999; pre-SOX scandal period 2000 – 2001; and post-SOX 2002 – 2005), focusing on changes and levels of equity based compensation for executives as

the motivation for earnings management. Overall, their results indicate that annual accrual-based earnings management increased steadily until the passage of SOX in 2002, after which there was a significant decline. Conversely, "real" earnings management activities declined prior to the passage of SOX, and subsequently increased. Combined, these results indicate that managers switched from accrual-based to "real" earnings management as a consequence of SOX. Lastly, Cohen et al. (2008) provide evidence that increases in accrual-based earnings management pre-SOX are associated with increases in the fraction of equity based compensation received by executives.

By using annual earnings management measures, each of the above studies examines "joint measures" of financial reporting quality. There are two significant differences between these studies and my study. First, I examine quarterly versus annual financial reporting quality. Second, by using the quarterly reporting environment following the implementation of Sections 302 and 906, my study offers some opportunity to disentangle managements' effect on financial reporting quality from the auditor's effect on financial reporting quality.

Section 906 requires that each periodic financial report containing financial statements filed with the SEC include a written statement by the CEO and CFO certifying that the report fully complies with the regulations of the Securities Exchange Act of 1934 and that the information in the report fairly presents, in all material respects, the financial condition and results of operations of the filer.¹⁰ CEO and CFO certifications under SOX Section 906 are publicly available at www.sec.gov.

Section 906 also imposes severe criminal penalties for CEOs and CFOs who knowingly or willfully provide false certifications of periodic financial reports. Executives, who knowingly certify a filing that does not meet all of the requirements of this section, can be fined not more than \$1,000,000, or be imprisoned not more than 10 years, or both. Additionally, anyone who *willfully* certifies a

⁷ This author examines material weakness disclosures from September 2002 to September 2005.

⁸ The disclosure of material weaknesses does not affect my study as only eight companies in my sample disclosed material weaknesses in 2003.

⁹ These authors estimate management's use of real operational activities to manage earnings.

¹⁰ This sounds similar to the provisions of Section 302, however Section 906 additionally requires CEOs and CFOs to certify that the report "fully complies" with the requirements of the Securities Exchange Act.

statement as noted above, knowing that the filing does not meet all of the requirements of this section, can be fined not more than \$5,000,000, or be imprisoned not more than 20 years, or both.

To date, Section 906 has not been the subject of much accounting research. Levinsohn (2003) cites a June 2003 survey by the Association for Financial Professionals¹¹ regarding the prevalence of a “subcertification” affidavit among corporate managers.¹² Among the 555 members and non-members who responded to the survey, 37% of those professionals who work for public companies were asked to sign an affidavit certifying the accuracy of the financial information they provided. Nearly all of those who were asked to sign, did sign. The survey also found that financial professionals providing “subcertification” did so for a median of three items in their company’s financial reports. Specifically, of those who work for a public company and provided “subcertification,” 63% certified disclosures in Management Discussion and Analysis, 60% certified specific account balances, 60% certified compliance with company policies, and 58% certified the adequacy of internal controls. The frequency and scope of “subcertifications” would seem to indicate that CEOs and CFOs considered the penalties identified in Section 906 to be concerning.

Section 404 of SOX became effective for accelerated filers for fiscal years ending after November 15, 2004.¹³ Section 404 requires that each *annual* report (1) contain an internal control report which states the responsibility of management for establishing and maintaining an adequate internal control system and related procedures for financial reporting; (2) contain an assessment by management of the effectiveness of the internal control structure and procedures at the end of the most recent fiscal year; and (3) contain a statement that the audit firm issuing the audit report

attests to, and reports on, the assessment of internal controls made by management.

This study is interested only in the effect of Section 302 certifications and the Section 906 penalties on quarterly financial reporting quality, as it is within this environment that I can offer some contribution regarding the actions and motivations of management separate from the actions and motivations of the auditor. The Section 404 certifications require both managements’ certification and an auditor’s opinion resulting in financial statements that provide a joint measure of financial reporting quality. In order to isolate the effects of Sections 302 and 906 from those of Section 404, I compare the quarterly financial reporting quality for 2001 and 2003.¹⁴

IMPORTANCE OF QUARTERLY REPORTING

Existing literature indicates that quarterly earnings numbers are valuable to investors. Beaver (1998) developed three theoretical links between earnings and share prices: current earnings provide information to predict future earnings, future earnings provide information about future dividends, and future dividends provide information to determine share value. Extensive literature has shown that negative earnings surprises often have severe adverse valuation consequences (Brown and Caylor 2005; Dechow et al. 2003; Skinner and Sloan 2002) and that executives appear to use earnings management techniques in order to avoid negative earnings surprises (Barton and Simko 2002; Bartov et al. 2002; Burgstahler and Eames 2006; Matsumoto 2002).

Management can influence interim quarter earnings for two primary reasons: first the accounting rules allow for more management judgment when reporting earnings for interim quarters and second, auditors review, but do not audit, interim period results. The Accounting Principles Board Opinion No. 28 - Interim Financial Reporting (APB 28) contains GAAP for interim financial statements (*Accounting Principles Board Opinion No. 28: Interim Financial Reporting* 1973). Specifically, APB 28 states that the accounting profession adopted

¹¹ <http://www.afponline.org>

¹² Levinsohn suggests that CEOs and CFOs require “subcertification” because they typically do not personally prepare the financial information included in the 10-Ks and 10-Qs.

¹³ Accelerated filers are defined by SEC rule 13b-2 and generally refer to public companies with market capitalization of at least \$75 million. The effective date was extended 45 days for accelerated filers with a market capitalization of less than \$700 million as of November 2004 (Federal Register 2004).

¹⁴ Section 302 and 906 became effective in 2002 and Section 404 became effective in late 2004, so this research design allows me to isolate the effects of Sections 302 and 906 from the effects of Section 404.

an integral approach for interim financial reporting (as opposed to a discrete approach)¹⁵. Under an integral approach, the fiscal year is the primary reporting period and interim reports are integral parts of the annual reporting period. Under this approach, interim revenues are recognized on the same basis as for the entire fiscal year, while certain costs that must be expensed during the fiscal year may be accrued or deferred at the end of an interim period based on managers' expectations for the remainder of the year. APB 28 requires that interim reports contain reasonable estimates of costs or expenses based on all available information applied consistently across periods. However, period costs that benefit more than one interim period may be expensed as incurred or allocated between interim periods based on several methods.¹⁶ The use of managers' expectations to form cost estimates in an interim period can provide managers with greater discretion over quarterly earnings than over fourth quarter earnings.

The fact that quarterly earnings are reviewed but not audited, also allows more management discretion over quarterly results. Statement on Auditing Standards No. 100: Interim Financial Information (SAS 100) provides guidance to auditors of public companies regarding the review of interim financial information (*Statement on Auditing Standards No. 100: Interim Financial Information* 2002). SAS 100 states that a review of interim financial information is significantly different from an audit of financial information because a review consists primarily of inquiry and analytical procedures while an audit includes substantive audit tests and the collection of corroborative evidence. The public filings and auditor reports for all public companies are available at www.sec.gov. The limited scope of the auditor's involvement in the quarterly financial reporting process potentially allows management more discretion and provides a unique environment for this research project to separate the joint measure of financial reporting quality.

¹⁵ Under the discrete approach each interim period is viewed as a separate accounting period and the same expense recognition principles would be applied to interim and annual reports. The discrete methodology would not allow for special interim accruals or deferrals.

¹⁶ For example: estimate of time period expired, benefit received, expected sales, expected volumes, etc.

MEASURING QUARTERLY FINANCIAL REPORTING QUALITY

In this study, I investigate whether the provisions of Sections 302 and 906 prompt changes in managers' behaviors, resulting in improved quarterly financial reporting quality as proxied by earnings management. In recent years, the SEC has made a connection between earnings management and restatements or improper accounting (Public Accounting Report 1998). Additionally, in a 1998 speech, then SEC Chairman Levitt made a direct connection between earnings management, earnings quality and the quality of financial reporting (Chairman Levitt Speech 1998). Previous research has used accruals quality as a proxy for earnings management and financial reporting quality and this paper will do the same.

Previous research indicates that managers use discretionary accruals to intentionally manage earnings to their benefit. In these studies, managers are presumed to have evaluated their cost-benefit function and decide to intentionally manage earnings. Sections 302 and 906 increase the cost side of this function, while the benefit side of the equation remains essentially constant, potentially resulting in reduced intentional earnings management.

Several research papers have separately examined aggressive earnings management firms and low earnings management firms in their research design (Bédard et al. 2004; Johl et al. 2007; Koh 2007). The results for these papers indicate that firms that exhibit aggressive earnings management are differentially associated with firm level corporate governance characteristics, institutional investor type and audit opinions. Based on this literature, it seems reasonable that SOX 302 and 906 could differentially affect managers' behaviors based on whether a firm exhibits aggressive earnings management or low earnings management in the pre-SOX period.

I test the relation between Sections 302 and 906 and quarterly financial reporting quality as measured by a reduction in quarterly earnings management between the "same-quarter" periods before and after the implementation of these Sections. I limit my study to companies with December 31st year-ends in order to eliminate the confounding effects of different year-end dates and different seasonality within

industries.¹⁷ The four calendar quarters of 2001 are defined as the pre-SOX Sections 302 and 906 period and the four calendar quarters of 2003 as the post-SOX Sections 302 and 906 period. For example, this study will compare abnormal accruals for Q1 (Q2, Q3, Q4) of 2001 with abnormal accruals for Q1 (Q2, Q3, Q4) of 2003.

I expect that if Sections 302 and 906 are effective in modifying corporate managers' behavior, quarterly abnormal accruals post-SOX Sections 302 and 906 (2003) will be lower than the corresponding quarterly abnormal accruals pre-SOX Sections 302 and 906 (2001). While the provisions of SOX 302 and 906 do not specifically address levels of financial reporting quality, it is likely that management would respond to these provisions differently based on whether the firm had relatively aggressive earnings management pre-SOX or relatively low earnings management pre-SOX. I hypothesize that the additional responsibilities and legal penalties associated with these Sections will motivate management of firms that had more aggressive earnings management pre-SOX to reduce earnings management. However, it is an empirical question as to whether these provisions differentially affect firms with different levels of earnings management pre-SOX. This leads to my first hypothesis (expressed in alternate form):

H1a: For firms with aggressive earnings management pre-SOX, there will be a decline in the absolute value of performance-adjusted abnormal accruals for each of the four quarters post-SOX Sections 302 and 906 (2003) as compared to the respective same-quarter pre-SOX Sections 302 and 906 (2001) (i.e., company abnormal accruals will become closer to zero).

One of the goals of SOX is to improve overall financial reporting quality, and for this reason, I also expect that, in addition to an overall decrease in abnormal accruals, after the implementation of these provisions, there will also be a decrease for each of the two subsets of companies: those that had positive (income increasing) abnormal accruals and those that had negative (income decreasing) abnormal accruals in the pre-SOX Sections 302 and 906 period as

compared to the post-SOX Sections 302 and 906 period. This leads to my second and third hypotheses (expressed in alternate form):

H2a: For firms with aggressive earnings management and positive abnormal accruals (performance-adjusted) pre-SOX Sections 302 and 906, there will be a decline in the value of abnormal accruals for each of the four quarters post-SOX Sections 302 and 906 (2003) as compared to the respective same-quarter pre-SOX Sections 302 and 906 (2001) (i.e., company abnormal accruals will become closer to zero).

H3a: For firms with aggressive earnings management and negative abnormal accruals (performance-adjusted) pre-SOX Sections 302 and 906, there will be a decline in the value of abnormal accruals for each of the four quarters post-SOX Sections 302 and 906 (2003) as compared to the respective same-quarter pre-SOX Sections 302 and 906 (2001) (i.e., company abnormal accruals will become closer to zero).

For all of my samples, I expect the interim quarter results (Q1, Q2 and Q3) to indicate the change in reporting quality due primarily to the managers' effect on financial reporting quality because, as stated previously, the auditor's role in quarterly financial reporting did not directly change during the test period. However, I expect the Q4 results to indicate the change in reporting quality due to both the managers' effect and the auditor's effect on financial reporting quality as both parties play a part in the reporting quality for the fourth quarter results. Comparing the interim quarter results and the fourth quarter results should provide information about the relative change in reporting quality attributable primarily to managers and to both managers and auditors in the time period surrounding the implementation of SOX.

RESEARCH DESIGN

DATA

The provisions of SOX that I am interested in testing apply to all U.S. publicly traded companies with December 31st year ends and available data on Compustat quarterly industrial files in order to

¹⁷ For example Q2 will not be comparable between a retailer with a 12/31 year end and a retailer with a 6/30 year end.

calculate discretionary accruals for the four quarters of 2001 and the four quarters of 2003.¹⁸ This restriction likely introduces survivorship bias into the sample resulting in the inclusion of a higher number of larger and more stable companies. I expect that this bias would cause me to be less likely to find results, thereby creating a more conservative test of my research question.

Consistent with DeFond and Park (2001), I calculate accruals using all firms on Compustat with the same two-digit SIC code, where each SIC group has at least 20 observations and at least five firms with negative operating cash flow. Consistent with Ball and Shivakumar (2006), I eliminate influential observations by winsorizing the extreme 0.5% of the observations for each variable for each quarter.¹⁹ Consistent with Matsumoto (2002), I exclude financial and insurance institutions (SIC codes 6,000 – 6,499), utility companies (SIC codes 4,800 – 4,999) and other quasi-regulated industries (SIC codes 4,000 – 4,499, and 8,000 and higher). Consistent with Hribar and Collins (2002), I use accruals and cash flows data from the Statement of Cash Flows rather than estimating the variables indirectly from balance sheet data.

SELECTION OF EARNINGS MANAGEMENT MODEL

Researchers have used many different models to estimate earnings management using abnormal accruals. Dechow et al. (1995) evaluate several different earnings management models in order to determine which model is the most effective at differentiating “abnormal” accruals from “normal” accruals. Their results indicate that the Modified Jones Model is best at identifying abnormal accruals; this model is the original Jones (1991) model as modified by Dechow et al. (1995). The Modified Jones Model assumes that the change in revenue less the change in accounts receivable is free from managerial discretion; only credit sales are discretionary.²⁰

¹⁸ I will exclude ADRs from this analysis to focus on U.S. companies.

¹⁹ This will winsorize observations in the 0.5% and 99.5% tails.

²⁰ The original Jones model did not include the change in accounts receivable term.

More recently, Ball and Shivakumar (2006) evaluate the usefulness of nonlinear models in estimating abnormal accruals. Their results indicate that conventional linear models of abnormal accruals are poorly specified, suffer from attenuation bias, and explain substantially less of the variation in accruals as compared to models that include a nonlinear specification. Overall, their results show that for the industry-specific regressions using the Jones Model, the addition of the nonlinear term increases the R^2 from 12% to approximately 30%, a 150% increase.²¹

Kothari et al. (2005) evaluate the ability of performance-matching to improve the specification and power of the existing discretionary accrual models. Their results indicate that discretionary accruals estimated using the Jones or Modified Jones Models, and adjusted for performance-matching on ROA_t , tend to be the best specified measures of discretionary accruals across a wide variety of simulated event conditions.

Recently, Hribar and Nichols (2007) examine the implications of using the absolute value of discretionary accruals when testing for earnings management. Their results indicate that, when using the absolute-value of abnormal accruals as a measure of earnings management, lack of fit can bias tests in favor of rejecting the null hypothesis of no earnings management when the partitioning variable is correlated with firm characteristics such as size and volatility. These authors suggest that controlling for operating volatility and size variables in the second stage of the discretionary accrual modeling will minimize the possibility of falsely rejecting the null hypothesis of no earnings management²². The lack of fit these authors describe should not affect my study for two reasons. First, my partitioning variable (SOX) should not be correlated with operating volatility or size. Second, I examine not only the decline in the absolute-value of abnormal accruals (Hypothesis 1) but I also separately examine whether abnormal accruals decline (approach zero) for companies with positive abnormal accruals and

²¹ A few recent research papers also use this non-linear specification of the Modified Jones model (Ashbaugh-Skaife et al. 2008; Daniel et al. 2008).

²² Hribar and Nichols include the five-year standard deviation of CFO, the five-year standard deviation of revenues, the log of total assets and CFO as control variables in their tests.

companies with negative abnormal accruals (Hypotheses 2 and 3).

Based on the above literature, I evaluate quarterly financial reporting quality measuring the absolute value of performance-adjusted abnormal accruals (and separately measuring positive and negative abnormal accruals) using the Ball and Shivakumar nonlinear specification of the Modified Jones model.

To calculate the absolute value of performance-adjusted abnormal accruals using this model, I first estimate the expected (non-discretionary) accruals for each firm i in industry j for quarter t using ordinary least squares regression.

$$\frac{TAcc_{ijt}}{LagTA_{ijt}} = \alpha_{jt} + \beta_{1jt} \frac{1}{LagTA_{ijt}} + \beta_{2jt} \frac{(\Delta Sales_{ijt} - \Delta AR_{ijt})}{LagTA_{ijt}} + \beta_{3jt} \frac{PPE_{ijt}}{LagTA_{ijt}} + \beta_{4jt} \frac{CFO_{ijt}}{LagTA_{ijt}} + \beta_{5jt} DCFO_{ijt} + \beta_{6jt} \frac{CFO_{ijt} * DCFO_{ijt}}{LagTA_{ijt}} + \varepsilon_{ijt}$$

where:

$TAcc_{ijt}$ = total accruals for firm i in industry j in quarter t ;

$\Delta Sales_{ijt}$ = the quarterly change in net sales [change in Compustat item #2] for firm i in industry j in quarter t (versus quarter $t-1$);

ΔAR_{ijt} = the quarterly change in accounts receivable [Compustat item #103] for firm i in industry j in quarter t (versus quarter $t-1$);

PPE_{ijt} = gross property, plant and equipment [Compustat item #118] for firm i in industry j in quarter t ;

CFO_{ijt} = quarterly cash flow from operations from the Statement of Cash Flows (Compustat item # 108) for firm i in industry j in quarter t ;

$DCFO_{ijt}$ = a binary variable which is 1 if operating cash flow is less than zero for firm i in industry j in quarter t ;

$LagTA_{ijt}$ = beginning of the quarter total assets (Compustat item # 44) for firm i in industry j in quarter $t-1$.

Consistent with previous research, total accruals is calculated as earnings from continuing operations minus cash flow from continuing operations [Compustat item #76 – (Compustat item #108-Compustat item # 78)] (Bradshaw et al. 2001; Healy 1985; Healy and Palepu 2001; Phillips et al. 2003). The changes in sales and accounts receivable, and the fixed assets balance are used to control for the expected portion of total accruals. I also control for cash flow from operations and the nonlinear specification identified by Ball and Shivakumar (2006).²³

When estimating the “normal” accruals, some researchers include an intercept term and some do not. Similar to Kothari et al. (2005), I include an intercept term in the estimation (1) to provide an additional control for heteroskedasticity which is not entirely eliminated by using lagged total assets as a deflator, and it also mitigates problems from omitting a size (or other scale) variable.

Next, I use the industry-quarter-specific parameters from equation (1) above to estimate firm-quarter-specific abnormal accruals (AAC) (all of the variables are already defined above):

$$AAC_{ijt} = \frac{TAcc_{ijt}}{LagTA_{ijt}} - (\hat{\alpha}_{jt} + \hat{\beta}_{1jt} \frac{1}{LagTA_{ijt}} + \hat{\beta}_{2jt} \frac{(\Delta Sales_{ijt} - \Delta AR_{ijt})}{LagTA_{ijt}} + \hat{\beta}_{3jt} \frac{PPE_{ijt}}{LagTA_{ijt}} + \hat{\beta}_{4jt} \frac{CFO_{ijt}}{LagTA_{ijt}} + \hat{\beta}_{5jt} DCFO_{ijt} + \hat{\beta}_{6jt} \frac{CFO_{ijt} * DCFO_{ijt}}{LagTA_{ijt}})$$

Next, as explained by Kothari et al. (2005), I rank each firm into industry group deciles based on their prior year's return on assets (ROA). Within each industry group, I then calculate the median abnormal accruals. Last, I calculate performance-adjusted abnormal accruals (PAAC) by taking the difference between the sample firm's abnormal accruals and the median abnormal accruals for the industry group.

²³ Consistent with the intent of the Modified Jones model, I do not scale the intercept by average total assets (Ball and Shivakumar 2006).

(The median ROA value excludes the specific sample firm.)

To classify firms with extreme earnings management, I identify the 20% of the sample firms with the highest positive performance-adjusted abnormal accruals in the pre-SOX period (calculated as detailed above) and the 20% of the sample firms with the highest negative performance-adjusted abnormal accruals (also in the pre-SOX period) as the extreme earnings management sample. The remaining 60% of the sample firms are identified as the low earnings management sample.

EMPIRICAL MODEL

I use the following regression to test the relation between quarterly abnormal accruals and Sections 302 and 906:

$$\text{ABSPAAC}_{it} = \alpha_0 + \beta_1 \text{SOX}_{it} + \beta_2 \text{Size}_{it} + \beta_3 \text{BIGN}_{it} + \beta_4 \text{CFO}_{it} + \beta_5 \text{Distress}_{it} + \beta_6 \text{MTB}_{it} + \beta_7 \text{Leverage}_{it} + \varepsilon$$

where:

ABSPAAC_{it} = absolute value of performance-adjusted discretionary accruals calculated using the Ball and Shivakumar (2006) piecewise adjustment to the Modified Jones Model (PAAC) for firm i in quarter t ;

SOX_{it} = 1 if the quarterly financial statement is for a quarter in 2003, 0 otherwise;

Size_{it} = natural log of the market value of equity for firm i at the end of the quarter ($t-1$) [Compustat item #13 (price) * Compustat item # 61 (common stock outstanding)];²⁴

²⁴ I also modeled the size variable with the natural log of total assets with (untabulated) similar results with two exceptions: (1) for the aggressive earnings management sample in the quarter 3, positive abnormal accruals subsample the test variable (SOX) was significant at the 10% level (one-tailed); and (2) for the aggressive earnings management sample in the quarter 2, positive abnormal accruals subsample the test variable (SOX) was significant at the 5% level (one-tailed).

BIGN_{it} = 1 if firm i is audited by a Big N firm in quarter t , 0 otherwise;²⁵

CFO_{it} = firm i 's quarterly cash flow from operations from the Statement of Cash Flows in quarter t (Compustat item # 108) scaled by beginning of the quarter total assets (Compustat item # 44 in quarter $t-1$);

Distress_{it} = Zmijewski's (1984) financial condition index for firm i in quarter t ;

MTB_{it} = market value of firm i divided by the book value of assets measured at the beginning of the quarter t ;²⁶

Leverage_{it} = total debt [Compustat item # 45 (short term debt) + Compustat item # 51 (long term debt)] divided by total assets (Compustat item # 44) for firm i in quarter t .

Consistent with prior studies (Ashbaugh-Skaife et al. 2008; Klein 2002), I use the absolute value of performance-adjusted abnormal accruals as my dependent variable, as I am primarily interested in determining whether abnormal accruals are moving closer to zero.²⁷ For this same reason, I separately examine the change in abnormal accruals for companies with positive (negative) abnormal accruals in the pre-Section 302 and 906 timeframe. I expect that the absolute value of abnormal accruals will decline following the implementation of Sections 302 and 906, therefore, I expect a negative relation between ABSPAAC and my test variable (SOX). The empirical model is calculated separately for the extreme earnings management and low earnings management samples.

²⁵ I exclude from my sample firms that were audited by Andersen pre-SOX and firms that changed auditor during the test period as previous research has indicated that these variables are significant in abnormal accruals modeling.

²⁶ I also modeled growth as quarter over quarter sales growth with (untabulated) similar results.

²⁷ For my study, quarterly financial reporting quality would not have improved if abnormal accruals before Section 302 and 906 were at a mean of negative three and after Sections 302 and 906 were at a mean of positive three.

CONTROL VARIABLES

I control for factors that previous research has indicated are significant in determining the magnitude of abnormal accruals. Specifically, I control for certain company characteristics: size, Big N auditor, operating cash flow, financial distress, growth (proxied using the market-to-book ratio), and leverage. Based on previous research, I expect a negative relation between abnormal accruals and size (Ashbaugh-Skaife et al. 2008; Bédard 2006; Klein 2002), Big N auditor (Ashbaugh-Skaife et al. 2008; Becker et al. 1998; DeAngelo 1981; Francis et al. 1999; Ge and McVay 2005), operating cash flow (Bédard 2006; Ge and McVay 2005; Reynolds and Francis 2000), and leverage (Francis et al. 2005; Klein 2002; Reynolds and Francis 2000) and a positive relation between abnormal accruals and financial distress (Ashbaugh-Skaife et al. 2008; Reynolds and Francis 2000) and growth (market-to-book)²⁸ (Francis et al. 2005; Klein 2002).

My model includes two observations for each company: the pre-Section 302 and 906 period and the post-Section 302 and 906 period. Because having multiple observations from one company can result in serial correlation of the error terms, I use robust standard errors in my main analysis.²⁹

RESULTS

Table 1 presents the sample firm composition and the number of unique firms in the sample. Overall, my analysis includes 1,210 unique firms with 8,596 firm quarters.

²⁸ I also modeled the growth variable with Tobin's Q. In this model, the Tobin's Q variable was significantly positive approximately half of the time, however the SOX test variable results were similar to the primary model with one exception: for the aggressive earnings management sample in the quarter 3, positive abnormal accruals subsample the test variable (SOX) was significant at the 10% level (one-tailed).

²⁹ I also use a panel data fixed effects model with (untabulated) similar results.

Table 1
Sample Firms Composition

Panel A: Sample Firms Screening:

	<u>2001</u>	<u>2003</u>
US Firms with data available in Compustat to calculate abnormal accruals	16,690	14,859
Drop Andersen clients	(2,641)	
Drop firms in excluded industries	(3,128)	(3,239)
Drop firms without data available in Compustat to calculate test model	(1,840)	(1,695)
Drop firms with merger events in the test period	(1,553)	(1,423)
Drop firms that were not in the sample for the same quarter of both years	(2,468)	(3,442)
Drop firms that changed auditors during test period	<u>(762)</u>	<u>(762)</u>
Firms in sample	<u>4,298</u>	<u>4,298</u>

Panel B: Number of Unique Firms in the Sample:

	<u>Number of Unique Firms</u>
Firms in sample for one quarter	116
Firms in sample for two quarters	61
Firms in sample for three quarters	72
Firms in sample for four quarters	<u>961</u>
Total	<u>1,210</u>

Table 2 presents the two-digit SIC code for the 8,596 firm-quarter observations in total and by pre-SOX

aggressive earnings management behavior. (See Table 2 in the appendix.)

DESCRIPTIVE STATISTICS AND UNIVARIATE RESULTS

In Table 3, the univariate test of differences in means pre-SOX versus post-SOX for the aggressive earnings management subsample shows that: the absolute value of abnormal accruals (ABSPAAC) is statistically smaller post-SOX for all four quarters; company size (Size) is statistically smaller post-SOX (except for quarter 3 when it is larger); Financial distress (Distress) and Leverage are statistically larger for all four quarters; the market to book (MTB) variable is statistically smaller in quarters 1 and 2 and significantly larger in quarters 3 and 4; cash flow from operations (CFO) is not statistically different in any quarter. (See Table 3 in the appendix.)

Again, in Table 3, the univariate test of differences in means pre-SOX versus post-SOX for the low earnings management subsample shows that: the absolute value of abnormal accruals (ABSPAAC) is statistically larger post-SOX for all four quarters; cash flow from operations (CFO) is statistically smaller post-SOX for all four quarters; Financial distress (Distress) and Leverage are statistically larger in quarters 1 and 2 and are not statistically different in quarters 3 and 4; the market to book (MTB) variable is statistically larger in quarters 3 and 4 and not statistically different in quarters 1 and 2; company size (Size) is significantly smaller in quarter 1, larger in quarter 4 and not different in quarters 2 and 3.

MULTIVARIATE RESULTS

In a multivariate analysis, I examine whether quarterly financial reporting quality (proxied by the absolute value of abnormal accruals) has improved following SOX Sections 302 and 906 for firms with aggressive earnings management and low earnings management, separately, while controlling for those variables previous research has shown to have an independent effect on abnormal accruals. The results are in Table 4. (See Table 4 in the appendix.)

Overall, consistent with my expectations, abnormal accruals decrease post-SOX for the aggressive earnings management full sample, the positive abnormal accruals subsample and the negative

abnormal accruals subsample. These results are consistent for all four quarters, except the quarter 3 positive abnormal accruals subset of the extreme earnings management sample where there is no significant difference in abnormal accruals post-SOX. Surprisingly, for the low earnings management sample, abnormal accruals increased post-SOX for the full sample, the positive subsample and the negative subsample. These results were also consistent for all four quarters. For each quarter, the model (for the full sample, the positive subsample and the negative subsample) is highly significant ($p < 0.001$), and the adjusted R-squared values are 13.8% to 39.3% for the full sample, 18.1% to 52.2% for the positive subsample, and 12.9% to 38.8% for the negative subsample across the four quarters.

In quarter 1, as expected, abnormal accruals decreases post SOX for the aggressive earnings management full sample, the positive subsample and the negative subsample. Surprisingly, for the low earnings management sample, abnormal accruals increased post-SOX for the full sample, the positive subsample and the negative subsample. In all three samples, most of the control variables are significant in the expected direction except for the market to book and size variables, which are not significant. The BIGN auditor variable is significantly negative in three of the models and not significant in the other three models. The financial distress (Distress) and leverage variables are significant in the expected direction, except for the aggressive abnormal accruals positive abnormal accruals subsample where the variables are both significant in the opposite direction.

Similar to quarter 1, in quarter 2, abnormal accruals decrease post SOX for the aggressive earnings management full sample, the positive subsample and the negative subsample. Surprisingly, for the low earnings management sample, abnormal accruals increased post-SOX for the full sample, the positive subsample and the negative subsample. In all three samples, most of the control variables are significant in the expected direction except for the market to book variable, which is not significant. The size and BIGN auditor variables are significantly significant in the expected direction, but only in two models. In the other four models, the variables are not significant. The financial distress (Distress), leverage, and cash flow from operations variables are significant in the expected direction but only in three

or four of the models. In the other models, these variables are not significant.

Again in quarter 3, as expected, abnormal accruals decrease post SOX for the aggressive earnings management full sample and the negative subsample, however, for the low earnings management sample, abnormal accruals increase post-SOX for the full sample, the positive subsample and the negative subsample. In quarter 3, the change in abnormal accruals for the positive subsample of the extreme earnings management sample is not significant different from zero. In all three samples, only the cash flow from operations variable is significant in the expected direction. The BIGN auditor variable was significantly negative in four of the models and not significant in the other two models. The size variable is significant in the expected direction in two models and not significant in the remaining four models. The financial distress (Distress) and leverage variables are significant in the expected direction for three models, significant in the opposite direction for two models and not significant in the last model.

In quarter 4, as expected, abnormal accruals decreases post SOX for the aggressive earnings management full sample, the positive subsample and the negative subsample. Again, for the low earnings management sample, abnormal accruals increase post-SOX for the full sample, the positive subsample and the negative subsample. In all three samples, the cash flow from operations variable is significant in the expected direction. The size variable is significant in the expected direction for four models and not significant in the other two models. The Big 4 auditor variable is significant in two of the models and not significant in the other four models. The market to book variable is significant in the opposite direction for two of the models and not significant in the other four models. The financial distress (Distress) and leverage variables are significant in the expected direction for two models and not significant in the other four models.

Regarding Hypothesis 1, the results indicate that for firms with aggressive earnings management pre-SOX, there is a decline in the absolute value of performance-adjusted abnormal accruals for each of the four quarters post-SOX as compared to the respective same-quarter pre-SOX.

Regarding Hypothesis 2, the results indicate that for firms with aggressive earnings management and positive abnormal accruals (performance-adjusted) pre-SOX Sections 302 and 906, there is a decline in the absolute value of abnormal accruals in quarters 1, 2 and 4 post-SOX as compared to the respective same-quarter pre-SOX. There is no significant change in abnormal accruals in quarter 3.

Regarding Hypothesis 3, the results indicate that for firms with aggressive earnings management and negative abnormal accruals (performance-adjusted) pre-SOX Sections 302 and 906, there is a decline in the value of abnormal accruals for each of the four quarters post-SOX as compared to the respective same-quarter pre-SOX.

Interestingly, for all three samples and for all four quarters, firms in the low earnings management sample increase abnormal accruals post-SOX.

Overall, the results indicate that SOX 302 and 906 are associated with lower earnings management for the firms that exhibit the most aggressive earnings management pre-SOX, and are associated with higher earnings management for the firms that exhibit the lowest earnings management pre-SOX.

SENSITIVITY TESTS

In order to test the sensitivity of my results to the model selected, I also calculate abnormal accruals using the Jones (1991) model and the modified Jones model (Dechow et al. 1995). The Jones (1991) model results (untabulated) were very similar to the performance-adjusted abnormal accruals used in my primary analysis. The modified Jones model results (untabulated) were also very similar to my primary model results except for the aggressive earnings management sample of firms with negative (income decreasing) abnormal accruals where the results for quarters 2 and 3 are no longer significant. This indicates that my results are not primarily driven by my model selection.

SUMMARY, IMPLICATIONS, AND LIMITATIONS

This study examines whether the provisions of SOX Sections 302 and 906 are associated with improved financial reporting quality for firms that exhibit aggressive earnings management in the pre-SOX

period. These provisions of SOX require the management of public companies to personally certify the financial statements, including the effectiveness of internal controls over financial reporting and any material changes in internal control, and they impose severe criminal penalties for false management certifications made knowingly or willfully. Congress clearly intends that these new requirements and penalties would result in improved financial reporting quality.

In this paper, I offer some evidence that this objective was achieved in the year following the implementation of SOX 302 and 906. The results indicate that quarterly financial reporting quality (proxied by the absolute value of performance-adjusted abnormal accruals) improves following the implementation of SOX Sections 302 and 906 for firms exhibiting aggressive earnings management behavior in the pre-SOX period. Interestingly, firms exhibiting low earnings management in the pre-SOX period have higher abnormal accruals (lower financial reporting quality) in the post-SOX period. These results were consistent across all four quarters and for the total sample, the subsample with positive (income increasing) abnormal accruals, and the subsample with negative (income decreasing) abnormal accruals pre-SOX, with one exception. For quarter 2, financial reporting quality did not change for the positive abnormal accruals subsample of the extreme earnings management sample.

Because these provisions directly changed primarily the expectations of management related to quarterly filings, this study provides some evidence regarding the managers' effect on quarterly financial reporting quality separate from the auditor's effect, to the extent that financial reporting quality improved in the interim quarters as well as the fourth quarter. These results would seem to indicate that managers of firms that exhibited extreme earnings management behavior in the pre-SOX period improved quarterly financial reporting quality following SOX 302 and 906.

A limitation of this study is the inability to isolate the effect on financial reporting quality of actions taken by management by their own initiative versus actions taken by management or by the auditor at the request of the Board of Directors or the Audit Committee. It is possible that either the Board or the Audit Committee required management or the auditor to

take certain actions or make specific changes to their normal processes during the time period of my analysis either as a result of SOX or the macro-environment in general. Because I cannot observe the actions of the Board or Audit Committee, the result may be (best case) noise in my model or (worst case) correlated omitted variables. While I have tried to isolate the effects of Sections 302 and 906 in my research design, at the very least, this study should provide useful information about quarterly financial reporting quality during this very interesting time.

A second limitation of this study is the use of discretionary accruals as a proxy for earnings management. As with all studies that use this measure, I cannot observe earnings management directly, so I use estimates calculated with the Modified Jones model. I do, however, control for misspecification in this model using both the Kothari et al. (2005) performance matching and the Ball and Shivakumar (2006) nonlinear specification.

Subject to these limitations, this study makes several contributions to the literature. First, it provides evidence that quarterly financial reporting quality improves following the implementation of Sections 302 and 906 for firms that exhibited extreme earnings management behavior pre-SOX. Second, it provides some evidence about managements' effect on quarterly financial reporting quality separate from the auditor's effect because this study indicates that quarterly financial reporting quality improves (there is a decrease in abnormal accruals for aggressive earnings management firms during my test period) for the interim quarters as well as for the fourth quarter. Third, my results provide an indication of an association between increased individual criminal liability and changes in manager's behavior. As a result of these contributions, the results of this study should be interesting to policy setters and regulators (SEC and PCAOB), auditors, investors, academic researchers, and managers.

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Table 2
Sample Industry Composition

2 Digit SIC Code		All Firms	Aggressive Earnings Management	
			Yes	No
10	Metal Mining	66	34	32
12	Coal Mining	10	0	10
13	Oil and Gas Extraction	326	70	256
14	Mng, Quarry Nonmtl Minerals	48	6	42
15	Bldg Cnstr – Gen Contr, Op Bldr	8	0	8
16	Heavy Construction	20	8	12
17	Construction – Special Trade	24	12	12
20	Food Products	220	36	184
21	Tobacco Products	20	6	14
22	Textile Mill Products	54	12	42
23	Apparel & Other Finished Pds	44	24	20
24	Lumber and Wood (Excl Furn)	50	8	42
25	Furniture and Fixtures	24	8	16
26	Paper and Allied Products	104	18	86
27	Printing, Publishing and Allied	98	34	64
28	Chemical and Allied Products	1416	492	924
29	Petroleum Refining and Related	46	14	32
30	Rubber & Misc Plastic Prod	142	12	130
31	Leather and Leather Products	44	24	20
32	Stone, Clay, Glass, Concrete Prod	70	10	60
33	Primary Metal Industries	196	26	170
34	Fabricated Metal	184	24	160
35	Industrial, Comm'l Machinery	622	296	326
36	Electrical	746	300	446
37	Transportation Equipment	182	42	140
38	Meas Instr, Photo Goods	860	460	400
39	Misc Manufacturing Indust	90	44	46
45	Transportation by Air	86	18	68
46	Pipe Lines	2	0	2
47	Transportation Services	32	0	32
50	Durable Goods – Wholesale	206	58	148
51	Nondurable Goods – Wholesale	86	50	36
52	Bldg Matl, Hardwr, Garden	32	6	26
53	General Merchandise	8	2	6

Table 2 (continued)
Sample Industry Composition

2 Digit SIC Code		All Firms	Aggressive Earnings Management	
			Yes	No
54	Food Stores	38	10	28
55	Auto Dealers, Gas Stations	18	6	12
56	Apparel and Accessory Stores	24	14	10
57	Home Furniture & Equip Store	52	32	20
58	Eating and Drinking Places	222	38	184
59	Miscellaneous Retail	130	80	50
65	Real Estate	40	4	36
67	Holding, Other Investment Offices	138	78	60
70	Hotels, Other Lodging	60	22	38
72	Personal Services	38	12	26
73	Business Services	1,418	848	570
75	Auto Repair, Services, Parking	24	0	24
76	Misc Repair Services	6	4	2
78	Motion Pictures	40	18	22
79	Amusements, Recreation	<u>182</u>	<u>116</u>	<u>66</u>
	Total	<u>8,596</u>	<u>3,436</u>	<u>5,160</u>

Table 3
Sample Descriptive Statistics - Difference in Sample Means
Pre-SOX versus Post-SOX

Panel A: First Quarter Samples:

Variable	Aggressive Earnings Management Sample ^a (n=804)				Low Earnings Management Sample (n=1,208)		
	Pre-SOX Mean	Post-SOX Mean	Difference in Sample Means		Pre-SOX Mean	Post-SOX Mean	Difference in Sample Means
ABSPAAC	0.155	0.103	-0.052	***	0.019	0.047	0.028 ***
Size	3.808	3.375	-0.433	***	4.948	4.602	-0.346 **
BIGN ^b	0.637	0.637	0.000		0.808	0.808	0.000
CFO	-0.065	-0.084	0.019		-0.009	-0.022	-0.013 ***
Distress	-3.072	-1.366	1.706	***	-3.837	-3.315	0.522 ***
MTB	3.532	2.136	-1.396	**	2.470	2.069	-0.401
Leverage	0.289	0.588	0.299	***	0.250	0.313	0.063 *

Panel B: Second Quarter Samples:

Variable	Aggressive Earnings Management Sample ^a (n=836)				Low Earnings Management Sample (n=1,254)		
	Pre-SOX Mean	Post-SOX Mean	Difference in Sample Means		Pre-SOX Mean	Post-SOX Mean	Difference in Sample Means
ABSPAAC	0.259	0.179	-0.080	***	0.024	0.097	0.073 ***
Size	3.951	3.670	-0.281	*	4.965	4.818	-0.147
BIGN ^b	0.605	0.605	0.000		0.809	0.809	0.000
CFO	-0.156	-0.152	0.004		-0.006	-0.029	-0.023 **
Distress	-2.583	-1.349	1.234	**	-3.830	-3.467	0.363 **
MTB	5.251	2.170	-3.081	***	3.184	2.762	-0.422
Leverage	0.335	0.668	0.333	***	0.241	0.298	0.057 **

Panel C: Third Quarter Samples:

Variable	Aggressive Earnings Management Sample ^a (n=856)				Low Earnings Management Sample (n=1,288)		
	Pre-SOX Mean	Post-SOX Mean	Difference in Sample Means		Pre-SOX Mean	Post-SOX Mean	Difference in Sample Means
ABSPAAC	0.414	0.318	-0.096	*	0.036	0.143	0.107 ***
Size	3.380	3.764	0.384	*	4.765	4.971	0.206
BIGN ^b	0.603	0.603	0.000		0.801	0.801	0.000
CFO	-0.276	-0.286	-0.010		-0.004	-0.036	-0.032 *
Distress	-2.311	-0.724	1.587	*	-3.688	-3.575	0.113
MTB	1.507	3.463	1.956	*	1.645	2.990	1.345 ***
Leverage	0.393	0.668	0.275	*	0.258	0.277	0.019

Table 3 (continued)
Sample Descriptive Statistics - Difference in Sample Means
Pre-SOX versus Post-SOX

Panel D: Fourth Quarter Samples:

Variable	Aggressive Earnings Management Sample ^a (n=940)				Low Earnings Management Sample (n=1,410)		
	Pre-SOX Mean	Post-SOX Mean	Difference in Sample Means		Pre-SOX Mean	Post-SOX Mean	Difference in Sample Means
ABSPAAC	0.562	0.364	-0.198 ***		0.051	0.124	0.073 ***
Size	3.497	3.847	-0.350 **		4.980	5.190	0.210 *
BIGN ^b	0.579	0.579	0.000		0.804	0.804	0.000
CFO	-0.361	-0.342	0.019		0.022	0.005	-0.017 **
Distress	-1.419	0.247	1.666 **		-3.666	-3.357	0.101
MTB	2.865	4.829	1.964 **		2.421	3.147	0.726 *
Leverage	0.461	0.773	0.312 ***		0.248	0.275	0.027

Test for differences in the means: * significant at 10%; ** significant at 5%; *** significant at 1% in two-tailed tests.

^a The extreme earnings management sample is identified as the 20% of firms with the highest (positive) and the 20% of firms with the highest (negative) abnormal accruals in each quarter of the pre-SOX period (2001). The mean, median and standard deviation are calculated for each the two groups of companies (extreme earnings management and low earnings management).

^b It is reasonable that there is no change in the mean for BIGN as all firms in my sample had the same auditor in both time periods.

Variable Definitions (firm and quarter subscripts are not presented for simplicity):

ABSPAAC	=	absolute value of performance-adjusted discretionary accruals calculated using the Ball and Shivakumar (2006) piecewise adjustment to the Modified Jones Model for firm <i>i</i> in quarter <i>t</i> ;
Size	=	natural log of the market value of equity for firm <i>i</i> at the beginning of the quarter (<i>t</i> -1) [Compustat item #13 (price) * Compustat item # 61 (common stock outstanding)];
BIGN	=	1 if firm <i>i</i> is audited by a Big N firm in quarter <i>t</i> , 0 otherwise;
CFO	=	firm <i>i</i> 's quarterly cash flow from operations from the Statement of Cash Flows in quarter <i>t</i> (Compustat item # 108) scaled by beginning of the quarter total assets (Compustat item # 44 in quarter <i>t</i> -1);
Distress	=	Zmijewski's (1984) financial condition index for firm <i>i</i> in quarter <i>t</i> ;
MTB	=	market value of firm <i>i</i> divided by the book value of assets measured at the beginning of the quarter <i>t</i> ;
Leverage	=	total debt [Compustat item # 45 (short term debt) + Compustat item # 51 (long term debt)] divided by total assets (Compustat item # 44) for firm <i>i</i> in quarter <i>t</i> .

Table 4

Regressions with Dependent Variable Absolute Value of Performance –Adjusted Abnormal Accruals

$$ABSPAAC_{it} = \alpha_0 + \beta_1 SOX_{it} + \beta_2 Size_{it} + \beta_3 BIGN_{it} + \beta_4 CF_{it} + \beta_5 Distress_{it} + \beta_6 MTB_{it} + \beta_7 Leverage_{it} + \varepsilon$$

Panel A: SOX Variable Summary – Coefficient Value, Significance and Adjusted R-Squared:

SOX Variable	Aggressive Earnings Management Sample ^a			Low Earnings Management Sample		
	Full Sample	Positive Sample	Negative Sample	Full Sample	Positive Sample	Negative Sample
Q1	-0.070 ***	-0.054 ***	-0.062 ***	0.019 ***	0.017 ***	0.022 ***
Adj R2	0.267	0.241	0.349	0.266	0.351	0.147
Q2	-0.079 ***	-0.030 *	-0.113 ***	0.064 ***	0.070 ***	0.058 ***
Adj R2	0.273	0.364	0.348	0.200	0.208	0.240
Q3	-0.118 ***	-0.038	-0.182 ***	0.101 ***	0.096 ***	0.101 ***
Adj R2	0.393	0.435	0.388	0.393	0.522	0.312
Q4	-0.184 ***	-0.072 **	-0.260 ***	0.074 ***	0.068 ***	0.078 ***
Adj R2	0.309	0.349	0.351	0.138	0.181	0.129

Panel B: First Quarter Samples:

Variables ^b	Expected Sign	Aggressive Earnings Management Sample ^a (n=804)			Low Earnings Management Sample (n=1,208)		
		Full Sample	Positive Sample	Negative Sample	Full Sample	Positive Sample	Negative Sample
SOX	-	-0.070 ***	-0.054 ***	-0.062 ***	0.019 ***	0.017 ***	0.022 ***
Size	-	0.007	0.001	0.012	0.000	0.000	0.000
BIGN	-	-0.044 **	-0.012	-0.061 *	-0.008	0.003	-0.021 ***
CF	-	-0.183	-0.206 **	0.094	-0.114 **	-0.127 ***	-0.087 *
Distress	+	0.049 **	-0.012 **	0.069 **	0.040 **	0.044 *	0.031 **
MTB	+	0.002	0.001 *	0.002	0.000	0.000	0.000
Leverage	-	-0.200 *	0.207 **	-0.317 **	-0.229 **	-0.246 *	-0.177 **
Intercept		0.357 ***	0.024	0.440 ***	0.238 **	0.250 *	0.195 ***
N		804	412	392	1208	620	588
F-statistic		9.04	7.96	5.25	13.27	7.60	6.29
P-value		0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R2		0.267	0.241	0.349	0.266	0.351	0.147

Table 4 (continued)
Regressions with Dependent Variable Absolute Value of Performance –Adjusted Abnormal Accruals
 $ABSPAAC_{it} = \alpha_0 + \beta_1 SOX_{it} + \beta_2 Size_{it} + \beta_3 BIGN_{it} + \beta_4 CF_{it} + \beta_5 Distress_{it} + \beta_6 MTB_{it} + \beta_7 Leverage_{it} + \varepsilon$
Panel C: Second Quarter Samples:

Variables ^b	Expected Sign	Aggressive Earnings Management Sample ^a (n=836)			Low Earnings Management Sample (n=1,254)		
		Full Sample	Positive Sample	Negative Sample	Full Sample	Positive Sample	Negative Sample
SOX	-	-0.079 ***	-0.030 *	-0.113 ***	0.064 ***	0.070 ***	0.058 ***
Size	-	0.002	-0.001	0.007	-0.007 **	-0.002	-0.012 **
BIGN	-	-0.082 ***	-0.056 **	-0.075	0.019	0.015	0.026
CF	-	-0.350 ***	-0.311 ***	-0.299 *	-0.114	-0.252 ***	0.124
Distress	+	0.029 **	0.012	0.076 ***	0.045 **	0.033	0.059 *
MTB	+	0.001	0.000	0.000	0.003	0.003	0.000
Leverage	-	-0.100	0.017	-0.411 ***	-0.168 **	-0.143	-0.223 *
Intercept		0.353 ***	0.225 **	0.593 ***	0.246 **	0.167	0.341 *
N		836	440	396	1254	660	594
F-statistic		13.43	15.12	7.18	13.81	10.92	11.40
P-value		0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R2		0.273	0.364	0.348	0.200	0.208	0.240

Panel D: Third Quarter Samples:

Variables ^b	Expected Sign	Aggressive Earnings Management Sample ^a (n=856)			Low Earnings Management Sample (n=1,288)		
		Full Sample	Positive Sample	Negative Sample	Full Sample	Positive Sample	Negative Sample
SOX	-	-0.118 ***	-0.038	-0.182 ***	0.101 ***	0.096 ***	-0.118 ***
Size	-	-0.005	-0.016 *	0.005	-0.002	0.004	-0.005
BIGN	-	-0.056 *	-0.007	-0.138 *	-0.017 *	-0.022 *	-0.056 *
CF	-	-0.246 ***	-0.330 ***	-0.249 **	-0.325 ***	-0.394 ***	-0.246 ***
Distress	+	0.092 ***	0.060	0.097 ***	-0.022 ***	0.037 **	0.092 ***
MTB	+	0.000	-0.001	0.002	-0.003 **	-0.003 *	0.000
Leverage	-	-0.455 ***	-0.389	-0.472 ***	0.135 ***	-0.217 **	-0.455 ***
Intercept		0.786 ***	0.597 *	0.882 ***	-0.056	0.235	0.786 ***
N		856	448	408	1288	676	856
F-statistic		25.94	16.73	12.38	34.24	24.03	25.94
P-value		0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R2		0.393	0.435	0.388	0.393	0.522	0.393

Table 4 (continued)
Regressions with Dependent Variable Absolute Value of Performance –Adjusted Abnormal Accruals
 $ABSPAAC_{it} = \alpha_0 + \beta_1 SOX_{it} + \beta_2 Size_{it} + \beta_3 BIGN_{it} + \beta_4 CF_{it} + \beta_5 Distress_{it} + \beta_6 MTB_{it} + \beta_7 Leverage_{it} + \varepsilon$
Panel E: Fourth Quarter Samples:

Variables ^b	Expected Sign	Aggressive Earnings Management Sample ^a (n=940)			Low Earnings Management Sample (n=1,410)		
		Full Sample	Positive Sample	Negative Sample	Full Sample	Positive Sample	Negative Sample
SOX	-	-0.184 ***	-0.072 **	-0.260 ***	0.074 ***	0.068 ***	0.078 ***
Size	-	-0.010	-0.021 **	0.015	-0.008 ***	-0.005 **	-0.009 ***
BIGN	-	-0.104 **	-0.037	-0.199 **	0.003	-0.010	0.010
CF	-	-0.253 ***	-0.323 ***	-0.197 ***	-0.081 **	-0.126 ***	-0.051 *
Distress	+	0.040 **	0.001	0.070 ***	0.005	0.004	0.001
MTB	+	-0.004 **	-0.003	-0.007 **	0.000	-0.001	0.001
Leverage	-	-0.203 *	0.040	-0.380 ***	-0.014	-0.054	0.034
Intercept		0.727 ***	0.417 ***	0.916 ***	0.111 ***	0.116	0.081 **
N		940	490	450	1410	736	674
F-statistic		27.22	18.63	14.81	17.23	9.21	9.43
P-value		0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R2		0.309	0.349	0.351	0.138	0.181	0.129

* significant at 10%; ** significant at 5%; *** significant at 1% based on one-tailed (two-tailed) tests for variables whose relation to the dependent variable is (is not) predicted.

^a The extreme earnings management sample is identified as the 20% of firms with the highest (positive) and the 20% of firms with the lowest (negative) abnormal accruals in each quarter of the pre-SOX period (2001).

^b All variables are defined at Table 3.

FOLLOW THE CASH: A PROXY (TECHNIQUE) FOR CAPSTONE BUSINESS LEARNING

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ABSTRACT

This capstone business learning technique is based on following a company's cash flows. We first look at the importance of cash flows from four perspectives: the entrepreneur's, the corporation's, the investor's, and the accountant's. We then examine recent tools for helping students to understand a company's cash flows and how each of a company's strategies and operations ultimately meets in one place, cash. The goal is not to turn every student into an accountant, but rather to encourage students to look at the complexity of business functions, interrelationships, and priorities as a top manager does, through the bottom line. The paper is exploratory, not prescriptive; its purpose is to encourage capstone business instructors to incorporate the follow-the-cash technique into their existing learning approaches.

INTRODUCTION:

How does a capstone business instructor cover all facets of business functions and strategies within a single semester? How does (s)he leave students with an understanding of business that is both comprehensive enough to survive academic rigor, yet simple enough to be remembered and used by students in post-graduation job assignments? We begin our examination of whether a follow-the-cash approach might aid in those tasks by looking at the overall learning goals of a capstone business course.

A review of the literature suggests five such learning goals: first, to integrate all previous learning from across business's functional areas (Arben, 1997; Eldredge & Galloway, 1983); second, to provide the CEO's perspective on managing companies (Denning, 1968; Bower 2008); third, to work within uncertain situations (Denning, 1968; Eldredge & Galloway, 1983); fourth, to develop and critique strategic models (Schendel & Hatten, 1972; Camerer, 1985); and fifth, to reinforce a variety of functional skills (Hunsicker, 1980; Gilinsky & Robinson, 2008). There is considerable tension in the literature between the third and fourth learning goals, i.e. between those who advocate a relatively unstructured course forum for students to propose their own solutions to practical business problems and those who advocate a more structured, analytical approach to the course. Leontiades (1979) and Greiner (2003) were but two who concluded that analytical models had become so theoretical that they were losing relevance for most students.

Still, few would argue that students need at least some analytical guidance to be able to integrate and prioritize all the things that they have been taught in

the three-and-a-half years before their capstone business course. If students are to understand business from the CEO's perspective, then they must have a tool that incorporated the same directness, efficiency, and comprehensiveness with which CEO's approach managerial challenges. Can something so seemingly simple as cash be that tool?

THE ENTREPRENEUR'S PERSPECTIVE

Early entrepreneurial literature was not promising for cash becoming a universal analytical tool. Grablowsky (1978) opined that the cash management methods of small businesses were different than their larger counterparts. He believed that the techniques of large companies and of college textbooks were too sophisticated for most small business managers to understand. Grablowsky also believed that the techniques did not apply to smaller businesses because of the instability of smaller customer bases and the lack of specialized financial talent and data within the smaller firms, and the lack of resources to deal with cash problems even when they were discovered. Grablowsky compared the cash management techniques of smaller companies with those of larger companies through 200 random surveys of smaller companies with 66 respondents.

Grablowsky (1978) found that only about 30% of the surveyed businesses prepared cash budgets, but that newer companies were more likely to do so than longer-established companies. He also found that annual planning cycles were most prevalent among the companies that did budget and that most companies felt their cash flow to be at the mercy of their customers' own cash flows, i.e. their customers' choices of when to pay. Profits, rather than cash flow, seemed to drive the small business managers.

However, Grablowsky saw a shift in newer companies to more highly educated owners and managers, and that shift translated into more sophisticated budgeting. Also, the larger the small business, the more likely it was to have cash surpluses and to utilize more sophisticated cash management techniques. However, Grablowsky also commented that even those companies that did not budget showed an implicit understanding of the costs of doing business.

Grablowsky (1978) further investigated the relationships between accruals and accounts payable. He found that only 36% of the surveyed businesses understand how to gain cash by negotiating less frequent payments of their own accounts. Grablowsky concluded that the majority of small businesses did not optimally manage their cash. He attributed this deficiency to an external lack of professional advisors and an internal lack of management controls. Grablowsky therefore found the smaller firms relying on a series of ad-hoc decisions by managers.

Cooley & Pullen (1979), however, found that the cash management techniques of smaller businesses were still quite sophisticated even if constraints of time, money, and awareness hampered the smaller businesses. Cooley & Pullen surveyed 122 smaller gasoline wholesalers and retailers and evaluated those companies in the areas of planning and controlling cash flows. The authors noted that short-term cash management included budgeting, temporary investing of excess cash, and controlling cash inflows and outflows. The goal of the third component was to accelerate inflows and delay outflows, thereby maximizing the cash in the company. Cash management was especially important to the gasoline companies surveyed since they generated large amounts of cash relative to their levels of investment in the gasoline and since they had short cycles between buy and selling the gasoline.

Cooley & Pullen (1979) found that only 28% of the smaller companies budgeted and commented on how close their findings were to the 30% that Grablowsky had found a year earlier. In the area of temporarily investing excess cash, Cooley & Pullen found that a majority of the smaller firms had invested excess cash, but that the smallest of firms tended to simply put it in bank accounts, whereas the largest of the smaller companies sought higher yield investments. However, even those companies generally sought the safety of highly liquid, low-risk investments. In the area of controlling inflows and outflows, Cooley &

Pullen found great sophistication in the smaller companies in such techniques as depositing receivables on the same day received, taking advantage of trade discounts for payment of payables, and waiting until the last moment to pay those payables. Cooley & Pullen thus concluded that smaller firms did well in controlling cash flows, but could increase profitability by adopting more and longer forecasting and better temporary investing practices.

A quarter century later, Opeila (2006) identified cash flow as the most important factor in the success or failure of smaller companies. She found that small businesses tended to focus on satisfying existing customers when cash was plentiful, rather than proactively seeking new customers to generate future cash. Opeila cautioned that a month without new clients would mean cash flow problems three months later. She also cautioned small business owners about using personal assets to bail out failing their failing companies. Opeila advised start-up businesses in particular to focus on the "burn rate" of their cash and to avoid confusing paper profits with hard cash.

Drawing from financial planners, Opeila (2006) further advised small businesses to conduct liquidity assessments in six areas: operating budgets for monthly inflows and outflows of cash, reserve funds to provide three months worth of living expenses for the owner(s), capital funds to enable the company to grow, dedicated funds for special projects, opportunity funds for taking advantage of opportunities, and contingency funds to allow the owner to sleep comfortably.

Jacobides & Winter (2007) found that cash, not synergies, determined how broad a place in the value chain a company would seek to occupy. In other words, an entrepreneur would seek to occupy only that narrow part of the value chain where (s)he could obtain the maximum return on his/her available cash, rather than seeking to occupy all parts of the value chain where his/her innovations might add value. Jacobides & Winter emphasized that entrepreneurship was not limited to small businesses. Instead, they defined entrepreneurs as those in all sizes of businesses who sought to create private wealth by capturing extraordinary profit-making opportunities before others recognize those opportunities. Since others would not recognize those opportunities as early as the entrepreneur, Jacobides & Winter argued, the entrepreneur would have trouble attracting initial investors and would have to operate within constrained cash. Jacobides &

Winter described entrepreneurs as being “rich in ideas and poor in cash.”

Jacobides & Winter (2007) noted that cash was not the only resource that might be scarce to given entrepreneurs, but that cash was the only one that was consistent across all ventures. They then examined how entrepreneurs will build wealth as much through acquiring appreciating assets as through generating accounting profits and how the assets acquired might not fit into the core nature of the venture. Jacobides & Winter used the example of a restaurant owner acquiring adjacent rental properties because (s)he had the cash and the properties were a good buy. Jacobides & Winter then built a model that showed that available cash, not economic efficiency or the potential for generating profits, was the deciding factor in whether the entrepreneur would expand his venture to capture additional parts of the value chain. In other words, the economic efficiency of the expansion chosen took a back seat to getting the best return on whatever cash was available. Further, the initial return needed to be in cash to enable the entrepreneurial company to continue. As the company matured and had enough cash, the entrepreneur could turn to wealth accumulation through acquiring appreciating assets. As additional cash came in through additional investors, the company could even pursue the most economically efficient model of full integration of the value chain.

Jacobides & Winter (2007) thus showed the central value of cash to entrepreneurial companies. Nevertheless, Jacobides & Winter cautioned that their model did not purport to be all-inclusive, since every entrepreneur operated under different opportunities and constraints.

THE CORPORATION'S PERSPECTIVE

Govindarajan & Shank (1986), however, called cash sufficiency the missing link in all strategic planning. Govindarajan & Shank wrote in a time of conglomerates, corporations composed of many dissimilar business units. They also wrote in a time when strategic modeling was used to analyze those corporations and when that modeling had led to classifying the units according to preferred strategies of building, holding, harvesting, or divesting. Govindarajan & Shank argued that the models of the day had missed the important factor of cash in their components. Govindarajan & Shank asserted that, so long as a unit could generate more cash than it required to maintain itself, that unit had value to the corporation. By contrast, the strategic models of Govindarajan & Shank's time focused on market

share and growth rates, rather than calculating actual cash inflows and outflows.

Govindarajan & Shank (1986) defined cash sufficiency as a company having enough cash for the company to grow itself. Govindarajan & Shank noted that the sources of cash included internally generated capital, borrowing, and attracting new investors, and that the uses of cash include maintaining operations and investing in new assets for growth. Govindarajan & Shank thus simply re-categorized the parts of a statement of cash flows. They then urged companies to calculate sustainable growth rates based on the cash available and to use that model, rather than the strategic planning model in making decisions. Govindarajan & Shank further urged companies to focus on earnings, taxes, and dividends to maximize cash. Nevertheless, Govindarajan & Shank emphasized that cash sufficiency alone could not explain all of the strategic choices available to a company. Their purpose was to incorporate cash sufficiency into other strategic models, not to abandon the models.

A quarter century later, Bates, Kahle, & Stulz (2009) found that the ratio of companies' cash to their assets had more than doubled for all U.S. companies between 1980 and 2006. More strikingly, the authors found that the typical company now had enough cash to retire all of its debts. Bates, Kahle, & Stulz found that the increase affected firms of all sizes, although it was most pronounced in firms that did not pay dividends, those with recent IPO's, and those in volatile industries. Bates, Kahle, & Stulz then found the main reasons for the cash increase to be increasing cash-flow risk, falling inventories, falling capital expenditures, and increasing research-and-development expenses. They found no evidence that the retained cash was due to agency problems from entrenched managers.

Bates, Kahle, & Stulz (2009) attributed the first of the four factors, the cash-flow-risk component, to be due to idiosyncratic risk. They noted that the study was conducted during a time of entrepreneurial expansion and that newer companies tended to hold more precautionary cash than larger, longer established companies. Bates, Kahle, and Stulz believed that changing firm characteristics accounted for some of the increased cash holdings, and that over-caution on the part of the companies accounted for others. They recalled the hi-tech era of the 1990's, but found insufficient evidence to conclude that hi-tech companies alone were driving the increased cash holding percentages of the sample. In a telling note to the time in which Bates, Kahle, & Stulz wrote,

they also mentioned that derivatives could alleviate the need for over-cautious holding of cash. After the great recession of 2007, the derivative option has become far less attractive, and perhaps the companies that Bates, Kahle, & Stulz studied were really holding cash because they were scared of that coming recession. None of that conjecture, however, lessens the importance of cash that Bates, Kahle, & Stulz found or the level to which companies focus on having enough cash.

Bates, Kahle, & Stulz (2009) surmised that cash-flow risk peaked in 2004 and predicted its future decline as a factor for higher cash levels in companies. However, they predicted that the remaining three factors, lower inventory levels and the trend toward investing in research and development, rather than capital assets, would continue. The authors found research-and-development investments to be harder to finance than capital-asset investments since bankers would have less hard assets to use as collateral in research-and-development loans and surmised that companies therefore had to hold more cash for self-financing. Bates, Kahle, & Stulz thus established the growing importance of cash to all companies, not just entrepreneurial ones.

THE INVESTOR'S PERSPECTIVE

From the investor's perspective, Estep (1987) found three components of portfolio returns: equity growth, cash flows, and valuation changes. Using mathematical formulae, he found that the first two, equity growth and cash flow, were the dominant factors in portfolio returns. Estep noted that that equity growth and cash flows could account for over 90% of the returns on Dow Jones stocks in 1985, versus a 10% accounting from the best alternative statistical model found. He then argued that many investment firms were focusing on valuation changes in their selection of stocks. In other words, analysts were fixated on projecting potential future changes in valuation to develop management styles, rather than focusing on the two factors, equity growth and cash flows, that actually governed current returns.

Estep (1987) acknowledged that valuation change could account for short-term returns, but showed its effect to be neutral over the long term. Furthermore, he called valuation changes volatile and unreliable. Equity growth and cash flows, by contrast, were far more stable and accounted for no losses in returns over the period studied. However, Estep noted that cash flows were the smallest, but most stable component of returns, and could therefore be overwhelmed by the sheer size of the other two

components. Yet, he also found that cash flows and equity growth were inherently complementary; when cash was being used for growth, cash flows naturally declined. Estep asserted that a prudent portfolio manager could balance the two components to maximize returns.

Houge & Loughran (2000), however, accused investors of becoming enamored with current earnings and therefore missing returns from accruals and cash flows. Houge & Loughran described cash flows as persistent and accruals as transitory and found that focusing on cash flows could increase portfolio returns. However, Houge & Loughran argued that looking at both cash flows and accruals could produce the best balanced evaluation of a company's potential for portfolio returns. Houge & Loughran acknowledged previous authors who had advanced the "cash is king" approach to investing, but also noted previous literature was divided on the issue and had not fully dealt with the differences between cash flows and accruals. Houge & Loughran thus conducted empirical research and found that an accrual-based investment strategy could produce greater returns than an earnings-based strategy, but that a cash-flow-based strategy could produce even greater returns than an accrual-based strategy. In other words, companies with the highest cash flows produced the best portfolio returns.

Houge & Loughran (2000) observed that those firms that had high cash flows usually had low accruals, and visa versa. They further noted that earnings were the sum of cash flows and accruals, so that one could test which component had the greater effect on earnings. Houge & Loughran found that the increased returns from a cash-based strategy could be traced both to better-than-average returns from high-cash-flow companies and poorer-than-average returns from high-accrual companies. In other words, the phenomenon was not driven by both the cash and accrual factors. Since earnings were the sum of cash flows and accruals, Houge & Loughran concluded that investors would undervalue cash flows and overvalue accruals if those investors considered only earnings in their investment decisions. Houge & Loughran thus described firms with high cash flows as having high-quality earnings that could produce superior returns. They referenced established economic theory that the value of any asset is simply the sum of its stream of cash flows, discounted for the length of time before each cash flow can be obtained. Thus, current cash flows are more valuable than any future cash flows from current accruals.

Shivakumar (2006) examined unexpected cash flows and found them to have greater effect on stock prices and more predictive value for future portfolio returns than either unexpected accruals or earnings announcements. He recommended an investment strategy based on separating earnings into its parts, cash flows and accruals. After citing a number of 1980's and 1990's studies that supported the overall superiority of cash flows to accruals in affecting stock prices, Shivakumar noted that his research was intended both to explore the relationship between accounting earnings and equity values and to test whether risk-based or behavior-based theories better explained why investors under-reacted to surprises in earnings announcements. Both parts depended on empirical tests of the effect of cash flows.

Shivakumar (2006) cited Dechow et al (1998) and Barth et al (2001) to show that future cash flows were best predicted when current earnings were separated into cash and accrual components. Shivakumar then used this model to identify expected cash flows and compared actual cash flows from 1979 through 1999 to them through a number of rigorous econometric tests. He found that current cash flows affected both current stock prices and future cash flows in greater ways that did current accruals. In other words, current accruals must not have been automatically turning into future cash flows, at least in investors' minds. Cash flows were as important to investors as it was to entrepreneurial and corporate companies.

THE ACCOUNTANT'S PERSPECTIVE

As part of a larger examination of the quality of earnings, Schipper & Vincent (2003) explored the relationship among earnings, cash flows and accruals. Schipper was a member of the Financial Accounting Standards Board (FASB), and the authors wrote from the accountant's perspective. They concluded that the board was unlikely to accept standards that tied the quality of earnings to their closeness to cash. Instead, Schipper & Vincent thought that the accountant's historical focus on Hicksian income, the total change in wealth from one reporting period to the next, provided a better barometer with which to measure the quality of earnings. Yet they acknowledged that each company's underlying business model could affect earnings quality independently of accounting reporting rules.

Schipper & Vincent (2003) further defined Hicksian income as the net change in the economic assets of a company from one reporting period to the next plus the dividends that the company paid to its shareholders during that period. They noted that the

FASB was trying to shift its reporting standards to become more useful to decision-makers in both contracts with the company and investments in the company. Schipper & Vincent believed those decision-makers were best served by accounting standards based on the persistence (sustainability), predictive ability, and variability of earnings. Schipper & Vincent argued that managers manipulated earnings to give investors a picture of increases over time without wide earnings swings. Schipper & Vincent acknowledged one strain of accounting literature that had advocated closeness to cash as a tool for measuring the quality of earnings (e.g. Penman, 2001; Harris et al 2000). They also acknowledged Dechow & Dichev (2002) for having developed a direct approach to measuring the relationship between cash and accruals in earnings and concluded that Dechow's & Dichev's approach was faithful to the Hicksian approach. Finally, they acknowledged Sloan (1996) for showing that cash flows were more persistent than accruals, but then stated that other authors had obtained mixed results on that topic.

Schipper & Vincent (2003) believed that the purpose of the FASB was to promulgate reporting standards for accountants, but that it strived for relevance to decision-makers in those standards. However, that striving had led to increased reliance on managerial estimates of earnings from incomplete projects and on the possibility of managerial manipulation, both of which lessened the objectivity of the accounting standards. Schipper & Vincent asserted that the relative levels of cash and accruals in earnings could be affected both by managerial decisions and by underlying business models and economic climates, and therefore concluded that using the cash component alone to measure the quality of earnings was "not necessarily consistent with a representational faithfulness criterion."

However, Schipper & Vincent (2003) went on, as accountants do, to acknowledge that part of the reason for their reluctance to accept cash was that the statement of cash flows had not even been required by United States accounting standards until 1988, and that that statement was still not required for many foreign companies. Schipper & Vincent further acknowledged that cash was objective and subject to less manipulation of than accruals (Penman, 2001). Their main objection seemed to be that it was sometimes hard to categorize cash flows into operations, investing, or financing on the statement of cash flows.

Dechow, Richardson, & Sloan (2008) stated that prior research had established the superior persistence of cash over accruals. In other words, companies with earnings composed of more cash and fewer accruals could sustain those earnings over longer periods than companies with earnings composed of relatively less cash and relatively more accruals. Dechow, Richardson, & Sloan explored this phenomenon by further dissecting the cash portion of those earnings and examining the relative effects of each subcomponent on over 150,000 firm-years from 1950-2003. Accountants Dechow, Richardson, & Sloan (2008) reached into the literature of their financial peers to define the cash component of earnings as free cash flows. Dechow, Richardson, & Sloan then noted that they themselves defined cash as income minus accruals to ensure that all operating and investing accruals were excluded from their research. The authors observed that free cash flows could be alternately paid out as dividends/stock repurchases, used to retire debt, or retained as cash balances. They found that the dividends/stock repurchases subcomponent was the real driver of the cash phenomenon. In retrospect, it should probably not surprise us that cash paid to investors as dividends or stock repurchases should be very valuable!

Dechow, Richardson, & Sloan (2008) found that investors were good at pricing debt and equity changes, but bad at pricing cash-balance changes and accruals. Dechow, Richardson, & Sloan offered four conclusions from their research: First, earnings alone were an insufficient benchmark with which to evaluate a company. Second, cash retained by a company for its projects was less valuable than cash paid out to investors or used to retire debt. Third, companies with large accruals had lower earnings persistence and future returns than companies that were more cash conscious. Fourth, cash retained by the company was less valuable than cash paid out when it came time to value the company itself. Dechow, Richardson, & Sloan particularly urged investment analysts to focus on the uses of a company's free cash flows, not just the amount of those cash flows, in predicting future returns from, and values for that company.

Hewitt (2009) found that both professional analysts and non-professional investors had trouble separating cash flows from accruals on current accounting statements, and that that trouble led to less accurate forecasts of future returns from the companies. Hewitt tested 74 professional analysts from varied firms and 128 first year MBA students who simulated non-professional analysts. He found that both the

professionals and the non-professionals did fine as long as cash flows and accruals were similarly persistent, but that both the professionals and the non-professionals struggled at the same levels when cash flows and accruals were differently persistent. Hewitt cited prior research that had found that up to 40% of companies had those differing persistence rates in cash flows and accruals.

Hewitt (2009) noted that both the Financial Statement Presentation Project and the Financial Accounting Standards Board (FASB) had proposed major revisions to the way in which accounting standards were presented. Hewitt quoted the FASB chair as saying that the proposed revisions were intended to allow users to use the income statement and cash flow statement in two distinct ways. The former could show accruals and the latter cash. Hewitt further suggested that the information-processing difficulties of users of current accounting statements could be traced to the indirect method in which current statements of cash flow were prepared by adding back accruals to earnings. He concluded that his testing of both professional and non-professional analysts had showed that manipulating the current accounting statements in ways similar to the proposed FASB regulations could significantly improve user understanding of the information presented, and that that increased understanding could significantly improve forecasting accuracy. This conclusion was supported by similar results from the prior research of Bradshaw et al (2001) and Elgers et al (2003).

We thus have established entrepreneurs, corporations, investors, and accountants as all saying that cash is important. Yet the other three are largely dependent on the accountants for the financial statements needed to maximize the ways in which the analytical value of that cash is maximized. What have the accountants done to make their statements more relevant? Answering that question will provide us with the final tools with which to develop our follow-the-cash technique.

(ALMOST) CASH ACCOUNTING

Vent & Cocco (1996) acknowledged that even accounting students had trouble understanding the statement of cash flows. They traced this difficulty to the indirect method by which the statement of cash flows was derived and to inconsistencies in Statement of Financial Accounting Standards (SFAS) 95. SFAS 95 led to excluding certain items from operations on the income statement but including those same items as operating cash flows on the

statement of cash flows. Vent & Cocco characterized this as mixing cash and non-cash items while mixing operating and non-operating items.

Vent & Cocco (1996) noted that many students were reduced to lengthy list memorizations to cope with the confusion. Vent & Cocco thus proposed a teaching approach that was designed to lessen the confusion by simplifying the number of steps a student needed to take to comply with SFAS 95 in generating a statement of cash flows. The problem was that Vent & Cocco's approach still relied on an indirect method of deriving the statement of cash flows. A student first had to remove all non-operating revenues and expenses from net income and then convert remaining items from accruals to true cash flows.

Burger & Hamman (1999) proposed a cash flow sustainable growth rate (CFSGR) to complement the accounting sustainable growth rate used by companies to manage their rates of growth in market share, profitability, and inventory turnover. Burger & Hamman noted that the accounting sustainable growth rate (SGR) ignored how much cash the company actually had and could therefore lead to situations where the company ran out of cash while seemingly achieving all of its growth goals. The CFSGR was intended to avoid that situation by tying allowable growth to the maintenance of an acceptable cash balance by the company.

Burger & Hamman (1999) cited literature that strategic planners separated strategic goals, which pertained to the long-term viability of the company, from financial goals, which pertained to the shorter term, and to show that growth cut across both categories. Growth began with sales, and that factor had to be carefully balanced with the company's operating capabilities and financial resources to avoid disaster. Burger & Hamman noted that a company's bankers would utilize the SGR to determine that company's financing needs and investment opportunities and that a company's internal managers would utilize the SGR to balance and prioritize the company's goals. Yet the SGR was based on accruals and missed the needed cash position of the company.

Burger & Hamman (1999) utilized the three parts of the statement of cash flows, cash from operations, internal investments, and debt and equity financing, to derive the CFSGR. They contrasted the statement of cash flows with the accrual-based balance sheet and the accrual-based profits of the income statement. Burger & Hamman asserted that fixed

asset levels should result from conscious capital budgeting, not mere asset turnover, and that current asset levels should result from working capital policy. They further showed that the sales growth rate had a huge affect on the cash balance of companies and that sales levels alone could sometimes be used as an effective proxy for detailed statements of cash flow. Burger & Hamman advocated the use of both the SGR and the CFSGR for a complete picture of the company.

Ohlson & Aier (2009) proposed a modified cash accounting (MCA) method that could produce a direct, accrual-free income statement. The MCA statement was to be based on a broader definition of cash than the one used by GAAP standards and was to provide analysts with an easy-to-use bottom line with which to evaluate a company's quality of earnings. Ohlson & Aier further asserted that their MCA statement could overcome many of the GAAP problems with arbitrarily deciding whether transactions belonged in the operating, investing, or financing sections of the traditional GAAP statement of cash flows. The MCA statement could then be used to better determine a company's true growth rate and future earnings and to better identify the true cash value of each of its assets, liabilities, revenues, expenses, and remaining transactions with customers.

Ohlson & Aier (2009) noted that the Financial Accounting Standards Board (FASB) had begun discussions on revising the current GAAP statement of cash flows through its 2008 *Financial Standards Presentation* (FSP) paper. Ohlson & Aier believed that their own MCA approach had advantages over the FSP approach in broadening the definition of cash and eliminating the need for accrual adjustments to large numbers of line items. Nevertheless, Ohlson & Aier found both the FSP approach and their own MCA approach were similar in being directly derived from cash sales and in having an easy-to-use bottom line at the end of the statement.

However, Ohlson & Aier (2009) emphasized that the MCA statement could not be derived from the current GAAP statement of cash flows. Instead, the MCA statement relied on common-sense judgments about whether each line item was relatively liquid or not. Ohlson & Aier observed the similarities between the MCA statement and traditional free cash flows and described one as simply a specialized version of the other. They did, however, note that the primary purpose of the MCA statement was to evaluate quality of earnings, whereas the primary purpose of free cash flow computations was to relate a company's cash flows to its operations.

FOLLOWING THE CASH

Cash is important, and newer financial statements provide capstone business educators with the means to emphasize its importance. How do we use that importance in our classrooms?

Recall the five learning goals of a capstone business course. The first goal was to integrate all previous learning from across business's functional areas (Arben, 1997; Eldredge & Galloway, 1983). The second was to provide the CEO's perspective on managing companies (Denning, 1968; Bower 2008). The third was to work within uncertain situations (Denning, 1968; Eldredge & Galloway, 1983). The fourth was to develop and critique strategic models (Schendel & Hatten, 1972; Camerer, 1985), and the fifth was to reinforce a variety of functional skills (Hunsicker, 1980; Gilinsky & Robinson, 2008). Following the cash might reinforce accounting and financial skills, but its true value is in learning to view a company's strategies and functions as a CEO does, through the bottom line of cash. That perspective can give students the understanding of business as an integration of many functional areas and the confidence to work through uncertain situations.

Following the cash can allow students to understand the difference between strategic problems, which can put the company out of business, and everyday operational problems, which can just make the CEO's life miserable. Ultimately, there is only one thing that can put a company out of business, and that thing is running out of cash. So long as a company has enough cash to continue operating, it can make a myriad of operational mistakes and stay in business. Staying in business will give the company time to correct those operational mistakes. Once the company runs out of cash, however, it is finished. Thus, seeing whether a given decision would leave the company with enough cash to stay in business if the manager was wrong is one way to identify decisions as either strategic or operational and to prioritize them accordingly.

To emphasize that distinction, we capstone educators can utilize Opiela's (2006) focus on cash, rather than profits, and on the burn rate of cash for either entrepreneurial companies or budget-constrained projects in any sized company. Likewise, we can use Jacobides' (2007) concept of firm boundaries being defined by available cash and relate it to Burger's & Hamman's (1999) accounting tool of the cash flow sustainable growth rate. We can note Govindarajan's & Shank's (1986) cash sufficiency concept and how

Bates, Kahle, & Stultz (2009) identified increased cash balances in firms as the great recession of 2007 approached. We can then observe whether their predictions of leaner inventories and increased research-and-development budgets versus decreased hard-asset budgets continue once the recovery starts.

Following the cash can also allow students to understand how CEO's prioritize strategies and projects to maximize cash returns and please investors. Before moving from the classroom to the workplace, it might be difficult for capstone students to understand why the seemingly "best" strategy or project is not always chosen. Yet, Estep's (1987) distinction between cash and accruals, Houge's & Loughran's (2000) identification of cash returns as producing better qualities of earnings, and Shivakumar's (2006) identification of how today's accruals do not always turn into tomorrow's cash can emphasize why it is so important for strategies and projects to produce earlier, rather than later cash flows. That emphasis on early cash flows should prompt students to recall the net-present-value calculations of their prior finance classes, but in a much more vivid, less abstract way.

We capstone business instructors can use Dechow's, Richardson's, & Sloan's (2008) accounting verifications that cash is more persistent than accruals and that cash paid out to investors is more valuable than cash retained in the company to further show how companies must constantly generate and use cash. We can even use Schipper's & Vincent's (2003) insistence that a company's underlying business model sometimes counteracts its cash-versus-accruals preferences to show the problems CEO's face in meeting their cash targets. We can then use Schippers's & Vincents's descriptions of accountants' reluctance to alter some long-standing practices to show how hard it can be for CEO's to obtain the information needed to maximize cash, and why it is so important to look beyond standard GAAP accounting statements as Vent & Cocco (1996), (Hewitt (2009), and Ohlson & Aier (2009) have urged.

Finally, then, following the cash can allow students to understand the priorities and interrelationships among a company's various functions. Students often struggle to see outside their own major and to relate their particular tasks to the overall needs of the company. By following the cash, however, it becomes easier to see the particular contributions and the particular values associated with each department of the company. For example, marketers essentially do one thing; they produce revenue (cash inflows).

Likewise, operations managers produce the company's products, but they have to spend cash to do so (cash outflows). Accountants seek ways to monitor those inflows over outflows. And the company's financial department seeks ways to squeeze out more inflows than outflows through sound investments and financing arrangements. While these few sentences have been an oversimplification, one can begin from them the tracing of each department of the company through its effect on cash. That brings us to perhaps the most valuable lesson for each capstone business student, particularly at the undergraduate level: His or her value to the company will largely be measured in how much cash that he or she can add to the company's bottom line!

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KNOWLEDGE DISCOVERY IN UNIVERSITY STUDENT APPLICATION DATA

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ABSTRACT

Data mining techniques have been successfully applied in a variety of settings, but there has been limited published research using these techniques for university student recruitment. Typically, universities collect a large amount of data about potential students, but these data have generally not been used in published research. Using application data from a small university in the Mid-Atlantic region, this paper investigates data patterns with the intent of discovering dependencies between student characteristics and institutional enrollment and retention. Results can be used to inform enrollment management practices. Availability of GPA data further allows the search for regularities between student characteristics known before matriculation to the university and student academic performance after matriculation.

INTRODUCTION

Of all the tasks confronting a university, attracting and retaining students is undoubtedly one of the most important. The financial health of the institution depends on meeting student recruitment goals and then being able to retain those students who do enroll. While endowment earnings contribute to university revenue, tuition remains a major source of receipts for many universities. Understandably, universities expend time, effort, and expense for student recruitment.

Given its importance, the admissions office devotes considerable resources to the recruitment effort. Typically, this results in a fairly large data collection effort. Each year, data are collected on those who apply; additional information becomes available as applicants are accepted or rejected for admission and then ultimately decide on whether or not to enroll. With such data, the university can see that many students apply and ultimately do not attend. One issue is identifying common characteristics/qualities of those students who apply, are accepted, and enroll at the university. Analysis of the data becomes the challenge; how can the university make use of its applicant data to further its objectives?

This manuscript investigates the application data for Mount Saint Mary's University, a small Catholic university located in Maryland. It uses several data mining techniques to identify common qualities for those students enrolling at the institution. Statements about the efficacy of the methods follow. These should help the university understand applicant data and the characteristics of those individuals enrolling. Presumably, such analysis can help address the business problem of more effectively identifying individuals likely to attend the university.

KNOWLEDGE DISCOVERY

Modern organizations have the ability to collect large amounts of data, and they usually do so. The

challenge typically facing these organizations is to make sense of these data. What patterns and relationships exist among the various variables? And how can these regularities be used to advance organizational objectives? Increasingly, organizations turn to data mining techniques to analyze their data.

Two general approaches to data mining exist. In one approach, a researcher can start with a preconceived idea of how the variables are related, some sort of model, and hypothesize what relationships he/she expects to find. The researcher then applies data manipulation techniques to quantify the hypothesis and draw conclusions. A second approach, generally referred to as knowledge discovery (Olson and Shi, 2007), does not start with preconceived notions about relationships amongst the variables, but instead explores patterns present in the data. These two approaches are not mutually exclusive, and indeed most analyses, while emphasizing one of the approaches, explore the data with some mix of the two. This current investigation also uses a mix of both approaches but its focus is toward knowledge discovery.

Academic articles that use data mining techniques to analyze application data are somewhat limited. Sanjeev (2002) recognized the complex nature of the enrollment process, and he analyzed the number of credit hours students take each semester at a mid-western state university. He argued that university data tended to be used for routine reports, and he emphasized that it was possible to obtain more in-depth results by employing data mining techniques.

Olinsky, Schumacher, Smith, and Quinn (2007) compared several data mining techniques for predicting graduation rates for actuarial students. They extended the work of Smith and Schumacher (2005), which used the more traditional logistic regression approach to model success. In the 2007

study, the authors emphasized that more traditional quantitative procedures such as regression do not have the ability to use observations with missing values while data mining techniques, notably neural networks and decision trees, do. They provide evidence that suggests that the later two methods' classification accuracy is superior to the former method.

While the published research on university data appears limited, articles on similar decision environments are quite robust. One example of this is the literature on bankruptcy. Here, the researchers investigate a two-state dependent variable (bankrupt/not bankrupt), which is quite analogous to the enroll/don't enroll variable in the university enrollment decision. This line of investigation began to appear in journals in large amounts in the 1990s. For instance, Wilson and Sharda (1994) concluded that neural networks is superior to discriminant analysis for predicting bankruptcies while Tam and Kiang (1992) also concluded that neural nets showed much promise for predicting bankruptcies. King emphasized that more reliable and consistent decisions are made in situations that employ multiple methods. West and Dellana (2007) argue that multi-agent strategies should be employed by decision makers to improve decision accuracy.

AVAILABLE DATA

Table 1 describes the variables available for analysis. Data are available for 3 years, 2002 through 2005, with total observations equal to 4,632. Data are first collected when a student makes an inquiry about the University data (such as basic demographic information) and are updated as the student further pursues the process of admission. The data are further updated after the first year of study so that they include cumulative GPA.

Table 1: Data Variables

Variable	Explanation
Accept Come	Students who enroll at the University.
Accept Don't	Students who are accepted but choose not to enroll.
Rejected	Students who are not accepted.
CAREER_GPA	Student's GPA, on a 4.0 scale,

after one year of attendance at University

SAT_MATH	Math score on the SAT Exam
SAT_VERB	Verbal score on the SAT Exam
GENDER	Male or female
ETHNIC_GROUP	Applicant student's race
STATE	State of residence
PROG_CDE	Intended major, chosen from 17
RELIGION	Religion of applicant

DISCOVERY TECHNIQUES

We employ the approach suggested by West and Dellana (2007), namely to employ multi-agent (that is, multi-model) strategies for decision support. First, we use the more traditional approach of logistic regression. Thereafter, we analyze the data with two knowledge discovery techniques.

Logit regression

A straightforward approach to the issue of predicting who will attend the University based on observable characteristics is to employ a binomial logit model. This technique is appropriate when the dependent variable is categorical, as it is here. (See Studenmund, 2010, for a detailed explanation of this technique). For these data, the variable of interest is whether or not a student attends the institution.

The logistic model used the 'Accept Come' and 'Accept Don't' variables of Table 1 as the qualitative dependent variable. Applicants whose application was rejected are not considered. The remaining variables in Table 1 are used as explanatory variables, with the exception of GPA. While this variable could be of interest for certain other questions asked of these data, it clearly is not relevant for the enroll decision as it does not exist when the applicant makes the decision of whether or not to attend the institution.

The iterative technique of logistic regression achieved convergence. The model was statistically significant with a Chi-Square of 134 and a p-value of 0.0001. Gender, ethnic group, and math SAT were statistically significant independent variables ($p <$

0.01). Likely of interest to the Admissions Office is that higher math SAT scores result in a lower likelihood that the student will enroll. The prediction error for the model was 19%; effectively, the model successfully predicted 81% of the enrollment decisions.

Neural Networks

As the name implies, the neural network model tries to mimic, albeit in a simplified form, the way the human brain processes information. Olson and Shi (2007) write neural networks “are computer programs that take previously observed cases and use them to build a system of relationships within a network of nodes connected by arcs.” They state, “These programs can be used to apply learned experience to new cases, for decisions, classifications, and forecasts. Because they can take data sets with many inputs and relate them to a set of categorical outputs, they require little modeling.” Indeed, neural nets epitomize data discovery; modeling is not required. Instead, the technique is typically applied to large amounts of complex data for which relationships are not well understood.

Results were similar to the logistic results. The model successfully classified 76% of the applicants. Input variables listed in order of relative importance are as follows: Math SAT, Verbal SAT, Gender, and Ethnic Group

Decision Trees

A third method being used within the context of this paper is decision tree algorithms. Olson and Shi (2007) write that, “Decision trees in the context of data mining refer to the tree structure of rules (often called association rules). The data mining decision tree process involves collecting those variables that the analyst thinks might bear on the decision at issue, and analyzing these variables for their ability to predict the outcome.” Decision trees are often helpful in gaining deeper insight into behavior, in this case student behavior (i.e. go to the Mount or not). The method splits the sample by independent variables, one at a time, calculates information gain, and chooses the variables that provide the greatest information gain. The procedure is then applied to the remaining subsample. Independent variables that

do not contribute significantly to the information gain for the model are eliminated, or pruned.

For this data set, the decision tree algorithm produced a model that successfully predicted with 76% accuracy. The final tree included two independent variables, Math SAT and Ethnic Group. These results are comparable to the other two methods; prediction accuracy is similar, but the number of independent variables of significance is smaller.

CONCLUSION

Universities understandably expend considerable effort on attracting and retaining students, and this paper suggests that data mining techniques offer an attractive method for better understanding the reasons high school seniors decide to enroll at an institution. We employ a multi-agent approach; that is, we apply several modeling techniques to our data set in order to compare results. In particular, we use logistic regression, neural networks, and decision trees, and we find that these three techniques have similar prediction accuracy for our data. All methods point to the Math SAT as a particularly important determinant of the enrollment decision.

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THE SIGNIFICANCE OF POLLUTION CONCERN AND MATERIALISM IN DETERMINING PURCHASE INTENTIONS FOR A HYBRID AUTOMOBILE

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ABSTRACT

This study analyzes the impact of pollution concern and materialism on purchase intentions for a hybrid automobile versus the identical brand with a standard engine. Consistent with prior consumer involvement research, attitude toward the advertisement (a peripheral cue not directly related to product performance) was not a significant predictor whereas attitude toward the brand and brand beliefs (central cues directly related to the product) were. Contrary to much consumer environmentalism research, this study identifies both pollution concern and materialism as significant influences on high involvement purchase intentions. The “Environmentally Friendly!” test advertisements produced higher purchase intentions than the “Great Performance!” appeal.

INTRODUCTION

In nearly four decades since the first Earth Day on April 22, 1971, increasing concern for the environment has spread throughout society domestically and abroad. Although the use of environmentally friendly claims are common in advertising today, empirical evidence supporting a significant impact of environmental orientation on consumer purchase behavior is equivocal. Studies that do report a linkage have low explanatory power (Balderjahn 1988; Hallin 1995; Maloney and Ward 1973; Minton and Rose 1997; Roberts 1996). For example, Laroche, Bergeron and Barbaro-Forleo (2001) found that “the behaviors ‘recycling’ and ‘buying environmentally friendly products’ were not good predictors of consumers’ willingness to pay more for green products (p. 515).” The vast majority of these studies have been implemented in a low involvement context, which likely explains their lack of significance.

On the other hand, in one of the few high involvement studies available, Oliver and Lee (2010) did find a significant relationship between green information seeking and hybrid automobile purchase intentions in the United States. They also report a significant relationship between a consumer’s self-image and hybrid purchase intentions (e.g., orientation towards materialism). Several early consumer involvement studies compared involvement levels across product categories and found automobiles to be in the high range (Richins and Bloch 1991; Vaughn 1986; Zaichowsky 1987). High involvement products such as automobiles are visibly related to social identity and status (i.e., they have “badge” appeal), resulting in that purchase decision potentially having importance in a social context (Jansen and Jager, 2002).

Consumer Involvement

Level of involvement has long been known to exert a significant impact on consumer decision making (Zaichowsky 1985; 1986). Generally speaking, involvement is interest in or importance of some object, event, or idea to a person. It ranges from apathy (low involvement) to fanaticism (high involvement), and tends to increase when the financial, social, or physical risks of making the wrong decision are greater. Several theories of involvement have been proposed, such as Social Judgment Theory (Sherif and Hovland 1961; Sherif 1963) which views the construct as a force mediating an individual’s acceptance or rejection of another person’s position on an issue. Social Judgment Theory was originally conceptualized in a political argument context but has been applied to consumer decision making for decades. In addition to several theories of involvement, many different types of involvement have been identified (Costley 1988). Individuals have been shown to demonstrate involvement with products or messages about products; involvement can be specific to a single situation and therefore fleeting, or it can endure over a life time; and finally, involvement can be emotionally-based or rational (functional) in nature. Empirical interest in involvement remains strong, with several recent articles applying the construct to online or electronic marketing (see for example Dens and De Pelsmacker 2010; Hopkins, Raymond and Mitra 2004; Kim, Haley and Koo 2009; Limbu and Torres 2009; Wang, Wang and Farn 2009).

The Elaboration Likelihood Model (ELM) was originally proposed by Petty, Cacioppo and Schumann (1986) and is the most widely studied involvement theory in the advertising literature. According to the ELM, in high involvement

situations consumers will favor information that is central to the purchase decision (e.g., product features, warranty details). Under low involvement conditions, peripheral cues such as a catchy tune in a television commercial or an attractive model will have more of an impact on purchase intentions because consumers do not care that much about the product itself. The ELM proposes that brand beliefs will determine brand attitudes in a high involvement purchase decision, whereas attitude toward the advertisement will determine brand attitudes under low involvement conditions (Petty, Cacioppo and Schumann 1983). Brand attitude in turn is specified as the immediate predictor of purchase intentions in most models found in the literature (see for example Costley 1988; Homer 1990; MacKenzie, Lutz and Belch 1986; Zinkhan and Martin 1982; Zinkhan and Fornell 1989). The ELM has intuitive appeal and substantial empirical backing (Droge 1989; Homer and Kahle 1990; Miniard, Dickson and Lord 1988; Miniard, Bhatla and Rose 1990), and provides the analytical parameter for the research results reported in this manuscript.

Environmentalism and Pollution Concern

Previous research on this topic has focused on the concept of environmentalism and its impact on consumer behavior in an attempt to identify and define the “green” consumer. Environmentalism has been broadly defined as an attitude expressing concern for the environment (Gray 1985). However, this concept is broad in nature since it would encompass air and water pollution and conservation of land, wildlife or other natural resources. As a result prior research has investigated some or all of these concerns. According to Kilbourne and Beckmann (1998), most environmental research has focused on “symptoms of environmental decline such as pollution, resource depletion, and waste. When specific topics were studied they included such factors as energy conservation, recycling, ‘green’ product usage, and specific legislative initiatives (p.519).” Despite the flurry of interest and research in the environment and the impact of marketing on it there has been little empirical evidence to support a strong direct linkage among environmental beliefs, attitudes, and environmentally-concerned consumer behavior.

Another problem is that previous research often does not identify a specific product or product class; for example, D’Souza, Taghian and Khosla (2007) found evidence to suggest that customers expect that “all products be green and friendly to the environment (p.77).” However, the questionnaire in their study

makes no reference to a specific product, rather contains broad statements such as “I prefer to purchase an environmentally safe product even if it is somewhat more expensive (p.73).”

Frequently the results of previous research are contradictory. For example Chan (1999) found that environmentally informed consumers were more likely to report engaging in environmentally friendly behavior, whereas, Laroche, Bergeron and Barbaro-Forleo (2001) found that eco-literacy was not a good predictor of consumer intent to purchase more expensive green products. Laroche, Bergeron and Barbaro-Forleo (2001) also found that “the behaviors ‘recycling’ and ‘buying environmentally friendly products’ were not good predictors of consumers’ willingness to pay more for green products (p.515).” These contradictory results may be because the research is purporting to be environmental research, a macro issue, but the variables under study are micro in nature (e.g., pollution, recycling, laundry detergent, etc.). Noting these problems, Banerjee and McKeage (1994) developed a lengthy, all-encompassing conceptualization of environmentalism that included items such as “rejecting the view that humans are intended to dominate nature” to “feelings of connectedness to the environment (p.148).” Banerjee and McKeage (1994) go on to say that this results in environmentalism having a variety of behavioral consequences. Clearly, this leads to contradictory results in the research.

Complicating the situation are variables such as price and perceived quality of the product. Specifically, Ottman (1998) found that a large percentage of consumers perceive “green” products to be inferior and do not purchase them for that reason. Also, Alston and Prince Roberts (1999) found that price had an effect on purchase intentions with consumers being willing to pay only slightly more for an environmentally friendly cleaning product rather than make concessions in performance. D’Souza, Taghian and Kosla (2007) studied a generic “green” product and found that consumers appear to be more willing to compromise on higher prices as opposed to product quality. Given these contradictory results, a better research focus may be to establish an analytical domain using more narrowly defined variables, such as pollution or resource depletion rather than the broad construct environmentalism.

Although previous studies have considered involvement with the environment, none of them considered product involvement, and all studies identified focus on low involvement products such as recycling, laundry detergent, or generic “green”

products. As mentioned, only Oliver and Lee (2010) examine a high involvement environmental product (i.e., hybrid automobile). However, Kassarian (1971) examined the relationship between concern for air pollution, brand awareness, and willingness to pay more for a product that would reduce air pollution. Kassarian's (1971) study focused on a gasoline additive that claimed to reduce air pollution, and found a significant relationship between both concern for air pollution and brand awareness and concern for air pollution and willingness to pay more for a product that would reduce air pollution.

Oliver and Lee (2010) did not specifically measure the impact of pollution concern on hybrid automobile purchase intentions; this study addresses that gap in the literature. When combined with Kassarian's (1971) results, the following hypothesis is set forth:

H1: Under high involvement conditions, a consumer's pollution concern will significantly influence purchase intentions.

Materialism

As high involvement products, automobiles are related to social identity and status resulting in the purchase decision having great importance in a social context (Jansen and Jager 2002). One could argue the environmentalism construct serves a similar role. Automobiles are related to social identity and social status, so there is also an element of materialism in their purchase. In its simplest form, materialism places a very high importance on worldly goods (Belk 1984). Specifically, the aspect of materialism that would apply to the purchase of a high involvement product like an automobile would be "possession defined success" (Richins and Dawson 1992). "Possession defined success" is one of Richins and Dawson's (1992) three types of materialism; the other two are "acquisition centrality" and "acquisition and the pursuit of happiness."

According to Richins and Dawson (1992), materialists see themselves as successful by the number and quality of the things they acquire and the status value those items confer when other see them (i.e. badge appeal). In contrast, post-materialistic values reject the idea that possessions are the source of happiness, instead stressing values such as belonging and quality of life (Inglehart 1981; Knutsen 1990). Banerjee and McKeage (1994) confirmed that high materialism is at odds with environmentalism, finding a small but significant negative relationship between materialism and environmentalism. Given the high involvement

nature of the purchase decision under consideration in this study, the following hypothesis is proposed:

H2: Under high involvement conditions, a consumer's orientation toward materialism will significantly influence purchase intentions.

METHOD

A local automobile dealership was recruited and gave permission to execute the current study, and test advertisements were based on actual newspaper ads run by this dealership to preserve as much realism as feasible given the nature of the research design. The goal of this study was to include consumer comparisons of actual automobiles featuring conventional engines (Honda Accord and Civic) versus hybrids for the identical brands to avoid introducing a confound effect in the analysis (e.g., Honda versus Ford). We also tested two prominently featured appeals: "Great Performance!" versus "Environmentally Friendly!" to detect which produced a heightened reaction among respondents who professed pollution concern and a stance on materialism. Exhibits One-A and One-B illustrate the treatments used in this survey. The Accord and Civic factors were combined to produce a 2x2 factorial design: Hybrid versus Standard Engine by "Great Performance!" versus "Environmentally Friendly!" appeals.

The questionnaire used in this study was administered through a mall intercept survey in two different northeastern Pennsylvania locations. The between-subject survey (i.e., each respondent was exposed to only one of the eight total treatments) produced a useable sample of 280 adult consumers for subsequent analysis (70 per cell in the 2x2 treatment design). Demographic characteristics of the resulting sample are presented in Table 1 in the appendix. Construct formation was based on both existing scales reported in the literature and principal component factor analysis applied specifically to this study. Five of the six multi-item scales that resulted had coefficient alpha scores in the .80 range or higher, and the remaining variable had a Cronbach's Alpha = .74 (See Table 2 in the appendix). Unfortunately, the four original items used to capture materialism failed to yield a reliable multi-item scale, so only one question was retained for analysis. Descriptive statistics for the single-item measures including the ownership questions are presented in Table 3 in the appendix.

RESULTS

Multiple regression results (significance of $F = <.001$; adjusted $R^2 = .331$) indicate that both pollution concern and attitude toward materialism are dimensions consumers actively consider under high involvement conditions when evaluating automobiles for purchase (see Table 4 in the appendix). Therefore, both H1 and H2 as proposed in this study are supported. In addition, current ownership of the brand featured in the test advertisements (i.e., Honda) significantly affected purchase intentions for that brand, but ownership of a hybrid automobile was surprisingly not significant. The small percentage of respondents reporting ownership of a hybrid automobile could explain this lack of significance. Urban, Weinberg and Hauser (1996) discuss the pitfalls associated with predicting demand for electric vehicles long before the innovation has achieved widespread market adoption, even though such a product will eventually gain popularity among consumers. Essentially, viewing marketing information for a “really-new product” such as a hybrid automobile that the consumer has not yet adopted might not produce the purchase intentions associated with direct experience of ownership. Such “higher-order beliefs” result in “higher-order affect” according to Smith and Swinyard (1988, p.6), so it seems plausible to expect higher levels of product involvement associated with direct ownership to result in higher levels of response in the purchase decision. Lack of widespread higher-order experience with hybrid automobiles among respondents produced the opposite effect here.

Consistent with involvement theory and prior research reports on that topic, neither involvement with automobiles nor attitude toward the ad were significant predictors in our analysis. The former did not produce a significant effect because virtually all respondents rated automobiles as important; no high versus low dichotomy materialized in our study. The mean score for the involvement scale was the highest of all scales we measured (5.8024). As previously discussed, peripheral cues such as attitude toward the ad typically do not significantly predict purchase intentions under high involvement conditions compared to brand-related beliefs and attitudes. Our study produced results consistent with the Elaboration Likelihood Model (ELM); brand beliefs and brand attitudes do significantly predict purchase intentions under these high involvement conditions.

The final phase of our analysis considers the diffusion of responses across the treatment advertisements employed. Table 5 in the appendix displays the means and standard deviations for the hierarchy of effects variables measured across the four treatment cells. Consistent with hierarchy of

effects theory in advertising (Arens, Weigold and Arens 2008, Exhibit 8-8: The Advertising Pyramid, p.253), the mean scores are lowest for purchase intentions. Consumers are more aware of and have more knowledge about a variety of products than intentions to purchase them. The “Great Performance!” appeal produced higher brand attitudes than the “Environmentally Friendly!” claim, whereas the hybrid version produced higher brand beliefs. This study focuses on what really matters for automobile dealerships and manufacturers (i.e., purchase intentions), however, and for this variable a clear picture emerges. First, when pollution concern and materialism are significant concerns for consumers, the “Environmentally Friendly!” appeal produces the strongest purchase intentions whether the car is a hybrid or a conventional power train version. “Great Performance!” is clearly not as compelling in this consumption situation. Second, the hybrid version produced higher purchase intentions than the conventional engine when compared within each appeal.

CONCLUSION

A consumer’s concern about pollution and his or her orientation toward materialism does play a significant role in determining purchase intentions under certain conditions. This study demonstrates that one such consumption situation is the purchase of environmentally friendly automobiles, whether hybrid or conventional. We structured a research design that effectively models an actual purchase situation based on real products sold by an existing local retail establishment. We demonstrate that specific aspects of environmentalism (e.g. concern about air pollution stemming from automobile emissions) are directly related to purchase intentions, compared to previous studies that failed to identify significant impacts due to their use of low involvement products and vague, “holistic” measures of environmentalism.

For researchers interested in applied studies useful to practitioners, projects should be designed that identify other consumption situations where specific environmental concerns are directly relevant to purchase decisions. What makes a consumer more involved in environmentally friendly consumption, and what characterizes those individuals? What messages ring true with consumers who are concerned about the environment? In the end, it’s not what people think or say, it’s what they will actually do to protect the environment.

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Exhibit One-A: Honda Accord Test Advertisements





<h3>HONDA ACCORD HYBRID</h3> <ul style="list-style-type: none"> • 255-hp, 3.0-liter, i-VTEC® V-6 Engine with Integrated Motor Assist (IMA™) • 5-speed Automatic Transmission • Automatic Climate Control • AM/FM/XM Satellite Radio with 6-disc CD Changer • Power Windows • Tilt • Cruise • Heated Leather Seats • Power Moonroof w/ Tilt • Power Locks w/ Remote Entry <p>Great Performance!</p>  <p>Starting At \$ 30,140</p> <p><small>*Tax, title additional</small></p> <p>INDEPENDENCE HONDA</p> <p>1-800-536-1476</p> <p>On Rte. 11, Between Bloomsburg & Berwick</p> <p>Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm</p>	<h3>HONDA ACCORD EX V-6</h3> <ul style="list-style-type: none"> • 244-hp, 3.0-liter 24-valve SOHC VTEC® V-6 Engine • 5-speed Automatic Transmission • Automatic Climate Control • AM/FM/XM Satellite Radio with 6-disc CD Changer • Power Windows • Tilt • Cruise • Heated Leather Seats • Power Moonroof w/ Tilt • Power Locks w/ Remote Entry <p>Great Performance!</p>  <p>Starting At \$ 27,300</p> <p><small>*Tax, title additional</small></p> <p>INDEPENDENCE HONDA</p> <p>1-800-536-1476</p> <p>On Rte. 11, Between Bloomsburg & Berwick</p> <p>Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm</p>
<h3>HONDA ACCORD HYBRID</h3> <ul style="list-style-type: none"> • 255-hp, 3.0-liter, i-VTEC® V-6 Engine with Integrated Motor Assist (IMA™) • 5-speed Automatic Transmission • Automatic Climate Control • AM/FM/XM Satellite Radio with 6-disc CD Changer • Power Windows • Tilt • Cruise • Heated Leather Seats • Power Moonroof w/ Tilt • Power Locks w/ Remote Entry <p>Environmentally Friendly!</p>  <p>Starting At \$ 30,140</p> <p><small>*Tax, title additional</small></p> <p>INDEPENDENCE HONDA</p> <p>1-800-536-1476</p> <p>On Rte. 11, Between Bloomsburg & Berwick</p> <p>Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm</p>	<h3>HONDA ACCORD EX V-6</h3> <ul style="list-style-type: none"> • 244-hp, 3.0-liter 24-valve SOHC VTEC® V-6 Engine • 5-speed Automatic Transmission • Automatic Climate Control • AM/FM/XM Satellite Radio with 6-disc CD Changer • Power Windows • Tilt • Cruise • Heated Leather Seats • Power Moonroof w/ Tilt • Power Locks w/ Remote Entry <p>Environmentally Friendly!</p>  <p>Starting At \$ 27,300</p> <p><small>*Tax, title additional</small></p> <p>INDEPENDENCE HONDA</p> <p>1-800-536-1476</p> <p>On Rte. 11, Between Bloomsburg & Berwick</p> <p>Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm</p>

Exhibit One-B: Honda Civic Test Advertisements

<h3>HONDA CIVIC HYBRID</h3> <ul style="list-style-type: none"> • 110-hp, 1.3-liter, 8-valve, i-VTEC® 4-cylinder Gasoline Engine • 5-Speed Automatic Transmission • Automatic Climate Control • AM/FM/XM Satellite Radio with 6-disc CD Changer • Power Windows • Tilt • Cruise • Heated Leather Seats • Power Moonroof w/ Tilt • Power Locks w/ Remote Entry <p>Great Performance!</p>  <p>Starting At \$ 21,850</p> <p><small>*Tax, title additional</small></p> <p>INDEPENDENCE HONDA</p> <p>1-800-536-1476</p> <p>On Rte. 11, Between Bloomsburg & Berwick</p> <p>Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm</p>	<h3>HONDA CIVIC EX V-4</h3> <ul style="list-style-type: none"> • 140-hp, 1.8-liter, SOHC i-VTEC® 4-cylinder Engine • 5-Speed Automatic Transmission • Automatic Climate Control • AM/FM/XM Satellite Radio with 6-disc CD Changer • Power Windows • Tilt • Cruise • Heated Leather Seats • Power Moonroof w/ Tilt • Power Locks w/ Remote Entry <p>Great Performance!</p>  <p>Starting At \$ 19,060</p> <p><small>*Tax, title additional</small></p> <p>INDEPENDENCE HONDA</p> <p>1-800-536-1476</p> <p>On Rte. 11, Between Bloomsburg & Berwick</p> <p>Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm</p>
<h3>HONDA CIVIC HYBRID</h3> <ul style="list-style-type: none"> • 110-hp, 1.3-liter, 8-valve, i-VTEC® 4-cylinder Gasoline Engine • 5-Speed Automatic Transmission • Automatic Climate Control • AM/FM/XM Satellite Radio with 6-disc CD Changer • Power Windows • Tilt • Cruise • Heated Leather Seats • Power Moonroof w/ Tilt • Power Locks w/ Remote Entry <p>Environmentally Friendly!</p>  <p>Starting At \$ 21,850</p> <p><small>*Tax, title additional</small></p> <p>INDEPENDENCE HONDA</p> <p>1-800-536-1476</p> <p>On Rte. 11, Between Bloomsburg & Berwick</p> <p>Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm</p>	<h3>HONDA CIVIC EX V-4</h3> <ul style="list-style-type: none"> • 140-hp, 1.8-liter, SOHC i-VTEC® 4-cylinder Engine • 5-Speed Automatic Transmission • Automatic Climate Control • AM/FM/XM Satellite Radio with 6-disc CD Changer • Power Windows • Tilt • Cruise • Heated Leather Seats • Power Moonroof w/ Tilt • Power Locks w/ Remote Entry <p>Environmentally Friendly!</p>  <p>Starting At \$ 19,060</p> <p><small>*Tax, title additional</small></p> <p>INDEPENDENCE HONDA</p> <p>1-800-536-1476</p> <p>On Rte. 11, Between Bloomsburg & Berwick</p> <p>Hours: Mon. to Fri. 8:00am- 8:00 pm - Sat. 9:00am- 3:00pm</p>

Table One: Demographic Statistics

<i>Label</i>	<i>Category</i>	<i>Frequency</i>	<i>Percent</i>	<i>Mean</i>	<i>Std. Dev.</i>
Marital Status	(1) Never Married	134	47.9	1.72	.917
	(2) Married	119	42.5		
	(3) Separated	5	1.8		
	(4) Divorced	16	5.7		
	(5) Widowed	6	2.1		
Household Income	(1) Under \$19,999	38	13.6	4.51	2.067
	(2) \$20-29,999	24	8.6		
	(3) \$30-39,999	26	9.3		
	(4) \$40-49,999	33	11.8		
	(5) \$50,59,999	52	18.6		
	(6) \$60-69,999	43	15.4		
	(7) Over \$70,000	64	22.9		
Gender	(1) Male	136	48.6	1.51	.501
	(2) Female	144	51.4		
Age	(1) Under 25Years	99	35.4	2.59	1.549
	(2) 25-34 Years	52	18.6		
	(3) 35-44 Years	44	15.7		
	(4) 45-54 Years	48	17.1		
	(5) 55-64 Years	28	10.0		
	(6) 65-74 Years	5	1.8		
	(7) Over 74 Years	4	1.4		
Education	(1) Less Than H.S.	8	2.9	2.92	.941
	(2) High School	97	34.6		
	(3) Some College	100	35.7		
	(4) Undergraduate	60	21.4		
	(5) Graduate	15	5.4		
Race	(1) African Amer.	4	1.4	2.99	.364
	(2) Asian	2	.7		
	(3) Caucasian	271	96.8		
	(4) Hispanic	1	.4		
	(5) Native Amer.	2	.7		
Head of Household Occupation	(1) Executive/Mgt.	44	15.7	5.74	3.952
	(2) Professional	53	18.9		
	(3) Marketing/Sales	22	7.9		
	(4) Secretary/Cleric.	14	5.0		
	(5) Agri./Forestry/Fish.	13	4.6		
	(6) Construction	19	6.8		
	(7) Manufacturing	12	4.3		
	(8) Transportation	4	1.4		
	(9) Laborer	22	7.9		
	(10) Other	33	11.8		
	(11) Retired	16	5.7		
	(12) Student	28	10.0		

Table Two: Reliability Analysis Item-to-Total Statistics

<i>Multi-Item Scale Label</i>	<i>Item #</i>	<i>Cronbach's Alpha</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Item-Total Correlation</i>	<i>Cronbach's Alpha if Item is Deleted</i>
<u>Involvement With Automobiles</u> (Zaichkowsky 1985)	1	.870	6.55	.891	.438	.838
	2		5.71	1.738	.408	.840
	3		6.11	1.091	.535	.833
	4		5.34	1.490	.511	.833
	5		5.24	1.370	.504	.833
	6		5.88	1.460	.636	.825
	7		5.74	1.312	.523	.832
	8		5.71	1.319	.619	.827
	9		5.60	1.220	.643	.827
	10		5.90	1.239	.682	.825
	11		6.35	1.179	.575	.831
	12		6.37	1.278	.440	.837
	13		6.15	1.318	.567	.830
	14		5.20	1.720	.366	.842
	15		5.16	1.505	.388	.840
<u>Pollution Concern</u> (Antil 1984)	17	.799	5.59	1.360	.677	.716
	18		5.55	1.362	.613	.730
	19		3.56	1.865	.455	.770
	20		4.74	1.693	.626	.720
	21		4.38	1.702	.569	.735
Attitude Toward the Advertisement	29	.808	6.21	1.299	.299	.758
	30		5.68	1.369	.500	.736
	31		5.60	1.553	.391	.747
	32		5.36	1.677	.560	.724
	33		5.32	1.329	.554	.731
	34		4.76	1.677	.549	.726
	35		5.42	1.501	.500	.734
	37		4.39	1.644	.502	.733
	38		5.28	1.514	.510	.733
Attitude Toward the Brand	39	.881	5.42	1.259	.616	.831
	40		5.08	1.519	.538	.838
	41		4.45	1.697	.459	.848
	43		5.38	1.186	.716	.824
	44		5.50	1.295	.737	.820
	45		5.53	1.164	.730	.823
	46		5.58	1.281	.601	.832
	47		5.20	1.282	.663	.827
	48		5.37	1.234	.591	.833

Table Two: Reliability Analysis Item-to-Total Statistics (Continued)

<i>Multi-Item Scale Label</i>	<i>Item #</i>	<i>Cronbach's Alpha</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Item-Total Correlation</i>	<i>Cronbach's Alpha if Item is Deleted</i>
Brand Beliefs	50	.744	5.30	1.119	.508	.625
	51		4.69	1.354	.580	.569
	52		5.41	1.135	.560	.595
Purchase Intentions	58	.842	4.69	1.505	.627	.854
	59		3.90	1.759	.776	.713
	60		3.09	1.595	.733	.756

Table Three: Single-Item Descriptive Statistics

<i>Single-Item Label</i>	<i>Item #</i>	<i>Low</i>	<i>High</i>	<i>Mean</i>	<i>Standard Deviation</i>
Materialism (Richins 1987)	23	1	7	2.44	1.340
Own Honda	61	NO=1 (88.9%)	YES=2 (11.1%)	1.11	.314
Own Hybrid	62	NO=1 (98.6%)	YES=2 (1.4%)	1.01	.119

Table Four: Multiple Regression Results

<i>Model</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig. of F</i>	<i>R²</i>	<i>Adjusted R²</i>
Regression	197.270	9	21.919	16.370	<.001	.353	.331
Residual	361.516	270	1.339				
Total	558.786	270					

Standardized Coefficients^a

<i>Model</i>	<i>Beta</i>	<i>t</i>	<i>Sig. of t</i>
Constant		-1.614	.108
Involvement with Automobiles	-.009	-.176	.860
Pollution Concern	.230	4.620	<.001
Attitude Toward the Advertisement	-.105	-1.604	.110
Attitude Toward the Brand	.218	2.885	.004
Brand Beliefs	.375	6.227	<.001
Materialism	.104	2.094	.037
Own Honda	.149	2.964	.003
Own Hybrid	-.070	-1.383	.168
Treatment Advertisements	.143	2.899	.004

Table Five: Descriptive Statistics across Test Advertisements

<i>Multi-Item Label</i>	<i>Test Ad</i>	<i>N</i>	<i>Car Type</i>	<i>Copy Claim</i>	<i>Mean</i>	<i>Standard Deviation</i>
Ad Attitude	1	70	Hybrid	Great Performance	5.211	.893
	2	70	Non-Hybrid	Great Performance	5.460	.929
	3	70	Hybrid	Environmentally Friendly	5.351	.966
	4	70	Non-Hybrid	Environmentally Friendly	5.319	1.013
Brand Attitude	1	70	Hybrid	Great Performance	5.346	.946
	2	70	Non-Hybrid	Great Performance	5.321	1.005
	3	70	Hybrid	Environmentally Friendly	5.181	.962
	4	70	Non-Hybrid	Environmentally Friendly	5.265	.912
Brand Beliefs	1	70	Hybrid	Great Performance	5.286	1.045
	2	70	Non-Hybrid	Great Performance	5.067	1.057
	3	70	Hybrid	Environmentally Friendly	5.105	.750
	4	70	Non-Hybrid	Environmentally Friendly	5.081	1.047
Purchase Intentions	1	70	Hybrid	Great Performance	3.838	1.415
	2	70	Non-Hybrid	Great Performance	3.557	1.384
	3	70	Hybrid	Environmentally Friendly	4.110	1.503
	4	70	Non-Hybrid	Environmentally Friendly	4.067	1.313

THE PERSUASIVE POWER OF SERVICE QUALITY CLAIMS IN LOCAL RETAIL ADVERTISING

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ABSTRACT

The importance of the service sector to the United States economy is widely known, accounting for approximately three-fourths of Gross Domestic Product. The service sector is extremely diverse and multi-dimensional, ranging from the highest paid professions (e.g., physicians and attorneys) to the lowest wage hourly employees in small service businesses (e.g., fast food restaurants and other local retail firms). Most of the academic literature in service marketing focuses on how management can best ensure high quality service output from employees, or the impact of the service experience on customer satisfaction. This study, however, measures the impact of service quality claims in advertising on an array of hierarchy-of-effects variables commonly used to determine advertising effectiveness. Multivariate Analysis of Covariance (MANCOVA) was employed to test the impact of three treatments on eleven brand belief items, and a linear regression analysis was subsequently performed to test the impact of these brand beliefs on purchase intentions. Results indicate that "Certified Master Mechanic" claims produce significantly higher agreement with the statement: "After-sale service for automobiles featured in this advertisement is high-quality." Multiple regression analysis found that this brand belief item significantly predicted purchase intentions.

INTRODUCTION

The importance of service to the United States economy is well documented. According to the CIA World Factbook, services comprise 76.9% of total U.S. Gross Domestic Product (GDP) annually, compared to 21.9% for industry and only 1.2% for agriculture. The term "service" is multifaceted. Random House Webster's Dictionary (4th Edition) provides twelve definitions of the word, including the one most applicable to this study: "to maintain, repair, or restore (p.656)." Most academic research related to this topic focuses on various aspects of service quality, ranging from ensuring high quality service provision to the impact of the service quality experience on customers (Carrillat, Jaramillo, and Mulki 2009; Elmadag, Ellinger, and Franke 2008; Ueno 2010; Zeithaml, Berry, and Parasuraman 1996). Common in this literature is the measurement of what impact the service quality experience has on hierarchy of effects determinants of consumer decision-making (i.e., beliefs about the service provider, a variety of attitudes directed toward that organization, and purchase intentions). For example, two recent studies report that positive evaluations of service quality related to the usage of sports-related websites (e.g. Fantasy Sports) positively influenced customer satisfaction, attitudes, and purchase behavior (Carlson and O'Cass 2010; Young and Pedersen 2010).

One major need of any retail service firm concerns how best to communicate the fact that high quality service can be obtained at that location. How does a company solidify an intangible such as service quality into a favorable consumer perception? Few rigorous reports are available presenting empirical

evidence that advertising featuring service quality claims can positively influence service quality perceptions. However, Grewal, Chandrashekar, and Citrin (2010) included U.S. airlines industry competitive advertising expenditures in their analysis of the impact of service quality on customer satisfaction, and conclude that "advertising has the effect of enhancing perceived value and satisfaction (p.621)." Hite, Frazer, and Bellizzi (1990, p.23) report that "advertising of lower risk services in both legal and medical professions is positively associated with intentions to purchase," and Srinivasan et al. (2009, p.24) found that in the automotive industry "investors react favorably to companies that launch pioneering innovations, that have higher perceived quality, [and] that are backed by substantial advertising support." Macro-analysis of the impact that advertising expenditures have on service quality perceptions is comprehensive and compelling, yet does little to help local retail firms craft the content of their advertising to facilitate effectiveness. This research addresses that gap in the literature.

METHODOLOGY

A review of the trade literature indicates that use of the term "certification" in advertising is a common tactic for the automobile industry (Connelly 2000; Guilford 1999; Irwin 2002; Sawyers 2002). According to Harris (1999): "The National Institute for Automotive Service Excellence is targeting women in its ad campaign educating consumers on its technician testing and certification (p.40)." The Associated Press (AP) recently reported that Mr. Goodwrench, "a symbol of GM's dealer service brand for 37 years, will be scrapped... in favor of 'certified service' brands for each of GM's four

remaining nameplates (*Press Enterprise* 2010, p. 18).” The research reported in this manuscript analyzed the effectiveness of a “Certified Master Mechanic” claim in newspaper advertising versus “1.9% APR Financing Available” and “Convenient Central Location.” A 76-item questionnaire taking 5-10 minutes to complete was developed from existing studies (Neese 2000; Shimp and Sharma 1987; Zaichkowsky 1985) and administered through a mall intercept survey at Columbia, Susquehanna Valley, and Lycoming malls in northeastern Pennsylvania. Participants were paid two dollars per completed questionnaire. The following eleven items were used to capture post-processing brand beliefs on a 7-point Likert scale (“Strongly Disagree” was coded 1 versus “Strongly Agree” coded as 7):

- (1) This brand is reasonably priced;
- (2) This brand is good quality;
- (3) This brand is stylish and beautiful;
- (4) This brand is has many desirable options;
- (5) A good selection available for this brand;
- (6) After-sale service is high quality;
- (7) Low financing rate is available;
- (8) Leasing is available;
- (9) This brand is available in my area;
- (10) I would need to travel to shop for this brand;
- (11) I can shop for this brand on the Internet.

Exhibit 1 in the Appendix shows the actual advertisement used to model these three test claims, and Exhibit 2 contains an example of each test advertisement developed specifically for this research project. The treatment copy was inserted in an exploding box featured top center in the advertisement. Data were gathered using a mall intercept survey in the three counties most closely surrounding the automobile dealership featured in the test copy, including the county where the dealership is physically located. An interview was conducted with Independence Ford Honda management prior to conducting the survey to ensure the dealership was aware of the research and had no problem with their company being featured in the test advertisements. A report summarizing the major findings was submitted to the dealership after the study was complete.

Multivariate Analysis of Covariance (MANCOVA) was employed to test the impact of the three treatments on eleven brand belief items, and a linear regression analysis was subsequently performed to test the impact of these brand beliefs on purchase intentions. As Boyd (2006) points out, consumers develop knowledge over time that could potentially moderate the impact of advertising tactics on current persuasion. To produce a cleaner copy test, a series

of covariates are included in this analysis to partial out these effects (i.e., involvement with automobiles, consumer ethnocentrism, attitude toward the ads and the sponsoring dealership, purchase intentions, ownership, familiarity with the advertised brand and the dealership, and respondent demographics).

RESULTS

The between-subjects sampling design yielded 298 usable responses, with 96 participants exposed to the “Certified Master Mechanics” appeal, 101 exposed to the “1.9% APR Financing Available” version, and 101 participants processing the “Convenient Central Location” claim. Table 1 displays the reliability ratings for six multi-item scales analyzed in this study. Coefficient alpha scores above .70 are generally acceptable, and the results produced in this survey profile consistently with those reported by Peterson (1994). Although the eleven questions used to measure brand beliefs were each analyzed as individual items in both the MANCOVA and subsequent regression analysis, Cronbach’s Alpha is nonetheless included for the reader’s information.

Table 1
Multi-Item Reliability Ratings

<i>Variable</i>	<i>Number of Items</i>	<i>Cronbach’s Alpha</i>
Automobile Involvement	15	.87
Attitude toward Advertisement	10	.83
Attitude toward Dealership	9	.90
Brand Beliefs	11	.71
Purchase Intentions	5	.81
Consumer Ethnocentrism	10	.92

Multivariate Analysis of Covariance (MANCOVA) tests are displayed in Table 2. All four F-statistics produced are significant at below the .001 level. Out of 19 covariates included in the analysis, only four are significant influences on brand beliefs: attitude toward the advertisement (.051), attitude toward the dealership (.021), purchase intentions (.001), and familiarity with the dealership (.002). For each of these four covariates, the significance of F scores given above are exactly the same for Pillai’s Trace,

Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root tests.

Table 2
MANCOVA Results

<i>Multivariate Test</i>	<i>F-Statistic</i>	<i>Significance of F</i>
Pillai's Trace	3.739	<.001
Wilks' Lambda	3.788	<.001
Hotelling's Trace	3.838	<.001
Roy's Largest Root	5.764	<.001

Given the significance of F in all multivariate tests, a further analysis of each of the eleven dependent brand belief variables is warranted. Table 3 contains F-statistics and their significance levels for each brand belief response to the three advertising claims used as here as independent treatments. Numbers under the item heading correspond to those presented previously in the text listing the eleven brand beliefs included for analysis in this research.

Table 3
MANCOVA Results (Univariate Tests)

<i>Brand Belief Item</i>	<i>F-Statistic</i>	<i>Significance of F</i>
1	.762	.468
2	.822	.440
3	2.314	.101
4	.858	.425
5	4.691	.010
6	6.221	.002
7	13.781	<.001
8	.016	.985
9	2.802	.062
10	5.437	.005
11	.693	.501

A pattern of means emerged that demonstrates the effectiveness of each of the three advertising appeals tested here. These mean patterns are presented in Table 4 for the four brand belief items that are significantly different across treatments at the .05 level and for one that is significant at the .010 level. Face validity is present in this analysis: the "Convenient Central Location" appeal produced the most positive result for the "Good selection is

available in my area" belief. Along these same lines, the "1.9% APR Financing is Available" test claim resulted in the highest mean score for the "Low financing rate is available" brand belief. Consistent with both these results, the "Certified Master Mechanic" version produced the highest mean score for the "After-sale service is high-quality" brand belief in participants' minds. This pattern of means analysis is where using a between-subjects sampling design produces its desired effect. Since each of the 298 participants was only exposed to one of the three test advertisements, a cleaner more valid test of the impact each treatment has on consumer response materializes. Comparison of the marketing impact of different verbal strategies comes after-the-fact in the quantitative analysis, not before-hand in the minds of participants. This is also why blind taste tests are used. Interestingly, the "Certified Master Mechanic" claim also resulted in the highest mean responses for "I would need to travel to shop for this brand" and "This brand is available in my area."

Table 4
Mean Pattern Results

<i>Brand Belief Item</i>	<i>Sig. of F</i>	<i>Adv. Test Appeal</i>	<i>Mean Score</i>	<i>Standard Deviation</i>
Good Selection Available	.010	1	4.91	1.655
		2	4.84	1.629
		3	5.39	1.183
High Quality Service	.002	1	4.43	1.727
		2	3.37	1.611
		3	3.73	1.561
Low Financing Rate	<.001	1	4.05	1.394
		2	4.93	1.564
		3	3.92	1.585
Need to Travel for Brand	.005	1	5.52	1.795
		2	4.59	2.127
		3	4.65	1.982
Brand is Available in Area	.062	1	5.99	1.342
		2	5.32	1.805
		3	5.50	1.547

1 = Certified Master Mechanic (n = 96)
2 = 1.9% APR Financing is Available (n = 101)
3 = Convenient Central Location (n = 101)

The term "certified" makes tangible service quality claims that are otherwise difficult for consumers to evaluate. This type of service quality claim has clearly been demonstrated to produce enhanced brand beliefs among consumers in this research, so the final question to answer concerns whether that has a positive impact on purchase intentions. Multiple regression analysis is used here to determine that answer, and the results are presented in Table 5. The

results of this F-test are significant at less than .001, but with an adjusted R^2 of .148, the explanatory power of this equation is relatively weak. The reader is reminded that the focus of this analysis is on brand beliefs only: first, can different wording strategies in advertisements influence brand beliefs in a positive manner, and second, do these enhanced brands beliefs positively influence purchase intentions.

Table 5
Multiple Regression Analysis

<i>Sum of Sq.</i>	<i>df</i>	<i>Mean Square</i>	<i>F-Stat.</i>	<i>Sig. Of F</i>	<i>R²</i>	<i>Adj. R²</i>
77.356	12	6.446	5.285	<.001	.182	.148

The final step in this analysis is to determine which individual variables included in the regression model significantly predicted purchase intentions. Beta coefficients, t-statistics, and their corresponding significance levels are presented in Table 6. Two brand belief variables are significant at the .05 level, "Service is high-quality" and "Leasing is available." Two additional brand beliefs are significant at the .010 level, "Reasonably priced" and "Stylish and beautiful." Again, the numbers under the item heading correspond to those presented previously in the text listing the eleven brand beliefs included for analysis in this research.

Table 6
Beta Coefficients

<i>Item</i>	<i>Beta Coefficient</i>	<i>t-Statistic</i>	<i>Sig. of t</i>
Treatment	-.050	-.871	.385
1	.120	1.872	.062
2	.018	.251	.802
3	.130	1.772	.077
4	.095	1.303	.193
5	.049	.708	.480
6	.182	3.134	.002
7	.056	.902	.368
8	-.178	-2.791	.006
9	.062	.859	.391
10	-.013	-.196	.845
11	.038	.685	.494

DISCUSSION

The purchase of an automobile has long been known to be a high involvement decision (Richins and Bloch 1991; Vaughn 1986; Zaichkowsky 1987). It is a complex decision wherein consumers are actively engaged in considering many variables in addition to

product features (e.g., price, after-sale service, warranties, availability). Under high involvement conditions, brand beliefs are known to be dominant predictors of purchase intentions (Petty, Cacioppo and Schumann 1983). The fact that the service quality claim analyzed in this study produced the most positive response for multiple brand belief items demonstrates the importance of that dimension in the automobile purchase decision for consumers. Due to the impact of the "Certified Master Mechanic" claim, survey respondents now also believe that they need not travel outside of the local area (in which the questionnaire was distributed and in which the actual dealership is located) to purchase the car because both the brand and high quality after-sale service is available locally.

The predictive power of the regression analysis run for this study is weak due to the fact that it is limited to only the eleven brand beliefs included in the project plus the advertising treatments. The MANCOVA revealed that attitudes held by respondents toward the advertisement and the dealership featured, pre-existing purchase intentions for the brand and familiarity with the dealership also significantly impact this complex decision-making process. Consumer involvement was not a significant covariate because it was consistently high for all respondents (i.e., it did not vary across the sample enough to exert an influence). Along similar lines, consumer ethnocentric tendencies did not significantly influence brand beliefs because County of Origin (COO) tends to impact purchase decision under low involvement conditions, not the high involvement conditions central to this study (Neese 2000).

Although the belief that the brand featured was "Stylish and beautiful" plus "Reasonably priced" exerted moderate influence on purchase intentions, high quality after-sale service was stronger. An interesting final observation from the data lies in the negative sign for "Leasing is available." Apparently, if leasing is available a significant number of respondents would choose that over purchase.

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Dr. William T. Neese is Professor and Chair of the Marketing Department at Bloomsburg University of Pennsylvania. He earned his DBA in Marketing from Mississippi State University, and his research interests include advertising effectiveness, the legal-regulatory environment, and academic department administration.

Exhibit 1

Test Advertisement Model

INDEPENDENCE HONDA .com

New 2004 Honda Accord LX

Lease For Only **\$199**** Mo.

\$999 Down Payment & First Payment Due at delivery.
\$0 Security, 36 Months

1.9% APR Financing**



#CM5634PLW
Stk. #C3051

Auto., 160 HP, Air, Pwr. Windows/Door Locks/Mirrors, CD, ABS, Tilt & Telescopic Steering, Dual Airbags, Keyless Entry, Anti-Theft, PS, PB, Floor Mats, 24 MPG City/34 Hwy.

1.9% APR** Financing

New 2004 Honda Odyssey EX

Lease For Only **\$259**** Mo.

\$999 Down Payment & First Payment Due at delivery.
\$0 Security, 24 Months

#RL1864PKW
Stk. #C4038



240 HP V-6, Auto., Climate Control, Power Wind./Door Locks, Dual Power Sliding Doors, Rear Air Cond., Traction Control, 16" Alloys, CD, Retractable 3rd Row Magic Seat, Keyless, Security, Roof Rack, Cruise, Floor Mats, 18 MPG City/25 Hwy.

New 2004 Honda Civic LX

Lease For Only **\$159**** Mo.

\$999 Down Payment & First Payment Due at delivery.
\$0 Security, 36 Months

2.9% APR Financing**



#ES1554PW
Stk. #C3307

115 HP, Air Conditioning, Pwr. Windows/Door Locks/Mirrors, Tilt, Cruise, CD, Floor Mats, Dual Airbags, Anti-Theft, PS, PB, 32 MPG City/38 Hwy.

New 2004 Honda Element EX 4 Wheel Drive

Lease For Only **\$239**** Mo.

\$999 Down Payment & First Payment Due at delivery.
\$0 Security, 48 Months

#YH2854PLW
Stk. #C4408



Auto., 160 HP, Air Cond., Pwr. Windows/Door Locks/Mirrors, CD, Tilt, Cruise, Sunroof, 16" Alloys, Dual Airbags, Anti-Theft, PS, PB, 21 MPG City/24 Hwy.

New 2004 Honda CR-V LX 4 Wheel Drive

Lease For Only **\$229**** Mo.

\$999 Down Payment & First Payment Due at delivery.
\$0 Security, 48 Months

#RD7844PW
Stk. #C4242



Auto., 160 HP, Air Cond., Power Windows/Door Locks/Mirrors, CD, Cruise, Tilt, Dual Airbags, Anti-Theft, PS, PB, 22 MPG City/26 Hwy.


PILOT
2 In Stock


ODYSSEY
7 In Stock


CR-V
8 In Stock


ELEMENT
9 In Stock


ACCORD
15 In Stock


CIVIC
10 In Stock


HYBRID
EPA 48 MPG City/47 Hwy.

INDEPENDENCE HONDA

1-800-536-1476

on Rte. 11, Between Bloomsburg & Berwick

Hours: Mon. to Fri. 8:00am-8:00pm • Sat. 9:00am-3:00pm

**Tax and tags additional. Offer ends 1 day from publication. Low APR available on select models subject to approval. Length of contract is limited. This ad is a coupon.

Exhibit 2

Actual Test Advertisement Example


INDEPENDENCE FORD/HONDA .com

New 2008 Ford Focus ZX4 SE

Lease for only \$259 mo.

\$999 Down Payment and First Payment Due at delivery. \$0 Security. 48 Month Lease.

2.0 Duratec 20, AM/FM Stereo w/ CD player, Air, ABS, Dual Airbags, 26 MPG City/35 Hwy.



Certified Master Mechanics

New 2008 Ford F-150

Lease for only \$373 mo.

\$999 Down Payment and First Payment Due at delivery. \$0 Security. 60 Month Lease.

4.6 L. Triton® Air, ABS, Dual Airbags, 17-inch Wheel and Tires 15 MPG City/19 Hwy.

New 2008 Ford Ranger Reg. Cab

Lease for only \$239 mo.

\$999 Down Payment and First Payment Due at delivery. \$0 Security. 48 Month Lease.

2.4L I-4 Engine, 5 Speed, AM/FM Stereo, Raised Power Dome Hood, 24 MPG City/29 Hwy.

New 2008 Ford Escape

Lease for only \$239 mo.

\$2500 Down Payment and First Payment Due at delivery. \$0 Security. 39 Month Lease.


2.3L Engine, 5 Speed, AM/FM w/ CD player, Air, ABS, Dual Airbags, 24 MPG City/25 Hwy.

New 2008 Ford Thunderbird


Lease for only \$399 mo.

\$1500 Down Payment and First Payment Due at delivery. \$0 Security. 39 Month Lease.


32-valve DOHC V8 Engine Convertible Top, Air, Leather 17 MPG City/23 Hwy.




FREESTAR
6 In Stock




MUSTANG
2 In Stock




EXPEDITION
9 In Stock




F-150 HERITAGE
5 In Stock



TAURUS
7 In Stock



CROWN VICTORIA
11 In Stock



EXCURSION
3 In Stock

Independence Ford Honda

1-800-536-1476

On Rte. 11, Between Bloomsburg & Berwick

Hours: Mon. to Fri 8:00am-8:00pm • Sat. 9:00am-3:00pm

*Tax and tags additional. Offer ends 1 day from publication. Low APR available on select models subject to approval. Length of contract is limited. This is a coupon.


INDEPENDENCE FORD/HONDA .com

New 2008 Ford Focus ZX4 SE

Lease for only \$259 mo.

\$999 Down Payment and First Payment Due at delivery. \$0 Security. 48 Month Lease.

2.0 Duratec 20, AM/FM Stereo w/ CD player, Air, ABS, Dual Airbags, 26 MPG City/35 Hwy.



1.9%* APR Financing Available

New 2008 Honda Odyssey EX

Lease for only \$373 mo.

\$999 Down Payment and First Payment Due at delivery. \$0 Security. 60 Month Lease.

240 HP V-6, Air, ABS, Dual Airbags, 16-inch alloys, traction control 18 MPG City/25 Hwy.

New 2008 Honda Civic LX

Lease for only \$239 mo.

\$999 Down Payment and First Payment Due at delivery. \$0 Security. 48 Month Lease.

115 HP, Air Cond. 5 Speed, AM/FM Stereo, Anti-theft, tilt, cruise, 32 MPG City/38 Hwy.

New 2008 Ford Escape

Lease for only \$239 mo.

\$2500 Down Payment and First Payment Due at delivery. \$0 Security. 39 Month Lease.


2.3L Engine, 5 Speed, AM/FM w/ CD player, Air, ABS, Dual Airbags, 24 MPG City/25 Hwy.

New 2008 Honda CR-V LX


Lease for only \$399 mo.

\$1500 Down Payment and First Payment Due at delivery. \$0 Security. 39 Month Lease.


Auto., 160 HP, Air Cond Power Windows, Air, Leather 22 MPG City/26 Hwy.




FREESTAR
6 In Stock




ODYSSEY
2 In Stock




EXPEDITION
9 In Stock




ELEMENT
5 In Stock



TAURUS
7 In Stock



CR-V
11 In Stock



EXCURSION
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New 2008 Ford Focus ZX4 SE

Lease for only \$259 mo.

\$999 Down Payment and First Payment Due at delivery. \$0 Security. 48 Month Lease.

2.0 Duratec 20, AM/FM Stereo w/ CD player, Air, ABS, Dual Airbags, 26 MPG City/35 Hwy.



Convenient Central Location

New 2008 Honda Odyssey EX

Lease for only \$373 mo.

\$999 Down Payment and First Payment Due at delivery. \$0 Security. 60 Month Lease.

240 HP V-6, Air, ABS, Dual Airbags, 16-inch alloys, traction control 18 MPG City/25 Hwy.

New 2008 Honda Civic LX

Lease for only \$239 mo.

\$999 Down Payment and First Payment Due at delivery. \$0 Security. 48 Month Lease.

115 HP, Air Cond. 5 Speed, AM/FM Stereo, Anti-theft, tilt, cruise, 32 MPG City/38 Hwy.

New 2008 Ford Escape

Lease for only \$239 mo.

\$2500 Down Payment and First Payment Due at delivery. \$0 Security. 39 Month Lease.


2.3L Engine, 5 Speed, AM/FM w/ CD player, Air, ABS, Dual Airbags, 24 MPG City/25 Hwy.

New 2008 Honda CR-V LX


Lease for only \$399 mo.

\$1500 Down Payment and First Payment Due at delivery. \$0 Security. 39 Month Lease.


Auto., 160 HP, Air Cond Power Windows, Air, Leather 22 MPG City/26 Hwy.




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EXCURSION
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**AN ANALYSIS OF FINANCIAL CONDITION AT PRIVATE
NONPROFIT BACCALAUREATE COLLEGE: 1998 THROUGH 2007**
Dominick F. Peruso, Juniata College

ABSTRACT

Private nonprofit colleges are among the oldest organizations in the U.S. However, their financial condition is often described as challenged, failing, and distressed. Existing research on the financial condition of higher education institutions is sparse and often uses a very small sample size. Using data from nearly 400 colleges from 1998 through 2007, this study's variables of interest are the annual increase in tuition and annual financial ratios assessing comprehensive financial condition. Specifically, this study examines trends in the colleges' annual operating results; liquidity & flexibility; leverage; asset performance; and market position. Additionally, this study identifies statistically significant differences based on region and level of institutional prestige.

INTRODUCTION

The high rate of tuition inflation and reduced affordability threaten the equity of access and choice in higher education. From 1984 to 2008, college tuition and fees increased 439 percent compared to a 251 percent increase in medical costs and a 147 percent increase in median family income (National Center for Public Policy and Higher Education, 2008). Although they are one of the most expensive higher education options, private nonprofit baccalaureate colleges are an important segment of the higher education market and may be the best options for many undergraduate students. These small colleges stand at a competitive disadvantage with both state-funded public universities and larger private colleges and often come under intense criticism for high tuition rates. Despite broad public perception of private colleges as wealthy, many face poor financial circumstances. Lacking public support, private colleges are heavily dependent on tuition making them more vulnerable to demographic shifts in population and changes in the overall economy. This paper investigates trends in tuition and financial condition at private, non-profit, baccalaureate colleges and examines differences by region and level of prestige using data from 1998 through 2007.

Higher education in the U.S. is diverse and includes large public and private research universities, land-grant universities, regional comprehensive institutions, community colleges and for-profit universities located in urban, suburban, and rural locations. Small learning-centered private liberal arts colleges are an alternative favored by many prospective undergraduate students. Compared to research universities and regional institutions, "liberal arts colleges evidenced stronger positive impacts on a broad range of empirically vetted good practices in undergraduate education" (Pascarella, Wolniak, Cruce, and Blach, 2004, p. 57). These

good practices include: student-faculty contact; faculty interest in student development; peer cooperation; academic effort/involvement; and faculty instructional skill, organization, and preparation (Pascarella et al., 2004). Students at private liberal arts colleges are also more likely than their peers at larger public universities to interact with faculty, get involved in campus government and honors programs, participate in athletics, participate verbally in class, and find their classroom instruction more satisfying (Astin, 1977). Additionally, a high proportion of liberal arts graduates earn PhDs (Breneman, 1994) and private liberal arts colleges have better degree completion rates than public universities (National Association of Independent Colleges and Universities, 2006; Porter, 1990).

Small private colleges are often viewed as catering to only the wealthy but they are committed to access. Private colleges and universities enroll a greater proportion of low-income students and a lower proportion of higher income students than do large public research (doctoral) universities (Berkner, Wei, He, Lew, Cominole, and Siegel, 2005). The median family income of students' families in state universities and private colleges is identical (Breneman, 1994).

However, these institutions are not without problems as they face both considerable financial challenges and fierce competition with one another and competitors from other higher education sectors. The majority of private baccalaureate colleges have enrollment under 2000 students. Compared to their larger private counterparts, these small colleges are at greater risk of closing, more likely to have tuition dependency greater than 60 percent, more likely to experience enrollment volatility, and more likely to report operating deficits (Townsend, 2002). To continue to operate, small private colleges with already high tuition have routinely increased tuition by three percent more than the rate of consumer

inflation (Toutkoushian, 2001; College Board, 2006). Private colleges, with high tuition, are often perceived as the least affordable option for many prospective students. For instance, academic year 2008-09 tuition and fees at private four-year colleges was \$25,143 compared to \$6,585 at public universities (College Board, 2008).

Many students, parents, and legislators often assume private colleges are wealthier than their public counterparts and question the astronomical growth of both tuition and expenditures. These critics levy accusations of inefficiency, waste, and greed and ask why colleges and universities cannot “behave more like business firms and hold down their costs?” (Ehrenberg, 2002, p.5). Despite collecting an “avalanche of data about every facet of the institution” (Geiger, 2004, p. 242), these institutions are accused of ignoring relevant financial information in setting tuition (Yanikoski, 1989). According to one estimate, only 15 percent of college governing boards use long-term strategic financial planning and only 35 percent have minimal knowledge of fiscal planning (Thomas C. Longin at the Association of Governing Boards and Universities 2009 annual meeting in Fain 2009). Moody’s (2007) credit rating agency often identifies small private’s colleges as “institutions facing challenges.” In spite of these criticisms, small private colleges have endured.

OBJECTIVES OF STUDY

This study seeks to better understand the overall financial condition of and identify trends for private nonprofit baccalaureate colleges in the U.S. Using publicly available data from 1998 through 2007, this study’s variables of interest are the annual increase in tuition and annual financial ratios assessing comprehensive financial condition. Specifically, this study examines the colleges’ annual operating results; liquidity & flexibility; leverage; asset performance; and market position. Additionally, this study considers differences based on region and institutional level of prestige.

FINANCIAL ANALYSIS FRAMEWORK

The financial condition of private baccalaureate colleges has been seriously questioned since the end of WWII when regional comprehensive state universities began to dominate enrollment. Several studies found small private baccalaureate colleges to be endangered and predicted their demise (Cheit, 1971; Jellema, 1973; Chaffee, 1984; Lomax and Wilson, 1986; and Breneman, 1994). In all cases, their pessimism proved unfounded. Despite the enrollment decreases after the graduation of the baby

boom generation, the high inflation of the 1970s, economic weakness in the early 1980s and 1990s, and public criticism over steep increases in tuition, private baccalaureate colleges have persevered.

These studies may have failed to accurately predict the demise of small private colleges for two reasons. First, the studies defined financial condition only in terms of operating measures such as annual revenues and expenses and ignored both financial and physical assets and debt. Operating measures, while important, are only one part of an organization’s comprehensive financial condition. Second, the studies did not use ratio analysis. As a result, the financial data were not scaled for comparative purposes nor were the data related to one another in a meaningful way.

Because of the broad range of institutional types and control coupled with the unique nature of revenues and costs, financial analysis in higher education can be challenging. One of the most effective ways to assess financial condition is ratio analysis and has long been used by for-profit enterprises. Ratio analysis considers the relationship between two numbers in the financial statements and allows for both trend and comparative analyses. Trend analysis identifies trends in a particular ratio at one institution and helps guide strategy by measuring past performance and charting progress on goals and objectives. Comparative analysis is useful because financial data are scaled to allow comparisons between different institutions. Financial ratios provide more useful information than considering only absolute dollar value measures from the financial statements. For example, the amount of total expenditures is meaningless without considering whether current resources are sufficient to meet them. Additionally, ratio analysis can provide common benchmarks for financial condition and guides financial decision-making.

The literature on financial ratio analysis is based heavily in a for-profit context. Generally, financial condition is the result of measures in five critical areas of an organization; profitability, liquidity, leverage, asset efficiency, and market value (Fraser and Ormiston, 2007; Wild, Subramanyam, and Halsey, 2007). Profitability, the excess of revenues over expenses, is the primary goal and one element of financial condition of for-profits and it is supported by the other elements of financial condition (Fraser & Ormiston, 2007). Liquidity is the ability of the organization to meet its short run obligations and provides a measure of the flexibility in making adjustments for changing market conditions and

opportunities. Leverage concerns the amount of debt and the ability to pay debt over the long and short runs. Asset efficiency refers to how well management uses assets, both physical and financial, to enhance profitability over time. For-profits have long used this comprehensive approach to assessing financial condition.

There are forms of financial ratio analysis aimed at government and nonprofit organizations (Wilson and Kattelus, 2004; Groves and Valente, 1994) and more specifically at private and public colleges and universities (Prager, Sealy & Co., KPMG & Bearing Point, 2005; Collier and Patrick, 1979; Dickemeyer and Hughes, 1982; Chabotar, 1989; Meyerson and Johnson, 1993). In Strategic Financial Analysis for Higher Education (SFAHE), the authors translate several of the analysis areas from the for-profit context into developing a comprehensive framework for strategic financial analysis in higher education; operating results (profitability), resource sufficiency and flexibility (liquidity), financial resources including debt (leverage), and asset performance (asset efficiency) (Prager, Sealy & Co., KPMG, and Bearing Point, 2005).

The SFAHE framework is useful for college management, trustees, and several other higher education industry organizations. Credit ratings organizations like Moody's Investors Services (2007) are concerned with an institution's creditworthiness, the ability to repay debt. They assign a rating based on their assessment of a college's financial condition based on ratios similar to the ones described in SFAHE. The U.S. Department of Education (DoE) seeks to identify institutions that might bear risk to student financial aid programs. The DoE uses three ratios (also in SFAHE) to assess an institution's viability, profitability, liquidity, ability to borrow, and capital resources (KPMG Peat Marwick, 1996). Institutionally, higher education executives and trustees use financial ratios to assess progress toward goals and objectives and to make decisions for the future. The Council of Independent Colleges developed a Financial Indicators Tool using the Composite Financial Index developed in SFAHE (Hartley, 2009).

This study's financial analysis framework includes the following elements; operating results; liquidity & flexibility; leverage; asset performance; and market position.

METHODS

This study uses data from the Integrated Postsecondary Education Data System (IPEDS) of

the U.S. Department of Education's National Center for Education Statistics (NCES). IPEDS data is derived from several surveys that must be completed by all institutions that participate in "any federal financial assistance program authorized by Title IV of the Higher Education Act of 1965, as amended" (NCES, 2008).

This study is a census as the sample is the entire population of private nonprofit baccalaureate American colleges (those with the Carnegie Classifications *Baccalaureate Colleges-Liberal Arts* and *Baccalaureate Colleges-Diverse Fields*) that provided IPEDS data from fiscal years 1998-2007. Accordingly, there is no need for a sampling frame or sample size calculations. Approximately 390 institutions have sufficient data to be analyzed by this study. These institutions have average enrollment of roughly 1600 students and are comparable in their primary teaching mission.

Variables

The financial ratio variables were chosen to represent the elements of the framework for financial analysis: operating results; liquidity & flexibility; leverage; and asset performance.

The tuition increase (TI) is the change in tuition from year one to year two divided by the tuition of year one. It is an important measure of operations and indicator of pricing strategy. Previous research indicates a relationship between the annual surplus or deficit and tuition setting (Brown, 1994). Additionally, the TI is related to the tuition discount as the discount essentially reduces the TI to a net price increase.

The net operating revenues ratio (NOR), also known as the net income ratio, represents the annual operating results of the organization. The NOR is similar to the profit margin ratio often computed to evaluate for-profit enterprises. It is calculated by taking the ratio of the *change in net assets* to *total revenue*, and measures whether a college is living within its resources. A positive value indicates an annual surplus and a negative value indicates an annual deficit. Bond ratings agencies, Moody's and Fitch, and the U.S. Department of Education use this or very similar ratios when evaluating colleges and universities (Fischer, Gordon, Greenlee and Keating, 2004).

The reserve ratio (RES) measures liquidity & flexibility and is computed by dividing *unrestricted net assets* by *total expenses*, and it assesses how many months of expenses can be covered by

unrestricted net assets. For instance, a RES of 0.50 indicates an institution could cover its expenses, assuming no incoming revenues or other cash inflows, for six months. A similar and more commonly computed measure is the primary reserve ratio (PR) used by college finance and accounting practitioners, Standard & Poor's, Moody's, Fitch, and the U.S. Department of Education (Prager, Sealy & Co. et al., 2005; Fischer et al., 2004). The PR's numerator is "expendable net assets", a value derived from other financial statement figures, one of which is long-term project related debt (Prager, Sealy & Co. et al., 2005). The PR is not used in this study because IPEDS data reports a value for only total liabilities (i.e. total debt) and does not divide it into short-term and long-term components nor does IPEDS indicate whether or not the debt was incurred for a building project. As a result, this study uses the reserve ratio, a ratio similar to the level of reserves ratio used in other higher education research (Hudack, 2005) and identical to another common nonprofit organization performance indicator (Wilson and Kattelus, 2004, p. 585).

Representing leverage, the capitalization ratio (CAP) (also known as the equity ratio) indicates whether the organization relies more on equity (known as "net assets" in nonprofit organizations) or debt to finance its operations, and is calculated by taking a ratio of its *total net assets* to its *total assets*. The CAP should range from 50 to 85 percent (Prager, Sealy, & Co. et al., 2005, p. 60). Institutions at or below the low end of this range may find it difficult to borrow additional funds while institutions above the high end of the range may want to consider better leveraging their assets to increase future income and wealth. The CAP most closely measures debt capacity (Chabotar, 1989). Again, there are additional measures of debt but IPEDS is limited in that its finance survey only collects information on total liabilities and provides no further information regarding debt. Future changes in the IPEDS finance survey ought to include more information on debt and related measures such as long-term and short-term status, interest rate, and the percentage of fixed rate versus variable rate debt. This additional information would be particularly helpful in light of the credit market crisis of 2008-2009.

The return on net assets ratio (RNA) is calculated by dividing the *change in net assets* by the *total net assets*, and measures asset performance. The RNA is similar to the for-profit financial ratios, return on equity and return on investment. Colleges and universities must possess large amounts of both physical and financial assets to operate. The RNA

"furnishes a broad measure of the change in an institution's wealth over a single year" and is the "most comprehensive measure of the growth or decline in total wealth over a specific period of time" (Prager, Sealy & Co. et al., 2005, p. 73). Moody's uses this ratio in evaluating an institution's financial condition (Moody's Investor Services, 2002; Fischer et al., 2004).

The tuition discount (TD) measures students' willingness to pay or a college's market position and is calculated by taking the ratio of *total institutional aid* to *gross tuition revenue*. It is the means by which private colleges fill their entering classes (Breneman, Doti, and Lapovsky, 2001). Colleges are engaged in fierce competition to enroll academically talented students and need revenue streams to remain competitive. Prospective students (and their families) have budgetary constraints and expectations of quality that limit their willingness to pay. Colleges, aware of their own fiscal constraints, measure prospective students' academic quality and willingness to pay and adjust the tuition discount accordingly.

Tuition discounting is a common source of concern for private nonprofit baccalaureate colleges. Unlike many for-profit enterprises, colleges cannot easily make short-run adjustments to output (i.e. enrollment). Costs are often committed based on enrollment projections and capacity before actual enrollment is certain. The college is "designed for a set number of students, which the institution seeks to enroll regardless of changing economic circumstances... forcing all of the market adjustment onto prices" (Breneman, Lapovsky, and Meyers, 2000, p. 89-90).

Ideally, the tuition discount serves as a tool to help maximize total net tuition revenue. However, an increasing tuition discount over a period of time may indicate a problem with the market position of the college (Moody's Investor Services, 2002). As the tuition discount grows faster than the rate of tuition increase, the resulting increase in net tuition is less resulting in possible cash flow shortages. From 1981 to 1996, the rate of increase in institutional financial aid was five times that of the increase in the consumer price index. No other higher education expense category increased nearly half that much (Townsley, 2002, p. 37).

Tuition dependency (TDEP) is the ratio of *net tuition revenues* to *total revenues* and is an important measure of colleges' financial condition. Institutions that rely on tuition to provide more than 60 percent of their total revenues are classified as tuition dependent

(Townsend, 2009). Non-tuition revenues include gifts, grants, and endowment income. Tuition dependent colleges are more likely to have small endowments and are at a disadvantage with colleges with larger endowments. An endowment allows colleges to draw funds from the endowment annually to support current operations. Tuition dependent colleges are more susceptible to unexpected financial events. Colleges with larger endowments are more financially stable and can weather short-term challenges. Tuition dependent colleges count on tuition revenue to stay even or ahead of inflationary pressure. When enrollment growth slows, the college will lack the cash necessary to pay expenses. Tuition dependent colleges are more likely to have annual operating deficits (i.e. negative NOR) (Townsend, 2009).

Regions are defined as follows; Northeast, South, Midwest, and West. Dimkpa, Esonu, and Akpom (2004) used this sectioning in their study of tuition. Level of prestige in this study is defined using the selectivity rankings in *Barron's Profiles of American Colleges*. Barron's reports a single summary measure of selectivity (*non-competitive, less competitive, competitive, very competitive, highly competitive, and most competitive*) based on the entering class's SAT and ACT scores, class rank, high school grade point average, and the percentage of applicants who were accepted. This ranking is indicative of a college's place in the competitive market for students – the more selective the better. A series of six dummy variables are included in the model to represent *non-competitive, less competitive, competitive, very competitive, highly competitive, and most competitive* colleges. The 2007 Barron's selectivity ranking is used since it falls at the conclusion of the 1998-2007 period and there is evidence of a high degree of correlation across time in the selectivity ranking of colleges and universities (Hoxby, 2009; Kingston & Smart, 1990).

Analysis

After computing the variables for each of the colleges over the ten-year period, I identified trends for the entire private nonprofit baccalaureate sector. To identify significant differences, I separated colleges by both region and level of prestige and performed ANOVA by regression modeling in which the variable of interest is the dependent variable and dummy (categorical) variables are used as independent variables. It is unnecessary and redundant to create a dummy variable for all groups. The number of necessary dummy variables is the number of groups minus one. The intercept represents the value of the group without the separate

dummy variable (Agresti and Finlay, 1997). The intercept in the "LEVEL OF PRESTIGE" regression results represents non-ranked colleges.

RESULTS

Tuition Increase

The TI mean during the period was 5.4 percent. The TI hit a low of 3 percent for 2000 following a sustained period of stock market growth and resulting endowment growth for many colleges. After a steep decline in the stock market following 9-11 and the collapse of both the Enron and WorldCom, tuition grew at an annual rate of 6 percent per year through 2007. The TI did not drop from 6 percent despite improvement in the stock market and economy.

Regionally, there are small but statistically significant differences for TI. During the period, Southern colleges increased tuition at 6 percent annually but Northeastern and Midwestern colleges increased tuition at approximately 5 percent (see Table 1). Part of this difference can be explained by the intense competition in the Northeast and Midwest for students. Private colleges in those regions compete with many peers and larger private and public colleges for students. As a result, they may have been forced to keep tuition increases in check.

There were no statistically significant differences by level of prestige. This may suggest the existence of a pricing umbrella where the most prestigious colleges set tuition first and the rest follow suit (Massy, 2003, p. 41; Litten, 1984). Generally, demand for student spots at the most prestigious colleges is relatively inelastic – demand is steady when price increases. Despite similar gross tuition prices, there is price competition. Tuition discounting (or institutional merit aid) allows less selective private colleges to adjust their net tuition price to attract a sufficient number of students.

Table 1
Tuition Increase

By Region					
Linear Regression					
Regression	Statistics				
R	0.264				
R ²	0.0697				
Adj. R ²	0.0623				
Stand. Error	0.0166				
# of Cases	385				
TI	average	=	0.0600	-	0.0088 *
	Northeast		Region	-	0.0102 *
	Midwest Region - 0.0046 * West				

ANOVA					
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	3	0.0079	0.0026	9.5111	0.*
<i>Residual</i>	381.	0.1055	0.0003		
<i>Total</i>	384.	0.1134			

Standard				
	<i>Coefficients</i>	<i>Error</i>	<i>t Stat</i>	<i>p-level</i>
<i>Intercept</i>	0.06	0.0014	41.8814	0.
<i>Northeast</i>	-0.0088	0.0022	-3.9691	0. *
<i>Midwest</i>	-0.0102	0.0021	-4.961	0. *
<i>West</i>	-0.0046	0.0036	-1.2645	0.1892

BY LEVEL OF PRESTIGE

Linear Regression

Regression Statistics	
<i>R</i>	0.1381
<i>R</i> ²	0.0191
<i>Adj. R</i> ²	0.0034
<i>Stand. Error</i>	0.0172
<i># of Cases</i>	383

$$\text{TI average} = 0.0583 - 0.0002 * \text{NC} - 0.0010 * \text{LC} - 0.0037 * \text{COMP} - 0.0061 * \text{VC} - 0.0079 * \text{HC} - 0.0065 * \text{MC}$$

ANOVA					
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	6.	0.0022	0.0004	1.2179	0.2961
<i>Residual</i>	376.	0.111	0.0003		
<i>Total</i>	382.	0.1132			
Standard					
	<i>Coefficients</i>	<i>Error</i>	<i>t Stat</i>	<i>p-level</i>	
<i>Intercept</i>	0.0583	0.0035	16.6223	0.	
<i>non-comp.</i>	-0.0002	0.0055	-0.0436	1.	
<i>less comp.</i>	-0.001	0.0044	-0.2249	0.9995	
<i>Competitive</i>	-0.0037	0.0038	-0.9746	0.4593	
<i>very comp.</i>	-0.0061	0.004	-1.5345	0.0303	**
<i>High comp.</i>	-0.0079	0.0044	-1.7957	0.0042	*
<i>most comp.</i>	-0.0065	0.0049	-1.3357	0.1012	

* - Statistically significant ($p < .01$),

** - Statistically significant ($p < .05$)

Net Operating Revenues Ratio

The NOR averaged over 9 percent for the period. This return occurred during a period when the Dow Jones Industrial Average had three of its top five single largest annual point declines (2000-2002) (Manuel, 2009). However, there was considerable volatility in NOR – a high of 25 percent during 1998 and a low of negative 27 percent during 2002. This volatility is extraordinarily rare for for-profit organizations using a comparable measure, profit margin.

The most competitive colleges have an average NOR of 19 percent, the remainder had an average NOR ranging from 7.5 to 11 percent. These differences were statistically significant. Regionally, there were no significant differences (see Table 2).

The NOR uses the *total change in net assets* in the numerator which includes the results of operations and unrealized gains and losses on investment assets like the endowment. The stock market downturn during 2001-2002 resulted in large negative NOR ratios for many of the colleges. The negative NOR ratios were not the result of annual operating deficits nor negative cash flow but the result of large unrealized losses. Normally, a negative NOR of the magnitude found in 2001-2002 would be cause for alarm. A better measure, one more indicative of the operations of the college, might be the *change in unrestricted net assets* divided by *total unrestricted revenues*.

Table 2
NET OPERATING REVENUES RATIO

BY REGION

Linear Regression

Regression Statistics	
<i>R</i>	0.0902
<i>R</i> ²	0.0081
<i>Adj. R</i> ²	0.0004
<i>Stand. Error</i>	0.1438
<i># of Cases</i>	387

$$\text{NOR Ratio Average} = 0.0812 + 0.0334 * \text{Northeast Region} + 0.0102 * \text{Midwest Region} + 0.0153 * \text{West}$$

ANOVA					
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	3.	0.065	0.0217	1.0477	0.3714
<i>Residual</i>	383.	7.92	0.0207		
<i>Total</i>	386.	7.985			

Coefficients				
	<i>Standard</i>	<i>Error</i>	<i>t Stat</i>	<i>p-level</i>
<i>Intercept</i>	0.0812	0.0124	6.5601	0.
<i>Northeast Region</i>	0.0334	0.019	1.7537	0.0276**
<i>Midwest Region</i>	0.0102	0.0178	0.5753	0.8029
<i>West</i>	0.0153	0.0308	0.4956	0.8644

BY LEVEL OF PRESTIGE Linear Regression

Regression Statistics	
<i>R</i>	0.2119
<i>R</i> ²	0.0449
<i>Adj. R</i> ²	0.0297
<i>Stand. Error</i>	0.1418
<i># of Cases</i>	385

NOR Ratio Average = 0.0752 + 0.0088 * non-competitive - 0.0235 * less competitive + 0.0098 * competitive + 0.0346 * very competitive + 0.0261 * highly competitive + 0.1143 * most competitive

ANOVA					
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	6.	0.3574	0.0596	2.9617	*
<i>Residual</i>	378.	7.6031	0.0201		
<i>Total</i>	384.	7.9606			0.0077
Standard					
	<i>Coefficients</i>	<i>Error</i>	<i>t Stat</i>	<i>p-level</i>	
<i>Intercept</i>	0.0752	0.0284	2.6522	0.	
<i>non-comp.</i>	0.0088	0.0446	0.1984	0.9997	
<i>less comp.</i>	-0.0235	0.0358	0.6553	0.8593	
<i>Competitive</i>	0.0098	0.0306	0.3188	0.9962	
<i>very comp.</i>	0.0346	0.0324	1.067	0.3392	
<i>highly comp</i>	0.0261	0.036	0.7248	0.7891	
<i>most comp.</i>	0.1143	0.0397	2.8768	0.*	

* - Statistically significant ($p < .01$),

** - Statistically significant ($p < .05$)

Reserve Ratio

The RES ratio was steady during the period. The steadiness of the RES coupled with the volatility in the NOR further illustrate 1) the of problem using unrealized gains and losses from restricted assets (i.e. endowments) in evaluating financial condition and 2) the ability of colleges to remain liquid despite stock market downturns.

There are statistically significant and large differences in RES ratio between colleges ranked *competitive* through *most competitive*. *Most competitive* colleges had an average RES ratio of 360%, *highly competitive* at 236%, *very competitive* at 177% and *competitive* at 109%. RES ratio does not include restricted assets such as endowment. However, the large draw from the endowment and availability of unrestricted assets appears to allow top-ranked colleges considerably more breathing room than their less prestigious competitors. There were no significant regional differences in terms of RES (see Table 3).

**Table 3
RESERVE RATIO**

BY REGION	
Linear Regression	
Regression Statistics	
<i>R</i>	0.1251
<i>R²</i>	0.0157
<i>Adj. R²</i>	0.0079
<i>Stand. Error</i>	1.238
<i># of Cases</i>	385

RES Ratio Average = 1.3239 + 0.1736 * Northeast Region + 0.1309 * Midwest Region + 0.6522 * West

ANOVA					
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	3.	9.287	3.0957	2.02	0.1106
<i>Residual</i>	381.	583.895	1.5325		
<i>Total</i>	384.	593.182			
Standard					
	<i>Coefficients</i>	<i>Error</i>	<i>t Stat</i>	<i>p-level</i>	
<i>Intercept</i>	1.3239	0.1065	12.4255	0.	
<i>Northeast</i>	0.1736	0.1638	1.0598	0.3395	
<i>Midwest</i>	0.1309	0.1533	0.8537	0.5353	
<i>West</i>	0.6522	0.2695	2.4196	0.0006*	

BY LEVEL OF PRESTIGE

Linear Regression

Regression Statistics	
<i>R</i>	0.6231
<i>R²</i>	0.3882
<i>Adj. R²</i>	0.3785
<i>Stand. Error</i>	0.9792
<i># of Cases</i>	384

RES Ratio Average = 0.6038 + 0.3348 * non-competitive + 0.0781 * less competitive + 0.4937 * competitive + 1.1706 * very competitive + 1.7635 * highly competitive + 3.0041 * most competitive

ANOVA					
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
				39.869	
<i>Regression</i>	6.	229.3665	38.2278	8	0.*
<i>Residual</i>	377.	361.4727	0.9588		
<i>Total</i>	383.	590.8392			
Standard					
	<i>Coefficients</i>	<i>Error</i>	<i>t Stat</i>	<i>p-level</i>	
<i>non-comp.</i>	0.6038	0.1958	3.0834	0.	
<i>less comp.</i>	0.3348	0.3078	1.0875	0.3147	
<i>Competitive</i>	0.0781	0.2473	0.3158	0.9964	
<i>very comp.</i>	0.4937	0.2112	2.3374	0.*	
<i>highly comp</i>	1.1706	0.224	5.2251	0.*	
<i>most comp.</i>	1.7635	0.2496	7.0641	0.*	
<i>non-comp.</i>	3.0041	0.2743	10.9528	0.*	

* - Statistically significant ($p < .01$),

** - Statistically significant ($p < .05$)

Capitalization Ratio

The CAP steadily declined during the 10-year period indicating an increased proportion of debt on colleges' balance sheets (see Table 4). While this amount of debt is still astonishingly low compared to many for-profit industries, the change indicates a negative trend. The trend illustrates the fierce competition that requires colleges to update, renovate, and/or build new facilities and offer other amenities or risk losing students to competitors. Additionally, interest rates during this period were very low and made debt more affordable.

The acceptable range for the CAP is 50 to 85 percent (Prager, Sealy & Co., et al.). Thirty-five colleges in the cohort fell below this range and none of the 35 colleges were ranked *highly competitive* or *most competitive*. Sixty-five colleges had a CAP ratio above 85 percent. Not unexpectedly, the CAP differed significantly by rank. For example, the *most competitive* colleges had a CAP of 15% greater than *competitive* colleges. Not only do the top-ranked institutions hold larger endowments and have a higher RES but they also have a lower proportion of debt and are more creditworthy than lesser-ranked colleges. Schools outside the top ranking are forced to remain competitive by taking on more debt to finance campus improvements or expansion. Colleges in the Northeast had a CAP just over 68 percent, the West roughly 69 percent, the Midwest just below 71 percent, and the South at 74 percent. These differences were statistically significant (see Table 4).

Table 4
CAPITALIZATION RATIO
BY REGION

Linear Regression				
<i>Regression Statistics</i>				
<i>R</i>		0.1439		
<i>R</i> ²		0.0207		
<i>Adj. R</i> ²		0.013		
<i>Stand. Error</i>		0.1594		
<i># of Cases</i>		387		
CAP Ratio Average = 0.7401 - 0.0572 * Northeast Region - 0.0311 * Midwest Region - 0.0515 * West				
ANOVA				
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i> <i>p-level</i>
<i>Regression</i>	3.	0.2058	0.0686	2.6989 0.045 5**
<i>Residual</i>	383.	9.7334	0.0254	
<i>Total</i>	386.	9.9391		
	<i>Standard</i>			
	<i>Coefficients</i>	<i>Error</i>	<i>t Stat</i>	<i>p-level</i>
<i>Intercept</i>	0.7401	0.0137	53.9425	0.
<i>Northeast</i>	-0.0572	0.0211	-2.7112	0.0001 *
<i>Midwest</i>	-0.0311	0.0197	-1.5799	0.0595 ***
<i>West</i>	-0.0515	0.0341	-1.5083	0.0795 ***

BY LEVEL OF PRESTIGE
Linear Regression

<i>Regression Statistics</i>	
<i>R</i>	0.4312
<i>R</i> ²	0.186
<i>Adj. R</i> ²	0.173
<i>Stand. Error</i>	0.1419
<i># of Cases</i>	385

CAP Ratio Average = 0.6096 + 0.0883 * non-competitive + 0.0074 * less competitive + 0.0775 * competitive + 0.1653 * very competitive + 0.1810 * highly competitive + 0.2308 * most competitive

ANOVA

	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	6.	1.739	0.2898	14.3919	0.*
<i>Residual</i>	378.	7.6123	0.0201		
<i>Total</i>	384.	9.3513			
	<i>Standard</i>				
	<i>Coefficients</i>	<i>Error</i>	<i>t Stat</i>	<i>p-level</i>	
<i>non-comp.</i>	0.6096	0.0284	21.4774	0.	
<i>less comp.</i>	0.0883	0.0446	1.979	0.0008 *	
<i>Competitive</i>	0.0074	0.0358	0.2062	0.9997	
<i>very comp.</i>	0.0775	0.0306	2.5301	0.*	
<i>highly comp</i>	0.1653	0.0325	5.0904	0.*	
<i>most comp.</i>	0.181	0.036	5.0251	0.*	
<i>non-comp.</i>	0.2308	0.0398	5.8066	0.*	

* - Statistically significant ($p < .01$),

** - Statistically significant ($p < .05$),

*** - Statistically significant ($p < .10$)

Return on Net Assets Ratio

The trend for the RNA, like the NOR, was volatile and averaged 7.4 percent for the period. Again, this volatility is the result of the computation of the ratio; the *change in net assets* divided by *total net assets*. The change in net assets includes unrealized gains and losses but is not indicative of cash flows. A better measure of RNA might be the *change in unrestricted net assets* divided by *unrestricted net assets* or separate return ratios for capital and financial assets.

There are significant but small RNA differences by region. The South has an RNA of approximately 1.7 percent less than the Northeast and 2.1 percent less than the West. There were no significant differences by level of prestige (see Table 5).

Table 5
RETURN ON NET ASSETS RATIO

BY REGION	
Linear Regression	
<i>Regression Statistics</i>	
<i>R</i>	0.1654
<i>R</i> ²	0.0273
<i>Adj. R</i> ²	0.0197
<i>Stand. Error</i>	0.0561
<i># of Cases</i>	384
RNA Ratio Average = 0.0684 + 0.0174 * Northeast Region - 0.0032 * Midwest Region + 0.0213 * West	

ANOVA					
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	3.	0.0336	0.0112	3.5608	0.0144**
<i>Residual</i>	380.	1.1944	0.0031		
<i>Total</i>	383.	1.228			

Standard				
	<i>Coefficients</i>	<i>Error</i>	<i>t Stat</i>	<i>p-level</i>
<i>Intercept</i>	0.0684	0.0048	14.1826	0.
<i>Northeast</i>	0.0174	0.0074	2.3377	0.0011 *
<i>Midwest</i>	-0.0032	0.0069	-0.4662	0.8844
<i>West</i>	0.0213	0.0122	1.7429	0.0291 **

BY LEVEL OF PRESTIGE

Linear Regression

<i>Regression Statistics</i>	
<i>R</i>	0.1213
<i>R²</i>	0.0147
<i>Adj. R²</i>	-0.0009
<i>Stand. Error</i>	0.0566
<i># Of Cases</i>	385

RNA Ratio Average = 0.0869 - 0.0162 * non-competitive - 0.0064 * less competitive - 0.0187 * competitive - 0.0187 * very competitive - 0.0058 * highly competitive - 0.0036 * most competitive

ANOVA					
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	6.	0.0181	0.003	0.9401	0.4661
<i>Residual</i>	378.	1.2101	0.0032		
<i>Total</i>	384.	1.2282			

Standard				
	<i>Coefficients</i>	<i>Error</i>	<i>t Stat</i>	<i>p-level</i>
<i>non-comp.</i>	0.0869	0.0113	7.6764	0.
<i>less comp.</i>	-0.0162	0.0178	-0.9134	0.5439
<i>Competitive</i>	-0.0064	0.0143	-0.4465	0.9769
<i>very comp.</i>	-0.0187	0.0122	-1.5283	0.0316
<i>highly comp</i>	-0.0187	0.0129	-1.4484	0.0527
<i>most comp.</i>	-0.0058	0.0144	-0.4051	0.986
<i>non-comp.</i>	-0.0036	0.0158	-0.2287	0.9994

* - Statistically significant ($p < .01$),

** - Statistically significant ($p < .05$)

Tuition Discount

The TD increased steadily from 29 to 34 percent over the period. This trend is consistent with the National Association of College and University Business Officers' (NACUBO) tuition discounting surveys but is far less an increase than during the 1990s (Steele, 2009). An increasing tuition discount over a period of time may indicate a problem with the market position of the college (Moody's Investor Services, 2002). As the tuition discount grows faster than the rate of tuition increase, the resulting increase in net tuition is less resulting in possible cash flow shortages.

Colleges in the South have a tuition discount roughly 6.2 percent less than the Northeast. This result is

statistically significant (see Table 6). A likely explanation for this difference is the increased competition in Northeast and the need to discount tuition to attract students.

There were significant differences by level of prestige (see Table 6). *Very competitive* and *highly competitive* colleges discounted at a much higher rate than either *competitive* or *most competitive* colleges. It is expected that the *most competitive* colleges offer a much lower tuition discount than other colleges because the most selective colleges find low price elasticity for their educational service (i.e. students want to attend regardless of price). It is generally believed that colleges at the low end of the prestige hierarchy accept discounting as a normal part of operations and are forced to give entering freshman large discounts. Doti (2004) found "schools with lower student selectivity need to give back a high proportion of tuition increases to students in the form of discounts (financial aid) than do higher selectivity schools" (p. 363). However, the fact that *competitive* colleges discount at a lower rate than either *very competitive* or *highly competitive* colleges may indicate a different partitioning of the higher education market. *Competitive* colleges, knowing they cannot compete with more prestigious colleges on price may tend to offer lower gross tuition as a value incentive to prospective students. Therefore, they have a need to discount less than either *very competitive* or *highly competitive* colleges that may tend to set gross tuition similar to their aspirant institutions (i.e. *most competitive*) to signal higher quality.

Another issue concerns this study's definition of TD. The TD numerator includes the sum of funded plus unfunded institutional aid. More prestigious colleges have larger endowments and, therefore, more funded institutional aid. These colleges can increase the discount with little effect on operations. Unfunded institutional aid is often simply a price reduction to attract the right number of students. Lesser-ranked colleges with smaller endowments, "have found that the tuition discounts essentially forced upon them by the market" have reduced net cash from tuition (Townsend, 2002, p. 32). The analysis of the RES provides some evidence of reduced cash flows for lower-ranked colleges. Future research on TD ought to consider the distinction between funded and unfunded institutional aid.

Table 6
TUITION DISCOUNT

BY REGION					
Linear Regression					
<i>Regression Statistics</i>					
<i>R</i>		0.2116			
<i>R</i> ²		0.0448			
<i>Adj. R</i> ²		0.0374			
<i>Stand. Error</i>		0.1246			
<i># of Cases</i>		389			
TD Average = 0.2988 + 0.0134 * Northeast Region + 0.0618 * Midwest Region + 0.0058 * West					
<i>ANOVA</i>					
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	3.	0.2804	0.0935	6.0182	0.000
<i>Residual</i>	385.	5.9784	0.0155		
<i>Total</i>	388.	6.2587			
	<i>Coef- ficients</i>	<i>Stand- ard Error</i>	<i>t Stat</i>	<i>p-level</i>	
<i>Intercept</i>	0.2988	0.0106	28.0636		0.
<i>Northeast</i>	0.0134	0.0164	0.8134		0.5761
<i>Midwest</i>	0.0618	0.0153	4.0271		0.*
<i>West</i>	0.0058	0.0267	0.2158		0.9867
BY LEVEL OF PRESTIGE					
Linear Regression					
<i>Regression</i>					
<i>R</i>		0.3965			
<i>R</i> ²		0.1572			
<i>Adj. R</i> ²		0.144			
<i>Stand. Error</i>		0.1174			
<i># of Cases</i>		390			
TD Average = 0.2414 + 0.0011 * non-competitive + 0.0066 * less competitive + 0.0820 * competitive + 0.1525 * very competitive + 0.1110 * highly competitive + 0.0688 * most competitive					
<i>ANOVA</i>					
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	6.	0.9843	0.1641	11.9042	0.*
<i>Residual</i>	383.	5.2782	0.0138		
<i>Total</i>	389.	6.2625			
	<i>Coeffi- cients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>p-level</i>	
<i>non-comp.</i>	0.2414	0.0222	10.8831		0.
<i>less comp.</i>	0.0011	0.0361	0.0309		1.
<i>Competitive</i>	0.0066	0.0286	0.2312		0.9994
<i>very comp.</i>	0.082	0.0241	3.4001		0.*
<i>highly comp</i>	0.1525	0.0257	5.934		0.*
<i>most comp.</i>	0.111	0.0288	3.8569		0.*
<i>non-comp.</i>	0.0688	0.032	2.1508		0.0001*

* - Statistically significant ($p < .01$),

** - Statistically significant ($p < .05$)

Tuition Dependency

TDEP peaked during 2002, a result of the endowment losses discussed earlier. TDEP averaged 45 percent for all colleges during the period. There were significant differences by region. The South had TDEP of 41 percent, the Northeast 48 percent, the Midwest 46.5 percent, and the West 48 percent. Again, there were statistically significant differences by level of prestige. *Most competitive* colleges had a TDEP of approximately 34 percent compared to *highly competitive* and *very competitive* both at 42 percent, and non-ranked colleges at 48.6 percent (see Table 7). Again, this difference is likely due to the much larger endowments held by top-ranked colleges and the large unrealized gains during most of the period. Forty of the approximately 390 colleges had TDEP greater than 60 percent, the common benchmark for tuition dependency (Townsend, 2009).

Table 7
TUITION DEPENDENCY RATIO

BY REGION					
Linear Regression					
<i>Regression Statistics</i>					
<i>R</i>		0.2368			
<i>R</i> ²		0.0561			
<i>Adj. R</i> ²		0.0487			
<i>Stand. Error</i>		0.1227			
<i># of Cases</i>		386			
TDEP Average = 0.4123 + 0.0683 * Northeast Region + 0.0545 * Midwest Region + 0.0682 * West					
<i>ANOVA</i>					
	<i>d.f.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	3.	0.342	0.114	7.5671	0.0001*
<i>Residual</i>	382.	5.7551	0.0151		
<i>Total</i>	385.	6.0972			
	<i>Co- efficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>p-level</i>	
<i>Intercept</i>	0.4123	0.0106	39.025		0.
<i>Northeast</i>	0.0683	0.0163	4.1928		0.*
<i>Midwest</i>	0.0545	0.0152	3.595		0.*
<i>West</i>	0.0682	0.0263	2.5944		0.0002*

BY LEVEL OF PRESTIGE

Linear Regression					
<i>Regression Statistics</i>					
<i>R</i>	0.3046				
<i>R</i> ²	0.0928				
<i>Adj. R</i> ²	0.0785				
<i>Stand. Error</i>	0.1232				
<i># of Cases</i>	389				
TDEP Average = 0.4861 - 0.0098 * non-competitive - 0.0124 * less competitive - 0.0045 * competitive - 0.0625 * very competitive - 0.0569 * highly competitive - 0.1454 * most competitive					
<i>ANOVA</i>					
	<i>df.</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p-level</i>
<i>Regression</i>	6.	0.5925	0.0987	6.511	0.*
<i>Residual</i>	382.	5.7935	0.0152		
<i>Total</i>	388.	6.386			
	<i>Co-efficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>p-level</i>	
<i>non-comp.</i>	0.4861	0.0233	20.8878	0.	
<i>less comp.</i>	-0.0098	0.0379	-0.2584	0.9988	
<i>Competitive</i>	-0.0124	0.03	-0.413	0.9846	
<i>very comp.</i>	-0.0045	0.0253	-0.1796	0.9999	
<i>highly comp</i>	-0.0625	0.027	-2.3175	0.*	
<i>most comp.</i>	-0.0569	0.0302	-1.8853	0.0019	*
<i>non-comp.</i>	-0.1454	0.0339	-4.2915	0.*	
* - Statistically significant ($p < .01$),					
** - Statistically significant ($p < .05$)					

CONCLUSION

Private baccalaureate colleges are resilient institutions having survived many previous financial challenges. From 1998 through 2007, average operating results were impressive in spite of large decreases in stock market performance during the middle of this period. Liquidity was also strong for the sector but particularly strong for the most prestigious colleges. Debt as a proportion of total assets increased during the period but the greater levels of debt are held by less prestigious colleges. Asset performance was solid despite a down stock market during the middle of the ten-year period. The tuition rate increased at a much higher rate during the last half of the period and the tuition discount increased slowly throughout the period. Tuition dependency was steady throughout the period but was lower for more prestigious colleges and over 10

percent of the sector can be defined as tuition dependent.

Much of the period studied saw both increases in the percentage of high school graduates and a reasonably stable economy after 2003. However, given the projected decreases in high school graduates in the Northeast and Midwest, unemployment over 10 percent, the credit market fallout in 2008-09, consumers' unwillingness to take on more debt, and a slow and uncertain economic recovery, the next decade is unlikely to be the same as the last. Tuition increases are already down to 4 percent annually and tuition discounting for the Fall 2009 freshman class was much higher than in recent years (College Board, 2009). Several private colleges enter this challenging era at a disadvantage with more debt, fewer reserves, steep tuition discounting, and high tuition dependency.

Future research on financial condition in higher education could consider the use of financial information for decision-making. A better understanding the relationship of financial condition and tuition setting, salary decisions, strategic planning, and philanthropic support is important. Additionally, more research is needed on the ways in which colleges use endowments and debt to achieve their objectives. While IPEDS information contains very detailed information on operating results such as revenues and expenses, it lacks the same detail on assets and debt. Changes in the IPEDS survey are a necessity.

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MEASURING ENVIRONMENTALLY SUSTAINABLE BUSINESS PRACTICES

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ABSTRACT

The call for environmentally sustainable business practices is growing in momentum. As supplies of fossil fuels decline, damages from environmental disasters mount, and radical climatic effects appear, the logical result is that organizations operate in an eco-friendly fashion. However, what fashion is that environmental embrace to take? Furthermore, how should organizations measure these programs and expenditures for environmentally sustainable business practices (ESBP)? This exploratory study examines the background of non-sustainability in the context of cost evasion, or as a societal cost, along with the need for organizations to examine their own fit with ESBP. This paper then discusses presents models for measuring sustainable business practices including cost models, financial reporting, operational measurement, corporate responsibility reporting, credits and certificates, and other accounting for ESBP methods.

INTRODUCTION: NON-SUSTAINABILITY AS A NEGATIVE EXTERNALITY

Cost evasion. The fundamental issue behind the proposition that organizations behave in an environmentally sustainable manner is the societal impact of non-sustainable practices. A firm may produce at a lower cost and achieve sufficient market penetration to be considered successful. However, a firm may achieve this by mass degradation of land and polluting massive amounts of water, air, and consume energy inefficiently. This successful firm is evading the full costs, as it is shuffling its responsibility to repair its environmental damage to the rest of society. Providing employment and other economic opportunity does not mitigate this cost burden shift (Porter, M., & van der Lunde, 1995). This negative impact on the environment external to the firm is the problem addressed here. This negative externality must be redressed by the implementation of sustainable practices by organizations, and the appropriate measures must guide them in that quest.

High energy costs. Reaching all-time highs in 2008 (Energy Information Administration, 2008), energy and fuel prices contributed to reduced profitability for many firms. This cost transfers across the supply-chain creating an inflationary spiral increasing costs of production. In addition to the increase in the direct cost of the resources that businesses consume to fabricate goods or to provide services, the indirect costs that using these resources have on the environment are also dramatically increasing. Managing its resources successfully will allow companies to sustain their long-term competitiveness.

Measuring sustainable business practices

Any management initiative requires feedback measuring the level of success achieved by any given program. The case for measuring the outcome of various management initiatives is self-evident. This

measurement provides relevance to management directives and provides evidence toward steering an initiative through economic application of resources. Thus, any program, directive, or initiative that influences the strategic management of the firm requires a cogent level of feedback. Feedback, the comparison of intended or budgeted results with actual events, allows management to alter course when traversing the global business environment. This role is typical of the nature and cause of management accounting. For both dollar valuations and operational metrics, management accounting focuses on providing information relating to the decision-making processes of the firm (Johnson & Kaplan, 1987).

Several mechanisms allow organizations to report on their activities regarding ESBP. However, the emphasis of this reporting results in general concepts and activities taken together rather than quantified financial or non-financial information in departmental detail. A popular concept is the triple-bottom-line, developed by the Global Reporting Initiative (GRI). It provides aggregate information and although it is popular globally, it does not give the level of detail necessary for detailed planning and control of the organization. Furthermore, this model focuses on corporate social responsibility and is not a strategic planning model oriented toward value-added operations of the enterprise.

Cost models.

Several models exist for capturing these environmental costs. The International Organization for Standardization espouses a quality cost approach, whereas the organization achieves heightened or improved quality in its products and processes by considering environmental factors (ISO, 2008). This quality model defines the traditional aspects of

quality both internally and externally, but in the vision of sustainable development.

Since regulatory pressures surround many companies, as governments throughout the world recognized the necessity for producers to capture their environmental costs and force companies to be environmentally conscious, a compliance mentality toward environmentally sustainable business practices became common. This minimalist mentality approaches environmentally sustainable business practices as overhead, with no positive consequences or value-added effects to the firm, therefore the least cost incurred is desirable (Porter, M., & van der Lunde, 1995). Practitioners of this philosophy should beware, as environmental cleanup costs for current unrecognized pollution can result in substantial future payments, even if the firm is complying with today's standards.

Financial reporting

Bakhshi and Krajewski (2007) developed a mock financial statement relating assumed effects on the financial position of an organization. Their report specifies a number of financial statement elements that would require explanation for climate related changes. The authors assume that a strategic initiative, bolstered by upper management, forwarded an agenda to incorporate strategic ESBP in the area of energy management. They utilize a standard reporting format with the required accompanying footnotes. These notes to the financials explain not only the strategic initiative to control energy costs, but also indicate changes in operations due to changing climate issues (Bakhshi & Krajewski 2007).

Operational measurement

Bell and Morse (2003) develop several concepts dealing with operational attributes of ESBP. They note the complexity of sustainable development and the muddled and perhaps frenzied state of management practices dealing with ESBP. The authors identify a methodology utilized in Malta that follows an implementation of ESBP defined as Systematic and Prospective Sustainability Analysis (SPSA). Specifically operationally related, the authors urge compliance and acceptability of sustainability, connoting that civilization hinges upon sustainable development. The case study presented featuring the island nation of Malta adds to the experiential nature of developing ESBP metrics. Bell and Morse (2008) point toward the learning nature of managing and measuring sustainability, and posit a learning paradigm, Systemic Learning for Sustainability Analysis (SLSA).

This Bell and Morse (2008) piece presents the typical nature of advanced thinking on ESBP, primarily operationally oriented. Common themes in the literature impart a sense of urgency for widespread adoption of sustainability, both in thinking and in operational objectives. However, the measurement only contains operational considerations, lacking the necessary monetary evaluation for managing businesses. Isaksson and Garvare (2003) also relate this operational focus and Isaksson (2006) reiterates this process focus by connecting sustainability to Total Quality Management (TQM). Certainly, these operational attributes must play a role in the non-financial metrics of management accounting.

Corporate social responsibility reporting

Clikeman (2004) presents the compelling argument for reporting on ESBP as part of the overall public imaging of the firm. The author notes "many leading corporations are now increasing investor loyalty, enhancing brand value, and bolstering their reputations by practicing, documenting, and disclosing their 'sustainable development' (Clikeman, 2004, p. 23).

The popular methodology for communicating ESBP as corporate social responsibility is the triple bottom-line developed by the Global Reporting Initiative in 2000. This approach covers three aspects for good corporate citizenship: environmental, economic, and social. The environmental facet includes measurements of product environmental impact, energy consumption, water use, carbon dioxide emissions, scrap, and waste. The economic dimension, while dealing with financial terms, is separate from the ESBP portions and is generic and macro-oriented, as there is not a direct link to any financial analysis of the ESBP. The social component deals with societal human rights factors, again separate from the ESBP segment (Clikeman, 2004). In summary, the Triple Bottom-line is operationally oriented, macro in nature, and does not link ESBP to specific managerial controls or accounting.

Credits and certificates

Carbon credits and energy certificates are popular in the sustainability lexicon. The basic concept is that the credits and certificates sell as an offset to pollution or energy consumption attributable to normal operations. For example, producers of clean energy are allowed to publish an energy certificate

for every megawatt of clean electricity they produce. This energy certificate is sold to those wishing to mitigate their consumption of dirty energy or their over expending of energy. These are attempts, in concept, to mitigate errant energy practices. Although the finality of their pro-environment consequences is ambiguous, the intent is to spur clean energy development through market forces (Schendler, 2007).

Accounting related ESBP measurement concepts

Several accounting concepts present models for accounting for ESBP in financial terms. These concepts espouse the ecoefficiency model, where utilizing ESBP represents an economic model allowing for a competitive advantage. This strategically links the benefit of ESBP to common profitability characteristics, such as ESBP being value-added, challenging the conventional notion that environmental initiatives are strictly overhead laden (WBCSD, 2000).

Full environmental costing contains public or societal costs in its product costing. Not necessarily strategically based, this managerial accounting process expands the cost of products and services to third parties outside the organization. The intent of this full accounting is to encourage the revision of the value-chain to minimize environmental impact.

Extrapolating from the operational ESBP tool of life-cycle analysis, life-cycle cost management follows its counterpart and assigns the related costs. Using the EPA (1993) stages in a product's life, resource extraction, product manufacture, product use, and disposal, costs are collected and allocated accordingly. The primary activities of the life-cycle analysis are the inventory analysis, where listing raw materials, utilities, water effluent, air emissions, recycle potential and the ultimate disposal are discerned; the next stage is the impact analysis, where the environmental determining the environmental impact is the objective; the last phase is the improvement analysis, where producers explore techniques to reduce environmental considerations. A related cost assessment for each component occurs (EPA, 1993).

SUMMARY

This exploratory study presents the need for organizations to evaluate their own environmental issues, especially examining the measurement of their environmentally sustainable business practices. A variety of methodologies is presented ranging from cost models to credits and certificates. This study

recognizes the importance of incorporating various models into the strategic planning of the organization for ESBP to be successful, including the potential for ESBP to be value-added instead of overhead.

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CRITICAL THINKING THROUGH CASE STUDY ANALYSIS

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ABSTRACT

Critical thinking skills enhance the marketability of students to potential employers. Creating opportunities to develop these skills in students are now being expected of business schools. Using case studies as a pedagogical tool can be a way to accomplish this goal. In this paper, the use of a case describing a poorly managed, haphazard database development effort is described as a way to understand the purpose of abiding by a proper Systems Analysis and Design methodology. In addition, the paper describes the utilization of convergent and divergent questioning and writing assignments as a means to enhance the students' critical thinking skills.

INTRODUCTION

A challenge for any instructor is to create in-class discussions and written assignments that engage students in critical thinking. Business cases "can allow students to develop high-order reasoning skills, bring real world examples into the classroom, allow students to learn by doing, bring organizational impacts, social values, and ethical issues to the forefront of discussion, and include realistic content, objectives and knowledge transfer" (Hackney, McMaster et al. 2003, p.229); but only by using a proper analysis framework (Ronstandt, 1993).

A major problem with case study usage is finding and adopting the case to meet the course learning goals. In this paper, we discuss the use of a case study describing a database development project that was wrought with problems due to two major factors, lack of planning and the inability of the developers—from the Balmoral Corporation—to create a set of functional requirements (Mallach 2006). The primary objective is to have students compare and contrast the database development process developed in class with the "real world" process used by Balmoral.

This case analysis achieves two separate learning objectives of the IS2010.6 course. First, the case describes a database development project lacking proper planning and serves as a contrast to the importance and use of project management techniques to plan, execute, and control a systems development project as emphasized in class. Second, the development effort described in the case does not state the functional specifications for the development effort. This omission leads to the database having to be redesigned two additional times requiring additional time and effort on the part of the Balmoral Corporation staff. It is unclear at the end of the case whether an operationally feasible database was ever developed.

This paper is structured as follows. In section two, the use of case studies as pedagogy is discussed,

especially in information systems (IS) courses. Section three shows how the case study is used in a IS 2010.6 Systems Analysis and Design course in the IS2010 Model Curriculum (Topi, Heikki, Joseph Valacich et al. 2010). Section four discusses how exercises and activities are used to enhance the critical thinking skills of students in the course. Critical thinking outcomes and future work are discussed in the next section. This section highlights some of the accrued benefits of including this case within the Systems Analysis and Design course as well as further refinements of the use of this case in the IS2010.6 course. The final section gives Web links to case study resources that might enhance other IS and business courses.

CASE STUDIES AND IS PEDAGOGY

"Case studies cut across a range of companies, industries and situations, providing an exposure far greater than what students are likely to experience otherwise." (Corey 1996, p.1). The use of case studies as pedagogy for many IS educators is important to help students learn and appreciate the realities of IT-related decision-making situations. In addition, "the case method allows students to get involved in the scenario and to learn by doing." (Hackney, McMaster et al. 2003, p.230). Finally, case studies develop "high order reasoning [skills] usually associated with participatory learning, where student and teacher interchange ideas" (Hackney, McMaster et al. 2003, p.230). These high order skills along with analytical problem solving, teamwork and oral and written communication skills are highly valued by potential employers (Cappel 2001; Alsop 2004).

Case studies provide students the opportunity to enhance critical thinking skills through the preparation, discussion and analysis of the case study. Many authors present guidelines for effective case study usage in the classroom. These guidelines state that the three most important things that both instructors and students can do is "Prepare, Prepare,

Prepare". Assuming that the instructor has done their part in the preparation of the case study, including the creation of learning objectives to be covered, the students must also prepare.

Preparation for a case study on the part of students can vary widely, and guidelines for student preparation do exist (Edge and Coleman 1982; Ronstandt 1993; Corey 1996). The first activity the students must engage in is in reading the case; in fact many authors (Edge and Coleman 1982; Ronstandt 1993; Corey 1996) suggest first reading the case quickly and then rereading the case more carefully, with thought to answering some key questions. After close reading of the case, students should be able to identify the key issues in the case, the major players in the case, and a list of facts related to the key issues. In order to assess the preparation of the students for the case study work and the discussion, faculty should prepare a writing assignment to guide the student learning. Writing assignments can be created both as a pre-case as well as a post-case analysis tool to ensure the maximum learning has been derived from the case study.

Pre-case assignments can range from a simple list of fact-based questions to a formal written analysis of the case based on the content of the course and the issues raised in the case. Post-case assignments can also come in many forms but a formal analysis document is most often called for in order to develop the students' analytical thinking and problems solving skills (Corey 1996). Formal analysis assignments need to include a good problem definition, a breakdown of the issues described in the case, analysis of the important issues, a marshaling of the relevant facts, and conclusions with formal recommendations (Corey 1996). It is up to the individual instructor but these assignments can be graded or un-graded, however, formal feedback on these written assignments help students to understand the areas of critical thinking they must still develop (Bean 1996).

Instructor preparation (for the discussion) is also crucial to an effective learning environment surrounding the case study. The instructor should be armed with low level and high level questions aimed at evoking critical thinking among the students. Low level (or convergent) questions are aimed at eliciting facts from the case, whereas high level (or divergent) questions are "more likely to stimulate a discussion and foster an interactive and democratic classroom atmosphere suitable for case study teaching" (Wood and Anderson, 2001, pp.2). Divergent questions will

invariably lead to deeper learning and higher motivational levels among the students.

In this paper, we discuss the use of a case study that contrasts a "real world" approach to database development to the "book" approach. The author uses two separate writing assignments—one in the early weeks of the semester and one as a final wrap-up to the case—as well as an in-class discussion, to further both the students' critical thinking skills and their learning experience consistent with the learning goals of the course. In the next section, we discuss the use of the database development case study in the Systems Analysis and Design course (IS2010.6).

USE IN SYSTEMS ANALYSIS AND DESIGN COURSE

The case study (Mallach, 2006) describes the development of a database system by a small consulting firm; the Balmoral Group. The Balmoral Group serves clients who develop products in the information technology field. The case study is used to as a contrast to the methodology developed within the course and points the students, as described in the title, to the primary differences between the real world and "the book". The consulting firm's methodology skips major steps (especially regarding project management, planning efforts, and functional requirements) and this is shown in the poor outcomes of the database system.

The use of the Mallach (2006) case study focuses students on the following course learning goals:

- Utilize project management techniques and software to plan and track a semester long team project,
- Describe the roles, activities and responsibilities of all stakeholders within the systems development methodology,
- Understand the critical nature of functional requirements in the development of an information system,
- Explain the activities within each stage of the systems development methodology.

The case is introduced in the second week of class and prior to the case introduction the students have been introduced to project management and have been given an overview of the major models within Systems Analysis and Design. The emphasis in the early part of the course is on planning and understanding the roles and responsibilities of the major stakeholder groups; including the systems analyst and project manager.

There are two major stakeholder groups involved in the development of any information system; business stakeholders and technical stakeholders. The business stakeholders consist of the clients and users of the eventual system. The technical stakeholders include the systems analysts, designers, and builders of the system. The project manager acts as the bridge between the two stakeholder groups, but usually is considered a business stakeholder.

This sophomore level course serves as the first exposure for students to the application of project management. The emphasis in the course is on how a defined and detailed plan enhances the chances for successful completion of the project; in this case a database system.

The students are given a work breakdown structure (WBS) and a set of deliverable due dates. From this information the students create a generic Gantt chart for their semester long project. In teams, the students construct the Gantt chart using Microsoft Project. The WBS depicts the stages and major models in the Systems Analysis and Design process in the proper order. This is important for their analysis of the case. The Gantt chart is used to track progress on the semester long group project.

The case itself depicts a system that “was developed in haphazard fashion, without benefit of [a] professional developer” (Mallach, 2006, pp. 24). One of the Balmoral Group’s co-founders, Lawrence Ackerman, plays the role of the lead developer of the database to “track and analyze press comments by experts on the information technology industry” (Mallach, 2006, pp. 24). Ackerman begins the development of the “database” after reading a current issue of *InfoWorld* while waiting for a flight.

Over a period of two months, Ackerman captured the quotes, analyst and article information, vendor information from various trade publications in a Microsoft Excel spreadsheet. Because some of the information, such as analyst’s title, was not always available some cells were left blank. After Ackerman had accumulated over hundred different entries he showed the spreadsheet to his Balmoral colleagues and they agreed that the information could have some value as a consulting tool.

The Balmoral Group agreed that Ackerman would continue to act as the lead developer because he “had more background in this area than anyone else, though he was far from an expert” (Mallach, 2006, pp. 27). However, a switch to the database management systems known as Filemaker Pro was made. Ackerman continued to use an informal

version of prototyping for the development; however he bypassed conventional methods for requirements determination.

The case study is used to enhance the problem solving and oral and written communication skills of business students. An initial writing assignment is given to determine basic understanding of the details of the case study; this writing assignment and subsequent discussion focuses on the early stages of the Balmoral effort; namely “planning efforts”. The students are asked to answer seven questions (shown below) and provide written responses to the individual questions.

1. Describe the purpose of the database.
2. Describe the business and technical stakeholders in this case. Who is assigned as the project manager?
3. Describe the event that initiates the development of the system.
4. Describe the software used for the initial development effort. Describe why this software was inappropriate. Describe the software used in the later stages of development.
5. Describe the “planning work” done by Ackerman and the Balmoral Group staff.
6. Describe other “problems” in the development work.
7. Describe at least two “lessons learned” that you think are most important.

The students are given access to an on-line tutorial that describes the appropriate use of Microsoft Excel vs. Microsoft Access.

On the day the initial writing assignment is due, the students are engaged in an in-class discussion about the case including the positive and negative aspects of the Balmoral development effort. The focus of the discussion is on how the development effort begins compared with the methodology (namely around planning models described by “the book”) is undertaken. The students are asked how the decisions to skip the planning models impact later decisions made in the case. In other words, the students are trying to compare the “book” method with a “haphazard” real world method for development.

The case study is referenced on a number of occasions throughout the course; especially when the

development described by the “book” differs from the Balmoral effort. The students are asked (and quizzed) on their understanding of the case and they are encouraged (prior to class) to reread sections of the case over the course of the semester.

As an end of course assignment the students are asked to write a lengthy analysis of the case. In this assignment, many of the same questions asked above are addressed again and additional questions about the later development efforts are added. Their analysis of the case answers the following questions:

1. Describe the purpose of the database.
2. Describe the business and technical stakeholders in this case; including identification of the project manager.
3. Describe the event that initiates the development of the system
4. Describe the “planning work” done by the Balmoral Group.
5. Compare and contrast the use (or non-use) of other models discussed as part of the “book” method with that described in the case. In particular, you should focus on the use/non-use of the systems service request, statement of work, functional requirements, entity-relationship model, and database tables, forms, and reports.
6. Compare the use of prototypes described in class (both discovery and evolutionary) with the prototyping undertaken by Ackerman.
7. Describe at least two decisions that you would have made (differently from Ackerman) and the potential impact of those decisions.
8. Describe at least three thoughtful “lessons learned” that you think are most important.

The focus of the written analysis is on three key questions. In question five, the students must compare the usage of the models as they are described in class to the practice described in the case. In some cases, the models are never used in the case and therefore the students must articulate the negative consequences from skipping that model. In question six, the students, after reading about “agile development methods” and the use of prototypes, explain the differences in the function of the prototypes. Finally, in question seven, the students identify key decision points in the case and interject themselves in the decision-making process. They

aim to understand the consequences of their proposed actions on the development effort.

The richness of this case study for a Systems Analysis and Design (IS2010.6) course has been the major focus of this paper, however, other content is included in the case so that this specific case can be used effectively in other courses throughout the IS2010 Model Curriculum; especially in deciding which technology tools (spreadsheets vs. databases) is appropriate dependent on the data and decision-making situation.

CRITICAL THINKING DEVELOPMENT

Many benefits have accrued from the use of the Balmoral case study in the author's Systems Analysis and Design course. This course is required of all business students as part of a sequence of four IS courses in the business foundations curriculum. This course is designed to encourage their active engagement in future development efforts by understanding the key decisions and models in any software development effort.

Another major benefit to the students is through the use of both the written assignments and the discussion questions as a means for enhancing their critical thinking skills. Pomykalski (2003) discussed the use of written non-technical reports (much like the assignments above) to enhance critical thinking in students. In addition, the use of discussion questions, using a balance of convergent and divergent questions, has long been cited as an effective means to enable critical thinking (Wood and Anderson, 1999). Case study analysis highlights the “importance of critical thinking and higher order learning objectives, which is a logical outgrowth of the demands of accreditation and demands of contemporary organizations” (Wood and Anderson, 1999, pp. 2).

This case study has now been used for the past four semesters. The nature of the assignments and the discussion has matured. Initially, this case was used only as a single, final analysis in the course. The case was not introduced until the final three weeks of the course and a full analysis was expected of the students. However, the past two course offerings this case has been introduced in the second week of the course with the two assignments described above. In the future further changes are anticipated; but should be minor. These changes include a fuller discussion of the agile development methodology with particular emphasis on the use of prototyping.

WHERE TO FIND RELEVANT CASE STUDIES

There are many education-related sites for instructors to be able to find potential case studies to use in their business-related and information systems courses. The most popular sites for business and information systems case studies are either the Harvard Business School or the Richard Ivey School of Business at the University of Western Ontario. Idea-Group, Inc. provides a number of annals that contain IS-related case studies; they also provide a searchable site for these case studies. A recent positive addition to the Journal of Information Systems Education is the publishing of case studies as a regular feature of the journal (Hackney, McMaster et al. 2003). Web sites for each of these repositories are given below.

In addition to these IS education-related sites, many "trade" publications in the Information Systems area have also published case studies; Pomykalski (2004) describes the use of a case study involving Enron from CIO Magazine. These sites are also given below.

- Harvard Business School: http://harvardbusinessonline.hbsp.harvard.edu/b01/en/cases/cases_home.jhtml
- Richard Ivey School of Business: <http://www1.ivey.ca/cases/>
- Idea-Group, Inc. <http://www.igi-global.com/Cases.aspx>
- Journal of Information Systems Education: <http://www.jise.appstate.edu/index.htm>
- CIO Magazine: <http://www.cio.com/>
- CIO Insight: <http://www.cioinsight.com/category2/0,1426,80,00.asp>
- Darwin Magazine: <http://www.darwinmag.com/>
- Computerworld: <http://www.computerworld.com/>
- Baseline Magazine: <http://www.baselinemag.com/>

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Ronstandt, R. (1993) *The Art of Case Analysis* Lord Publishing:Wayland, MA.

Topi, H., J. Valacich et al. (2010) "IS2010: Curriculum Guidelines for Undergraduate Degree Programs in Information Systems." *Communications of the Association for Information Systems*, 11, pp. 1-53.

Whitten, J.L. and L.D. Bentley (2008) *Introduction to Systems Analysis & Design* McGraw-Hill Irwin.

Wood, A.T. and C.H. Anderson (2001) "The Case Study Method: Critical Thinking Enhanced by Effective Teacher Questioning Skills" Presented at the Eightieth Annual International Conference of the World Association for Case Method Research and Application Lund, Sweden June 17-20, 2001 p. 1-11

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LEGAL ASSISTANTS IN THE COURT ROOM
John Eichlin, Clarion University of Pennsylvania
Frank Shepard, Clarion University of Pennsylvania

ABSTRACT

The issue of the permissible role of paralegals assisting at trials is of continuing significance. The number of colleges, universities, and institutes offering degrees and certificates in paralegal studies is on the rise. The demand for the services of paralegals is ever increasing. The legal profession has, over the years, expanded the use of legal assistants to the point where now, not only are they performing routine legal matters, but they are also fully involved in trial preparation and presentation. With respect to trial litigation, as its cost and complexity can be significant, attorneys have come to place more reliance upon legal assistants. The technology employed in an effective trial presentation, such as power point, may be of great benefit to counsel and the court. The reliance of trial counsel on the assistance of their paralegal and an effective trial presentation may be very great. However, when presiding trial judges place restrictions on what the paralegal may or may not do in assisting counsel at trial, significant and troubling issues may arise. The present extent and scope of the issue of excessive judicial restrictions on the role of paralegals assisting at trial is explored in this article.

HISTORIC REFERENCE AND BACKGROUND

This issue was first studied as a result of the experience of a graduate of the Business Legal Studies Program at Clarion University of Pennsylvania¹. The paralegal graduate in question secured employment with a law firm in Erie, Pennsylvania. The law firm was retained by a Defendant charged with one count of possession, one count of delivery, and one count of drug paraphernalia by the Commonwealth of Pennsylvania. The paralegal was assigned the task of preparation of the case for trial. Her involvement in that preparation was thorough and extensive. A trial defense folder was prepared that contained all of the information and records of the case. A total understanding of that folder, as well as all of the information and issues pertaining to the defense, was attained by the paralegal.

The defense attorney considered her services at trial to be invaluable and indispensable to the presentation of his case. Prior to the commencement of the trial, the defendant's attorney introduced his paralegal to the court. This was off the record. At that time, the defense attorney requested that the paralegal be permitted to join him and the Defendant at counsel table, since she had been integral in the preparation of the case, the organization of exhibits, and the witnesses. Further, counsel had anticipated the assistance of the paralegal in coordinating the jury

selection process. The Commonwealth raised no objection to this request. The court gave affirmation to this request and agreed to allow the assistant to join the defense counsel at counsel table along with the Defendant.

Shortly prior to jury selection, the court, sua sponte, changed its ruling and denied counsel's request. The court cited a previously unpublished policy that she, herself, was apparently unaware of at the time of her previously ruling, and indicated that the paralegal would not be permitted to sit at counsel table. The Judge remarked that her normal policy was to allow only attorneys, clients, and affiants to be seated at counsel table. The court then considered the possibility of having the paralegal sit at a pew next to counsel table. Defendant's counsel indicated that he would have an objection to his paralegal sitting there as it would limit her mobility throughout the trial. At this point, the Judge then ruled that the paralegal would be required to sit in the spectator section of the Court Room, which is separated by a railing from the well of the Court, in order to minimize any possible distractions her movement might create during the trial. The Defendant's counsel objected to this ruling and attempted to explain to the court the reasons therefore. An exchange between the court and Defense counsel took place, which only can be described as heated. A copy of the transcript of this entire exchange is attached as Appendix 1.

The jury convicted the defendant on all counts. An appeal was taken to the Superior Court of Pennsylvania. One of the issues on appeal was the denial of the trial court to permit the paralegal to be at the counsel table during the course of the trial.

¹ Commonwealth v. Robert S. Lockhart, 448 Pa. Super. 653, 671 A2d 770 (1995).

That issue was brought to the attention of the National Federation of Paralegal Associations, Inc. (NFPA), which is located in Kansas City, Missouri. The NFPA considered the issue of such importance that it retained local counsel in order to prepare and file an amicus curiae brief. The NFPA's statement of interest in the case was as follows: "The NFPA is a non-profit, professional organization comprised of state and local paralegal associations throughout the United States, and currently represents more than 17,000 paralegals. This diverse group of individual members, some of whom possess years of experience in assisting trial attorneys and preparing for and conducting trials, makes NFPA most cognizant of the need to ensure that paralegals are committed to continue making valuable contributions to the trial process... Furthermore, NFPA recognizes that broad application of the trial court's decision prohibiting paralegals from sitting at counsel table will adversely effect the paralegal profession."² Ultimately, the Superior Court affirmed without ever addressing this issue.³

At the time of this case, with the emergence of the use of paralegals at trials and of technological advances just beginning, anecdotally, many judges viewed paralegals with some skepticism. They clung to the traditional view: That is, trial lawyers, without the assistance of paralegals, were to present cases before courts.

Now, after the passage of time, with the use of trial assistants more prevalent and the further advancement of technological innovations, has this traditional view changed?

Applicable Law

At present, there is no pertinent statutory or procedural rule that defines the permissible conduct of paralegals assisting at trial.⁴ The overriding applicable law regarding this question is clear: Judges possess the inherent power to control the conduct in its courtrooms and to provide for the orderly administration of justice.

² Amicus Curiae Brief of the National Federation of Paralegal Association, Inc., pp. 1, 2.

³ Supra, Endnote 1

⁴ See Thompson v. American Steel & Wire Co., 317 Pa. 7, 175, A 541 (1934); Commonwealth v. Pittman, 591 Pa. 662, 916 A2d 632 (2007).

With respect to Pennsylvania, courts have repeatedly recognized that trial judges are endowed with the powers necessary to control the course of a trial.⁴ The only permissible limitation of this general power is by statute, rule, or the Constitution.⁵ The code of judicial conduct also gives trial judges the duty to ensure that trials are conducted in an orderly manner.⁶ The authority of a trial court to control the conduct and course of a trial is recognized as steeped in tradition. It is long held that Courts of Common Pleas "possess authority to make rules for the operation of their own court system as long as such rules are not contrary to those promulgated by the Pennsylvania Supreme Court" or are not inconsistent with any legislative enactment.⁷ It has also been recognized, however, that this authority should be exercised in a manner that promotes swift, sure, and economic justice.⁸ In the case of Mikita v. Bailey Homes, Inc., the court opined that while controlling the course and conduct of trial participants is a matter of trial court power, this power was meant "to promote the orderly and expeditious administration of justice..."⁹

The Pennsylvania Rules of Criminal Procedure provide some temper to this broad power of a trial court to control the course and conduct of a trial. Rule 101(B) states that "these rules shall be construed to secure simplicity in procedure, fairness in administration, and the elimination of unjustifiable expense and delay."¹⁰ The Pennsylvania Rules of Civil Procedure also provide some temper to this broad and general power. With respect to construction and application of the Rules of Civil Procedure, Rule 126 states, "The rule shall be liberally construed to secure the just, speedy, and

⁵ Thompson v. American Steel & Wire Co., 317 Pa. 7, 175 A 541. (1934).

⁶ Code of Judicial Conduct, Commonwealth of Pa, Canon 3 A(2).

⁷ Murphy v. Armstrong, 424 Pa. Super. 424, 622 A2d 997 (1993).

⁸ First Pittsburgh National Bank v. Baird, 300 Pa. 92, 150 A 165 (1930).

⁹ Mikita v. Bailey Homes, Inc., 265 Pa. Super 399, 401 A2d 367 (1979).

¹⁰ Rules of Criminal Procedure, Commonwealth of Pennsylvania, Rule 101(B).

inexpensive determination of every action or proceeding to which they are applicable.”¹¹

Lastly, the Code of Judicial Conduct states that “judges should be patient, dignified, and courteous to litigants, jurors, witnesses, lawyers, and others with whom they deal in their official capacity.”¹² The note to this Canon states that “the duty to hear all proceedings fairly and with patience is not inconsistent with the duty to dispose properly of the business of the court. Courts can be efficient and business-like while being patient and deliberate.”¹³

Therefore, while it is quite clear under existing law that trial judges have the fundamental power to conduct the course of a trial that power is not without limit. The trial court should also be mindful that a paralegal assisting counsel at trial may promote the court’s obligations to provide a fair and efficient trial. Specifically, the role of the paralegal assisting counsel at trial by doing such things as making PowerPoint presentations, expeditiously providing documents, exhibits, and notes to counsel, have a positive impact on the administration of justice.

Courts in other jurisdictions have, on scant occasions, addressed this issue. In the case of Sims v. State of Texas¹⁴, the court ruled against the appellant who had contended that he was denied the right of counsel when the trial judge refused to permit his attorney’s paralegal at counsel table. The court rejected the argument on the grounds that the paralegal was permitted to remain in the court room throughout the trial and that there was no requirement that the paralegal had to sit at counsel table in order for the Defendant to have a right of counsel. The identical argument was presented before the Court of Appeals of Texas in the case of Pointinger v. State of Texas.¹⁵ The appellant argued that he was denied his right to counsel, “the effective assistance of counsel, and a

fair trial, when the trial court refused to allow the appellant’s counsel to utilize or otherwise communicate with her paralegal during trial rendering the appellant’s counsel prejudicially ineffective.”¹⁶ The court summarily dismissed and rejected this argument noting, quite simply, that to argue that he was denied the right of counsel, when counsel was present and represented him throughout the trial, was fallacious.

Similarly, before the Supreme Court of Mississippi, the question posed was whether the trial court erred in not granting a mistrial when a member of the defense team was incapacitated thereby creating a void in the defense strategy and ineffective assistance at trial.¹⁷ In that case, the defense attorney’s paralegal was hit by a car while walking across the street to the court house after lunch. The appellant contended that the injured person was an integral part of the defense team and possessed much information that was relevant to him. The appellant asserted that the paralegal’s abrupt unavailability at trial had deprived him of a fair trial. As with the other cases above cited, the Supreme Court of Mississippi rejected the contention that the appellant was denied effective assistance of counsel by the absence or unavailability of the paralegal at trial, as his counsel continued to be present and represent him. The court noted, however, that the remaining attorneys both stated that they could proceed without the paralegal and had all the information in order to do so effectively. There was no record that the absence of the paralegal would somehow diminish the effectiveness of the remaining attorneys at trial.

In Federal court, the permissible rule of paralegals assisting at trial has been litigated with respect to the issue of whether a paralegal may sit at counsel table in assisting counsel. In the case of the United States v. Whitehorn¹⁸, the court indicated that it allowed criminal conspiracy defendants maximum assistance of counsel by allowing “at least one, and at times more than one, paralegal to sit at or near counsel table.”¹⁹ Additionally, in the case of Towns v. Giant

¹¹ Rules of Civil Procedure, Commonwealth of Pennsylvania, Rule 126

¹² Code of Judicial Conduct, Commonwealth of Pennsylvania, Canon 3A(3).

¹³ Id., note to Canon 3A(3).

¹⁴ Sims v. State of Texas, 735 S.W. 2d, 419 (Tex. App. 1987).

¹⁵ Pointinger v. State of Texas, No. 14-07-0155-CR (2008).

¹⁶ Id.

¹⁷ Finley v. State of Mississippi, 725 So. 2d 226 (1998).

¹⁸ United States v. Whitehorn, 710 F. Supp. 803 (D.C.D.C. 1989).

¹⁹ Id. At 840.

Food, Inc.²⁰, a Federal District Court indicated that a paralegal would be allowed to sit at counsel table in order to assist a pro se plaintiff in the presentation of her case. Some federal courts, therefore, have recognized the beneficial effect of allowing paralegals at counsel table respecting the conduct of a trial.

In all the above authorities cited, no case, statute, or rule has ever mandated that a paralegal is permitted and shall have the right to assist trial counsel at trial. So, too, no case, statute, or rule has indicated that trial court has the power to deny the presence of a paralegal assisting counsel at trial. The only authority that comes close to addressing the issue of the permissible role of a paralegal at trial are the above-cited cases from Texas and Mississippi which hold that the absence of a paralegal at counsel table or the unavailability of a paralegal assisting counsel at trial is not a denial of the right of counsel. Therefore, the defined role of a paralegal at counsel table is largely left to the discretion of the presiding trial judge pursuant to inherent powers tempered by the Canons of Judicial Conduct and the Rules of Criminal and Civil Procedure as above described.

SURVEY OF PENNSYLVANIA TRIAL JUDGES

To understand how trial judges across Pennsylvania see the permissible role of paralegals assisting at trials, a survey was conducted in the summer and fall of 2010.

Previously, when the issue of the permissible role of paralegals assisting at trial was first examined, no empirical evidence existed as to how trial court judges were actually restricting the use of legal assistants. There did exist, however, overwhelming anecdotal evidence that, in addition to the above-referenced actual case of a paralegal graduate, trial court judges commonly viewed the use of legal assistants at trial with great skepticism. In an attempt to ascertain how trial court judges in the Commonwealth of Pennsylvania view the role of legal assistants appearing before them, a survey was undertaken.

Approval to conduct the survey was required by the Clarion University of Pennsylvania Institutional Review Board. The Institutional Review Board must approve any research that is based upon the

²⁰ Towns v. Giant Food, Inc., 53 Fair Empl. Prac. Cas. (BAA) 988 (D.C. Md. 1990) aff'd 921 F.2d 262 (4th Cir. 1990).

participation of individuals. The purpose of this approval is to assure the confidentiality of all research participants and that the participants have freely and willingly consented to participate in the research. The Institutional Review Board approved the survey research at Project No. 142-09-10.

A cover letter was drafted and addressed to each of the trial court judges in Pennsylvania to be surveyed. The cover letter explained the purpose of this survey, the length of time to complete it, and that doing so was completely voluntary.

The survey requested six responses. First, we asked if there were any local rules governing the permissible role of legal assistants. Second, whether, as trial judge, they had presided at trials where legal assistants were present. Third, whether as trial judges, they had placed restrictions on what legal assistants were permitted to do. Fourth, whether any restrictions were placed on where legal assistants could sit. Fifth, whether as trial judge, paralegals were preferred assisting at trials. And lastly, we asked if they had any additional comments. It is noted that the responses were completely anonymous, although the county of the trial judge responding was tracked.

A list of all of the Pennsylvania Court of Common Pleas Judges, including the judges' names, counties, and addresses was obtained over the internet at the web page of the Administrative Office of Pennsylvania Courts.²¹ There are 67 counties in the Commonwealth of Pennsylvania, with each county having at least one elected Court of Common Pleas judge. There are a total of 513 judges of the Courts of Common Pleas throughout the Commonwealth. Of the total number of judges, approximately 25%, or 122, were sent surveys. The judges identified to be surveyed were chosen based upon the likelihood that they have presided over trials where paralegals were used as trial assistants.

Appendix 2 is a chart noting the county of the trial judges surveyed, the number of trial judges surveyed in each county, and a reference number assigned to the county in order to track the county of the trial judges responding to the survey.

The surveys were distributed pursuant to the above chart with each survey containing an assigned reference number in order to track the counties from which responses were received. Included with the

²¹ www.aopc.org.

survey, along with the cover letter, was a pre-paid postage, self-addressed envelope. A total of 51 completed surveys were returned. Of the total surveys distributed, the response rate was 42%.

A chart identifying by county the number of surveys sent and the number of responses is attached as Exhibit 3.

The survey responses were tabulated with the results as follows:

It was learned that no local rules existed governing the permissible role of paralegals assisting at trial. No comments made indicated that there was any contemplation of adopting such rules.

As had been hoped, an overwhelming majority of the judges surveyed, 88%, had indicated that they presided at trials where paralegals were present assisting counsel.

Unexpected results were revealed as to the preference of trial judges having paralegals present assisting at trials. More than half, 53% of the total, had no preference whatsoever, with the remaining 47% being split as preferring not to have paralegals as opposed to having them assisting at trials. What is clear is this: There is no overwhelming sentiment of the trial judges surveyed that they prefer not to have paralegals present assisting at trials.

With respect to the critical questions as to what restrictions, if any, the surveyed trial judges placed upon paralegals, the following was revealed.

As to restrictions on where legal assistants could sit, only eight of the total respondents, or just 16%, indicated that paralegals could not sit at counsel table with counsel. It is noted that the eight trial judges

placing this restriction on paralegals serve in the suburban counties of Philadelphia and Pittsburgh, with three of the respondents serving in the same county. The remainder, the vast majority of trial judges, place no such restriction on where legal assistants can sit during trial.

Lastly, with respect to whether any restrictions whatsoever were placed on the permissible role of the paralegal, 96% of the total respondents indicated that they did, in fact, place restrictions on what paralegals could do. As requested in the survey, the judges that responded in the affirmative were asked to explain what those restrictions were. Nearly all of the judges explained that paralegals were restricted from addressing or speaking to the court or witnesses, approaching the bench, or engage in any activity that would ordinarily be the role of the trial counsel. Further, it is revealed that the permissible role of the paralegal at trial is only to provide organizational and technical assistance to trial counsel by doing such things as maintaining the trial organizational folder, as well as operating PowerPoint presentations, and such. Graphs on the survey results can be found in Appendix 4.

Additional comments solicited from the responding trial judges proved to be most informative. Only several judges responded in a negative fashion as to the use of paralegals at trial. One judge made the comment that the paralegals have no role assisting counsel at trial and that if he or she "is a lawyer-wanna-be, then they should go to law school." The vast number of other commenting judges indicated that while traditions may preclude legal assistants at trial, times are changing with respect to technology and the complexity of litigation. Most saw paralegals as having a positive, beneficial impact to the presentation of a case.

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Appendix 1

Trial Transcript

THE COURT: Do you want to cut this panel loose? They've been cut til 1:00 o'clock. O'kay? And then Hunter and Nobel will be here 1:30. We should have selected the panel by then or whereabouts. And we'll do a colloquy in here as to the Fifth Amendment assertion, and we'll take it from there. At 1:00 o'clock you'll provide to the Court your missing witness instruction law. That's it. Thank you.

(In-camera proceedings concluded at 11:35 a.m., to reconvene in camera at 1:17 p.m.)

THE COURT: Mr. McNair, I understand you have a problem.

MR. MCNAIR: Well, Your Honor, previously you had ruled that my paralegal could assist me at counsel table. Then right before we went out you had said that she would sit in the pew next to the table.

THE COURT: Because it's counsel table, and I was concerned – I have reconsidered because Court was concerned that only attorneys or an interpreter, and/or an interpreter have, policy-wise, been seated at the counsel table. Because that's what counsel table is about, for the attorneys and the clients and the affiants to be seated there. And so the Court wanted to be consistent with her prior rulings, and so indicated to you before we have begun that the Court has reconsidered, and the Court would like her not to be seated at counsel table

Now, the Court has talked to her tipstaff, and the tipstaff has informed the Court that the Court's prior rulings have been necessary to have the paralegal seated in the spectator section because paralegals tend to have some mobility that way. They can go in and out of the courtroom. They can gather witnesses for the attorney. Otherwise, if she's seated near you, she will be stationary.

And so the tipstaff was just trying to be helpful to you, to indicate to you that is she's seated at the pew near you at counsel table, that she will have no mobility throughout the trial. And I –

MR. MCNAIR: That's fine.

THE COURT: That's what you want. She will not be going in and out as other paralegals have done in the past. She will be seated at the pew near counsel with no mobility.

MR. MCNAIR: Your Honor, I would point out to you that Kathy's a very experienced paralegal, and she's assisted other attorneys in numerous trials.

THE COURT: Would you please –

MR. MCNAIR: This is the first court in which she has not been permitted to assist her employer at counsel table. Now, had I known this was going to be a ruling, then I would have brought one of my associates to sit at the table with me because I need somebody to sit at the table with me.

THE COURT: Mr. McNair –

MR. MCNAIR: So I think this is hindering my ability to defend my client by depriving me of a resource that I counted on having at this trial.

THE COURT: Mr. McNair, the pew is right next to counsel table. She is just not going to be permitted to have a chair to sit at counsel table. The pew is within a foot or less. I'll go get a measuring stick. It is right up against counsel table.

Now don't try to make this record look in favor or disfavor of you. This Court has been more than fair with you. I run the courtroom; I say where people go. I have now made an exception for your paralegal to be seated near you. And I have reconsidered; she will not be seated near you. She will be seated in the spectator section. That's it.

MR. MCNAIR: I object to your ruling.

THE COURT: So noted. That's it.

MR. MCNAIR: I would like to place on the record –

THE COURT: So noted. And if you talk any further – you do have it on the record, and that's it. Objection is so noted. We're off the record, Jeanne Skyes. That's it.

(In-camera proceedings concluded at 1:20 p.m., to reconvene in camera at 2:43 p.m.)

THE COURT: Just for the record, the Court wants to note that indeed the jury has been selected, that there were challenges for cause, but they were all agreed to by counsel. And we were able to select two alternates which will be necessary, which will help the process in case one of the original 12 cannot continue in the case.

And they'll be given now their five-minute break for orientation purposes. My court personnel will be instructing them as to where they are to come tomorrow. We are beginning today. You will be ready, Mr. Cunningham?

MR. CUNNINGHAM: I have a couple witnesses, Your Honor.

THE COURT: Five minutes we will begin the trial. Seems like everything's in order at this point. For the court reporter, we normally have the defendant seated on the left-hand side of defense counsel and counsel on the right-hand side. So you will be doing that Mr. McNair?

MR. MCNAIR: Yes, Your Honor. My reason for sitting where I did was so that I could consult with my paralegal, but then I wasn't permitted to do that so –

THE COURT: Well, just for the record, I did call the President Judge. And his office indicated that the best they will offer is what I'd offered to you, which I thought was a happy compromise, that your paralegal could have been seated at the pew next to the counsel table.

MR. MCNAIR: That would be fine with me, Your Honor.

THE COURT: Well, that's –

MR. MCNAIR: I had agreed to that.

THE COURT: That's not what you indicated on the record. You indicated that other judges allow paralegals at counsel table.

MR. MCNAIR: That's true.

THE COURT: – and that you gave the impression to the Court that you were not happy with what the Court had happily compromised her position at, which would have been the first time that this courtroom has ever had a paralegal seated at pew next to the counsel table. I would have been breaking with my prior policy.

Did not seem to this Court that you were happy with that. You noted on the record that the Court had done something different than other judges, so I went back to my original policy, which I will be continuing in keeping, which is that the paralegal can be as close to you as possible. In fact, she'll be seated near you within two feet, if you are both seated. If you stand up, you can touch each other's arms as far as passing back any messages to and fro. But the Court will continue with her policy due to the restrictions in her courtroom as far as physical restrictions, that there is only one area where the parties go in and out of. And I need to – I'll make sure that there are little if no distractions to the jury as far as people mobilizing themselves around the area where defense counsel are. And this will be in the best interests of the defendant and all parties involved.

And so the Court has ruled that it's possible, its original policy will stay in place. And we will continue with the case, and then we'll see you in five minutes.

MR. MCNAIR: Your Honor, just for the record, you had at one point ruled that my paralegal could sit on the pew inside the bar.

THE COURT: Yes, and you did not accept that.

MR. MCNAIR: I certainly did, Your Honor, but I objected – I continue to object to the fact that she was not permitted to be seated at counsel table. And at that point you apparently, in retribution for that, changed your ruling and now are not permitting her to sit where you had said.

THE COURT: No. Mr. McNair–

MR. MCNAIR: I'm hampered in the representation of my client.

THE COURT: Mr. McNair, I've given you ample opportunity to make your argument. I have now reverted back to the Court's original policy that the Court has been consistently following for all the criminal trials and all the civil trials that appeared before this Court as far as paralegals are concerned.

MR. MCNAIR: I was not aware that there was an established policy.

THE COURT: Yes, the judges then control the courtroom. The judges have certain policies for the sheriff's deputies, et cetera, to follow. Also the Court notes the deputy sheriff indicated to the Court and so did my tipstaff, Wendy Sydow, that when the Court did make this ruling in chambers, that you, in a very loud voice, went into the courtroom in front of all the jurors and indicated that the Court ruled against you, and said that in a very loud voice. Mr. McNair, for purposes of this trial we'll follow all the Court's rulings and all the Court's directions.

MR. MCNAIR: Of course, I will. I somewhat resent the implication that there would be any chance that I would not. I don't know if Your Honor has an opinion about me or my ability to conduct trials or my ability to represent my clients.

Appendix 2

# OF JUDGES	ASSIGNED	
COUNTY	SURVEYED	REFERENCE NO.
Allegheny	24	1
Beaver	4	2
Berks	5	3
Bucks	7	4
Centre	1	5
Chester	5	6
Dauphin	5	7
Delaware	4	8
Erie	5	9
Lackawanna	3	10
Lehigh	1	11
Montgomery	10	12
Northampton	5	13
Philadelphia	29	14
Schuylkill	4	15
Westmoreland	4	16
York	6	17
Totals		17 Counties
		122 Surveys

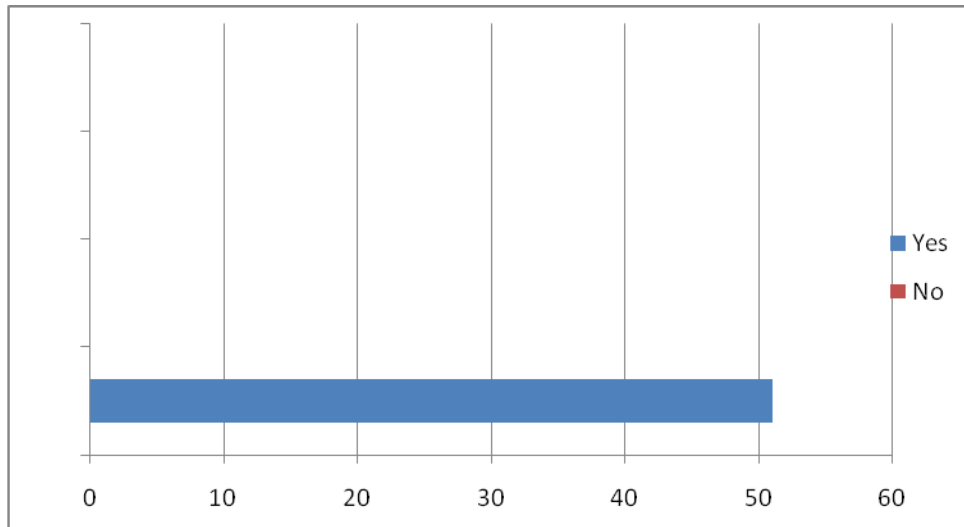
Appendix 3

SURVEY RESPONSE

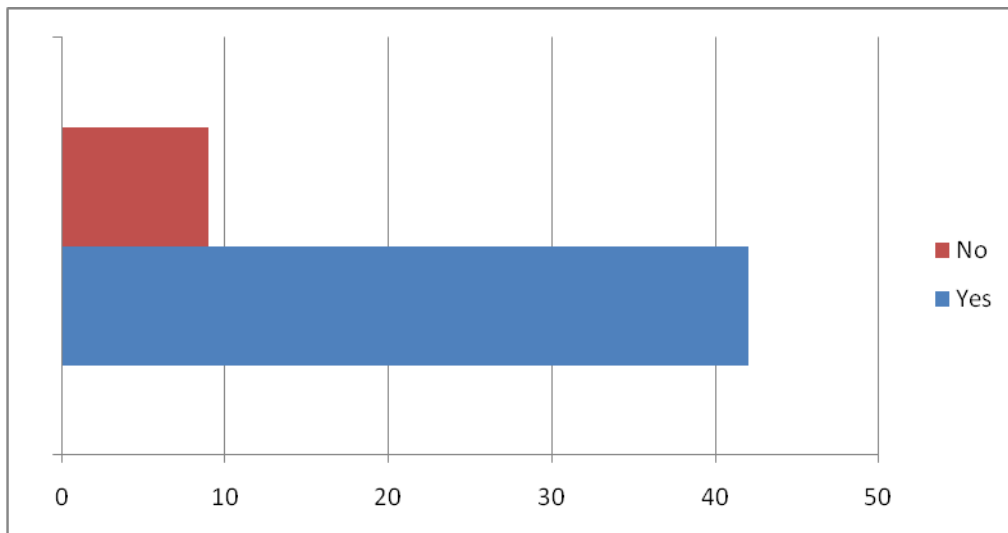
Counties	# of surveys	# of responses
Allegheny	24	15
Beaver	4	4
Berks	5	1
Bucks	7	3
Centre	1	2
Chester	5	4
Dauphin	5	3
Delaware	4	1
Erie	5	1
Lackawanna	3	2
Lehigh	1	1
Montgomery	10	3
Northampton	5	1
Philadelphia	29	4
Schuylkill	4	0
Westmoreland	4	3
York	6	3
Totals	122	51 or
		42% response rate

Appendix 4

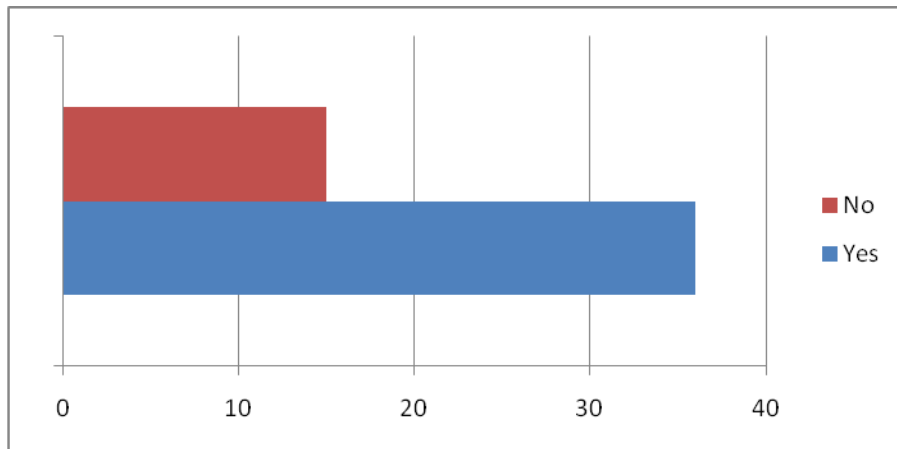
In your county, are there Local Rules governing the permissible role of legal assistants assisting counsel at trial?



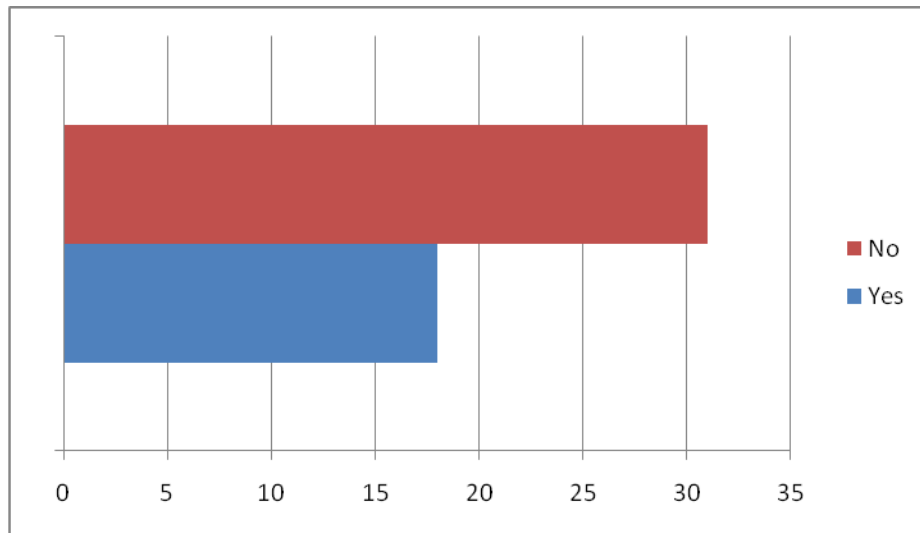
As Presiding Trial Judge, have there been trials where legal assistants were present assisting counsel?



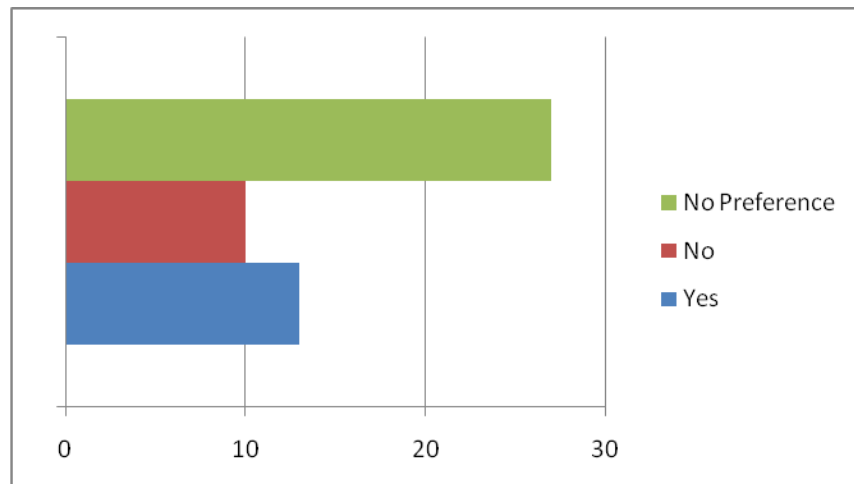
As Presiding Trial Judge where legal assistants were present, were any restrictions placed on what they were permitted to do?



Were any restrictions placed on where the legal assistants could sit or not sit?



As Presiding Trial Judge, do you prefer to have legal assistants assisting at trial?



THE UNIFIED TAX AND ITS LITTLE KNOWN SECRETS
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ABSTRACT

Despite the likelihood of changes to the Estate/Gift tax laws, there appears to be no consensus that the underlying laws or treasury regulations will be repealed. For a variety of reasons both political and economic it is an area of law that will probably exist for many years to come. It is a true area of specialty within the professional arena. It is worthwhile for those who have or might have large estates to learn the basics of it, because most will be affected by the "Unified Tax."

The focus of this paper is explaining some of the factors of the Estate/Gift tax that are not usually known except to those professionals who specialize in this area of tax law. In the development of this paper focus has remained in these areas even though other topics within the study of taxation also could have been explored. This paper is current as of the date of its presentation at the NABET conference in October, 2010. Subsequent actions taken by Congress have not been incorporated.

INTRODUCTION

Estate planning involves the accumulation and protection of assets, and making provisions for passing on those assets to loved ones and others at the time of death. Key aspects involve attempting to reduce the federal taxation of the estate that remains at the time of death, and the avoidance of the costs and the time factors associated with probate.

Conceptually, and for practical estate planning, two estates exist for each individual. These are the probate estate and the gross estate. The probate estate consists of all the assets regarding which the decedent held title at the time of death. This is the body of assets that will be subject to probate procedures in the absence of a trust. The gross estate consists of all assets regarding which the decedent possessed an interest and/or the incidents of ownership at the time of death. These are the assets that will be subject to federal estate taxation.

The probate estate is usually smaller than the gross estate. The probate estate will not usually include such items as the face value of life insurance policies, IRAs and other retirement accounts, and property in trust. The gross estate must include these items, unless the manner in which they are titled would prevent such inclusion. As will be discussed, if a trust has been properly drafted, the properties within it would be effectively removed from the probate estate of the decedent, but not necessarily from the gross estate. The property in the trust would pass to the various beneficiaries, as designated in the trust agreement, without being subject to probate procedures, costs, and/or delays. Only those assets that the decedent held outside of a trust would be probated. Therefore, even if a trust exists, there should be a Will outside of the trust, to cover the

property not in the trust. Such a Will can designate that assets not in the trust, at the time of death, be put in the trust after the grantor has died. This type of Will is often referred to as a "Pour Over Will." All assets poured into the trust would become subject to directives in the trust agreement.

It is also possible for a trust to affect federal estate taxation. However, the mere existence of a trust does not automatically protect the assets within it from federal estate taxes. The design of the trust and the manner in which assets are titled would be critical.

GIFT TAX – A KEY FACTOR

Gift tax considerations are not applicable regarding property transfers to a Revocable Living Trust (RLT), because the grantor retains the incidents of ownership over the property. When assets are transferred to a RLT, they have been re-titled, but the essence of ownership has not changed. From an estate planning perspective the transfer is considered to be incomplete. Therefore gift taxation does not apply to such transfers.¹

However, a transfer of property by the grantor to a properly drafted irrevocable trust, would constitute a gift. The courts have supported this position. Such transfers would be subject to gift tax if the value of the property exceeded the annual gift tax exclusion of \$13,000 in 2010/11. But, if the property gifted to the trust were determined to be a gift of a future interest²(the trust will hold the property until some future event occurs before distributing it to a beneficiary), the \$13,000 exclusion would not apply.

¹ Estate of Sanford v. Commissioner 308 US 39 (1939)

² United States v. Pelzer 312 US 399 (1941)

Such a transfer would be subject to federal gift tax in the year of the gift.

Conceptually, it has been held that an irrevocable trust is an entity that is completely separate and independent of the grantor. In most cases transferring property to it is essentially no different than gifting the property to another individual. The transfer would be complete. The donor would have surrendered all control.³ Actually, the gift would not have been made to the trust. It would have been made to the ultimate beneficiary, because that was the donative intent of the transferor.⁴ The trust would have acted as a conduit through which the property would pass on its way to the beneficiary. The character of each transfer must be carefully examined to determine whether gift tax rules apply.

Significant to the issue of gift taxation, is its relationship to the estate tax and to the unified credit. As already discussed, most transfers to an irrevocable trust would constitute complete transfers, triggering federal gift tax rules. From a planning perspective, the annual gift tax exclusion is of great importance. An aspect of the gift tax exclusion rule that affects planning for trusts focuses on whether a gift constitutes a transfer of a *present interest* as compared to a transfer of a *future interest*. Only transfers of a *present interest* are subject to the annual gift tax exclusion. Transfers of a *future interest*, are fully taxable, the exclusion does not apply. A *present interest* exists when the property is immediately available for use by the recipient (donee). A *future interest* in property exists if the rights of ownership, by the donee, are not effective until some future time.⁵

Generally, the gift tax exclusion is associated with many transfers during lifetime. Each individual may gift property to anyone. The giver (donor) is allowed one exclusion of \$13,000 per year, regarding each donee to which the donor transfers cash or other property during that year.⁶ A new exclusion, or series of them, would apply next year, and so on. Gifts by a married couple can have an exclusion ceiling of \$26,000. The code allows for such treatment without complying with any special criteria, except that the second spouse must agree to the gift splitting.

The gift tax rules and estate tax rules are closely related. Therefore planners of estates and trusts should be cognizant that taxable gifts (those that are not subject to the annual exclusion, or that exceed the exclusion amount) made during lifetime can consume all or part of the allowable unified credit equivalent exemption amount at the time of death. The result could be no effective unified credit remaining to shield the estate from estate taxes at death. Therefore, maximizing use of the gift tax exclusion rules during lifetime is critically important. This is equally true regarding direct gifts or gifts in trust. Even though, as noted, many gifts to irrevocable trusts would not be applicable for the annual gift tax exclusion, methods will be discussed that have the potential to mitigate the related circumstances.

Further, property transferred (gifted) within three years of the date of death must be included in the gross estate, if the decedent retained the rights and privileges of ownership over the property. Because of the retention of ownership rights, such transfers would be incomplete; a valid gift would not have occurred. This rule holds, whether the property was transferred direct to a donee or to a trust, as long as the decedent retained the power to alter, amend, revoke or terminate the transfer, even if that power, itself, was terminated within three years of the decedent's death. (section 2038) This is not contradictory with code section 2035 which states that complete transfers within three years of death are not to be included in the gross estate of the decedent. The gift tax paid on such transfers (section 2035 transfers) must be included in the gross estate. But the value of the property would not be included. Either code section can become a factor regarding transfers to an irrevocable living trust.⁷

When the nature and amount of a gift qualifies for the annual exclusion, the amount of the gift, up to the limit of the applicable exclusion has effectively been removed from the gross estate of the donor forever.⁸ When a gift does not qualify for the annual exclusion (an amount in excess of the \$13,000/\$26,000 limits, or a gift of a future interest), two taxation factors would be triggered regarding the donor: (1) The amount in excess of the exclusion limit would be taxable at gift tax rates, in the current year. Further, the application of the rates, which range progressively from 18% to 45%, is cumulative during the donor's lifetime. The value of gifts in the current year would be added to the cumulative value of gifts

³ See dicta and holdings of Smith and Sanford

⁴ Commissioner v. Wemyss 324 US 303 (1945)

⁵ Treasury Regulation 25.2503-1-3

⁶ Treasury Regulation 25.2503-2

⁷ As noted, Internal Revenue Code section 2035, 2038. Also, Treasury Regulation 20.2038-1

⁸ Kess, para 131.1

from previous years. This allows for a determination of the applicable tax rate for the current year's gift. Giving can exceed the exclusion limits noted (\$13,000/26,000), if the donor gifts directly to an educational institution, a health care provider, or a qualified charity. An irrevocable trust could be established to manage such giving. (2) The taxable amount of all gifts (since 1976) must be added back to the gross estate for purposes of computing the tax base on which the primary estate tax amount will be computed. This exemplifies the unified character of the gift and estate taxes.

Of critical importance is the relationship between the gift tax exclusion rules and gifting to an irrevocable trust, including such trusts that may be wrapped inside of a RLT. The mere existence of more than one trust, with the same beneficiary, does not increase the annual gift tax exclusion amount regarding that beneficiary.⁹ The total of all gifts to a single donee/beneficiary cannot exceed the \$13,000/\$26,000 limit, without the donor incurring the gift tax.

The code allows for an unlimited marital deduction for transfers between spouses, either during lifetime or at death. Transfers to others can only be shielded by the unified credit, which is finite. If during lifetime, one spouse gifts to the other spouse, cash or any other form of property, generally there would be no gift tax associated with the transfer. In a testamentary transfer, either by Will or by declaration in a trust, where the decedent bequeaths cash or other property to his/her spouse, the property in the transfer would escape federal estate taxation of the estate of the deceased spouse. The surviving spouse must take unquestioned control of the property. He/she can then do with it as he/she wishes. This would hold, unless a terminable interest exists, other than one that would qualify for special treatment. (See Crummey power, below)

If a terminable interest exists in transfers between spouses, the property involved may not be subject to the marital deduction.¹⁰ A terminable interest would exist if the property transferred would be subject to the ownership interests of donee#1 only until some future event occurs, which would terminate that ownership interest. In this scenario, the ownership would then pass to a designated donee#2.

Assume that spouse#1 leaves property to spouse#2 for his/her life (life estate). However, if the trust

specifies that at the death of spouse #2, ownership passes to the children and/or others, a terminable interest exists regarding the transfer of the property. The marital deduction would not apply in the transfer from spouse #1 to spouse #2.

Safeguarding the marital deduction is important. However, a potential pitfall exists if spouses have Wills that contain reciprocal promises. If the surviving spouse were obligated to make bequests to others, including the children, a terminable interest would exist. The marital deduction would be void.¹¹

This rule has given rise to the importance in estate planning of the QTIP (Qualified Terminable Interest Property) Trust. This arrangement allows for use of the marital deduction, even though a terminable interest exists. This is discussed in some detail, later.

The unlimited marital deduction sounds great. But it can be deceptive when considering the big picture in estate planning. Generally, there is no problem in passing the estate, free of estate taxes, from spouse#1 to spouse#2. The problem is in passing the maximum amount of the estate (net of estate tax) from spouse#2 to the children. Moreover, what if spouse#1 wants to leave some of his/her estate directly to the children at the time of his/her death, with the majority of the estate going to spouse#2? What if there are grandchildren involved? What if the children are of college age and spouse#2 only requires basic subsistence? What if spouse#2 is likely to remarry, and there are children from the original marriage? What if spouse#2 should remarry, and there are children from the second marriage, and/or children from spouse#3's previous marriage?

Clearly estate planning must consider many possibilities. The goal is to minimize estate taxes so that the maximum amount of the original estate can become the possession of the intended beneficiaries. In doing so, it is important to maximize use of both the marital deduction and the unified credit. Further, there is no carryover effect of the marital deduction when property is passed to the children. When the second spouse dies, the remaining property of the first marriage, which would have been bequeathed to the children, will be fully subject to estate taxation. It is important to understand that the marital deduction is not an exclusion from estate taxes. It merely defers the estate tax.

Some might consider that retitling of property could avoid both probate and estate tax. However, this type

⁹ Graziano, para 2250

¹⁰ Internal Revenue Code, section 2056(b)(1)

¹¹ Estate of Siegel v. Commissioner 67 TC 662, para 34,210

of planning will not allow for the best results. It can sometimes produce an unexpected, if not a disastrous conclusion. Assets titled as joint tenants in virtually any form will avoid probate. However, when it comes to estate taxation, the results can be expensive when the second spouse dies.

The estate tax system can be harsh. At the point where the unified credit (estate tax exemption amount) is surpassed, the effective minimum rate of tax on an estate would be approximately 35%. From there, the rate incrementally rises to 45%. For an individual to pass the maximum amount of property, net of tax, to his/her heirs requires very careful planning. Moreover, because of the prevalence of the 401(k) and other retirement savings devices, as well as life insurance policies that are owned by the average person, the gross estates of many middle class individuals can be sizable at the time of death.

Consider that a couple has an estate, which through many years of hard work and savings has amassed approximately two million dollars. Such value would likely consist of the market value of the family home, savings/investment accounts, a vacation home, IRAs and/or 401k or other qualified retirement plans, and the face value of life insurance. At the time of death, these items, and possibly more, will form the value of the gross estate to be considered for estate taxation.

When the first spouse dies, all property can pass to the second spouse completely free of federal estate tax with or without joint titling of the family home, vacation home and the savings/investment accounts. The life insurance, IRAs and other retirement accounts cannot be jointly titled, even though beneficiaries can be designated for such accounts. But the assignment of beneficiaries is different than joint titling, as will be explored. All of the property will pass immediately to spouse #2.

A reasonable question might be, what if spouse #2 tried to negate possible estate taxes by gifting half of the property to the children? If this were done, the taxable base of the estate would shrink over time. Also, if the gifts were in annual amounts of \$13,000 or less, there would be no gift tax applicable to spouse #2, and no income tax for the children. However, there are inherent limitations in this strategy. First, how many children are there to receive the \$13,000 annual gifts? Second, what is the age of spouse #2? (How many years will gifting occur before his/her death?) Together, these two factors could have significant bearing on the long-term effectiveness of the gifting strategy. But, other

factors are also important. Are the children minors? If so, most states would require that they would not be able to receive large monetary gifts without a property guardian, or a children's trust. Also, can the adult children reasonably handle large sums of money?

Perhaps a trust could provide a better solution than direct giving. If spouse #2 gifted to the children in amounts greater than the annual exclusion amount (\$13,000), the excess would be subject to the gift tax. Finally, if a large number of sizable gifts did not occur, it is conceivable that when spouse #2 dies, the estate will have value comparable to the value of the estate of spouse #1. The result could be a large estate tax liability, as noted. Clearly, seemingly simple solutions might not prove to be appropriate, when the projected result is closely examined.

The remainder of this discussion will focus on strategies that focus on minimizing the unified gift/estate tax, while using the RLT as the structural center of implementation.

ESTATE TAXATION STRATEGIES USING THE REVOCABLE LIVING TRUST

In the most basic composition of a RLT (no sub-trusts or other special provisions), there exists absolutely no federal estate taxation shield that would not also be available to an individual who is not using a RLT. However, it is equally important to understand that carefully designed strategies can be used within the framework of the RLT that can reduce estate taxes for the estate of the second spouse, and can increase the effect of the marital deduction and the unified credit. Some of the strategies involve irrevocable sub-trusts.

This brief discussion will focus on those strategies that are useful, when considering a middle class taxpayer. A more detailed discussion will appear in a forthcoming paper. The applications discussed are: (1) an effective approach to retitling assets (the A-B Provision), (2) QTIP Trusts, (3) Life Insurance Trusts, (4) the Crummey Power, and (5) Children's Trusts.

The A-B Provision

This strategy involves creation of irrevocable sub-trusts within the RLT. A Will can also contain these provisions. The benefit of constructing an A-B provision within the framework of a RLT is that the provision can operate efficiently and also provide a probate free environment.

Recall that all property transferred to a RLT will be retitled with the name of the trust as owner. When the retitling occurs, the directives for the A-B Provision can be designed. The A-B name is used because two separate trusts will be created within the framework of the RLT. One of the two would contain all property to be identified with the decedent, and the other would contain all property to be identified with the surviving spouse. Titling of the properties must be adjusted for optimal outcome. The decedent's trust can be called by any of the following names: Bypass Trust, Credit Shelter Trust, or Exemption Trust. The survivor's trust can be called: Marital Trust, Marital Deduction Trust, or Residual Trust.

QTIP Trust (Qualified Terminable Interest Property Trust):

This arrangement involves setting aside property for the children, but in a way that would allow the estate to qualify for the unlimited marital deduction. The marital deduction is prescribed in the code to cover property left only to the surviving spouse. The QTIP focuses on an exception to that rule, which allows for a division of the decedent's estate under specific conditions.¹² Some of the property will go the surviving spouse, some to the children. The portion designated for the children, without a QTIP arrangement, would not normally be subject to the marital deduction.

Life Insurance Trust

This type of trust is usually irrevocable. The trust will be designated as the owner of the life policy. The trust will then be used as the vehicle for distributing the proceeds to the desired beneficiaries of the decedent. It is perhaps the most important single trust that each individual should have.

Although the proceeds of life insurance are excluded from the income tax of the beneficiary, the common belief that life insurance proceeds are tax-free is incorrect. Code section 2042 states that the amount of the proceeds from life insurance policies that insured the life of a decedent, must be included in the gross estate for estate tax purposes if either: (a) the estate was the designated beneficiary, or (b) regardless of who might have been the beneficiary, as long as the decedent possessed, at death, the incidents of ownership in the policy. The proceeds of life insurance on the life of another person are not

covered by section 2042. However, such proceeds must be included in the gross estate under code section 2033. The Life Insurance Trust shields this from happening.

Crummey Power (Trusts)

The name was that of the plaintiff in a landmark federal court case that was decided by the Court of Appeals of the 9th Circuit, in 1968.¹³ Based on the decision in this case, the courts have held that transfers to a trust, constitute a present interest (gift tax exclusion would apply), as long as the trust beneficiaries have the right to withdraw an amount equal to the annual gift tax exclusion (\$13,000/26,000), within the year of the of the transfer. This qualification would hold even if the only other interests that the beneficiaries might have in the trust were contingent remainder interests.¹⁴ Also, Crummey allows for some invasion of the trust corpus by beneficiaries. In the Crummey case, the court looked at the ability to enjoy the property. Whether or not it was actually enjoyed by the beneficiaries was considered ancillary. However, formal notification must be presented to the beneficiaries each year regarding their rights to the trust income.

Based on this historic decision, it has been clear to trust planners, that if allowing beneficiaries the right to invade the trust income is acceptable to the grantor, that an irrevocable trust with the Crummey power can be the structure of choice. Previous to Crummey, a prime reservation against using the irrevocable form was loss of the gift tax exclusion on transfers. However, even with the availability of the Crummey format, allowing beneficiaries to invade trust income each year may not be acceptable to the grantor. Therefore, although the Crummey power (annual demand power) constitutes an effective tool, it must be structured carefully.

Transfers to an irrevocable trust with the Crummey power would comply for the annual gift tax exclusion as long as the beneficiary is given a limited power to withdraw income or principal, or both. Generally, the power can be exercised only during a specific period of time each year (30 or 60 days, for example)¹⁵. Further, the power is non-cumulative. If the beneficiary fails to exercise the power in year #1, he/she cannot withdraw twice the normal amount in

¹² Internal Revenue Code sections: 2044, 2056(b)(5), 2056(b)(7), 2207, 2523(f), 2529

¹³ *Crummey v. Commissioner* 397 F.2nd 82 (9th Cir, 1968)

¹⁴ *Cristofani v. Commissioner* 97 TC 85, para 47,491

¹⁵ IRS Letter Ruling 8507017

year #2. The exclusion would be disallowed if restrictions on distribution of corpus were determined to effectively restrain the rights of the beneficiary.¹⁶

There are significant cautionary guideposts that should be respected in the application of the Crummey power. If the power allows for withdrawals of an amount which is more than the greater of, \$5,000 or 5% of the trust corpus, the Crummey power will become void. All transfers would become fully taxable as transfers of a future interest. Previous exclusions could be disallowed, and the trust property would be includible in the gross estate of the beneficiary. The purpose for the trust, as it was originally drafted, would be nullified. This limitation can be especially critical for small trusts.

Children's Trusts

This constitutes a category of trust that employs the irrevocable model. Congress and the IRS, because of its focus on children, have placed much importance on this topic. Therefore, specific sections of the code are devoted to children's trusts. Also, the Uniform Gifts to Minors Act and the Uniform Transfers to Minors Act have been legislated. A key issue regarding transfers to minors, whether directly or via a trust, is concern with the ownership and use of cash and other valuable assets by children. The answer to this concern has been to have a property guardian oversee the assets until the child reaches the age of majority or a specific age designation, as in a 2503(c) trust agreement. Although the laws of the various states attempt to deal with this issue, many of the related aspects are complex. The rights of the child, the guardian, and/or the trustee must be clearly stated in the supporting documents.

Several different forms of trust can be used to benefit minors: the Income Only Trust (code section 2503(b)), and the Special Trust for Children Under Age 21 (code section 2503(c)), for example. Other popular trust models would include gifts under the Uniform Gifts to Minors Act/Uniform Transfers to Minors Act, and use of the Crummey Power, as note above. Moreover, the trusts mentioned, as well as gifts under the UGMA/UTMA would be irrevocable in nature.

As noted above, in all applications of irrevocable trusts a key concern is the preservation of the unified credit. It is preferable that transfers be non-taxable events. Taxable transfers during lifetime will slowly erode the unified credit that would otherwise be

available at death. Therefore, trust models that ensure application of the annual gift tax exclusion will be preferred over models that do not allow for this valuable exclusion. Recall that if the exclusion were used, the value of the gift that is associated with the exclusion would be removed from the grantor's estate forever. The key is that if the transfer is of a present interest, the exclusion will apply up to the \$13,000/26,000 limit.

In trusts for minors the same elements must be present as discussed above in order to ensure application of the annual exclusion amount. As noted in the discussion of the Crummey power, the income and/or principal of the trust must be either distributed to the beneficiaries each year, or the beneficiaries must have an annual right of claim over the income. The exclusion can be applied even if reasonable restrictions apply regarding the distribution of trust assets.¹⁷ In the latter case, the trustee would accumulate the undistributed income.

The Family Pot Trust

This form of trust is merely a version of the models described above. However, the models above involve separate trusts for each child. The Family Pot format allows for one trustee to manage assets that are held for several children. The trustee would be able to make key decisions according to the needs of each of the individual children, as they grow up. This would not be possible with a separate trust for each child.

THE GENERATION SKIPPING TAX

A key concern within the realm of estate planning that could affect using the alternatives discussed is the Generation Skipping Tax (GST). It constitutes a severe federal tax penalty that would take effect if a transfer were to skip a generation. If you give or bequeath cash or other property directly to your grandchild you will have skipped a generation. The GST would apply to the value of that gift. Because the rates are high (a flat rate of 45%), this tax should be avoided whenever possible. However, the code allows for a one million dollar lifetime exemption per donor. With proper planning, a married couple can effectively shield two million dollars of such transfers. Other strategies are available that can also help to mitigate the effects of the GST.

¹⁶ Revenue Ruling 69-344, 1961-1 CB 225

¹⁷ Commissioner v. Herr 62-2 USTC, para 12,079, 303 F.2nd 780

CONCLUSION

Some of the issues/concepts/rules discussed in this paper are not easy to put into practice. Consider that some of the strategies noted can be combined. The Crummey power, for instance, can be applied within the framework of a wide variety of irrevocable trusts. Also there are several important strategies that have not been mentioned in this paper that could also be applied.

Another area of potential concern for many people will be the impact on their gross estate from the value of their retirement savings. Retirement plans including 401(k)s, 403(b)s and IRAs, to name a few normally would be included in the gross estate. The amount to be included is the value at the decedent's death of the retirement account/annuity, or payment receivable by the decedent's survivor. It is unimportant whether the amounts receivable by the survivor would involve one or several payments. The full value of the account must be included in the decedent's estate. It is critical that individuals avoid probate by designating specific beneficiaries for each retirement/annuity account.

As noted above, in the discussion on life insurance, a special trust could be named as the beneficiary of virtually any insurance policy. Similar can be done with retirement accounts. Sophisticated structuring involving the conversion of retirement accounts into cash value life insurance may be possible in order to reduce the inclusion of large retirement account balances in the gross estate. Such planning must be orchestrated carefully. If this strategy were applied, excess distribution taxes and regular income taxes would apply to the retirement fund withdrawals. Also, use of an irrevocable insurance trust would be a key element. For some, such an approach could be beneficial. Minimizing the financial and tax cost of such a change is significant and not easy to accomplish. Key factors in such planning would be the health and probable longevity of the grantor, and the needs of his/her family regarding the proceeds of the retirement account during the later years of his/her life.

In order to take advantage of the strategies presented an individual should seek the assistance of an experienced professional. Generally, financial planning professionals, many taxation professionals, and general practice attorneys would not be competent with trust work. An attorney specializing in this field would be the best alternative for most people.

As the grantor begins his/her planning involving the use of trusts, specific goals that have been noted here should be kept in mind. These involve preservation of the right to use the annual gift tax exclusion while removing most, if not all valuable property from both the gross taxable estate and from the probate estate. Attempts to achieve these fundamental goals of estate planning can result in the maximum amount of a decedent's estate becoming the possession of his/her intended heirs

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**THE MOOSIC RIDGE DIVIDE: A COMPARISON OF THE ECONOMIC IMPACT OF WATERSHED
AUTHORITIES IN THE DEVELOPMENT OF MARCELLUS SHALE IN WYOMING AND
SUSQUEHANNA COUNTIES RELATIVE TO WAYNE COUNTY, PENNSYLVANIA**

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ABSTRACT

The development of the Marcellus Shale underneath Northeastern Pennsylvania has been dictated by the permitting and availability of water resources required by local watershed authorities in the hydraulic fracturing of this unconventional natural gas resource. Two entities, the Susquehanna River Basin Commission, which encompasses all the watershed of the Susquehanna River and its tributaries (covering four states) and the Delaware River Basin Commission, which encompasses all water resources starting in upstate New York and extending to the Delaware Bay (also covering four states) are leading this regulatory change. The Susquehanna River Basin Commission (SRBC) has been very proactive in assisting and nurturing the development of natural gas wells in its watershed, while the Delaware River Basin Commission (DRBC) has limited the development of the Marcellus by placing a moratorium on permits until more data is available on the fracturing process and rules can be developed to regulate environmental impacts.

Because Northeastern Pennsylvania is divided by the Moosic Mountain Ridge into two watershed regions, the development of the Marcellus Natural Gas Play has had two dramatically different impacts on the economies of Northeastern Pennsylvania. Susquehanna and Wyoming Counties, which lie in the SRBC watershed, have seen extraordinary rates of growth over the past two years. On the other hand Wayne County, which lies in the DRBC watershed, has seen little or no impact due to strict regulation by the DRBC.

Consequently, the purpose of this paper is to examine the impact that these two Watershed Authorities have had and will continue to have on this three county area of Northeastern Pennsylvania. Our research has indicated that the economic impact across this region will be enormous, with Susquehanna and Wyoming Counties experiencing significant economic surplus, while Wayne County may remain underdeveloped with a struggling economy and population unless the DRBC regulations are quickly reversed and or modified.

INTRODUCTION

The process for recovery of natural gas from the Marcellus Shale that lies underneath Northeast Pennsylvania (NEPA) via horizontal drilling and hydraulic fracturing presents the single biggest economic opportunity in over 70 years. Over \$439 million in upfront bonus money has been paid to landowners in NEPA to date (Comstock and Speicher, 2009). Dividing NEPA is a mountain ridge called the Moosic Ridge, which runs from lower Luzerne County, Pennsylvania into upper Wayne County along the Susquehanna County border at the New York State line. All water to the west of the ridge runs into the Susquehanna River basin, while all water to the east of the ridge runs into the Delaware River basin. On each side of the divide, water is controlled by water “compacts”. These compacts, which later formed commissions, were granted authority by Congress to “provide the mechanism to guide the construction, development, and administration of water resources of the vast river basin” (Susquehanna River Compact, PDF from website).

The Delaware River Basin Commission (DRBC) and the Susquehanna River Basin Commission (SRBC) have chosen quite different paths towards the development of the Marcellus play and the use of water resources in the surrounding areas. The SRBC has opened up its resources for development by putting a permitting process in place that assures that acceptable permit requests will be completed in 90 days. On the other side of the Moosic Ridge, the DRBC has declared a moratorium on all permits until additional studies of the environmental impact on the watershed can be complete.

The impact of each of the decisions by the commissions has had on Susquehanna, Wyoming, and Wayne counties in NEPA is dramatic. Consequently, the purpose of this paper is to examine the economic impact that permitting decisions have had on these specific counties, using Wyoming and Susquehanna counties as one unit and Wayne County as the other.

BACKGROUND AND LITERATURE REVIEW

The development of the Marcellus Shale has only become economically feasible in the past five years.

Horizontal drilling, whereby drills are able to drill down and turn at a 90-degree angle over a long sweep and go directly through the center of layers of shale located 8,000 to 10,000 feet below the surface, was perfected in the late 1990's. But it has only been since the advent of high-pressure hydraulic fracturing, also known as "frac" or "fracing", in the early 2000's that the development of shale plays around the world became feasible. Each frac job required for each well drilled in the Marcellus Shale play currently requires between 2 million and 10 million gallons of water. This water is controlled by various watershed authorities called Basin Authorities, who are responsible for permitting water usage of any water drained from their respective basins. The two authorities we will be researching are the Delaware River Basin Commission (DRBC), which governs water usage on the east of the Moosic Ridge and the Susquehanna River Basin Commission (SRBC), which governs water usage on the west of the Moosic Ridge.

The SRBC was formed in 1970 and adopted by the U.S. Congress and the legislatures of New York, Pennsylvania, and Maryland. The commission covers over 27,000 miles of watershed starting in upstate New York near Cooperstown and flows into the Chesapeake Bay at Havre de Grace, Maryland. Each member of the SRBC is selected by the state government with the President of the United States appointing the commissioner. He is charged with water supply management and allocation within the basin. The SRBC states that "to accomplish this mission, the SRBC works to: reduce damages caused by floods; provide for the reasonable and sustained development and use of surface and ground water for municipal agricultural, recreational, commercial and industrial purposes; protect and restore fisheries, wetlands and aquatic habitat; protect water quality and instream uses; and ensure future availability of flows to the Chesapeake Bay.

Since the inception of the Marcellus play, the SRBC has developed permit procedures, inspection and review policies, and careful consideration of water usage at well sites to be used in the hydraulic fracturing process.

The Delaware River Basin Commission (DRBC) was formed in 1961 between the states of Delaware, Pennsylvania, New Jersey, and New York giving the states authority to manage the water resources of the Delaware River Basin. The governors of each state and a representative from the Army Corp of Engineers are commissioners within the DRBC.

The Delaware River Basin contains 13,539 square miles across the states of New York, Pennsylvania,

New Jersey, and Delaware. Within this basin there are currently no natural gas producing wells. Despite large land lease agreements in Wayne County, Pennsylvania by Hess Corp and Houston-based Newfield Exploration Co. (valued at over \$100 million) and considerable investments into drilling within the Marcellus play, the DRBC has enacted a moratorium on drilling. Land-owner groups and economic development organizations are critical of this moratorium stating that the halting of development within the Marcellus play will cause a deep economic impact. Peter Wynne, spokesman for the Northern Wayne Property Owners Alliance states that if Hess Corp and Newfield Exploration Co. pull out of Wayne County \$220 million dollars in payments to lease holders –not including royalties– could be lost (Scranton Times, September 10, 2010).

The economic impact across the Moosic divide is stark. With plans to fully develop the Marcellus field in Susquehanna County underway, this rural agricultural county is on its way to being the next boom area of the United States. Following closely behind is Wyoming County where the leasing activity got into full gear in the fourth quarter of 2009 and the first quarter of 2010. These two counties are very similar in that they are both rural and dominated mostly by agricultural forms of industry, typically in dairy and beef cow. Since the founding of each of these counties, both have been major suppliers of hardwood lumber and bluestone for the construction industry. Each has one central commercial district: Tunkhannock in Wyoming County and Montrose in Susquehanna County. Wyoming County has one major employer in Proctor and Gamble's Mehoopany plant which manufactures multiple paper and toiletry items. Both of these counties lie within SRBC jurisdiction, thus all rules regarding permits, drilling, and water usage for fracing are regulated by the SRBC.

Wayne County differs in only a few ways from its neighbors. It has no single major employer but has a much more robust 2nd home and vacation community, which are a staple of the Wayne County economy. Additionally, the proximity of Wayne County to New York City and the Northern New Jersey business community has made the eastern parts of the county within commuting distance.

Table 1 (see Appendix) reveals that each County is similar in size, median income and in unemployment statistics. Wyoming County is the smallest in terms of population and geographic area but has a higher rate of unemployment than we find the other study areas .

CURRENT RESEARCH

Terry Engelder's research, which placed all the land with the Marcellus plan in to tiers based upon having the highest probability of success, has placed Susquehanna County and Wyoming County as two of the highest tiers within the state. Northern Wayne County was also in the ripe target zone with a dramatic decrease towards the south and east in the county near the Delaware River in Port Jervis (Engelder, 2009).

According to Engelder, the top four tiers will be developed first. His predictors of well output (see Table 2 in the Appendix) are based upon 70% of all land being accessible for well development, spaced in 80-acre intervals. He further provides production decline curves using the most conservative decline rates by the "Power Law rate decline". Although initial production rates appear to be higher than those of the Barnett shale in Texas, the research has based its rates upon them.

Considine, Watson, Entler, and Sparks, (2009), at Penn State University analyze the economic impact that the development of the Marcellus Shale will have across the entire state of Pennsylvania. This study states that for each \$1 spent by the Marcellus industry in Pennsylvania about \$1.94 in economic output is generated.

Considine's probability is much higher than the study by Baumann, Dismukes, Mesyanzhinov, and Pulsipher (2002) in Louisiana, calculating a multiplier of only 1.34. Snead and Martinez, in 2004, developed a multiplier for Oklahoma based upon various energy prices, which projected a \$1.43 of economic output for each \$1 spent. More closely related is a 2005 study by Walker and Sonora who look at specific counties in Colorado and determined the multiplier to be 1.43. And a more recent study of the impact of oil and gas production in the Oklahoma economy by Snead and Barta (2008) revealed a higher multiplier ranging between \$1.77 and \$1.81 for each \$1 spent. This study noted that most of Oklahoma had a more highly developed gas and oil sector. For the purposes of this study, we will use a blended rate as stated by the participants above. The multiplier used in this study will therefore be 1.58. We have taken the average of the 5 previous studies referenced in our research and applied it to economic output generated in our study area.

The cost per well installed has dropped significantly as rig operators started to learn the idiosyncrasies of the Marcellus Shale. Range Resources reports that the cost of completing a new well in Marcellus shall has decreased from \$3.1 million in 2007 to \$1.8 million in 2009, a 42% decrease (Range Resource, 2009). At the same time, Cabot Oil and Gas

Corporation, who owns a large number of high yield wells in Susquehanna County, has improved the efficiency in the Marcellus area by cutting costs in 2009 from \$335 per foot of drilling to just over \$133 per foot (Cabot, 2009). For the purposes of this study, we will assume \$2 million as a base cost for any horizontal well drilled in the Marcellus area. The production numbers for wells have declined dramatically over the past few years. We are assuming the \$2 million well drilling amount based upon the data referenced by the companies we discuss above and their experience in the field.

There were 91 producing wells in Susquehanna County between July 2009 and June 2010. This would result in about \$287.6 million in economic output over a year. Along with this output, roughly 2,000 more jobs would be made available. Extrapolating this data over 10 years shows an economic output of roughly \$3.2 billion and 22,000 jobs in Susquehanna alone. Wyoming County which is following behind Susquehanna by issuing new permits will also see a similar increase in outputs and jobs created. Wayne County, however, has yet to begin production, losing out on these benefits. If Wayne County were to begin 2010 with 20 wells and increase the number of wells at an equivalent rate as Susquehanna County, the county could see an increase of \$69.5 million and 480 jobs created. Over ten years this increase would lead to over \$1.16 billion and 8,000 jobs created. By starting late and at a lower initial production, the difference between the two areas demonstrated are drastic with Susquehanna and Wyoming counties, resulting in three times more output and jobs created.

The data in Table 3 (see Appendix) shows the economic impact on each county based upon county size in terms of land mass and with wells being drilled at a pace of one every 80 acres on land that is 70% accessible. Assuming total production costs per well of \$2 million, which is consistent with industry reports.

CONCLUSION

While the economic boom has begun in Susquehanna and Wyoming County, its true impact will not be fully felt for years and will last for many generations. In Wayne County and others impacted by the DRBC moratorium, the boom will have to pause. The DRBC has promised to issue water-use rules and regulations for drilling and exploration companies by the end of the year, and the environmental groups and other interested parties have promised protracted legal fights against any and all drilling in the DRBC watershed.

In either case the economic impact is dramatic with the focus shifting away from Wayne County onto the rapid development of the infrastructure required for Marcellus production in Susquehanna and Wyoming Counties. This research has concluded that the impact in terms of job creation is enormous. Wyoming and Susquehanna County will see almost 150,000 jobs created over the next 10 years, while it is predicted that Wayne County would see over 90,000 jobs. Additionally, over \$21 billion of economic output can be expected in both Susquehanna and Wyoming County over the next ten years. Wayne County, if and when the development of the Marcellus field begins, will see almost \$13 billion in economic output over the same period of time.

Other factors that may impact the development of the Marcellus Play include natural gas pricing, whereby price decreases may make the drilling and production of any additional wells not economically feasible. But the proximity of the Marcellus to the major markets of the Northeast United States may actually work to make this gas more viable due to far greater transmission costs incurred while bringing gas from the Gulf of Mexico or Western United States to the East.

In conclusion, the economic impact is real and potentially enormous for all of Northeastern Pennsylvania. The question is whether lands within the Wayne County and all of the DRBC watershed will take part in that boom.

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Table 1: County Data

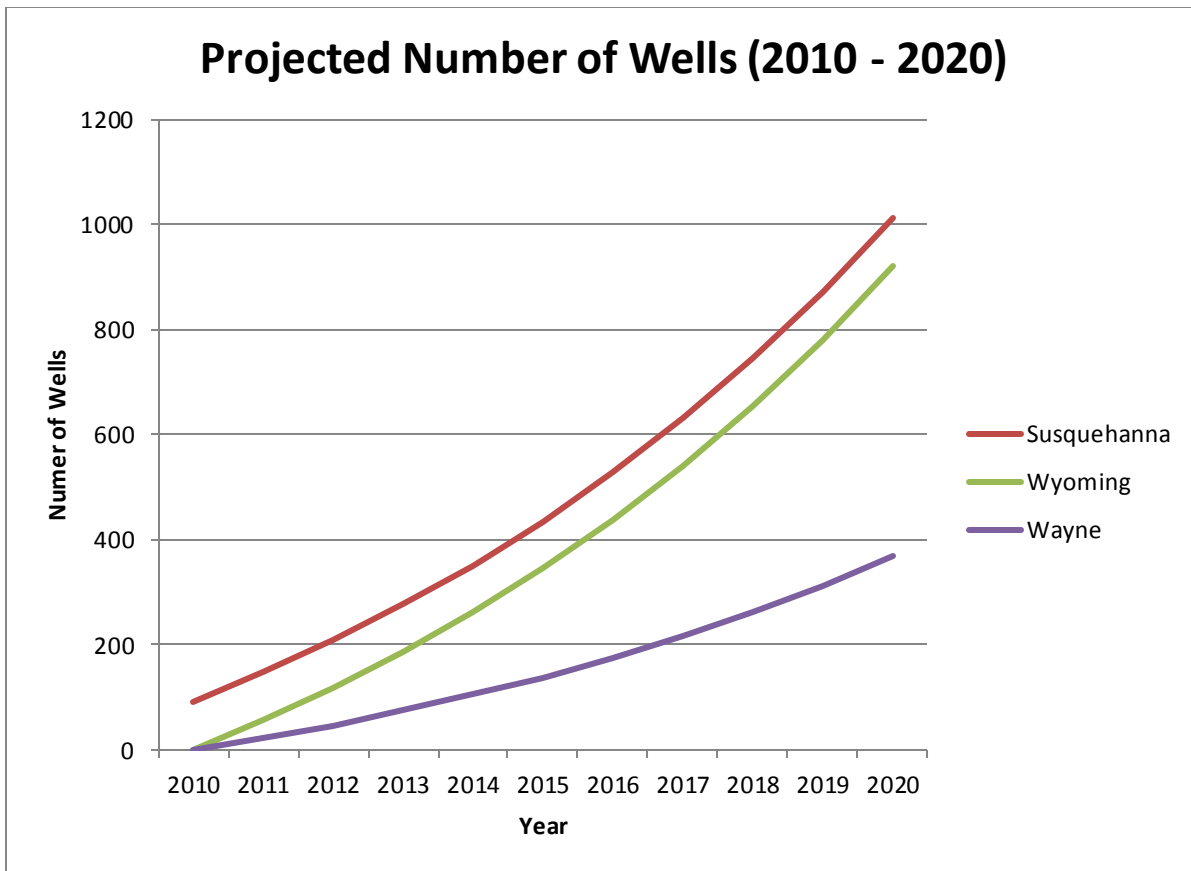
	Susquehanna	Wayne	Wyoming
Population	40646	51337	27808
Median Income	\$43,467.00	\$45,736.00	\$45,470.00
Unemployment Rate - August 2009	7.5	6.2	8.7
Unemployment Rate - August 2010	8.1	7	9.2
Change in Unemployment	0.6	0.8	0.5

Table 2: Projection of Number of Wells

Year	Susquehanna	Wyoming	Wayne
2010	91	1	0
2011	146	56	22
2012	208	118	47
2013	276	186	74
2014	351	261	104
2015	435	345	138
2016	528	438	175
2017	631	541	216
2018	745	655	261
2019	871	781	312
2020	1011	921	368

Table 3

	Susquehanna	Wyoming	Wayne
Total Land (sq. mi.)	823.00	405.00	741.00
Total Acreage	526,720.00	259,200.00	474,240.00
70% Accessible	368,704.00	181,440.00	331,968.00
80 Acre Spacing	4,608.00	2,268.00	4,149.00
Production per well			
Direct cost per well	2,000,000.00	2,000,000.00	2,000,000.00
Total Expenditure	9,216,000,000.00	4,536,000,000.00	8,298,000,000.00
Multiplier	1.58	1.58	1.58
Annual Economic Output	14,561,280,000.00	7,166,880,000.00	13,110,840,000.00
Jobs Created Multiplier	6.90	6.90	6.90
Jobs Created (all wells drilled)	100472.832	49451.472	90464.796



USING WEB 2.0 TECHNIQUES IN THE CLASSROOM: THE CASE FOR SIDEWIKIS

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ABSTRACT

Innovations in digital technology commonly occur at a fast and seemingly accelerating pace throughout society. These innovations challenge educators to discover methods to incorporate new technologies to improve learning. This paper documents the use of a Web 2.0 technology in a classroom setting. Two characteristics of the Web 2.0, user-supplied content and interactivity, presumably are desirable features of the classroom environment, and a technology that demonstrates these features are wikis. Specifically, Google's Sidewiki was used in an introduction to information systems class, and this paper explains the steps necessary to incorporate this technology. It further reflects upon the success of such a technique to improve student learning.

INTRODUCTION

Digital technology permeates our lives. We use it for work, for shopping, for personal relationships, and for a host of other endeavors. Another interesting venue for digital technology, and the topic of this paper, is higher education. The constant change in technology challenges the educator to employ the advancements in a manner that enhances student learning.

Possibly the most important new digital technology of the last 20 years is the World Wide Web. With the introduction of the graphical web browser in the mid-1990s, individuals with limited computer knowledge could now readily use the Internet for a variety of endeavors. The reason for owning a computer fundamentally changed; instead of a personal productivity tool, the personal computer became the means to access the global network known as the Internet. A few clicks allowed the individual to retrieve information from a variety of sources.

Educators can and have used technology in a variety of ways. For instance, posting course materials such as syllabi on course management software, Blackboard being an example, or on a web site helps with the administration of the class. This is one of several examples where technology has improved efficiency in administrative tasks. While presumably better administrative efficiency creates opportunities for better focus on teaching and learning, any gains achieved in student learning, undoubtedly difficult to measure, are indirect benefits of technology usage. Using digital technology to improve learning directly within the classroom remains a promising, but possibly elusive goal.

There are several examples, some within the classroom but some not, where we would probably conclude that technology contributes to student learning. Modern statistical software offers

More recent advancements, loosely dubbed the Web 2.0, have further spawned new ways to use the Web. Whereas the first Web applications tended to display static information with limited interactivity, the Web 2.0 is characterized by user-supplied content coupled with enhanced interaction. Wikis, blogs, social networks, and RSS (really simple syndication) all allow users to share information and collaborate in new and different ways. Coupled with the wireless revolution, the Web is becoming increasingly intertwined into everyday life.

While these advancements in Web technology affect numerous aspects of our lives, this paper addresses uses in the higher education classroom. 'Collaborating' and 'sharing information' certainly sound like desirable features for the classroom. How to effectively implement these technologies in a meaningful way in a classroom setting, however, is not particularly clear. The promise of improved student learning exists, but educators must develop techniques to use new technologies such that they actually do improve student learning.

opportunities for quantitative courses. Time previously spent on tedious calculations can now be used for interpretation and discussion. On-line student study sites provide feedback on student exercises. Discussion boards on course management systems provide communication and interaction possibilities.

Technology within the classroom to improve student learning is the focus of this paper. It specifically addresses the use of a Web 2.0 concept, the wiki, within a classroom. It is descriptive in its nature. That is, no attempt is made to measure or systematically analyze the effect of this classroom technique on student outcomes or student learning. The following pages of this manuscript describe the technique and offer some impressions of its success, but no metric is developed to measure its effectiveness. The entire issue of successfully

measuring student learning is interesting, challenging, and controversial, but it is beyond the scope of this paper.

THE SETTING

Mount Saint Mary's University is a Catholic liberal arts institution located in Emmitsburg, Maryland. The traditional full-time undergraduate population is slightly over 1500 students, and the average SAT scores of entering classes are slightly above average. The School of Business offers a fairly traditional business curriculum, and one course required of all business majors is Information Systems. This course uses *Essentials of Management Information Systems* (Laudon and Laudon 2009) as its text. Professors can require students to bring a laptop to class, and laptops are required on a regular basis in this course; if a student does not have access to one, there are loaner laptops available for student use during class.

The Google Sidewiki was used in one section of the course in the spring semester of 2010. There were 22 students in the class; of these, one was an information systems major, one was an accounting major, and the others were business majors. Class expectations were such that students typically brought laptops to class at least once a week for assignments, so the use of laptops in itself was not a new feature of the course. As best I can judge, the makeup of the spring 2010 class was representative of most sections of this course over the last several years.

My motivation for trying the Sidewiki approach was to motivate more informed class discussion. My experience has been that, although students are typically willing to participate in class discussions, student contributions to class discussions tend not to be informed by the material in the text. That is, students will say things in the classroom, but most of the time their contribution is made with little if any use of text material. I almost think that the students do not read their assignments before class. (Pause for laughter.)

THE GOOGLE SIDEWIKI

Background

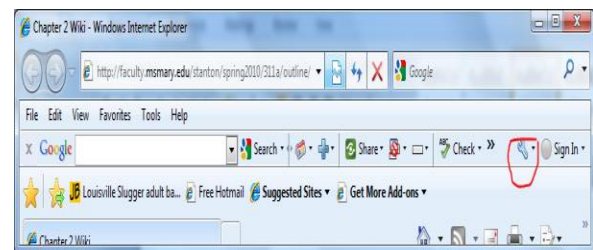
For the information systems class, as with all my classes, I use Blackboard for class administration purposes. The actual course materials -- syllabus, course outline, etc. -- are created as web pages and posted on a university-provided server. Students can access course materials via Blackboard, or they can go directly to my web pages. Within my class

website, I have a page for topics. These are organized by chapter, and they provide an outline of important concepts in the chapter. The assignment given to students is to post a Sidewiki entry for one of the topics on the outline and to be prepared to share their information with the class during class discussion. This requires that the professor and the students enable the appropriate software to allow posting of Sidewikis.

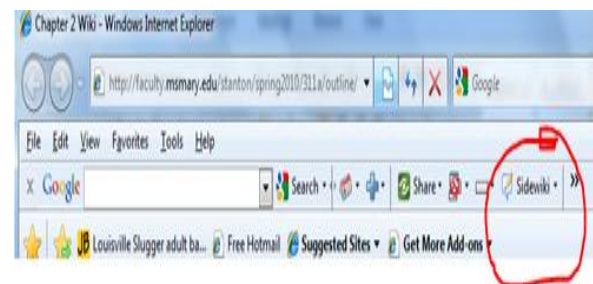
The Basics

The following explanations assume the use of Internet Explorer (IE) as the web browser with the Google Toolbar installed. A Google account is also needed. The Toolbar can be downloaded from the Google web site, <http://www.google.com>.

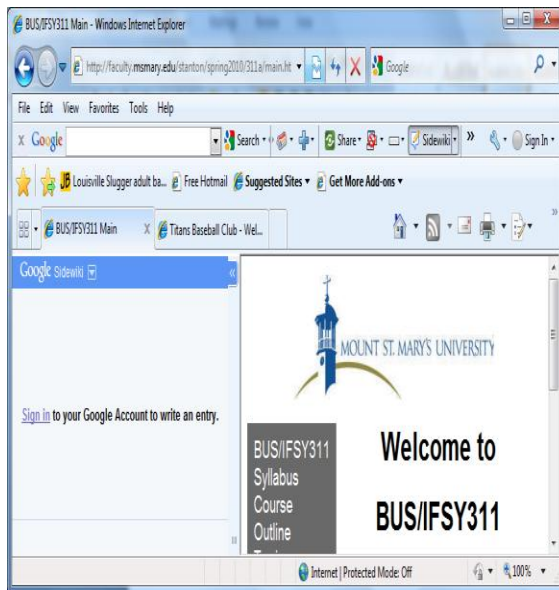
With the toolbar installed in IE, the Sidewiki feature must be enabled. This can be done by accessing the 'tools' icon, selecting 'options,' then 'tools' and enabling the Sidewiki.



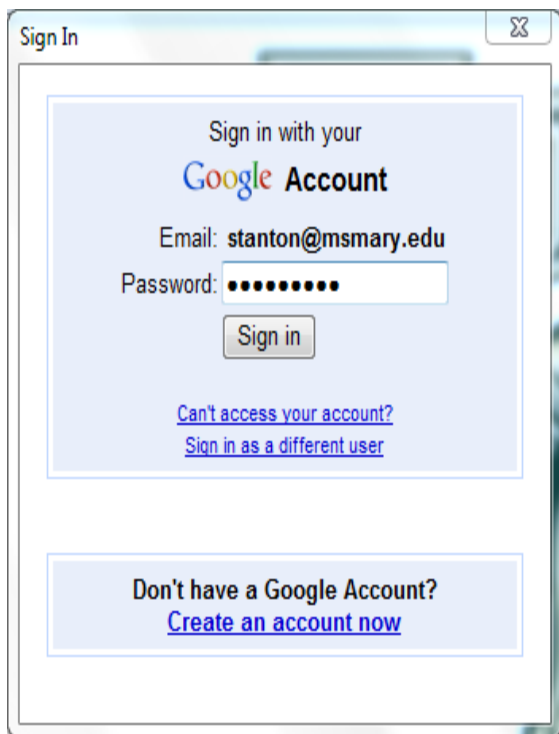
After selecting the Sidewiki option, the Sidewiki link appears on the toolbar itself.



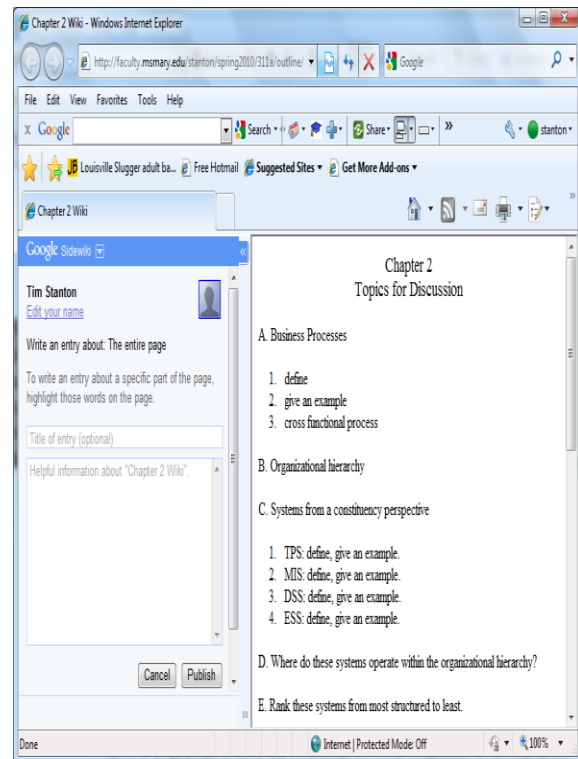
Clicking 'Sidewiki' launches the application in the left part of the window.



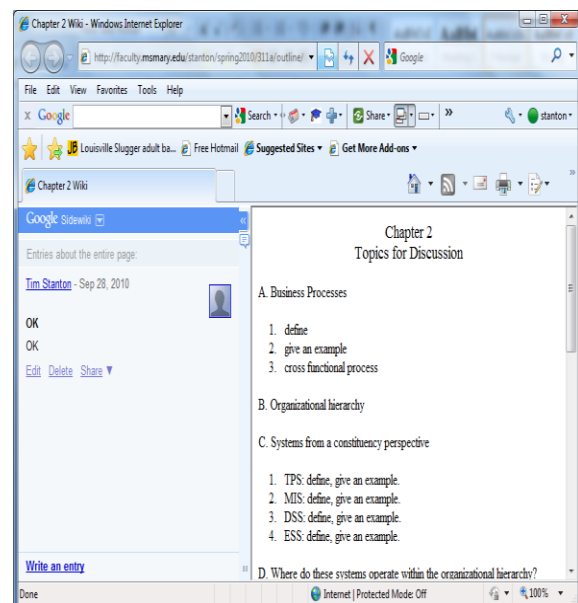
If the user is not logged into his/her Google account, he/she is prompted to do so. If the user does not have an account, he/she can create one by following the link in the dialog box.



After signing in, one of two things will appear. If there are no current entries in the Sidewiki, the screen for creating a Sidewiki entry will appear in the Sidewiki space.



If there are already Sidewiki entries, then they will appear (more on this in the next section) and the user can click 'Write an entry' to post his/her comments.



Students brought their laptops to class and, with instructor guidance, enabled the appropriate software for creating Sidewikis.

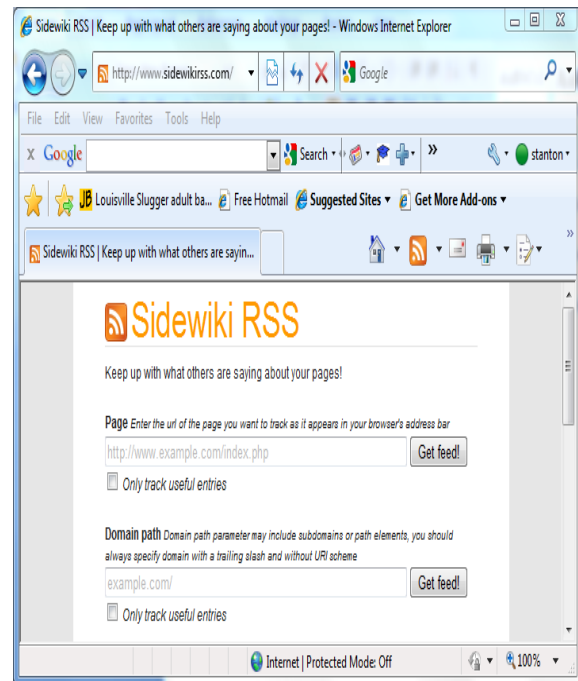
Student assignments were to add a comment on one of the topics from the chapter outline before class discussion of that chapter. They were also asked to come to class prepared to discuss their comments. I allowed students to bring their laptops to class and to view the appropriate chapter page during class discussion. Students could view the comments of other students as well as hear them explain their thoughts during the classroom discussion.

Reading all the entries

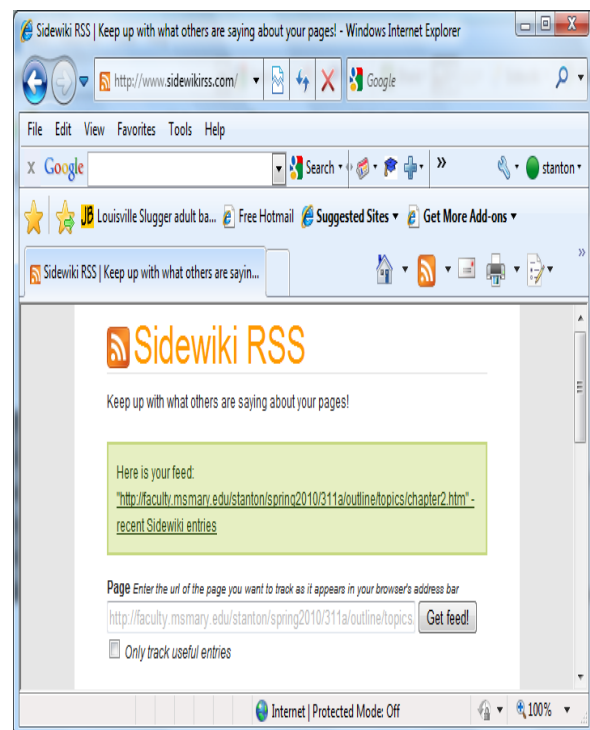
While the above process, although a bit involved, is relatively straightforward, there is a complication that arises when class members (students as well as the professor) try to read all the Sidewiki entries. Because there can be quite a few entries for a page, the software rates the relevancy of the comments and displays only certain comments that it deems most relevant. The algorithm for assigning relevancy is proprietary to Google, but it includes a measure of the number of times a comment is read by others. Hence, for any given chapter outline page, some of the student entries will not be visible to the reader. This ranking feature, which cannot be disabled, appears to defeat the entire intention of Sidewiki approach – comments from every member of the class in a format for all to at least read if not hear.

Luckily, there is a technical way that allows all class members to read all wiki entries. It relies on Really Simple Syndication (RSS) technology. RSS retrieves specific information from an RSS site and places it in an RSS reader. For the classroom Sidewiki application, this requires making the chapter outline pages with the Sidewiki entries RSS feeds and then using a RSS reader to receive the feeds. Everyone who does this will then be able to read all Sidewiki entries posted to the page from their RSS reader. The following steps explain how to enable this option.

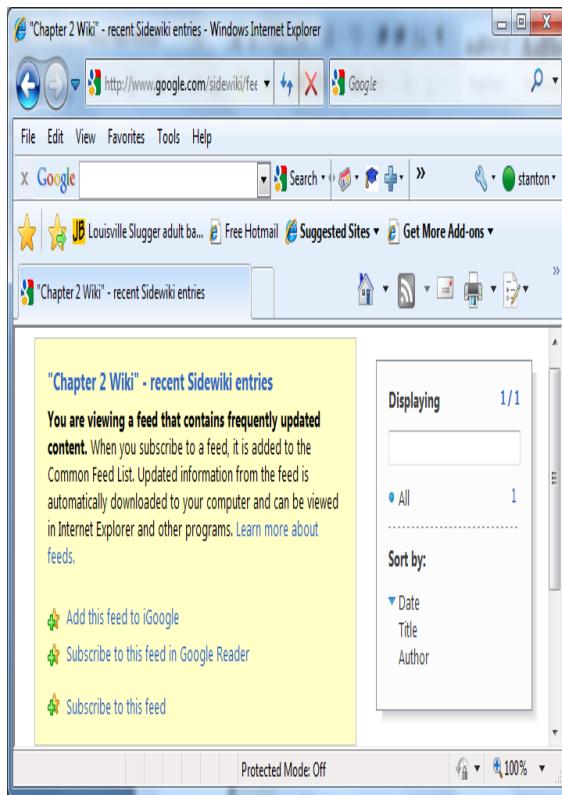
One site that will make the desired page a RSS feed is <http://www.sidewikrss.com/>. With IE, navigate to this page. It should look like this.



In the first box, enter the URL of the page that has the Sidewiki entries. Click the 'Get feed!' button. You will next see the following page.

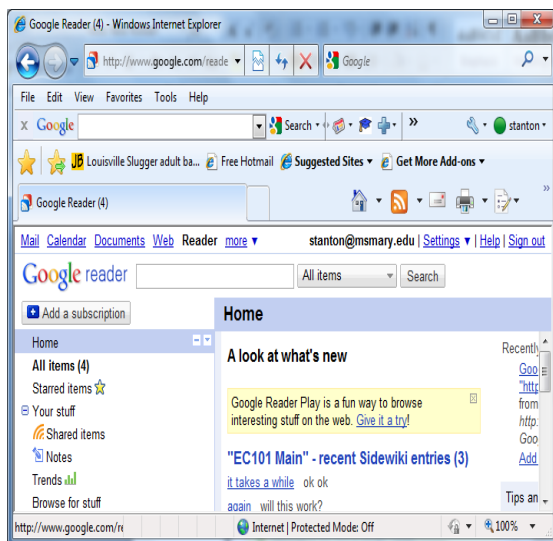


Click on the link which returns the following page.



Click on 'Subscribe to this feed in Google Reader.'

Assuming you are logged in to your Google account, this will take you to the Google Reader. From there, you can view all entries made to the Sidewiki for that page.



Everyone who wants to view all the Sidewiki entries, the professor as well as the students, needs to perform these steps. The only way to be sure that you can see all Sidewiki entries is to view them through the RSS reader.

FINAL THOUGHTS

While digital technology appears to hold the promise of enhancing student learning, employing it in a way that truly does so remains elusive. We might try new ways of using technology, but the question remains as to whether this is just a different way to teach the material or if it is actually a better way. Confounding the issue is the entire notion of usable metrics to measure student achievement.

The specific application of technology explained in this paper, the Google Sidewiki, did not provide a definitive answer to the question of whether student learning was enhanced. Casual observation led me to conclude that the class generally seemed to enjoy the classroom interaction with the Sidewiki. I suspect, however, that the need to create a RSS feed to see all entries complicated the process to a level that caused students to not read their classmates entries. I also suspect that the students liked the chapter outline that I provided for them to respond with a wiki entry.

For this or any attempt at digital delivery of classroom material, however, I suggest that it is important that we more precisely understand what is meant by 'Did the student learn more?' Do we mean more than what was learned by a comparable student 20 years ago before the existence of this technology? Or do we mean more than the student would have learned using more traditional methods? I would conclude that the answer to the first question is 'no.' Ultimately, students learn if they are motivated to learn. More tentatively, I also conclude that nowadays students very well may learn more in the classroom when digital technology is used than they would without it. Educators need to understand their students and recognize their view of the world, and the reality is that the modern student grew up in a digital world.

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THE USE OF CABELL'S AS A GUIDE TO SCHOLARLY PUBLISHING QUALITY IN MARKETING

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ABSTRACT

Some schools and marketing scholars have placed Cabell's Directories as the ultimate guide to scholarly publication. This despite Cabell's never has made that as part of their mission or aims. This study looked at where marketing scholars actually publish. The actual list of publication frequency was matched to Cabell's directory list. There is a wide discrepancy between journals listed in Cabell's and where marketing scholars actually publish. Many journals in Cabell's marketing directory are not published in by marketing scholars. A significant number of marketing journals where marketing scholars publish are not listed in Cabell's. A huge number of journals where marketing scholars publish (marketing or otherwise) are not listed in Cabell's. This pattern holds true by doctoral v. non-doctoral school faculty; by AACSB v. non-AACSB schools; and by rank when scholars published their articles.

INTRODUCTION

The task of a scholar is to produce new knowledge. One means of disseminating this new knowledge is through scholarly publication. In addition, the requirements of tenure and promotion of many institutions rest to a greater or lesser degree on both the quality and quantity of publication of its faculty. In the area of business, commonly used resources for measurement of publication are the Cabell's Directories of Publishing Opportunities. "Professors and graduate students in Marketing frequently use Cabell's Directory to assist them in publishing their manuscripts. Also, administrators and accrediting committees use them to evaluate publication records" (Cabell's, 2004). A recent AACSB-sponsored study looked at how member schools evaluate publications (Lewis, 2008). "Of the nearly 200 accredited schools that responded, only 11% reported that they used Cabell's Directories as their school's "journal list." Approximately 40% used their own internally-generated lists, another 43% had no formal list, and the remainder used some other externally generated list" (Iannarelli, 2009). In some cases, schools of business specify the use of Cabell's as the de facto authority (see examples in Appendix I). In some cases, Cabell's is a partial basis in research evaluating journal quality (see, for example, Bean & Bernardi, 2006; Olson, 2005). Numerous journals list inclusion in Cabell's on their websites. Although Cabell's does not claim or seek the position of authority on marketing journal publication, it has been anointed to that position. Given that Cabell's has some impact, either real or imagined, on the publication choices among marketing scholars, we were interested in seeing how well Cabell's reflects, rather than guides, the publication practices of marketing scholars.

METHODOLOGY

A random sample of marketing faculty was chosen from the 2004-2005 Marketing Faculty Guide (Hasselback, 2006). Every fourth name was drawn,

giving an initial sample of 966 names. Now the Marketing Faculty Guide includes names of deans as well as non-marketing department chairpersons and an occasional misclassification. Still, we believe that we have developed a random sample, and that any errors in the name list were random errors as well. Several rounds of e-mail solicitations were sent to all of the names on the list. In addition, a person-by-person search of college and university web sites for curricula vita was performed. Excluding names of deans and non-marketing faculty on the list, our original sample consisted of 903 names. As a result of these two efforts, resumes were secured for 322 faculty members, a response rate of 36.7 percent.

Of the 322 resumes secured, twelve were ultimately excluded for various reasons, mostly relating to incompleteness (in one case, the resume was determined not to have been updated for at least seven years) for an effective response rate of 34.4 percent. Each resume was coded for type of school (doctoral degree-granting or not), terminal degree-granting school, nationality of undergraduate school of faculty member, year degree was obtained, years different ranks were obtained, journals, articles, proceedings, papers, and other publications. Through the year 2005, these 311 marketing faculty produced 11,650 scholarly documents of all kinds, including 5,038 journal articles (in 908 different journals), 275 books (including textbooks), 5,305 proceedings and papers, and 1,021 other publications (book chapters, published cases, published reports, and so on). The earliest dated document was a paper from 1956; the earliest journal article was from 1961.

We caution readers that the findings are based on a sample of 311 resumes that were either received through e-mail solicitation or through discovery on individual web sites and should thus be viewed with that in mind. Those who responded may have greater pride in their scholarly accomplishments. Those who have a posted on-line resume may be at schools that have a stronger publishing environment. We think, as noted above, that this group somewhat overstates

publication rates. This is discussed below in the section on non-response bias.

We note also that in the discussion that follows, we did not check whether or not the publication was listed in other editions of Cabell's Directories, only the Marketing Directory. Thus, some of the journals in which marketing scholars publish may be listed in other Cabell's Directories.

FINDINGS

Of the 5,038 articles in the data set, 2,727 (54.1%) were in Cabell's. These 2,727 articles were printed in 129 journals listed in Cabell's. The other 2,311 articles were published in 776 journals not listed in Cabell's.

Some journals listed in Cabell's are not very frequently published in by marketing scholars. The summary findings are in Table One. Of the 211 journals listed in the 2004-2005 Cabell's Directory, marketing scholars had not published in 82 (38.9%). Marketing scholars had published one article each another 24 journals (11.4). Thus, marketing scholars had published one or no articles in about 50% of the journals listed in Cabell's. Articles where one or no articles from Cabell's-listed journals represent about one-half of one percent of all articles produced by this sample of scholars, and just under one percent of all articles that were published in journals listed in Cabell's. Marketing scholars had published six or less articles in almost two-thirds of the journals listed in Cabell's. Cases where six or less articles from Cabell's-listed journals account for about 3.0% of all journal articles published by marketing scholars and just under six percent of all articles in Cabell's-listed journals.

Table One:
Journals in Cabell's in Which Marketing Scholars Least Frequently Publish

Total articles in these journals	Number of Journals	Number of articles	% of journals in Cabell's
0	82	0	38.5
1	24	24	11.3
2	8	16	3.8
3	10	30	4.7
4	6	24	2.8
5	8	40	3.8
6	3	18	1.4
7	6	42	2.8
8	4	32	1.9
9	4	36	1.9
10	4	40	1.9

Table One, Part 2

Total articles in these journals	Cum. % of journals in Cabell's	Cum. % of all journal articles	Cum. % of Cabell's articles
0	38.5	0	0
1	49.8	0.5	0.9
2	53.5	0.8	1.5
3	58.2	1.4	2.6
4	61.0	1.9	3.5
5	64.8	2.7	5.0
6	66.2	3.0	5.7
7	70.0	3.8	7.2
8	71.8	4.5	8.4
9	73.7	5.2	9.8
10	75.6	6.0	11.2

A second question is which of the most frequently published-in marketing journals are and are not listed in Cabell's. The summary data is listed in Table Two. For the 2004-05 Cabell's, four of the five most frequently published-in journals by marketing scholars are listed in Cabell's. Eight of the ten most frequently published-in journals are listed in Cabell's. Twenty-nine of the forty most frequently published-in journals are listed in Cabell's. The eleven journals not listed in Cabell's are shown in Table Three.

Table Two:
Most Frequently Published-in Journal by Marketing Scholars and Cabell's Listing

Most frequently journals by rank	Total articles in these journals	Number of articles in Cabell's-listed journals	Number of journals not in Ca-bell's
1-5	816	682	1
6-10	1262	1047	1
11-15	1596	1381	0
16-20	1859	1596	1
21-25	2074	1726	2
26-30	2255	1835	2
31-35	2417	1900	3
36-40	2547	2004	1

Table Two, Part 2

Most frequently published in journals by rank	Cum. number of journals not in Cabell's	Cum. % of all journal articles	Cum. % of Cabell's articles
1-5	1	16.2	25.4
6-10	2	25.1	39.0
11-15	2	31.7	51.4
16-20	3	36.7	59.4
21-25	5	41.2	64.3
26-30	7	44.8	68.3
31-35	10	48.0	70.8
36-40	11	50.6	74.6

Table Three:
Journals In Which Marketing Scholars
Frequently Publish, not in Cabell's Marketing
Directory

Journal of Business Research
Marketing Science
Journal of Product Innovation Management
Journal of Personality and Social Psychology
Journal of Business Ethics
Business Horizons
Journal of International Business Studies
Journal of Experimental Social Psychology
Journal of Education for Business
Journal of Professional Services Marketing
Journal of Direct Marketing

We then went further and looked at publication patterns among three different groups of scholars:

- Scholars at non-doctoral granting schools v. scholars at doctoral granting schools;
- Scholars at different ranks; and,
- Scholars at AACSB-Accredited schools v. scholars at non-AACSB accredited schools.

Non-doctoral granting schools v. doctoral granting schools

Schools were grouped into those that offered doctoral degrees in business/marketing (doctoral schools) and schools that did not offer doctoral degrees in business/marketing (non-doctoral schools). Scholars at doctoral schools had a slightly higher propensity to publish in Cabell's-listed journals. These 124 scholars published 56.2 % of their articles in Cabell's

journals (1,534 of their 2,729 articles). These articles were published in 111 listed journals (52.1% of the journals in Cabell's). Scholars at non-doctoral schools had a slightly lower propensity to publish in Cabell's-listed journals. These 161 scholars published 51.6 % of their articles in Cabell's journals (1,195 of their 2,306 articles). These articles were published in 111 listed journals (52.1% of the journals in Cabell's).

Scholars at different ranks

There were 4,322 articles where rank of the author at the time of publication could be reasonably identified or estimated. There were 87 Full Professors at the time of publication of their article(s). They published 593 articles in 293 non-Cabell's journals (42.8% of all their articles) and published 792 articles in 98 Cabell's journals (57.2% of all their articles). They published articles in 293 journals not in Cabell's Marketing. They published in 98 journals included in Cabell's (46.4 % of listed journals).

There were 156 Associate Professors at the time of publication of their article(s). They published 548 articles in 251 non-Cabell's journals (43.7% of all their articles) and published 706 articles in 98 Cabell's journals (56.3% of all their articles). Associate professors published articles in 251 journals not listed in Cabell's Marketing. They also published in 98 journals included in Cabell's (46.4% of listed journals).

There were 229 Assistant Professors and Instructors at the time of publication of their article(s). They published 776 articles in 382 non-Cabell's journals (45.8% of all their articles) and published 917 articles in 103 Cabell's journals (54.2% of all their articles). Assistant and Instructors published articles in 382 journals not listed in Cabell's Marketing. They also published in 103 journals included in Cabell's.

For all scholars of all ranks, they published 1,917 articles in 684 non Cabell's journals (44.4% of all their articles) and 2405 articles in 127 journals listed in Cabell's (55.6% of all their articles).

Although there appears to be a slight increase in publishing, Cabell's as one rises in rank, the increase is very slight (increases by 3 percentage points from Assistant to Full Professor). We are somewhat surprised by the lower publication percentage by assistant/instructors, as we would have expected that pressures to get tenure would have encouraged them to publish in more conservative journals – that is, those listed in Cabell's.

AACSB Status

Finally we looked to see if being at an AACSB-accredited school made a difference in publication patterns. We note that in the sample, faculty at non-accredited schools published relatively few journal articles (268, or about 5% of all articles published), and so the results may be subject to sample size error.

At non-AACSB accredited Schools 28 faculty published 268 total articles. Of these, 156 articles were in non-Cabell's journals (58.2% of all their articles). These 156 were in 104 non-Cabell's journals. They published 112 articles in Cabell's journals (41.8% of all their articles). These were in 53 Cabell's journals.

At AACSB-accredited schools, 257 faculty published 4,767 articles. Of these, 2,155 articles were in non-Cabell's journals (45.2% of all their articles). These 2,155 were in 734 non-Cabell's journals. They published 2,612 articles in Cabell's journals (54.7% of all their articles). These were in 125 Cabell's journals.

CONCLUSIONS AND IMPLICATIONS

We are somewhat surprised by these findings. We did not expect that such a high percentage of faculty publications would be in non-Cabell's journals. We did not expect the high percentage of journals in Cabell's Marketing directory in which marketing faculty do not seem to publish. We did not expect the very large number of journals in which marketing scholars publish that are not in Cabell's. We did not expect that lower ranks would have a lower propensity to publish in Cabell's journals.

We further note that the pattern of publications among marketing scholars diverges significantly enough from the list in Cabell's that Schools of

Business ought to exercise caution in assigning a role to Cabell's for which it was not designed nor claims to have been designed – that of journal quality guide.

Finally, we suggest that Cabell's or some other publication might consider studies such as this as a guide to inclusion/exclusion criteria for journals. Listing journals that are most frequently published-in by marketing scholars can increase the utility of the journal and provide a more contemporary picture of the publishing horizons of marketing faculty.

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APPENDIX
Cabell's in School of Business Publishing Guides

A. From tenure and promotion document, medium-sized Midwest public university (italics added):

“Cabell’s Directory of Publishing Opportunities in Business Administration and Economics, Cabell’s Directory of Publishing Opportunities in Management and Marketing, Cabell’s Directory of Publishing Opportunities in Accounting, Economics & Finance, Cabell’s Directory of Publishing Opportunities in Education *will be used as a reference in identifying refereed journal articles* or those journals where the reviewing process consists of (a) two or more members of an editorial board or (b) two or more outside reviewers. All other departments in which the scholarship areas do not fit these directories will be required to provide clear definition of a refereed journal article but at a minimum....

B. From performance evaluation document, large Midwest public university:

“Behavior Evaluated: The Quality of Research (20) - The Level of Quality of the Faculty Member's Research.

Rating Class	Behavior Description
Superior – Far Exceeds Expectations (20.0)	The faculty has at least one article published in a top tier journal over the calendar year
Outstanding Exceeds Expectations (15.0)	The faculty has at least one article published in a tier two Cabell’s or Cabell’s-type journal over the calendar year.
Good – Meets Expectations (10.0)	The faculty has at least one article published in a tier three Cabell’s or Cabell’s-type journal over the calendar year.
Inadequate – Below Expectations (5.0)	The faculty has at least one article published in a journal or proceedings, but the outlet is not a Cabell’s-type publication.

A BETTER MODEL FOR COMPUTING IMPUTED LEASE INTEREST

David E. Vance, Rutgers University School of Business Camden

ABSTRACT

Leasing has grown beyond copiers, autos and buildings to whole factories. Lease rates allow leases with different terms to be compared to one another and to alternative means of financing. Lessors rarely provide lease rates and that puts leasees at a serious negotiating disadvantage. Selecting the lowest monthly lease payment is no guarantee that a company is going to get the best lease terms. Application fees, down payments, prepayments, deposits and buyout terms can increase imputed lease interest above 20%.

Solving for lease interest usually involves mathematics beyond that of most practitioners or it involves computer programs that rely on trial and error. Few financial calculators can handle the variety of terms presented in a typical lease. The contributions of this article are to identify terms that affect imputed lease interest rates and provide a method of computing imputed interest without resorting to advanced mathematics or brute force computer programs.

INTRODUCTION

Leasing equipment, buildings and whole production facilities is a growing alternative to traditional bank financing. Leasees are rarely provided with the imputed interest rate. Generally they know the value of leased asset, lease payment amount, length of lease, and terms involving deposits, prepayments, application fees and buy-out. However, without a way to estimate the imputed lease rate there is no way to balance the trade-off between leasing or other financing alternatives or to compare leases with different terms among themselves. Financial decisions which rest on these calculations have substantial implications for investment decisions, capital expenditures and lease versus purchase decisions. Operating leases are not considered in this analysis, only capital leases.

Lack of information puts leasees at a severe negotiating disadvantage. One of my clients had been unwittingly leasing equipment at 24% per year because the imputed lease rate was never stated and neither the client nor its outside accountants could compute the imputed interest rate considering factors such as deposits, prepayments, application fees and lease-end buyout terms. I advised the leasing company I had calculated their lease rate and could find the client better terms elsewhere. Within the hour, the lessor rewrote the lease at 14%, a rate appropriate for the credit risk of the client company. Knowledge is power.

Simulations of a \$100,000 five year lease show that a lease with a \$2,076 monthly payment can have an imputed interest rate almost 50% higher than one with a \$2,379 monthly payment depending on the lease terms. Selecting the lowest payment does not necessarily mean a leasee is selecting the best lease.

One of the most important questions to ask in analyzing a lease is how much of the leasing company's money is being put up for the leased asset. Leasing companies rarely provide all the capital for a lease. Deposits, prepayments, down payments and application fees all reduce the lessor's capital commitment. A substantial buyout at the end of the lease can also increase the imputed interest rate.

The contributions of this article are to frame the discussion of lease costs, identify elements of a lease contract that affect the imputed lease interest rate, demonstrate that the lowest lease payment is not necessarily the best bargain, and provide a method of computing lease interest that is accessible to most financial practitioners.

Section 2 of this article is a literature review. Section 3 discusses the elements of a lease contract that impact imputed interest, Section 4 introduces a general form for solving imputed lease interest problems and Section 5 is a conclusion. Appendix A is a summary of time value of money equations referenced throughout in functional notation. Appendix B is a detailed solution to a lease problem using the techniques discussed herein.

LITERATURE REVIEW

Lack of information about imputed lease interest rates put lessees at a substantial negotiating disadvantage (Sorensen and Johnson 1977). This disadvantage is reflected the fact that leasing is more expensive than most alternatives (Gudiknst and Roberts 1975) and lease companies have excess profits when compared to competing financial companies (McGugan and Caves 1974).

The asset being leased is not the relevant value when computing lease interest; it is the amount of financing

provided by the lessor (Vance 2003, Brealey and Myers 2000). Prepayments reduce the amount financed and most leases require one or two months lease payments in advance (Obersteiner and Jalics 1980). Sorensen and Johnson (1977) found most leases required down payments, some as high as 19.5% of asset value. Down payments have a strong rate-increasing impact. Application and processing fees as well as deposits also reduce the amount of financing a lessor provides.

Computation of the imputed lease rate involves discounting cash inflows and outflows of the lessor back to present dollars. The difficulty is not computing a present value. The difficulty is finding a rate that discounts lease payments, the buyout amount and deposit back to the amount the lessor actually finances. Historically, lease problems have been difficult solve. Many authors recommend trial and error (Brealey and Myers 2000, Gardner et. al. 2000, Akpan 1999, Brigham 1998, Emery et. al. 1998, Scott et. al. 1998, Mayo, 1998, Gutman and Yagil, 1993, Rinner 1983, Obersteiner and Jalics 1980). Trial and error is inelegant and time consuming. In the alternative, they recommend computer programs that increment the discount rate in small steps until an approximate solution is found. This usually involves writing software that must be tailored to the facts of every problem. Financial calculators have also been recommended (Brigham and Houston 1998, Emery et. al. 1998, Scott et. al. 1998) but unless financial practioners understand exactly what the calculator is doing, it comes dangerously close to “magic” and magic is difficult to test or confirm. There is also a question as to whether pre-set algorithms in financial calculators account for all the variables that impact the imputed lease rate.

More sophisticated mathematical techniques can increase precision significantly. For example Anderson (1994) recommends use of Taylor series, Gutman and Yagil (1993) recommend use of a Maclaren series and Thurlund-Peterson (2004) advocates use of Newton’s method to solve time value of money problems for the discount rate. The problem with these methods is that they are beyond the skills of financial practitioners who are not mathematicians by training or temperament.

PROBLEM ANALYSIS

A lessor that quotes a lower monthly payment could be charging a higher imputed interest rate than a lessor with a higher monthly payment by manipulating prepayment, deposit and processing

fees. Table 1 Analysis of lease terms presents the imputed lease rate for a \$100,000 five year lease considering various lease terms, is given in Appendix C. The first example in Table 1, Panel A shows the lease payment where the only obligation of the lessor is to make monthly payments and the lessor receives title to the leased item at the end of the lease. The lease interest for this example is 15%. Examples 2 through 10 in Panel A hold the lease payment constant and vary terms such as down payment, deposit, prepayments, and application fee. Panel B is similar to Panel A except that example 1, the example in which the only lease term is to make monthly payments, is based on a 12% lease rate. Panel B examples 2 through 10 vary lease terms other than the monthly payment. Panel C is similar to Panels A and B, but is based on a lease rate of 9%.

The lease in Panel A, example 1 has a monthly payment of \$2,378.99 and the lease in Panel C, example, 7 has a monthly lease payment of \$2,075.84. Yet the panel C lease has an imputed interest rate of 16.82% as compared to the lease in Panel A example 1, which has an imputed lease rate of 15% even though the Panel A lease payments are \$303 higher. The difference in the lease rates springs from differences in the lease terms. Unless one understands how lease terms impact the imputed rate, it is difficult to make meaningful decisions.

Lease terms vary considerably. The analysis of imputed lease interest must start with an understanding of the amount the leasing company is actually financing for the lessee. Sometimes a lease will ask for the first payment in advance or the first and last payment in advance. These prepayments reduce the amount the lessor is financing. Sometimes a lessor will require a down payment of some arbitrary number of dollars and an application fee. These payments also reduce the amount that the lessor is financing for the lessee. Deposits increase the complexity of the computation because deposits are paid to the lessor in current dollars and returned at the end of the lease in future dollars. None the less, deposits also reduce the amount the lessor is financing for the lessee.

The Amount Financed is given by equation (1).

$$\text{Amount Financed} = \text{Asset Price} \quad (1)$$

- Down payment
- Prepayments
- Deposit
- Application fee

Once the amount financed has been determined, the cash inflows to and outflows from the lessor must be calculated. The cash inflows and outflows, discounted by the imputed interest rate, k , must equal the amount financed as shown in equation (2). Imputed lease interest is therefore the discount rate that balances this equation.

$$\text{Amount Financed} = \text{Payment} \times \text{PVIFA}(k12, m) + (\text{Buyout price} - \text{Deposit}) \times \text{PVIF}(k12, n) \quad (2)$$

Payment is the amount of the payment quoted by the lessor. PVIFA is the present value interest factor for an annuity. Lease rates are quoted and compared on an annualized basis. However, since payments must be made monthly, the annualized lease rate k must be divided by 12 to get the period lease rate as shown in equation (3). The notation $k12$ is used to denote the monthly lease rate.

$$k12 = k / 12 \quad (3)$$

Prepayments complicate the calculation somewhat because they reduce the number of payments over the period of the lease. For example, one might expect to make 60 payments on a five year lease (5 years \times 12 months per year.) However, if the first and last month's payments are due in advance then only 58 payments will be made over the course of the lease (5 years \times 12 months per year – 2 prepayments.) The parameter m is the number of months in the lease, in this example 60, and n is the number of months in the lease less the number of prepayments, in this example 2.

The buyout price is the price at which the lessee can purchase the asset at the end of the lease. The buyout is simply another cash inflow for the lessor.

The deposit is an amount the lessee will get back at the end of the lease, discounted by the present value interest factor, PVIF, at the discount rate of $k12$, for n periods where n is the number of months in the lease term. It is a cash outflow for the lessor. Since both the buyout price and the deposit are discounted the same way for the same period of time, they can be netted to simplify the computation. The mathematical equations for the functions PVIFA and PVIF are given in Appendix A.

SOLUTION METHODOLOGY

Ordinarily, the only two ways to solve a function like equation (2) would be through trial and error or advanced mathematical techniques such as a Taylor Series, Maclaurin series or Newton's method. Trial

and error is tedious and advanced mathematical techniques are beyond the expertise of most accounting and finance practitioners. The methodology proposed herein sidesteps those limitations.

Equation (2) is a function which will differ in its details depending on the terms of the lease. No matter what the details, equation (2) can be generalized as equation (4) in which C represents the amount financed and $G(k)$ is a function of the imputed lease rate, k . All lease functions have the characteristic that as k increases the value of $G(k)$ decreases and as k decreases the value $G(k)$ increases.

$$C = G(k) \quad (4)$$

The solution to finding imputed lease interest, oddly enough, is to make something out of nothing. Select a k_1 which is a probable lower bound for k and rewrite equation (4) as equation (5).

$$\text{test}_1 = G(k_1) \quad (5)$$

Where test_1 is the output of the function $G(k)$ when the value k_1 is used as an input. If test_1 is greater than C , then the discount rate, k_1 , is not high enough. A way to visualize this is to think of the discount rate as sandpaper wearing away the value of money over time. If the sandpaper is coarse, that is k_1 is high, the value of future lease payments will erode quickly. If test_1 is greater than C , then k_1 is not high enough. Select a k_2 which is higher than k_1 and put that into $G(k)$ to generate a test_2 as shown in equation (6).

$$\text{test}_2 = G(k_2) \quad (6)$$

If test_2 is less than C , then the actual value of k is within the interval k_1 to k_2 . If test_2 is greater than C select a higher k_2 and evaluate equation (6) again to get a new test_2 . With a little experience using this technique, it is rarely necessary to recompute test_2 .

Conceptually, a series of k 's could be selected, each just slightly larger than the previous one and these could be used to generate a series of test_i 's. A graph in which the k 's could be plotted on the x-axis and test_i 's could be plotted on the y-axis as shown in Figure 1, Plot of k_i 's and test_i 's in Appendix D.

The imputed lease interest rate, k , is where test intersects C . Actually generating and plotting these points is tedious and unnecessary. As shown in Figure 2, the coordinates of three sets of data points are known. Let point A be defined by the coordinates (k_1, test_1) , let point B be defined by the coordinates (k_2, test_2) and let point D be defined by the

coordinates (k, C). Draw a line from point A to point B, and a line from point A to point D. As shown in Figure 2, Appendix D.

The slope of line AB is given by equation (7).

$$\text{Slope AB} = \frac{\text{test}_2 - \text{test}_1}{k_2 - k_1} \quad (7)$$

The slope of the line AD is given by equation (8).

$$\text{Slope AD} = \frac{C - \text{test}_1}{k - k_1} \quad (8)$$

Graphically, the slope AB is similar to the slope of AD. Assume the slope equation of AB is a good estimate of AD as shown in equation (9). It will be shown in the proof that this is a reasonable assumption. We can set equations (7) and (8) equal to one another.

$$\frac{\text{test}_2 - \text{test}_1}{k_2 - k_1} = \frac{C - \text{test}_1}{k - k_1} \quad (9)$$

In this equation the values of k_1 and k_2 are known because they were selected, and the values of test_1 and test_2 are known because they were computed, and the value of C was given in the initial problem. The only unknown in the equation is k , the discount rate that is the solution to equation (2). Applying algebra, provides equations (10) and (11).

$$k - k_1 = \frac{C - \text{test}_1}{\text{test}_2 - \text{test}_1} \times (k_2 - k_1) \quad (10)$$

$$k = [((C - \text{test}_1) / (\text{test}_2 - \text{test}_1)) \times (k_2 - k_1)] + k_1 \quad (11)$$

In the limit, as point B approaches point D, the slopes of AB and AD will converge. The derivative of $G(k)$ at any point on the line between A and B cannot change sign. Change of sign would indicate a change in the direction of the slope of the curve and the assumption that the slope of AB was equal to the slope of AD would no longer hold. However, this constraint has not proven to be a problem with real-world data.

PROOF

How do can it be demonstrated that the k derived from the above algorithm is a solution to $C = G(k)$? And how can the precision of the solution be evaluated? The precision of the solution for k can be measured by considering error in the estimate, E which is the difference between C , the amount financed, and $G(k)$ which is the discounted value of the lessor's cash inflows and outflows as shown in

equation (20) where k is the estimate of the lease interest rate derived above.

$$E = C - G(k) \quad (20)$$

To find the quality of the solution, Q , error, E , is scaled by C , the amount actually financed as shown in equation (21).

$$Q = \frac{C - G(k)}{C} \quad (21)$$

The smaller the Q the better. In the limit, when the estimate of k is perfect, Q tends toward zero. As a practical matter Q almost never reaches zero because of rounding errors. However, it quickly gets so close to zero that the remaining imprecision has no real world consequences. Q values on the order of a few hundredths of a percent are considered quite good.

If reasonable values are selected for k_1 and k_2 , the above methodology converges to k very rapidly and the desired precision might be obtained with one iteration of the algorithm. Since most companies borrow at or above the prime rate, and most leases have rates higher than bank loan rates, the prime rate would seem to set a floor under k_1 . There are no theoretical ceiling rates for imputed lease interest. However, I have not yet encountered a lease rate higher than 30% although I have seen many leases with rates above 20%.

If more precision is desired, make a second estimate of k by selecting a k_1 which is the first estimated k less 2% and a k_2 which is the first estimate of k plus 2%. Use these to generate a new test_1 and test_2 and solve for the new k . Second iteration Q values are often on the order of a few hundredths of a percent. At third iteration of this algorithm using the second iteration k plus or minus a tenth of a percent as k_1 and k_2 respectively usually proves Q values on the order of a few thousandths of a percent. A spread sheet can be constructed in which the output of the first iteration is automatically input to the second estimate and so forth. Appendix B provides a detailed example of the application of this technique.

CONCLUSION

The ability to solve for imputed the imputed lease interest is critical to comparing leases with different lease terms to one another and in comparing leases to other financing alternatives. The lease with the lowest monthly payment may not be the lowest cost lease in terms of the imputed interest rate. Inability to compute lease interest rates puts a lessee at a significant disadvantage when negotiating with a lessor.

Imputed lease interest has been difficult to compute for a variety of reasons. One reason is that all the factors that impact imputed lease interest are not usually considered. Firms tend to focus on the value of the asset under lease and not the amount of financing provided by the lessor. Cash inflow for an asset buyout and the cash outflow for the return of deposit are both in future dollars which must be discounted back to the present as must the value of every lease payment.

Discounting monthly payments and the other cash inflows and outflows involves solution of a non-linear, present value equations. Such equations are typically only solved through trial and error or through sophisticated mathematical techniques such as Taylor series, Maclaurin series or Newton's method which are beyond the reach of most accounting and finance practitioners. Trial and error solutions, often aided by computer, are common, but inelegant and require programs designed for specific lease terms. The method described here provides a simple, eloquent method for estimating imputed lease interest and does so using means that are not beyond the skills of most financial professionals.

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APPENDIX A TIME VALUE OF MONEY FUNCTIONS

Two common time value of money functions are critical to properly estimating imputed lease interest. These are the present value interest factor of an annuity, PVIFA discounts an even stream of payments to its present value, and the present value interest factor, PVIF discounts a single future payment to its present value. While charts exist for evaluating these functions, those charts often lack the values required for complex leases. They also lack the precision necessary to compute lease interest.

The present value interest factor for an annuity function PVIFA is shown in functional notation in equation (A1).

$$PV = \text{Payment} \times PVIFA(k12, n) \quad (A1)$$

Where payment is an even payment to be received regularly over period of time; k12 is the monthly discount rate. Discount rates, or imputed lease rates are usually quoted on an annual basis, k. To get a discount rate that can be used in the PVIFA function the annual rate must be converted into a monthly rate by dividing it by 12. The notation k12 represents one twelfth of the annual rate. The function PVIFA is simply a mathematical machine. The mechanism inside the machine for this function is given as equation (A2).

$$PVIFA(k12, n) = \left[\frac{1}{k12} - \frac{1}{k12} \times \left(\frac{1}{(1+k12)^n} \right) \right] \quad (A2)$$

The present value interest factor for a single payment is shown in functional notation in equation (A3).

$$PV = FV \times PVIF(k12, n) \quad (A3)$$

Where FV is the value of the payment to be received in the future and k12 has the meaning and same value as discussed above, and n is the number of periods, usually months, in the lease. The mathematics inside the function PVIF are given by equation (A4). Also see Vance, 2003.

$$PVIF(k12, n) = \left[\frac{1}{(1+k12)^n} \right] \quad (A4)$$

APPENDIX B IMPUTED LEASE INTEREST RATE EXAMPLE

What is the imputed lease interest rate given the following terms?

Asset Value:	\$100,000.00
Length of Lease	5 years
Lease Payment:	\$2,378.99
First payment due at signing	
Application fee:	\$1,000.00
Down payment:	\$5,000.00
Deposit:	\$5,000.00
Lease end buyout	\$10,000.00

Note that if the lessee received title to the asset at the completion of the lease and the lessee's only obligation was to make monthly lease payments, the rate of lease interest would be 15%. The lease terms in this example are much more complex and will result in a much higher imputed lease interest rate even though the monthly payments are the same.

1. Compute the amount financed using equation (B1).

$$\begin{aligned}
 \text{Amount Financed} &= \text{Asset Price} & (B1) \\
 &- \text{Down payment} \\
 &- \text{Prepayments} \\
 &- \text{Deposit} \\
 &- \text{Application fee} \\
 &= \$100,000.00 \\
 &- \$5,000.00 \\
 &- \$2,378.99 \\
 &- \$5,000.00 \\
 &- \$1,000.00 \\
 &= \$86,261.01
 \end{aligned}$$

2. Write the general form of the lease using equation (2), but substitute test₁ for the Amount financed giving equation (B2).

$$\begin{aligned}
 \text{test}_1 &= \text{Payment} \times PVIFA(k12, n) & (B2) \\
 &+ (\text{Buyout price} - \text{Deposit}) \times PVIF(k12, n)
 \end{aligned}$$

3. Select a k₁ which is the lower bound of the likely imputed lease interest rates. For this example k₁ will be 9% which is slightly higher than the prime interest

rate. Use this to compute k_{12} which is the monthly discount rate of 0.75% (9%/12).

4. Expand the functions PVIFA and PVIF in (B1) into their equation form and input known values.

$$\text{test1} = \$2,378.99$$

$$\begin{aligned} & \times [(1/0.75\%) - ((1/0.75\%) \times (1/((1 + 0.75\%)^{60-1})))] \\ & + (\$10,000 - \$5,000) \times [1/(1+0.75\%)^{60}] \\ & = \$2,378.99 \\ & \times [133.33333 - 133.33333 \times (1/1.55403)] \\ & + \$5,000 \times [1/1.56568] \\ & = \$2,378.99 \times [133.33333 - 85.79843] \\ & + \$5,000 \times .63870 \\ & = \$2,378.99 \times 47.53493 + \$5,000 \times .63870 \\ & = \$113,085.12310 + \$3,193.50000 \\ & = \$116,278.62 \end{aligned}$$

5. The discount rate selected for k_1 is not high enough to discount the payment stream down to the amount financed, in this example \$86,261.01. So, k_2 must be higher. Let k_2 be 30%. As before, k_2 must be divided by 12 to get the period interest rate of 2.5% (30%/12).

$$\text{test2} = \$2,378.99$$

$$\begin{aligned} & \times [(1/2.5\%) - ((1/2.5\%) \times (1/((1 + 2.5\%)^{60-1})))] \\ & + (\$10,000 - \$5,000) \times [1/(1+2.5\%)^{60}] \\ & = \$2,378.99 \times 30.68137 + \$5,000 \times .22728 \\ & = \$74,127.10 \end{aligned}$$

6. Make a first estimate of k by using equation (11).

$$\begin{aligned} k &= [((C - \text{test}_1) / (\text{test}_2 - \text{test}_1)) \times (k_2 - k_1)] + k_1 \quad (11) \\ &= [((\$86,261.01 - \$116,278.62) / (\$74,127.10 - \$116,278.62)) \\ &\quad \times (30\% - 9\%)] + 30\% \\ &= 23.7754\% \end{aligned}$$

7. At this point, one could evaluate the quality of imputed lease solution using equation (21) and if the quality were high enough, there would be no need to go further. However, this example continues into a second iteration. Subtract 2% from the estimate of k , to get a new k_1 and add 2% to the estimate of k to generate a k_2 giving a k_1 of 21.7754% and k_2 of 25.7754% to generate a new test_1 and test_2 .

$$\text{new test1} = \$2,378.99 \times 36.035121$$

$$+ \$5,000 \times 0.339932$$

$$= \$87,426.85$$

$$\text{new test2} = \$2,378.99 \times 33.26903537$$

$$+ \$5,000 \times 0.2779396$$

$$= \$80,543.68$$

8. Using the new k_1 and k_2 , test_1 and test_2 along with the amount financed of \$86,261.01 in equation (11) gives a new estimate of k .

$$\begin{aligned} k &= [((\$86,261.01 - \$87,426.85) / (\$80,543.68 - \$87,426.85)) \\ &\quad \times (25.7754\% - 21.7754\%)] + 21.7754\% \\ &= 22.2347\% \end{aligned}$$

9. Computing the Q value for this solution using equation (21) gives:

$$\begin{aligned} Q &= (C - G(k)) / C \quad (21) \\ &= (\$86,261.01 - \$86,576.44) / \$86,261.01 \\ &= 0.05\% \end{aligned}$$

If a third iteration were desired to further improve precision, k_1 and k_2 would be set at the estimated value of k minus 0.1% and plus 0.1% respectively. A third iteration of this algorithm is rarely needed for most decision making purposes and often a single iteration is enough to evaluate a lease proposal.

While this method of computing imputed lease interest rate may seem tedious, it has the virtue of being straight forward. No complicated mathematics is required and intermediate steps can be checked for reasonableness. With a little practice imputed lease interest rates can be calculated with a simple calculator in a few minutes and a spread sheet that can analyze any combination of lease terms can be constructed in about an hour.

APPENDIX C

Table 1 Analysis of Lease Terms

This is an analysis of a \$100,000 five year lease considering various application fees, down payments, prepayments, deposits and lease buyout terms. The monthly payment is held fixed at the amount that would be required if monthly payments were the leasee's only obligation and title were transferred at the end of the lease. Example 1 in Panels A, B and C are for monthly payments computed at 15%, 12% and 9%. As can be seen, starting with Panel C, scenario 7, the imputed lease rate of 16.66% is higher than the base rate for Panel A of 15% even though the monthly payments in Panel C are \$303 less than they are in Panel A. Low monthly payment is therefore no guarantee of the best bargain.

Panel A For a 5 year, \$100,000 lease at a base rate of 15%

	Application Fee	Down Payment	Pre- payments	Deposit	Lease Buyout	Monthly Payment	Amount Financed	Imputed Interest
1	0	0	0	0	0	2,378.99	100,000	15.00%
2	1000	0	0	0	0	2,378.99	99,000	15.46%
3	1000	5000	0	0	0	2,378.99	94,000	17.85%
4	1000	0	1	0	0	2,378.99	96,621	16.06%
5	1000	0	1	5000	0	2,378.99	91,621	17.49%
6	1000	5000	1	5000	5000	2,378.99	86,621	21.27%
7	2500	5000	1	5000	10000	2,378.99	80,121	23.06%
8	2500	5000	2	5000	10000	2,378.99	77,742	24.01%
9	2500	0	2	10000	20000	2,378.99	82,742	24.89%
10	2500	5000	2	10000	20000	2,378.99	77,742	27.98%

Panel B For a 5 year, \$100,000 lease at a base rate of 12%

	Application Fee	Down Payment	Pre- payments	Deposit	Lease Buyout	Monthly Payment	Amount Financed	Imputed Interest
1	0	0	0	0	0	2,224.44	100,000	12.00%
2	1000	0	0	0	0	2,224.44	99,000	12.44%
3	1000	5000	0	0	0	2,224.44	94,000	14.76%
4	1000	0	1	0	0	2,224.44	96,776	12.92%
5	1000	0	1	5000	0	2,224.44	91,776	14.11%
6	1000	5000	1	5000	5000	2,224.44	86,621	16.77%

7	2500	5000	1	5000	10000	2,224.44	86,776	17.95%
8	2500	5000	2	5000	10000	2,224.44	83,085	20.63%
9	2500	0	2	10000	20000	2,224.44	83,051	21.62%
10	2500	5000	2	10000	20000	2,224.44	78,051	24.58%

Panel C For a 5 year, \$100,000 lease at a base rate of 9%

	Application Fee	Down Payment	Pre- payments	Deposit	Lease Buyout	Monthly Payment	Amount Financed	Imputed Interest
1	0	0	0	0	0	2,075.84	100,000	9.00%
2	1000	0	0	0	0	2,075.84	99,000	9.43%
3	1000	5000	0	0	0	2,075.84	94,000	11.69%
4	1000	0	1	0	0	2,075.84	96,621	9.93%
5	1000	0	1	5000	0	2,075.84	91,924	10.73%
6	1000	5000	1	5000	5000	2,075.84	86,924	14.65%
7	2500	5000	1	5000	10000	2,075.84	85,424	16.66%
8	2500	5000	2	5000	10000	2,075.84	83,348	17.29%
9	2500	0	2	10000	20000	2,075.84	83,348	18.42%
10	2500	5000	2	10000	20000	2,075.84	78,343	21.62%

APPENDIX D

Figure 1 – Plot of k_i s and $test_i$ s

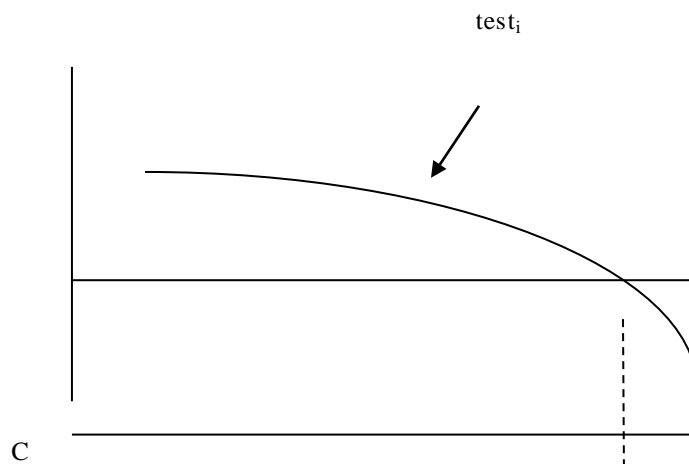
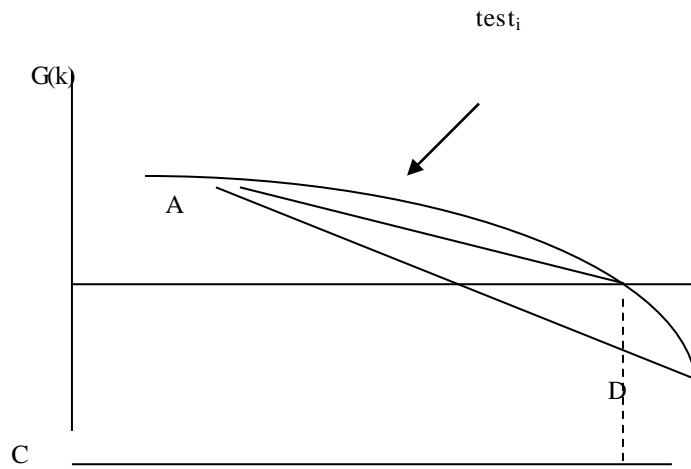


Figure 2 – Slopes



JUST SHORT OF CHAOS: SIMULATING COMPLEXITY IN THE CLASSROOM TO SPUR INNOVATIVE THINKING

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ABSTRACT

At the turn to the 21st century, philosopher and educational entrepreneur Mark Taylor (2001) argued that our hyperlinked society demands a shift from a closed system of education and workforce training to an open systems approach that promotes wider understanding of the complex networks characterizing the rapid pace of change in the digital age. Rather than learning a set of static principles pertaining to specialized organizations, which may already be obsolete, students must be prepared to discover the innovative possibilities presented by the shifting networks of interdependent organizations.

In this paper, we argue that Taylor's vision for education—his formal turn to complexity theory—is uniquely compatible with both the goals of entrepreneurship and with current scholarship regarding best practices in teaching. We note that well-designed simulations that balance chaos with structure, innovative problem-solving with foundational principles, as well as flexibility to accommodate new discovery with opportunities for written reflection should better enable business management students to navigate the many moments of complexity facing the 21st-century businessperson.

INTRODUCTION

Our late twentieth-century turn to data-rich and hyperlinked digital environments to carry out our personal, professional, and business transactions has fundamentally changed the metaphors and strategies that we use to describe and navigate our lives in the 21st century. Jeremy Rifkin (2001) sees that business has already shifted its primary emphasis from product to process, from one-time sale to lifetime relationships, and from property ownership to more market-friendly, flexible lease arrangements. This shifting environment towards connectivity and flexibility over production has profound implications for how we prepare the workers, managers, and entrepreneurs of the future. If we believe Rifkin, the emphasis seems to be on continuous change as the hallmark of business in the digital age.

One telling illustration of Rifkin's vision can be found in *Cosmopolis* (2003), Don DeLillo's near-apocalyptic rendering of the age of cybercapital. In this novel, the protagonist is a global currency speculator who depends on the ubiquitous information flows from digital networks to "track" currencies and develop new "matrices" for forecasting the market when "something doesn't track." He uses computers to assimilate potential butterfly effects in which seemingly disconnected data, such as the blinking of an eye or the late bloom of ornamental flowers in China, may provide clues into the immediate future performance of the yen. While exaggerated for novelistic effect, DeLillo's central premise coincides with our age's oft-stated belief that responsiveness to data, flexibility to

change, openness to participation in interdependent networks of providers, and willingness to innovate (and perhaps also fail in the attempt) are the keys to our success in business. Either gone or outsourced are the days of industrial stability signaled by continuous employment with one employer, single product factories, and industries that operate in isolated production sectors. We must now think of our businesses as participating in a complex web of interdependencies rather than a linear flow chart of operations.

Yet, as business educators or trainers, we might feel a certain anxiety emerge from this accelerated rate of change, this continuous disequilibria, which seems incompatible with teaching and learning. What do we teach if innovation renders the lessons almost simultaneously obsolete? How can we prepare students to navigate a world that we cannot yet envision ourselves? In this paper, we suggest first that trainers/educators ground their learning strategies in best practices for teaching and learning which fully advocates for using such active approaches as discussions, reflective writing and simulations. Building on this foundation, we follow the lead of philosopher and educational entrepreneur Mark Taylor (2001) by turning to complexity theory as a guide to validate or update and develop more responsive simulation pedagogies. Through application of complexity theory, we argue, simulations transform from an emphasis on final solutions to additional emphases on an environment, just short of chaos, in which innovative decisions must be made; on contemplation of the unexpected

variables that led to those decisions; and on the allowances for change imbedded in the now temporary solution.

BEGINNING WITH A FOUNDATION

Using a four-point framework including key concepts of connection, communication, interaction, and reflection, we outline several foundational points linked to best practices in undergraduate education. As described below, connection, communication, and interaction are all means to navigate complex, overlapped, and networked organizations (or by analogy: individual students, their groups, and their interaction with other groups). Through continuous reflection, we begin to crystallize a working modality that can be productive at the moments of crisis, just short of chaos.

- **Connection:** An effective learning environment incorporates meaningful activities that connect the learner with content. While theorists (Kolb, 2005; Whetten, 2007; Chickering & Gamson, 1987) acknowledge that students possess different approaches to learning (different learning styles), today's traditional-age college student exhibits greater preferences toward learning by doing and for use of multimedia (Howe & Strauss, 2007; Bell, Kanar, & Kozlowski, 2008). Bell et al. (2008) suggest that student connection to material may be strengthened by the use of images, graphics, video, sound, and special effects. Moreover, that connection to the material intensifies when learning activities include a sense of realism and an authentic feel to the learning environment (Lainema & Lainema, 2007). Today's traditional, undergraduate students have been steeped in this exponential evolution of the digital world and may gain this sense of realism when technology is used as a catalyst for learning. As prolific users of communication technologies, for example, students will connect to course content when their technological skills are featured in the learning equation (Proserpio & Gioia, 2007). Simulations provide these kinds of connections. Although complexity and chaos may push students to think critically, a systematic learning approach and deliberate selection of appropriate learning activities, including simulations alongside other learning strategies are required (Boyce, 2008). Incorporating well-designed writing assignments into the simulation may also create a means for students to think critically and connect more deeply with the material.
- **Communication:** Connections to material and learning also emanate from constant communication between the instructor and students. Instructors should establish open channels of communication by first outlining expectations – for the course, assignments, time on task, professional behavior, group work and in this case, risk taking and innovation – that establishes the tone at the outset and continues throughout the entire learning experience building on the foundation created (Chickering & Gamson, 1987). Aside from delivering instruction, professors should also discuss student performance, ask questions of students, give suggestions and feedback, and recognize accomplishments of all participants. Ongoing communication informs and motivates the student toward learning especially when the learning environment is complex and potentially viewed as chaotic.
- **Interaction:** While communication between the instructor and student strengthens the learning process, interaction between students creates a social and collaborative environment where students share insights and develop a collective knowledge. As students disclose their individual ideas, discuss, and even write about them, learning evolves as a collective knowledge with a deeper understanding of the topic, issue, or problem (Xu & Yang, 2010). Such virtual technologies as simulations conducted in tandem with group work (including writing) can facilitate social interaction and complex problem solving that enables students to learn course content, connect theories and practice, and understand interpersonal connections of the project (Proserpio & Gioia, 2007; Xu & Yang, 2010). Bell et al. (2008) assert that courses designed with heavy interaction will ensure the realism of the simulation and give students the experience of a collaborative team approach to understanding an industry's environmental influences and their effects on competition. Certainly, collaborative learning experiences which require the development of relationships among peers will also begin preparing students to navigate these interdependent relationships among key organizational stakeholders.
- **Reflection:** Reflection upon all aspects of the learning activity promotes more effective learning. Instructors' communication with students about performance results provides a needed step towards student reflection on the learning activity – in this case, the simulation. Instructor feedback gives students areas on which to focus learning through reflection

(Chickering & Gamson); however, giving instructor feedback doesn't necessarily assure reflection. Developing assignments that ask students to reflect on their performance and other groups' performances are sometimes the most important aspects of learning (Green, 1995; Lainema & Lainema, 2007). Wills and Clerkin (1996) further suggest enhancing the students' experiences by blending the simulation game with reflective writing tools. They assert that reflection helps highlight patterns, practices writing collaboratively, documents what was learned, connects theories to practice, expresses affective responses of team members, improves self-awareness, and showcases success of team dynamics. Whether using a simulation or another learning activity to apply concepts, combining it with such reflective writing activities produces several benefits and learning outcomes.

Although this four-point framework justifies the use of simulations alongside other pedagogical approaches, this firm foundation still falls short of preparing business students to negotiate today's workplace without intentional means to confront complexity and ambiguity. Because change and innovation do not lend themselves to one-size-fits-all responses, 21st-century workforce preparation cannot rely on decontextualized assignments or on simulations that drive conformity to a closed set of pre-established outcomes. Today's workers must be prepared to adapt to changing circumstances and to make immediate decisions in complex environments generated uniquely in that moment, what Taylor (2001) calls the "moment of complexity."

THE TURN TO COMPLEXITY THEORY

The need for a turn to complexity in business education to prepare future business leaders can be best illustrated through reference to the business model of McDonald's®, a classic Fordist mode of production that emphasizes replication and efficiency. According to the oft-repeated litany, Ray Kroc examined the rise of highway culture in the U.S. and envisioned a roadside restaurant that could move at the speed of business, while providing a reliably consistent product. Chicken McNuggets® in Kentucky are the same frozen products as those in California. Yet, we can see how this product homogeneity may become a liability in an information-rich, networked world, which manages several overlapping discursive data nodes, emphasizes customized consumer environments, and fetishizes innovation. When the I-Phone can instantly locate local food restaurants or specific

ethnic cuisines, it renders the consistency of the hamburger and the reliance of McDonald's® on "meat and potatoes" less than inspiring.

By definition, the business model that depends on homogeneity will find true innovation and real-time responsiveness to changing conditions quite cumbersome. We need only remember that the new McCafe® line with its rebranding of McDonald's® as, in part, a multimedia coffee shop comes decades after corner on the market of organic coffees and made-to-order drinks by Starbucks®. Soon, we can envision, as has already happened to the beer industry through the rise of microbreweries, even Starbucks® struggling to contend with the local coffee shop that can cater more easily to the quirks of the surrounding community. In both examples, the turn to complexity is ultimately the shift from Fordist production models to a post-Fordist internetworked commerce that emphasizes heterogeneity over homogeneity, that is to say, customization to individual stakeholder needs over unchanging, blanket quality control.

Applied widely across professional and academic fields, complexity theory is rooted in three primary principles (Taylor, 2001):

- Systemic change occurs discontinuously rather than in orderly increments.
- Complexity emerges out of non-linear systems in a state of disequilibrium, such as individualized customer demands delivered in real time.
- Significant change occurs at a tipping point just short of chaos, not out of overly ordered environments or out of totally disordered ones.

Taken together, these principles imply a sensitivity to the uniqueness imbedded in particular situations, a condition metaphorized variously as openness to "ambience" (Rickert, 2004), "understanding when interpretation departs from scientific method" (Tietge, 2004), or "contingency" (Honig, 2007). In this environment, the effective manager, employee, or entrepreneur is one who can respond to variables and anomalies rather than one who simply controls for them to eliminate surprises. In the McDonald's example, our envisioned unresponsiveness to change and limited opportunity for innovation comes directly out of the precise, timed measurements of quantity and production that ensure consistency rather than innovation. It is an environment that is too ordered, too scientific in its precision, and too sure of its narrativized, handbook solutions to respond effectively and quickly to rapidly changing business conditions.

As a result of this shift in the modes of business, educators would better prepare students to be more responsive to unexpected events, to inevitable disequilibria, and to the opportunities for innovation at the tipping points just short of chaos by envisioning the classroom as a complex organization and developing student performances that include “the thing that doesn’t track” (DeLillo, 2003) and open-ended ranges of solutions for the wide variety of interdependent stakeholders and competitors. In this context, it is particularly helpful to look at the work of Benson Honig in the area of entrepreneurial education. Honig (2007) emphasizes that no empirical evidence supports the ubiquitous use of business plans as an effective teaching tool and conceptualizes three different approaches to entrepreneurial education:

- Normative: Students prepare constraining business plans using a linear, post-production deductive reasoning to plan new ventures.
- Experiential: Students perform in response to a simulation that asks them to respond inductively to unexpected events, take risks, and apply a convergent thinking process to reach pre-determined outcomes.
- Contingent: Students apply a divergent thinking model to develop plans that are flexible to the inevitable emergence of “uncertainty and unpredictability.”

Despite its focus on entrepreneurial education specifically, this three-part delineation of pedagogical approaches can be applied to business education as a whole and may align well with strategies to teach foundational principles for initial understanding, risk taking to meet specific objectives, and perhaps the most neglected aspect of business education: innovation through responsiveness to an environment characterized by continuous change or co-emergent market or stakeholder variables.

While many simulations stop at the experiential level, probably because achievement of a final orthodoxy is most easily evaluated, we believe that 21st-century business training simulations should find a balance between order and disequilibrium, between orthodoxy and innovation, and between convergent and divergent thinking. Perhaps not surprisingly, when business innovates toward complexity, its operations tend to mirror those of the entrepreneur.

When coupled with the foundations of connection, communication, interaction, and reflection, complexity and a focus on dynamic change in

networked or group environments can drive effective teaching and thus career preparation in the 21st century. While Honig emphasizes the need to challenge students through opportunities to take risks, embrace change, and innovate, instructors should carefully construct scenarios within a framework of moderate support founded on sound pedagogical practices.

ADDING COMPLEXITY: PROPOSAL ASSIGNMENT IN BUSINESS WRITING

In a business writing class at Lock Haven University (LHU), the proposal assignment currently uses a primitive, home-grown simulation to help students envision themselves as parts of consultant teams assembled to “help multinational corporations become better corporate citizens in the places where they conduct business.” Each 5-person consultant team consists of a project manager, activities director, researcher, accountant, and public relations specialist. Together they must respond to a request for proposals (rfp) from a multinational corporation experiencing high-profile corporate citizenship problems in one geographical area. The proposal includes three crucial elements:

- curriculum to educate executives about conditions on the ground, including a tour of the abused community;
- framework for discussion leading to policy change or strategies for reparations;
- public relations strategy to leverage the commitment to corporate citizenship with specific stakeholders.

Upon completion of the proposal, student teams present to the class in an environment mirroring a site visit by the issuer of the rfp.

From the outset, the instructor imbedded connection in the form of a real-world simulation, communication in the form of group project with continuous feedback, interaction as the students worked through proposal instructions and negotiated the written and oral responses, and reflection through continuous drafting coupled with peer and instructor reviews in threaded discussions. Serendipitously, the project also included rhetorical complexity in the form of how to phrase descriptions of past or present indiscretions of a potential funder; stakeholder complexity in the form of how to confront cultural variables in the offending corporation, surrounding community, and stakeholder targets for the public relations campaign; and intraorganizational complexity as the decisions of each team member

impact how the other team members construct their parts of the proposal.

In an anonymous, post-semester student evaluation over the past five years, students responded almost unanimously that the project is “practical” since it involves fundraising and that it is “valuable” because it helps each team member to experience how to compromise and accommodate different working modes in the interest of project completion. Unfortunately, students often felt frustrated with the site visit presentations because of a lack of preparation to handle feasibility questions from their classmates. Each semester in their roles as corporate funders, students responded to presenters with questions like: “What provisions have you made to ensure that sweatshop factory owners will let us tour their facilities?” or “When we visit, how will we be protected from the ongoing civil war in Liberia?” or “How will you get the Chinese workers to talk to us?” or “With the recent earthquake, will we still be able to access the site?” The presenters responded either with absurd, spontaneous inventions or more sensibly, with deferrals until “we can work out the details.”

When reviewed through the lenses of complexity theory and Honig’s models of business education, the flaws of project design, resulting in student dissatisfaction, become evident. While students researched the site of corporate abuse and the corporation itself, they did so with a kind of imperial eye, figuring out how to make the solution respond to the original transgression, rather than being sensitive to the range of cultural and political variables that might become obstacles to execution and certainly would lead to a tipping point just short of chaos, where innovation can emerge. Like so many international reformers before them, the students opted for equilibrium—internal coherence of the project in a single solution approach—over the opportunity to explore a messier set of contingencies and potential responses to them. The site visit simulations simply performed this conflict between complexity and equilibrium.

In response, the assignment now includes a cultural variables section to be included between the need statement (description of the corporate citizenship issue and urgency for address) and the project description. To complete this section, students will need to research not only the material conditions of the abused site but also current events and potential obstacles to successful project completion. Armed with this information, they will develop a culturally-based SWOT analysis that imagines responses to

worst-case scenarios. The addition of an inductive exercise like this should help students to negotiate another layer of complexity, help them to problematize orthodox solutions, and practice divergent thinking, while maintaining the necessary comfort zones of a deductive, single-solution model. In short, the assignment should meet the terms of writing or innovation described by Bay (2008): “Writers realize that the pleasure of the text [or the experience] is not the satisfaction that it provides but the dissatisfaction it engenders” (p. 198). In the complex business classroom, the balance of comfortable mantra must always proceed alongside a troubling challenge to its premises, resulting in a dissatisfaction that is the source of innovation—a response to conflicting, heterogenous business environments rather than the imposition of homogenous solutions, regardless of the setting.

MANAGING COMPLEXITY: SENIOR CAPSTONE SEMINAR IN STRATEGIC MANAGEMENT

Turning now to the Senior Capstone Seminar in Strategic Management at LHU, we find that like most capstone courses, this one integrates material learned throughout the students’ major courses and in particular, on strategy and decision making within the functional areas of business. The integrating aspect of this course provides an excellent opportunity to use a business simulation that emulates the complexity of integration and provides students with a clear view of the difficulties in decision making due to interdependencies of business functions. Decisions cannot be made in isolation, but must be considered within an interactive web of outcomes among business functions. The Business Strategy Game (GLO-BUS Software, 2010) serves as a web-based, simulation tool appropriate for senior-level undergraduate and graduate students, and its hands-on format connects students via technology and visual images to the course content. Navigating the simulation and making decisions enable students to learn that many solutions to a problem exist, environmental influences change and lack predictability, and flexibility mitigated by core principles will address change and change agents.

While the simulation includes a detailed, instructional manual and on-line help menus, students often remark about their overwhelming feeling of confusion and chaos as they view decision screens with a multitude of useful data, required decisions, and performance outcomes reports about such areas as sustainability, marketing, operations, finance, and human resources. Although many business classes

talk about strategizing for different scenarios, this simulation requires the student to implement a coherent set of ideas amidst unknown possibilities of competitors' moves and countermoves and such changing environmental conditions as exchange rates and interest rates. The detailed manual also carefully points out that any feasible strategy (e.g. low cost or differentiation) can produce a winning approach suggesting no one best solution to the simulation.

About five years ago, the instructor of record observed that students really struggle with understanding the interdependencies between business functions and their significant influences on successful implementation of overall strategy. Assessments of final case studies suggest that students lacked the understanding of how to develop an implementation plan with sufficient consideration of these influences. In response, the BSG simulation (completed in groups of three students) was added to this course introducing complexity necessary to promote learning about interdependencies and competitive forces that influence business operations; however, its usefulness seemed limited due to the inadequacy of activities paired with the simulation. When first used, the simulation project included both practice and competitive decisions, quizzes on the simulation, large group discussions about general trends and observations and small group discussion about performance. In keeping with best practices in pedagogy, the instructor provided feedback to each group and talked with the group about their performance. At the end of the simulation, the students presented the final assignment for which they reflected on their overall performance and learning, proposed strategies for moving forward, and conducted peer evaluations. The assignments seemed to be aligned with many effective practices outlined under communication and interaction. When asked about their learning experiences, students reported that the most significant learning outcomes were how the business functions interrelated and were influenced by decisions in other functions.

Although this outcome marked success when compared to intended learning outcomes of the course and this activity, their final strategies seemed to lack depth of understanding. Recognizing that reflective practices and writing can enhance critical thought about the material, the instructor felt that more of both would be desirable to facilitate deeper learning throughout the entire process. To address this concern, the instructor included five journal entries and a larger case study in the third week to provoke more frequent and consistent reflection on their performance. The case study also provides an

opportunity for students' to express innovative thinking for some restrictive areas within the game. BSG simulation clearly added complexity and chaos to the students' learning environment and the need for flexibility, but it is only through the reflective writing activities that students can explore deeper connections to the material and exhibit profound learning.

CONCLUSION

By using simulations that mimic workplace complexity, while managing it through the four-point framework for effective teaching, instructors should be able to provide a learning environment that challenges students yet provides a supportive, pedagogical foundation that stimulates student interest as well as profound learning. While the outcomes of these newest course revisions have yet to be measured, we believe that the literature supports the premises on which they are founded and that students will be prepared to confront the unpredictable and chaotic workplace with flexible, innovative, and interdependent approaches.

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NEPOTISM: CAN IT AFFECT THE BOTTOM LINE?

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ABSTRACT

Whether or not to hire an employee that is related by blood or marriage to an existing employee is a difficult question that most firms must address. Research into the plus and minuses of this type of “nepotism” is very limited and therefore the effects of this type of hiring are poorly understood. One major issue that has caused a roadblock for researchers in this area is actual data that measures degrees of nepotism and the impact of nepotism on the bottom line. The present study offers empirical evidence and examines the relationship between nepotism and various measures of financial performance. Using 75 branches of a large commercial bank, nine financial measures of branch productivity were measured and the effects of nepotism analyzed. The results show that the levels of nepotism had a significant positive effect on several measures of financial productivity at the branch level.

INTRODUCTION

Whether or not to hire a new employee that is related by blood or marriage to an existing employee or the owner of the business is a difficult question that most firms must address at one time or another. Larger firms face this question more often than their smaller counterparts, and firms in island or small economies face this question more than others. Human Resource Managers in large organizations, the public sector and urban regions found higher levels of related employees than did their counterparts in smaller, rural, private organizations (Arasli & Tumer, 2008; Hayajenh, Maghrabi, and Al-Dabbagh; 1994). Research into the pluses and minuses of this related hiring is very limited and therefore the effects of this type of hiring are poorly understood. Two issues have caused roadblocks for researchers in this area. The first is in defining nepotism. The second is that research on nepotism has come from quite different research perspectives. These two issues are not independent. In some instances the perspective taken in viewing nepotism also defines it to some extent.

Defining Nepotism

Unfortunately, nepotism can refer to either: a) the hiring of a relative of the owner of the business – we call this “family nepotism”, b) the hiring of a spouse of an existing employee – referred to in the literature as “Paired Employees” or “PE’s”, c) in a political sense, putting one’s relatives in a political position of favor – which we call “political nepotism” or d) the hiring of an individual related to an existing employee other than the owner of the firm and other than a spouse, which we call “organizational nepotism”. An additional definitional problem occurs in the literature outside the US, where the word “nepotism” is not used and has no clear translation.

The Various Research Perspectives of Nepotism.

The second issue, as pointed out by Vinton (1998), is that the existing literature on nepotism comes from four different perspectives. The first research perspective of nepotism comes from the Family Business Literature which views nepotism as the hiring of a relative of the owner of the business. From this perspective, nepotism is usually viewed in an unfavorable light. Research in this area is mainly anecdotal and appears in family business practitioner journals. Headlines such as “Hiring In-Laws: The Kiss of Death” (Berglas, 1998); “Introducing Junior” (Merriden, 1997); and “Nepotism on Trial” (Persinos, 1984) convey the potential pitfalls. The problems associated with family nepotism include: the inability to attract qualified non-family managers because of their fear of being surpassed by family members in the promotion process, low morale resulting from unjust promotions, a lack of empowerment for the nepots, exposure of the business to family quarrels, and disciplinary problems for managers if they have to deal with a relative of the owners. Individuals believed to have benefited from nepotism in the hiring process were viewed unfavorably in the workplace (Padget & Morris, 2005). Many suggestions to avoid these problems have been offered (Akkihal, Smith & Adkins, 2007; Arnoff and Ward, 1993; Fischetti, 1992; LeVan, 1990; Porter, 1989; Broadwell, 1988). On the positive side, a family firm atmosphere has been associated with lower employee turnover, higher performance, greater organizational commitment and lower employee risk (Hernandez & Page, 2006; Laker & Williams, 2003; Molofsky, 1999; Nelton, 1998).

The second research perspective of nepotism comes from a legal focus. This literature deals exclusively with the second nepotism definition from above – the hiring/firing of spouses, and is concerned about the legality of anti-nepotism human resource policies. In

the United States, significantly more women have entered the workforce in the last twenty-five years. In September 2008, women made up 46.6% of the total civilian labor force. For this group of employed women, 61.4% were married with a spouse present in the household (BLS, 2009). The existence of this large cohort of women in the workplace provided one of the impetuses for equal rights laws (Title VII). Since anti-nepotism policies tend to harm women more so than men, equal rights laws had a serious impact on anti-nepotism policies, and has made dealing with spouses in the workplace one of the most challenging components of the nepotism debate. Policies that encourage nepotism allow qualified dual career couples to juggle family and work by letting them work in the same firm and further their respective careers. Some companies actively recruit married couples to work for them as they believe it leads to happier marriages, healthier families, and ultimately, more motivated employees. Many employers are modifying their human resource management policies to accommodate dual-career couples, suggesting that human resource managers recognize the importance of accommodating spouses in their recruitment and retention strategies (Newgren, Kellog, and Gardner, 1998; Reed and Bruce, 1993).

Some companies, however, actively discourage or preclude spouses from working in the same company, as they believe it increases the opportunity for workplace tension and inefficiencies. American companies have attempted to limit nepotism for more than a century (Rodney, 2006). If employees choose to marry, one of the two may be transferred or where strict anti-nepotism policies are in place, one of the two spouses may be asked to leave the company. In three cases studied by Podgers (1996) a federal appellate court affirmed anti-nepotism policies adopted by employers in the public sector. A survey of members of the American Society of Public Administration found that, in the public sector, 13.8% reported rules preventing married couples from working in the same organization, 33% reported rules against spouses in the same department, and 60% reported rules against spouses supervising one another (Reed, 1988). In the private sector however, due to conflicts between state courts, the legality of anti-nepotism policies depends on the jurisdiction involved (Steiner and Steinberg, 1994). As dual-career couples become a larger part of the worldwide workforce, an increasing number of firms are forced to consider what would be an appropriate nepotism policy. If a policy is not in place, and enforced uniformly, legal issues and loss of staff can result. Ways to minimize the risk of a firm's anti-nepotism

policy being the source of litigation are discussed by Boyd, 2010; Pierce & Aquinis, 2009; and Young (1995). Howard (2008) examines four ways that organizations can enjoy the benefits of considering spouses for employment while minimizing the potential conflicts of interest.

The third perspective of nepotism comes from press reporting on the political nature of nepotism. "Nepotism has been the primary influence on political behavior throughout human history" (Kuznar & Frederick, 2006, 1). Articles such as "Nepotism: A Little More Than Kin" that appeared in the Economist (Anonymous, 1994) is just one of many that discuss the handing down of political power to a politician's relatives or offspring. The result usually furthers corruption.

The fourth perspective and focus of this paper comes from the management/human resource area. Reed (1988) reported that coworkers might sense inequities when they work with employees related to someone in the organization. They may feel that one person has obtained employment or special favors as a result of their relative's influence (Arasli & Tumer, 2008; Ford & McLaughlin, 1985). Nepotism places pressure on human resource managers regarding the maintenance of equity and a sense of fairness in managing employees. Nepotism policies range from no policy at all to a sweeping rule that prohibits the employment of a related employee anywhere in the organization. Rigid nepotism policies place managers in the uncomfortable position of telling an employee that they will lose their job if they get married. The negative impact on morale in such organizations is can be dramatic. On the other hand, ambiguous policies (or no policy) can cause managers just as many problems as the boundaries of accountability become blurred. Often, when nepotism policies are included in the employee manual, it offers the opportunity for the hiring of spouses/relatives under special circumstances. If a qualified applicant is available, it may be required that their application be approved by the human resource manager. While this process can provide an opportunity for favoritism at the upper levels of management, it also provides the company the flexibility to hire and retain highly qualified employees.

Although organizational nepotism can have a serious impact on the firm, its impact has rarely been empirically measured. Arasli & Tumer (2008) find that nepotism has a negative effect on job stress and organizational commitment. Laker & Williams (2003) find that nepotism has a positive effect on

employee satisfaction and organizational commitment. In this research, we conduct an empirical analysis using an industry where employees have a high level of contact at “customer touch points”. These employees are sometimes referred to as “boundary employees” (Schneider, White & Paul, 1998). We then use the nepotism level of these employees as an explanatory variable in predicting financial success.

The Increasing Awareness of the Significance of Customer Interactions – “Touch Points”

From a marketing perspective, the concept of “Touch Point” has become increasingly important. A “Touch Point” is any instance in which an organization comes in contact with one of its customers or potential customers. Such a contact could be in the form of a personal phone call, a mailing, or a face-to-face interaction between a customer and one of the organization’s employees. It is clear that the more these various touch points are perceived positively, the more they can add value to the firm in the form of additional customers or additional services sold. One of the most important touch points is the face-to-face interaction that the customer has with the “boundary employees” of the organization. Schneider, White & Paul (1998) defined boundary employees as “...employees with whom customers physically interact in the course of doing business with an organization” (p. 151). Some employees, by the nature of their job are more likely to come in contact with customers. It is these individuals that the present paper will focus on.

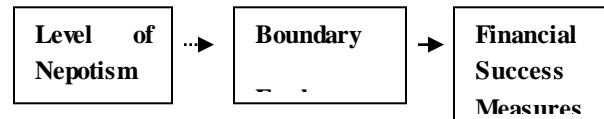
The relationship between nepotism, boundary employees and financial success measures

Work by Schneider and his associates (1998) have linked employee performance to subsequent customer satisfaction and behavior that then leads to productivity and profitability. In a series of studies focusing on employees within branches of a bank, Schneider linked employee’s perceptions to customer behavior. His rationale for this relationship was that most of the employees that work in a branch represent the branch in a boundary capacity with the customer. It is this relationship that has the strongest impact on the customers’ perceptions of the quality of the bank’s service to them and subsequently on their financial dealings with the bank.

Schneider & Bowen (1993) argued that the climate for employee well-being acts as a foundation for the climate for service. It was hypothesized that employee satisfaction influenced branch productivity

through the “climate for service” created within each branch. How nepotism is manifested in the workplace could affect the employees’ climate for well-being. From this perspective, nepotism could interfere with the delivery of quality service to customers and subsequently decrease bank branch productivity or it could to raise the quality of service and lead to increased branch productivity.

MODEL



The model assumes that the level of nepotism will affect financial success measures when a group of boundary employees are analyzed.

METHOD

The data for the analysis was gathered from a large family-controlled bank in Latin America. The unit of analysis was the branch level. The banking industry was chosen because of the high degree of touch points at the branch level. The bank conducted an internal audit and obtained information concerning the number of relatives each employee had at the bank, the degree of relatedness (spouse, nephew, etc.), the position the relative held in the bank, and the location where each of their relatives worked. The bank has 2,000 employees at the branch level and 75 branches. Since the unit of analysis was the branch level, this gave us 75 data points. One thousand nine hundred and fifty six surveys out of 2,000 were completed for a 98% response rate. We found that twelve percent of these employees had a relative working in the bank.

Nepotism

Two different measures of nepotism were calculated.

I) Dummy variable, where:

Dummy = 1 if the individual had at least one relative working in the bank.

Dummy = 0 if the individual had no relatives working at the bank

II) Level of Nepotism (Nepotism Density)

Nepotism Density was defined as the weighted sum of three dimensions:

- a. the number of employees one is related to,
- b. the degree of relationship (spouse, in-law, nephew, etc.),
- c. and the rank of this relative (position) within the bank.

Degree of relatedness was determined by the bank. First degree was spouse and/or father, mother, son, daughter, brother, sister. Second degree was in-law. Third degree was grandparents/grandchildren, aunts, uncles, nieces and nephews, and the fourth degree was cousins (first, second, and third). The weighting scale for degree of relatedness was as follows:

First Degree = 12 points
 Second Degree = 6 points
 Third Degree = 4 points
 Fourth Degree = 1 point

The weighting scale was an arbitrary measure based on the assumption that a first degree relative was twelve times closer to an individual than a cousin. There are probably many ways to assign points to the relatedness scale. This scale (1 – 12) reflects the number of times one potentially interacts with the relative over a one week time span. An individual would probably have a chance to interact with a first degree relative about twice a day, at least six days a week, especially in the close family Latin culture. If an individual (for example, Juan) had a daughter and a father-in-law working at the bank, the daughter would receive a degree rating of twelve and the father-in-law would receive a degree rating of 6.

The bank uses six categories for positions within the bank. The following points were assigned to each of the positions:

Directors (President, Vice Presidents)	= 14 points
Managers;	= 10 points
Sub-Managers, Auditors,	
Assistant Administrators;	= 8 points
Platform Officials, Analysts;	= 6 points
Secretaries, Tellers, and	
Service Representatives;	= 4 points
Support Personnel.	= 2 points

Again, the numbers assigned to the categories were arbitrary. The scale was based on the assumption that a Vice-President had seven times more influence in the bank than those in support personnel (majordomos, janitors, etc.). Relatedness points were then multiplied by position points. Using Juan as an

example, if the daughter were an analyst, and the father-in-law was support personnel, then Juan's rating would be:

for the daughter: 12 (for the degree of relatedness) *
 6 (for the position) total = 72

for the father: 6 (for the degree of relationship) *
 2 (for the position) total = 12

Juan's total nepotism

density would be the sum of 84

Using all employee surveys, a measure of branch nepotism density was calculated. First, a nepotism density factor was calculated for each individual as discussed above. The nepotism density at a particular branch was the sum of all the individual nepotism scores of employees at that branch. This continuous variable was then divided by the number of employees at that branch to account for the differences in branch size.

STATISTICAL ANALYSIS

Using regression analysis, we sought to understand how the per capita nepotism density impacts the per capita productivity measures at the bank branches. The values for nepotism density for the individuals (determined by the weighting scales described on the previous pages) ranged from 0 to 352. Only 12% of the employees had a value different from 0. In other words, only 12% of employees reported that they had at least one relative working for the bank. This finding in itself is interesting because three years earlier, in a survey conducted by bank, 25% of employees reported that they had at least one relative working for the bank. Thus, the nepotism policy implemented by the bank after the first survey had significantly reduced the number of employees who had a relative working for the bank.

The analysis was conducted with the nine measures of branch productivity as separate dependent variables. The nine separate measures are listed in column one of Table 1.

Two different measures of nepotism were used. First, the continuous measure of nepotism (as explained previously) was used. Results appear in column two of Table 1.

Second, a dummy variable was created with Nepotism = 1 if there is some level of nepotism at the branch, and Nepotism = 0 if there is no nepotism at the branch.

The results appear in column three of Table 1.

Table 1
Results of Regression Analysis

Independent Variable	Level of Nepotism /Employee	Binary 1=Yes, 0=No
Dependent Variable	Coefficient	Coefficient
Demand Deposit Accounts/Employee	2.43	44.73***
Savings Deposit Accounts/Employee	10.06	194.44
Time Deposit Accounts/Employee	0.37	6.68
Loan Balances/Employee	-204773.30	-269856.30
Demand Deposit Balances/Employee	11888.16	1295137.00
Savings Deposit Balances /Employee	27083.79	958386.90
Time Deposit Balances /Employee	99109.77	2042025.00*
Non-Interest Income/Employee	1694.27	87752.85***
Net Income /Employee	882.68	278425.30**

* = Significant at the ten percent level

** = Significant at the five percent level

*** = Significant at the one percent level

RESULTS

With the nine different measures of productivity and two measures of nepotism, there were eighteen statistical analyses conducted. In the first nine analyses (results reported in column two of Table 1), a coefficient was determined that represented the change in the productivity score if the level of nepotism increased by one unit. These coefficients were all positive, but none were statistically significant. In the second nine analyses (results appear in column three, Table 1), coefficients were determined that represent the effect on productivity levels in branches where any employee was nepotized versus branches where no employee had relatives at the bank. The results show that when a bank branch had related employees, the productivity measures were significantly greater than those measures where the bank employees were not

“nepotized”. In branches where employees had family members working in the bank, there were approximately 45 additional demand deposit accounts per employee, \$2,042,025 additional dollars in time deposits per employee, \$87,753 in additional non-interest income per employee, and \$278,425 additional in net income per employee.

Earlier research has shown that related family members in this bank were more satisfied and committed to their work (Laker & Williams, 2003). Results of this current analysis indicate that branches with related family members are also more productive. For sixteen of the eighteen regressions of productivity measures, the sign was positive, although significant in only four of the models. This is an indication that productivity per employee was higher at bank branches where employees were related to others at the bank. This empirical analysis supports the link between the level of nepotism at the branch level and branch productivity.

Summary and Conclusion

In the United States, nepotism has usually been associated with favoritism, lower morale and lower commitment to the organization, ultimately resulting in employee turnover. In general, anecdotal evidence tends to support this assumption. But a potentially equally valid argument could be made that those individuals who are related to others in the organization may feel an additional obligation to perform at a higher level because of their relationship to that other employee. In the present study, our findings tend to support this later hypothesis, that nepotistic relationships can have a positive rather than a negative effect on productivity. This type of relationship was also noted in an earlier study examining nepotism, satisfaction and organizational commitment. Laker and Williams (2003) found that those that had nepotistic relationships within the organization were more satisfied and committed to the organization. Because nepotism rules can place severe limitations and restrictions upon family members, it is important to investigate the actual impact of nepotism on organizational outcomes such as employee morale, commitment, productivity and turnover rather than to assume that such relationships will always lead to dire consequences. Obviously more research is necessary in order to adequately explore these relationships and to determine when nepotistic relationships would be beneficial to the organization and when they would be detrimental.

The major limitation of this study is the degree to which the results might be generalized. The study

was conducted in a Latin American country. Organizations in Latin America have a long history of nepotism. Such a cultural heritage in other countries cannot be assumed. Consequently, the acceptance of nepotism within an organization and the hypothesized benefits may only apply to those in cultures similar to those of Latin America.

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LIBERALIZING ACCOUNTING EDUCATION

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ABSTRACT

Over the course of the last half century calls have been made to integrate more liberal arts into the typical accounting program or to replace undergraduate accounting altogether with a general liberal education. The purported benefits of using liberal arts as a general foundation for accountancy are that the liberal arts teach people to think more clearly, provide students with a sense of values, teach students to communicate more clearly, and provide a more well-rounded education. Given that these “advantages of the liberal arts” are precisely the characteristics that the Accounting Education Change Commission and others conclude should be embodied in accounting education, various attempts have been made to endow accounting graduates with these advantages by integrating liberal and professional education. This paper briefly reviews several of these integration efforts but finds that none resulted in the widespread reform of accounting education that those attempting them intended. The paper then suggests an approach to delivering accounting courses that has the potential to deliver many of the benefits of more ambitious integration efforts while being more easily implemented.

INTRODUCTION

Over the course of the last half century, many have called for the traditional (technical) undergraduate accounting curriculum to be significantly altered—or altogether eliminated. Such recommendations include:

- Broaden the typical “accounting for performance” focus to “teach future accountants and leaders how deep the connections are between business, society, nature, and the world” (Waddock, 2005, 145).
- Adopt a “learning to learn” approach that concentrates on the skills, knowledge and professional orientation that accountants will need for career success (AECC, 1990; AAA, 1986).
- Supplement the traditional “decision-usefulness” paradigm with contracting, information framework, and accountability/stewardship notions (Frecka et al, 2004).
- Alter the curriculum so that students develop an understanding of the role accounting information plays in economic decision making (Sundem, 1994; AAA, 1986).
- Stop teaching the detailed rules of accounting and instead only require students to understand in depth the Statements of Financial Accounting Concepts; focus on the pursuit of knowledge and the capacity to think (Nearon, 2002).
- Replace accounting (and other undergraduate specializations) with a liberal arts education—in part because specialization makes the undergraduate experience little more than vocational preparation (Herman, 2000; Education Commission of the States, 1986; Brown, 1964; Allyn, 1958).

A theme common to all of these suggestions is the need to integrate more liberal arts into the typical

accounting program or to replace accounting altogether (at least at the undergraduate level) with a general liberal education. Calls for “liberalizing” accounting education come not only from accounting educators, but have been echoed by accounting professionals since the early 1900s (Merino, 2006). This paper considers the objectives and ostensible benefits of a liberal education and explores the integration of liberal and professional education.

LIBERAL EDUCATION’S ALLEGED BENEFITS

Liberal education fosters the qualities that prepare graduates to live productive lives (Schneider, 2005) or, as the Association of American Colleges and Universities (AAC&U, 2007, 11) puts it, liberal education describes “the kinds of learning needed to sustain a free society and to enable the full development of human talent.” Robert B. Wetnight (1958, 69) nicely summarizes the purported advantages of the liberal arts as the ideal pre-professional program:

“Just what is the value of this liberal arts education that makes it superior to an education in accounting? From all that I have been able to gather, the advocates of the liberal arts claim that it has these advantages:

- Teaches people to think more clearly.
- Provides students with a sense of values.
- Teaches students to communicate more clearly.
- Provides a more well-rounded education.”

Other often cited aims, values and general ideas which traditionally have been associated with liberal education (e.g., Berkowitz, 2006; Schneider, 2005; Barnett, 1990) point to the importance of helping students develop:

- Analytical, communication, and integrative capacities;
- Problem-solving, intercultural, and collaborative abilities;
- Scientific, technological, and quantitative competence;
- Cross-cultural, aesthetic, and historical knowledge; and
- Ethical and civic engagement and responsibility.

In other words, a liberal education should develop students' critical thinking skills and prepare them for civic life and productive work (Gardner, 2005). As John Stuart Mill stated in 1867, "Men are men before they are lawyers, or physicians, or merchants, or manufacturers; and if you make them capable and sensible men, they will make themselves capable and sensible lawyers or physicians" (Berkowitz, 2006, 55)—so using liberal arts as a foundation for professional studies is not a new idea.

But these claimed advantages of the liberal arts are precisely the outcomes that the Accounting Education Change Commission (AECC) and others (AECC, 1990; PwC, 2003) conclude are desired from an accounting education and that will lead to its demise if not produced (Albrecht and Sack, 2000). And as Schneider (2005, 68) notes, "there is no inherent reason, of course, why business ... cannot be taught in ways that advance the broad aims of liberal education." Yet employers continue to be critical of junior accountants' communication skills and problem-solving and critical thinking abilities. Sadly, these criticisms have been voiced for the better part of the last century (Van Whye, 2007) so it appears that for some time (1) the "liberal arts" component of each student's education has not been very effective, and (2) accounting students are not acquiring these skills and abilities in their business courses either. One might reasonably conclude that the reason for these recurring criticisms is that the typical accounting curriculum is too heavily skewed towards technical, rules-based accounting courses, and thus the solution is to increase the liberal arts portion of the curriculum (Williams, 1990; Glover et al, 1995). But accounting students in universities across the country already take approximately one-half of their courses outside the business college and there is little evidence that requiring them to take additional liberal arts courses will really address their perceived shortcomings. Derek Bok (2006, 1-8, 310-312), former president of Harvard and generally supportive of undergraduate education's current status, describes an alarming array of failures in undergraduate (i.e., not just accounting) education:

"Many seniors graduate without being able to write well enough to satisfy their employers. Many cannot reason clearly or perform competently in analyzing complex, nontechnical problems, even though faculties rank critical thinking as the primary goal of a college education. Few undergraduates receiving a degree are able to speak or read a foreign language. Most have never taken a course in quantitative reasoning or acquired the knowledge needed to be a reasonably informed citizen of a democracy. And those are only some of the problems."

Bok's indictment of the product of American colleges and universities is rather scathing and reflects the "moral and intellectual vacuum" at the heart of the enterprise (Sykes, 1990, 68). Bok's observations and the skills deficit exhibited by many accounting graduates suggest that Arts and Sciences Colleges promote the benefits of a traditional liberal arts education while often failing to actually provide one. Bloom (1987, 380) doubts whether liberal education can be rekindled in American universities, believing that the wherewithal or the energy to reconstitute the idea of an educated human being is lacking. Lest one think things might have changed for the better since Bloom penned *The Closing of the American Mind* in 1987, Riley (2009, W13) observes, "Higher education has gone so far off the rails in recent years that parents and students hardly know what they are supposed to have learned in a freshman composition course or in Sociology 101. And as long as there is a degree waiting at the other end, they hardly care."

Yet the ideals of a liberal education are as relevant as ever and society would benefit if the education accountants (and other professionals) received inculcated them. Indeed, the AAC&U (2007) recommends that the essential aims and outcomes of a liberal education be emphasized across **every** field of college study. So if accountants would greatly benefit from a traditional liberal education, but one is not likely to be rekindled by the postmodernists populating today's Arts and Sciences College faculties, is there any reason why its objectives cannot be met more directly through properly structured professional education?

INTEGRATING LIBERAL AND ACCOUNTING EDUCATION

The AECC advocates a much greater awareness on the part of accounting graduates of world affairs, of historical perspectives, and of the relationship between a profession and society, thus suggesting a more "liberalized" accounting curriculum. But this does not necessarily mean an increase in arts and

sciences courses as “it would seem much more desirable for accounting undergraduates to develop their broader intellectual and social perspectives within an accounting context” (Lovell, 1992, 22).

In 1988, the Professional Preparation Network (PPN), a group of educators teaching in the liberal arts and in eight undergraduate professional fields at four year colleges and universities, issued *Strengthening the Ties That Bind: Integrating Undergraduate Liberal and Professional Study*, a report that makes a number of relevant observations about the state of higher education and offers some useful suggestions for its improvement. The PPN acknowledged that college graduates should be both competent professionals and involved and committed citizens, but conceded that colleges and universities often fall short of meeting these objectives. The PPN noted that many institutions—in an effort to address the perceived narrowness in their students—have added more liberal arts courses to already burdensome professional education programs, but this solution to concerns about educational quality was deemed generally ineffective. As Bloom (1987, 342-3) observes, simply forcing students to take one or more courses in each of the general divisions of the university (natural sciences, social sciences and the humanities) is not a liberal education and just leaves students with a desire to get past these requirements and on to the “real stuff.”

Recognizing the inadequacy of just including some arts and sciences courses as part of a student's professional education, the PPN's efforts were directed at addressing higher education's shortcomings through better integration of liberal and professional education. They believed that the current schism between liberal and professional education missed the mark in that (1) “competent professionals are characterized by their ability to link technical knowledge with appropriate values and attitudes when making complex judgments,” and (2) “educators have devoted too little attention to developing this integrative ability” (PPN, 1988, 1). The PPN saw no reason that students' efforts to achieve economic security and respect in their professions should preclude development of their capacity to contribute to society, appreciate truth and beauty, etc. Commenting on earlier (and I would add ongoing) criticisms of higher education, they note that while the responsibility for fostering communicating, critical thinking, and ethical judgment making abilities has been viewed as their domain, liberal arts faculty members have been criticized for failing to achieve their purposes; simultaneously, professional program faculty have

been described as purveyors of crass vocationalism that has eclipsed broader educational goals (PPN, 1988, 8). (Claims that accounting is too vocational to be taught in universities are not new as they were prevalent in the early 1900s (Merino, 2006; Hatfield, 1924)). *Strengthening the Ties That Bind* briefly mentions a number of proposals that have emerged for solving the “quality crisis” in undergraduate education (e.g., balance specialized training and general education; establish interdisciplinary “core” courses; change educational processes), but concludes that all of them fall short and that “the crux of today's educational problem is how to integrate liberal and professional study effectively, building upon the best that each has to offer” (PPN, 1988, 11).

Calls for integrated practical and liberal education did not begin with the PPN but were being made at least as early as the 1950s (Van Whye, 2007), and they are still being made. In 2005, the AAC&U launched a decade-long initiative, *Liberal Education and America's Promise (LEAP): Excellence for Everyone as a Nation Goes to College*, in response to a belief (1) that too few students will reap the full benefits of college, (2) in the power of liberal education, and (3) that liberal education cannot be restricted mainly to colleges of arts and sciences (AAC&U, 2007). They emphasize that the aims and ideas traditionally associated with a liberal education should be essential learning outcomes for all students whatever their chosen field of study. The AAC&U acknowledges that implementing their vision will be a major undertaking and it remains to be seen whether their efforts are more successful than earlier attempts at restructuring higher education to produce the learning outcomes associated with a liberal education.

So if integrating liberal and professional studies throughout the course of a students' education is such a good idea, why are well-integrated programs not widespread? The PPN offers several reasons for this missed opportunity. These can be summarized as follows: meaningfully integrating liberal and professional studies is difficult and time consuming, faces its share of parochial opposition, provides few incentives for faculty members, and is often not supported by administrators (who need to take the lead if these efforts are to succeed), not to mention that some (the “business is just vocational training” crowd) believe that professional education inherently lacks possibilities for educational excellence. Merino (2006, 376) suggests that positivism's rise is also to blame as “this ideology suppresses critical, ethical, and social issues, central to the development of a questioning attitude that enhances professional judgment.” Given these obstacles, should this

educational reform join others in the dustbin of history because it just is not worth the effort? I think not because this approach to professional education stands possibly the only chance accounting education has to comprehensively address its critics and provide the kind of graduates the profession demands, thus making it worth the investment in human and financial resources—and providing accounting students with a true liberal education may no longer be optional. Professional and regional accrediting bodies are now emphasizing liberal learning in their standards (Nellen and Turner, 2006; AACSB, 2008) and requiring schools to assess student learning. It is one thing to merely state that—based on educational process inputs—we are producing well-educated graduates; it is quite another to have to effectively prove this claim. Thus, academicians are really left with no option but to “liberalize” in some appropriate manner the way accounting students are educated.

The PPN’s integration efforts focused on the characteristics of the educated professional. Besides developing (1) conceptual competence (understanding the theoretical foundations of the profession), (2) technical competence (ability to perform skills required of the profession), (3) integrative competence (ability to meld theory and skills in the practice setting), and (4) career marketability (becoming marketable due to acquired education and training), educators from professional fields assert the need for students to develop additional important abilities to include critical thinking, communication and interpersonal skills, and awareness of the context for professional practice and professional ethics (PPN, 1988, 21). Fierstein (2008, 22), commenting on the skills CPAs need, reinforces this point: “But we’ve found that communications skills—reading, writing, verbal communications, and, most important of all, listening, to your colleagues, and the rest of the profession—are probably the most important attributes for a CPA to have.” Per Hurt (2007, 296), critical thinking entails: (a) distinguishing relevant facts from irrelevant facts in a specific decision context; (b) analyzing the strengths and weaknesses of an argument or response to a problem; (c) defending a position in the face of other viable alternatives; and (d) clearly expressing a well-reasoned point of view. It is difficult to imagine a successful accountant that lacks these abilities so accounting educators should endeavor to develop them in their students. See Figure 1 in the appendix.

Figure 1 identifies ten desired educational outcomes that professional and liberal education share. Note that these are quite similar to the liberal education objectives listed earlier. Moreover, these outcomes

align quite well with the skill-based competencies set forth by the American Institute of Certified Public Accountants in its Core Competency Framework (see the left column on Figure 1) and with the AAC&U’s (2005, 3) essential learning objectives. So if college graduates in general, and accounting majors in particular, are not living up to expectations, lack of agreement on the skills and qualities they should possess is not to blame. The challenge facing accounting educators is to design and implement a curriculum and its components in such a manner that students routinely achieve the desired outcomes.

Liberalizing the Accounting Curriculum

In the early 1990s, the AECC—desiring to (1) serve as a catalyst for change and (2) “provide prototypes of change for those following” (Sundem, 1999, Ch. 9)—awarded \$2.2 million in grants to a dozen schools, hoping that the instructional materials and approaches that were developed by the grant recipients would be widely adopted (AECC and AAA, 1998). Several of the grants supported various attempts to liberalize accounting education. For example, Brigham Young University restructured the junior year accounting curriculum by fusing individual courses into an integrated, team-taught, 24 semester hour core built around a business cycle approach (Albrecht et al, 1994). The BYU faculty hoped this methodology would result in more effective coverage of typical content (accounting, auditing, tax, etc.), while additionally focusing on written and oral communication, group work and people skills, critical thinking, and “working under pressure.” Developing BYU’s new curriculum involved twelve full-time faculty members, required release time and supplemental financial grants to participating faculty, and took place in a university that traditionally emphasized the importance of teaching. BYU found the business cycle approach to be effective and they are still using it; however, an inquiry to BYU regarding other known adopters yielded the names of only two schools. Contacting both revealed that one initially adopted quite a bit of the BYU curriculum but, citing “administrative constraints,” gradually reverted to a more traditional model. What changes remain are in the form of more teamwork and active learning exercises in accounting courses as well as more frequent discussions among faculty about integration and a few integrative assignments. The other school is trying to retain some vestiges of the changes its faculty implemented but is finding it difficult. Encountered problems include trying to make the core truly integrative (participating faculty members tend to teach only their specialties), coping with personnel changes

(core faculty are not easily—or seamlessly—replaced), untenured faculty are “off limits,” and exams and grading in an integrated core proved problematic.

The University of Virginia received AECC support to develop a business activity model (BAM) for use in Intermediate Accounting. This model replaces lectures and textbook assignments with a two-semester focus on accounting for the first seven years of the operations of a simulated business startup and forces students to search for answers on their own. The course’s case-based structure requires students to work in groups, research accounting issues, and develop communication and interpersonal skills (Catanach et al, 2000). It also provides an opportunity to address professional ethics because students must complete financial statements for the simulation company and its bookkeeper has a tendency to account for items in a way that “benefits” the company (Esmond-Kiger and Kirch, 2003). The BAM approach has been adopted by several other universities and the case originally developed at UVA was commercially published, but recently has been discontinued thus indicating the BAM also was not widely adopted. Accordingly, it appears that major projects of the type undertaken by BYU and UVA are not implementable in today’s environment by most accounting programs—probably for many of the same reasons previously mentioned for the failure of universities to integrate liberal and professional education.

Sundem (1999, Ch. 9) reports the AECC was “most successful in creating changes in accounting pedagogy, especially in promoting the development of communication and interpersonal skills in accounting curricula” and that some positive changes in accounting course content occurred as well. The AECC’s desire to serve as a catalyst also appears to have been realized to some extent as a number of papers appear in the literature in the years following its formation that offer suggestions for changing accounting education. While most of these changes/reforms were more one dimensional than those the AECC funded (i.e., the projects recommended or implemented were generally less ambitious), all—explicitly or implicitly—were intended to achieve one or more of the outcomes listed in Figure 1. For example:

- Kimmel (1995) presents a framework for integrating critical thinking into the accounting curriculum. He identifies several critical thinking elements and illustrates means to assign these to particular courses.

- English et al (1999) explain how the educational theory about learning to write and writing to learn, when incorporated in a first-year accounting course, helps students to improve their writing skills and better learn course content.

- Based on a study of practicing accountants, Goby and Lewis (1999) found that practitioners perceive interpersonal, oral, and written skills to be important to their careers. Unfortunately, accounting students often lack this understanding; introducing more case studies into the curriculum was suggested as a means of more effectively preparing undergrads in these needed skills.

- Springer and Borthick (2007) offer experimental results indicating that cognitive conflict tasks (those having no correct answers) improve performance in accounting students. They staged cognitive conflict tasks with business simulation episodes that required students to create rich situation models to respond to business dilemmas thus improving their higher-level thinking.

- The literature is replete with calls for increased ethics instruction for accountants: “the moral lapses of business in the last ten years have rekindled calls for accounting educators to develop an integrative curriculum that instills in students learned intelligence with an educated conscience” (Merino, 2006, 365). A study sponsored by the International Federation of Accountants (IFAC) identified these threats to ethical behavior: “self-interest and failure to maintain objectivity, improper leadership and poor organizational culture, lack of ethical courage to do what is right, lack of ethical sensitivity, and failure to exercise proper professional judgment” (Verschoor, 2006, 19). The IFAC study went on to recommend that (1) ethics education require accountants to think critically before making judgments with ethical implications, and (2) ethics should be taught both as a separate unit and as an integrated theme within other courses.

The AECC-funded projects and other curricular modifications suggested in the literature constitute a step forward. Each contributes to improving accounting education and producing the outcomes listed in Figure 1. (See Williams, 1993, 81, for a nice comparison of the traditional and new approaches in accounting education.) Yet the accounting literature to date reports no attempts to comprehensively integrate liberal and professional education like the PPN and AAC&U advocate with one notable exception: the University of North Texas’ (UNT) AECC grant project, *Integration of Classical*

Learning Core with Professional Learning Core. Unfortunately, UNT's project was ultimately abandoned; even so, it is instructive to consider what UNT attempted and what difficulties they encountered as other such attempts likely will face similar obstacles.

Prior to UNT's AECC grant, the university had in place a classical learning core (CLC) developed by the Arts and Sciences College that was essentially an honors program. Six hours of English were required in the first year, serving as a foundation for sophomore courses in English, history and political science. These courses used a common set of "great books" and were integrated under "virtue, civility, and reason" themes. "Accountability" became a fourth theme to accommodate the needs of the professional learning core (PLC) (AECC and AAA, 1998, Ch. 11). UNT's project was designed to link the CLC to the PLC for the expressed purpose of accomplishing goals very consistent with those listed in Figure 1. Central to UNT's curriculum change was embracing "the CLC as the essential liberal arts component of the program and to integrate into the PLC courses aspects of the same learning themes used in the CLC" (AECC and AAA, 1998, Ch. 11). UNT also changed how various parts of the business and accounting curriculum were delivered. UNT's project required extensive cooperation with the Arts and Sciences College faculty, extensive revision of accounting courses, and greatly strained the department's resources (AECC and AAA, 1998, Ch. 11). (UNT's project budget was \$1,057,034 of which the AECC funded \$243,198 (Sundem, 1999, Ch. 4)). UNT's foray into curricular integration ended several years after it began due, in part, to the university discontinuing the CLC in 1994 (additionally, the lockstep nature of the CLC had made it problematic for students to transfer into accounting after they had matriculated). Students also were dissatisfied with the new curriculum as they found that the CLC (recall that this was an honors program) demanded more work than typical general education courses while resulting in lower grades and thus lower GPAs. This latter point might have been somewhat negated if employers had taken the program's additional rigors—and presumed long-term benefits—into consideration.

Drawing from UNT's experiences, successfully integrating liberal and professional education requires the following:

- A CLC or similar coherent general education core in place and arts and sciences and accounting faculty willing to work together to integrate the two

programs (these conditions alone would be disqualifiers at many schools).

- Adequate funding for course and curriculum development.
- An ability to consistently offer relatively small classes.
- Enthusiastic support and leadership from university administration.
- Buy-in and vocal support from the professional community that employs the school's accounting graduates. Students need to be convinced of the value of a liberal education and they are more apt to listen to this message if employers deliver it. Furthermore, employers need to back up their rhetoric with actions when hiring students, some of whose peers may have higher GPAs attained by avoiding more rigorous general education.
- A reward structure that encourages faculty to participate in integration efforts.

I submit that accounting education has not witnessed more efforts to integrate liberal and professional education because the conditions needed to successfully do so seldom are simultaneously found at any school. Note that accounting academe's failure to liberalize is not due to a failure to understand what skills and abilities graduates need or to a lack of good ideas for fixing accounting education as evidenced by the number and variety of suggested reforms following the AECC's formation. Rather, once again, this failure seems to be the result of the same structural impediments that hampered previous educational reforms. So do these impediments mean that accounting education—barring a major overhaul of American higher education—is forever doomed to endure the criticism directed at it? Not necessarily, but it means that liberalization is more likely to result from grass roots efforts that have modest beginnings and can be implemented by any faculty members so inclined. An example of one such effort is described in the following section.

Liberalizing Accounting by Restructuring Individual Courses

Professional licensing requirements are often cited as justification for the "technical approach" taken by many accounting programs and they do impose some curricular content limitations; however, they impose no such limits on course pedagogy. Thus, one avenue to liberalization is in how course material gets

covered and not necessarily in what is covered. I would like to suggest an approach to liberalizing Intermediate Accounting that I have found to be effective, that can be adapted to other accounting courses in the curriculum, and that does not neglect content needed to pass licensing exams. While this approach is certainly not as grandiose as revision of the whole curriculum, it has the advantage of being doable by anyone willing to invest a little time.

Intermediate Accounting is a core requirement of all accounting programs and is often the first “majors only” accounting course. A quick review of widely used intermediate texts reveals an approach that typically begins with a brief overview of financial accounting and accounting standards setting followed by a discussion of the conceptual framework underlying financial accounting. After a few chapters on general financial statement format and content, and one on time value of money, each successive chapter covers another balance sheet caption (e.g., cash, accounts receivable, inventory) and relevant accounting rules for each. Thus, by the time students end the intermediate sequence they should have a reasonable understanding of current generally accepted accounting principles. My experience suggests, unfortunately, that this approach leaves students with little understanding of what accounting is really all about. Rather, it leaves them believing that accounting is like math where problems have correct solutions that just need to be learned (i.e., memorized). See Figure 2 in the appendix.

Figure 2 adapts Brunswik’s lens model (Brunswik, 1952) to serve as a framework for discussing accounting’s critical role as an information system. Besides illustrating that financial statements are not the only information available to decision makers, the model depicts that what investors and creditors really want to know (economic reality) cannot be directly determined by financial statement users, but rather must be viewed through the “lens” of financial statements. Students must be taught that determining/measuring and then translating “reality” into financial statements is not an exact science and often is more of an art. While generally accepted accounting principles—which students need to know how to apply—provide guidelines for this process, they are not immutable, sometimes inadequate (e.g., Enron, SPEs and the “3% rule”), and subject to varying degrees of manipulation.

Being liberally educated means knowing that philosophical controversies exist and having a general idea of what has been said on both sides of

them (Berkowitz, 2006). Almost all accounting principles that are now “generally accepted” were the result of debate, contention, political activism by those who felt potentially impacted by what the rule-makers might decide, and often compromise. Students need to learn that this is a facet of the professional environment that they aspire to enter. When covering the standard setting process, I spend some time going over the history of several accounting issues (e.g., “dry hole” accounting in the oil industry, or pension or stock option accounting). Outside readings help students appreciate the context of a controversy and acquaint them with professional literature beyond the textbook so I have found it useful to assign a few on whatever issue I am using to illustrate the standard setting process. It is not necessary to go into great depth on the history of each accounting standard covered in the course and whatever controversies surrounded its introduction, but I periodically remind students that a similar controversy was behind whatever the topic of the moment happens to be.

I inform students that accounting standards may have economic consequences as well, pointing out that, historically, whenever the FASB has proposed some accounting treatment that would depress reported income or increase reported debt, opponents have claimed an adverse economic effect will occur if the proposal is adopted. For example, vocal critics of Statement No. 106, *Employers' Accounting for Postretirement Benefits Other Than Pensions*, alleged that employers would be forced to cut employee benefits if liability for them was suddenly accrued (Rezaee and Hayes, 1995). More recently, mark-to-market accounting has been blamed as a major contributor to the meltdown of financial institutions that occurred in 2008 (Williamson and Scannell, 2008) and students should start learning to assess the merits of such charges.

When appropriate, I explain the differences between U.S. GAAP and IFRS. As background, I briefly explain why GAAP developed differently in different parts of the world and the problem this creates for global capital markets (if your sense of humor permits, try and sell your students on the notion that debits are on the right in the southern hemisphere).

I stress that there is a significant moral or ethical dimension to financial reporting. Clearly the correlation between reality and what is reported or disclosed in financial statements is impacted by the integrity of those involved in the process (including auditors). Any of the recent widely cited financial reporting scandals can be used to illustrate how

management manipulated financial statements to present a distorted picture of the company. I explain how various stakeholders were negatively affected. I then briefly cover the Sarbanes-Oxley Act and how Congress intended its provisions as a cure for what were seen as major lapses in the integrity of those responsible for producing reliable financial reports.

The efficient market hypothesis gets some (limited) coverage in most intermediate texts. But there are larger consequences to this theory than just that markets react to all available information including that available in accounting reports and thus stock price reflects a company's true value. Madrick (2003) reports that this theory may have played a role in the corporate scandals that occurred around the recent turn of the century because the theory was used to support equity compensation and, when a company's stock is overvalued (as can happen during bubbles), managers can get swept up by the need to create rising profits to keep their jobs and small fortunes. Thus, stock options may induce managers to overstate financial results. I discuss these notions with my class.

I sometimes explore the circumstances behind a few accounting restatements, discussing who was affected and who supposedly benefited from the original treatment. I push students to see the larger context of accounting. Commenting on the earnings management behind the Enron and other recent scandals, Cohen and Holder-Webb (2006, 19) reflect on the possible culpability of accounting educators for the evident lack of ethics, musing "have we provided our students with technical skills, while neglecting the tools necessary for them to navigate a complex and morally ambiguous environment?" My aim is not to be guilty as charged.

The point of all of these course modifications is that students will find Intermediate Accounting a much more "liberating experience" when the course goes beyond just technical coverage of GAAP. Furthermore, Springer and Borthick (2007) found that emphasizing higher-order thinking skills actually increases students' grasp of traditional accounting knowledge. Finding time in the course for these modifications has not been the major challenge one might suspect. I have used the following implementation strategies:

- Much of the material in the first few chapters of most Intermediate Accounting texts reviews what students covered in earlier classes. I do not spend much class time on this material, instead opting to assign a manual practice set to be completed during

the first few weeks of the semester. The practice set serves as an adequate review of bookkeeping procedures and the accounting cycle and allows me to spend more class time covering concepts.

- I try and encourage students to learn how to learn on their own. Although accounting is learned "through the point of a pencil," students are more conscientious in completing assignments if they "get credit" for doing so (Rayburn and Rayburn, 1999). Thus, I assign end-of-chapter exercises and problems and have a teaching assistant grade them. I do not generally spend significant class time going over homework problems, although I will go over assigned material if students have questions and they are always welcome to stop by my office for help if they need it. Not slogging through lots of problems in class frees up time to stress the concepts and issues underlying the topic of the day and reinforces the message that learning what we are doing and why we are doing it is more important than memorizing the technical details (which students will not remember for long and can always look up when needed). I use actual financial statements and footnotes for illustration purposes when practical.

- I constantly stress the logic of what we are doing and downplay the importance of calculations. For example, when covering depreciation I try and address questions such as "What is depreciation?" "What isn't it?" "What does *systematic and rational* mean?" "Under what circumstances is straight-line depreciation systematic and rational?" "Under what circumstances are the usage-based depreciation methods systematic and rational?" Almost as an afterthought I illustrate the calculations.

For additional things to consider when designing any accounting course, refer to Figure 1 and structure the course to meet as many of these outcomes as possible. For example, consider assigning a few cases to develop students' abilities to think critically and solve unstructured problems. Cases also give students an opportunity to develop their professional writing skills. I ask students to research and then cite relevant professional literature in support of their solutions. When large course enrollments make grading an obstacle to using cases, I assign cases as group work. Doing assignments in this manner promotes teamwork and leadership as well. Requiring students to do a brief review and critique of an article that recently appeared in a professional journal (e.g., *Journal of Accountancy*, *CPA Journal*, or *Internal Auditor*) is another possible writing assignment that has the added benefit of exposing them to professional literature.

Make no mistake. I am not suggesting that my approach to teaching Intermediate Accounting is the only way to modify a course to accomplish the objectives listed in Figure 1. And I am certainly not suggesting that if several, or even all, of the faculty members at a school took similar approaches in their courses that their collective outcomes would be the equivalent of what UNT's faculty might have accomplished had their effort succeeded. What I am suggesting is that after a long history of failed reform efforts, implementing course modifications such as I have suggested may be the best we can realistically do to try and provide our students with an integrated liberal and professional education.

CONCLUSION.

Bloom (1987) implies that it is rational for students to abandon today's liberal education—given its disarray—in favor of specialization and career preparation. But these pursuits do not have to be mutually exclusive. Newman's (1852) idea of a university was of a place where knowledge was pursued for its own sake and not on the basis of its social or economic utility. It's obvious that in post-WWII American higher education this notion of Newman's is dead. But accounting can clearly meet society's expectations of the university as a means to social and economic mobility while also fulfilling the objectives of a classical liberal education. Newman viewed the objective of a liberal education as the cultivation of intellectual excellence. John Stuart Mill, who was not an advocate of specialization, nevertheless supported the sciences because of the intellectual discipline they foster (Berkowitz, 2006). Accounting also fosters intellectual discipline, requiring a reasoned approach to solving problems that are often unstructured and difficult.

In some respects, accounting may be more of a classical liberal art than some humanities disciplines are today. For example, modern philosophy casts doubts on the existence of objective knowledge or truth, yet accounting educators still strive to discover and convey it. While economic reality may not always be knowable with certainty, or precisely measurable, where is the fault found with those behind the Enron and other financial reporting scandals if it does not exist? What benefit is financial reporting if each company can report whatever it desires, or, if truth is unknowable, why bother reporting at all? Shyam Sunder (2006, 3), past president of the American Accounting Association, challenges us to:

"Imagine presenting accounting to our students as ingenious answers to difficult questions that face our society to encourage their creativity. Imagine foregoing the use of standards in the classroom that stunt the thinking powers of our students. Imagine the effect of standards on the attitudes of corporate managers and auditors and their sense of personal responsibility for what they do."

Sunder's imaginings are certainly consistent with a more liberalized approach to accounting.

Students who flock to professional programs or the hard sciences are acting rationally as they often see little value in the world of the humanities and social sciences as Bloom (1987) describes it. Newman's university exists today as only a chimera; the outcomes students once sought in liberal education they now seek elsewhere, if at all. But these outcomes are the promise of higher education. Responsible citizenship and a life well lived require them. As put forth in this paper, accounting education, properly conceived and executed, holds the promise of more than just career preparation. It can help students become more liberally educated.

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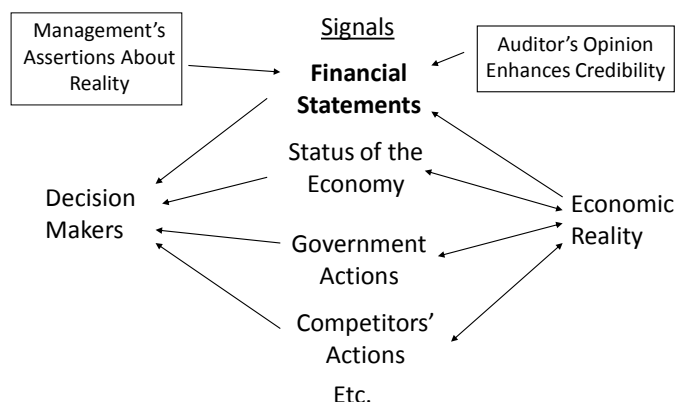
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Figure 1
Ten Outcomes Considered Important by “Liberal” and “Professional” Educators
Compared with AICPA Core Competencies

AICPA Core Competencies	PPN Outcomes	Explanation/Description of PPN Outcomes
--Communication --Interaction	Communication Competence	The graduate can read, write, speak, and listen and use these processes effectively to acquire, develop, and convey ideas and information.
--Problem solving & decision making --Strategic/critical thinking --Risk analysis	Critical Thinking	The graduate examines issues rationally, logically, and coherently.
International/global perspective	Contextual Competence	The graduate has an understanding of the societal context (environment) in which the profession is practiced.
	Aesthetic Sensibility	The graduate will have an enhanced aesthetic awareness of arts and human behavior for both personal enrichment and application in enhancement of the profession.
Professional demeanor	Professional Identity	The graduate acknowledges and is concerned for improving the knowledge, skills, and values of the profession.
Professional demeanor	Professional Ethics	The graduate understands and accepts the ethics of the profession as standards that guide professional behavior.
	Adaptive Competence	The graduate anticipates, adapts to, and promotes changes important to the profession's societal purpose and the professional's role.
--Leadership --Interaction	Leadership Capacity	The graduate exhibits the capacity to contribute as a productive member of the profession and to assume leadership roles as appropriate in the profession and society.
Research	Scholarly Concern for Improvement	The graduate recognizes the need to increase knowledge and advance the profession through systematic, cumulative research on problems of theory and practice.
Professional demeanor	Motivation for Continued Learning	The graduate continues to explore and expand personal, civic and professional knowledge and skills throughout a lifetime.

Source: PPN, 1988, p. 23-25

Figure 2
Financial Reporting Lens Model



**IN THE CLOUD AND ON THE GROUND, BLENDING THE VIRTUAL WITH BRICKS & MORTAR: A
QUALITATIVE ANALYSIS OF THE USE OF GOOGLE SITES AND SMARTPHONES IN THE
GROWTH, MANAGEMENT AND CULTURE OF A SMALL CAFÉ**

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ABSTRACT

As organizations grow in scale and scope they are challenged by increasing volume and complexity in the management of their supply chain, capital, and human resources. Growth that moves firms from an entrepreneurial form, with its loosely coupled organic form, to a managerial firm with tight-coupling and hierarchical form, often requires a quantum shift in design and can greatly impact the nature of the organizational culture, for better or worse. This ethnography examines how a small retail coffee café managed growth from one to three sites, reduced the attending principal-agent issues by employing a range of new media, and preserved its culture.

INTRODUCTION

As organizations grow and evolve from entrepreneurial firms to managerial firms, hierarchy and standardization emerge as solutions to the principal-agent problem. The principal-agent problem presents the management challenge of overcoming information asymmetry of all sorts among organizational agents, as well as aligning interests (Eisenhardt, 1989). The principal-agent problem can be seen as the potential for a lack of *convergence* of such matters as organizational values and quality. In fact the principal-agent problem can be seen as the precipitating factor that requires movement to the managerial firm, as more formal procedures and clearer horizontal and vertical differentiation are needed to manage the increased complexity and volume of task and information flow. Changes in information technology and media have altered the response to this classic management problem, as now a wide range of media is available for management to communicate its objectives, and employees to respond with updates, ideas, and problems.

Given this new and varied landscape of communication options, which medium should be used for what kind of organizational transactions? Received theory has focused on media richness (Daft and Lengel 1986) with particular kinds of media suggested for particular content (Fulk and Smitz, 1987; Dennis and Valacich, 1999). Daft and Lengel (1986) provide a contingency approach to match the appropriate media to the appropriate context. Media richness theory has been criticized theoretically and empirically since its inception but still retains an important starting point to analyze organizational communications (Dennis and Valacich, 1999, Kock, 2005, Suh, 1999). While the phenomenon has many dimensions, two will help frame this research: the

notions of conveyance and convergence (Dennis and Valacich, 1999).

Conveyance relates a datum that is largely unambiguous: "Is the store open?" or "Do we have a dozen bottles of pinot noir?" Needless to say, conveyance is a matter of degree and is not subject to further interrogation: "We have 11 bottles, one is open, is that ok?" or some such. But the need move to "convergence" to a shared meaning is largely unencumbered by potential misunderstanding. If a principal-agent problem emerges under conditions of conveyance, it is due to the message not being received (or difficulties in monitoring whether it has been received), or ignoring the information. Given those caveats, effective information exchange can be achieved with a small number of iterations to assure that the message has been indeed "received." Such information exchange, *ceteris paribus*, requires less media richness to accomplish the task, according to Dennis and Valacich (1999). Alternately, *convergence* based information exchanges are driven by the need to isolate and abstract the issue, and to discuss alternate values, quality, and actions before proceeding: there is a need for clarity on shared meaning. Numerous iterations may be required and, given the nuances that drive the discussion toward convergence in meaning, greater media richness is thusly needed.

This ethnography suggests that a *range of media* could effectively be used for convergence under certain contingencies, in particular familiarity with whom one is conversing and the evolution of such interpersonal factors as "liking" and "trust." Parks and Floyd (1996) explain that a personal relationship develops as "its participants come to depend on each other more deeply and in more complex ways" and that as relationships develop, breadth and depth of interaction increases including *variety of discussion topics, activities, and communication channels*

(emphasis is ours). These “assets” developed in personal relationships alter the nature of the “richness” of media. In fact, there is a high degree of socio-emotional content observed in such media as text and email in organizational and task-oriented settings according to a number of researchers (Rheingold, 1993; Ord, 1989; McCormick and McCormick, 1992; Rice and Love, 1987). And although there are fewer paralinguistic cues in such media, there is a learning curve, and people who are “seasoned communicators” in these media become “adept at using and interpreting textual signs and paralinguistic codes...” Even first-time users form impressions of other communicant's dispositions and personalities based on their “communication style” (Lea and Spears, what is the number for?? 217). Thus, media such as texting and email can carry emotional and impression-forming content. Indeed, Lea and Spears also argue that technology, including CMC, does not weaken social conditions of communication “so much as afford more efficient opportunities for constituting them” (Referenced by Chenault pg 229).

RESEARCH QUESTION

Given the above considerations our ethnographic research challenges the alignment of certain kind of media for certain kinds of communication, which is the heart of media richness theory. Our data suggest that, under certain conditions, the correlation of the needs of conveyance and convergence over particular kinds of media is less distinct than previous researchers suggest. We ask, what conditions are necessary to extend the benefits of media richness over a wider range of media?

RESEARCH METHOD

This ethnography examines how a café managed growth from one to three sites, and reduced the attending principal-agent issues and preserved its culture by employing a range of new media: GOOGLE sites, smart phones, and social media. The café had 30 employees over three locations. No one working in the café was over 30 years old. The data collected include interviews with employees, content analysis of GOOGLE sites developed and used by management and employees, content analysis and network analysis of smart phone texts among management and employees, and field observation of a manager's daily use of sundry media.

FINDINGS

An important finding is the articulation of the emergence, instantiation, and evolution of the use of

media to enhance communications and management among the cafés. Like most innovations there were starts and stops, experiments that failed, and ones that worked and then developed into best practices. The move to the inclusion of GOOGLE sites began when one of the two owners left the organization. The remaining owner developed a board of directors comprised of three individuals (two college professors and the fiancée of the owner). One of the professors was entertaining his current obsession with GOOGLE sites given other consulting experiences, and suggested a site for the “Board of Directors” be developed. With much enthusiasm it was adopted. Within three weeks it was, for all intents and purposes, abandoned.

Within a month of this failure, a new chief of operations was hired (the fiancée) and she implemented a “Managers’ Site.” This site took off and is still operating as this paper is written. The site allows the store managers to share ideas, problems, concerns, and confusions. It also evolved into a “check-in” location where managers post the status of the store on arrival and at different times during the day. Initially this was a scaled response (1=Store in Excellent shape, 2=Store Passable, 3=Store messy, 4=Store unacceptable), but this was too restrictive in terms the managers’ need to express and discuss what was happening in the stores. The “culture” of this site then began to take hold as ideas, problems, concerns and requests began to emerge regularly, and management had a stream of knowledge about the conditions of the cafés throughout the day. Within a month a “Bartenders’ Site” was established and became a repository for checking-in, drink recipes, and the “lore of the bar”—stories, anecdotes, etc. Again, this site survives and thrives as of this writing.

The serendipitous aspect of this “intranet” (thanks to GOOGLE) was that all the managers had iPhones. They could connect to the site with these mobile devices, and were informed of notices and postings via information feeds from the site. This increased the connectivity as managers now got information feeds in real-time and could respond and react rapidly to any developments. These “broadcast” messages were complemented by person-to-person messaging on these devices in the form of text-messaging and email. On a Smartphone there is a blur between text-messaging and email, with the former allowing for a bit more dynamism than the latter. These “side” conversations, largely with the chief operations officer, were used in part for clarifications of matters of *conveyance*, but also contained very efficient conversations on matters of *convergence*. It is this result that offers evidence of the extension of media

richness theory. The scope, medium, and organizational use of media is articulated in table 1.

Table 1: Scope, Medium, and Organizational Use

SCOPE	MEDIUM	ORGANIZATON USE
Broadcast	Google Sites	<ul style="list-style-type: none"> Sharing Learning and Best Practices Accountability Sharing Experience (stories, personalities) that Support and Develop Culture.
Person-to-Person	Text Message Email Voicemail Voice message Face to Face	<ul style="list-style-type: none"> Emergent events (supplies needs, personnel matters) Clarifications (interpretations of rules, decisions, information)

There are, potentially, a number of contributing factors that allow for this extension of media richness, which are presented as hypotheses below.

H1: New members of an organization need to engage in face to face communication before other media can be rich.

H2: Given the cultural tone and norms are established face to face, less media richness is required for further communications (social presence is preserved). [Only managers can access the media]

H3: High social presence can extend to a variety of media given: initial face-to-face contact.

All managers have served as cashiers and baristas before moving to a management position. This has exposed them to the “bricks and mortar” culture of the organization. Further, the managers do, in fact, see and meet other managers in the organization. The level of anonymity is low. Thus, when moving to another medium, the memory of these encounters is not lost. This, of course, can cut both ways, either enhancing or detracting from trust, but the end result is a likely a calibration of the text media that anticipates the reaction of a known other. This hypothesis offers rich opportunities to explore what can enhance this trust in anonymous environments, and to what degree is some initial “social presence” really needed to extend the richness of other media.

H4: The culture needs to be maintained with: a “Culture Jockey” who models appropriate communications and is responsive to media postings of all sorts.

While the virtual environment established over the sundry media and the GOOGLE site did take off rapidly, the site was moderated by the chief operating officer. This person was particularly adept and intuitive at what Lea and Spears (referenced by Chenault) term the functions of a group: “...production (towards a goal), support (affective) and well-being (norms and roles).” (Demiris, et al 2008). These authors, it is worth noting, also argue that technology, including new media, does not weaken social conditions of communication “so much as afford more efficient opportunities for constituting them” (pg. 229). This mediation of the virtual environment, both in terms of the broadcast components and the person-to-person component noted in table 1, spawned the role of “culture jockey.” This person, to mix metaphors, is a kind of cultural and operational air-traffic controller. From the analysis of the Google site, text-messaging, emails, and interviews three constructs emerged as supportive of maintaining media richness among all media with the resulting benefit of efficient operations and cultural maintenance: framing, building trust, and validation.

Framing

- Establishing the acceptable topics,
- Revealing the sender and receivers emotional baseline or tone; this sets the mood for communication and the emotional voice of the sender.

Framing means checking in about work and personal issues to establish both areas as acceptable topics.

Example: “How is the business this morning?” versus “How are things with you? What’s doin’ at the shop?” It also means setting the tone to be very clear about the emotional point of view of the sender. Using ‘words’ like ‘Sheesh’ ‘Boo’ ‘Yay’ and ‘Ugh’ help eliminate the chances of mixed messages. This reduces potential equivocality. Example: “We need to get this shop cleaned up, it’s a mess in here.” versus “We need to get this shop cleaned up, it’s a mess. Ugh.”

Framing indicates the importance of some variant of “emoticons” --both symbols and words like wahoo, boo, etc. as presented by the culture jockey or

veterans and mentors of communication in the cloud. Emoticons are used in online conversations for three major reasons: they can accentuate or emphasize a tone or meaning of the message (Crystal 2001; Huffaker and Calvert 2005); they can establish the current mood or impression of the sender (Constantin et al 2002); and they can make the otherwise completely textual conversation creative and visually-salient (Crystal 2001; Huffaker and Calvert 2005; Xu, Yi, Xu, 2007).

This promotes convergence in interpersonal communications and perception. Supporting research shows that the rationale of interpersonal perception is that people have to perceive something about the interaction partner in order to know whether they should respond to them, trust them, or befriend them (Markey and Wells 2002). In a study on web chat rooms, Markey and Wells (2002) regard interpersonal perception as the personality judgment of the interaction partner, which can be formed through the interactions between the communicators on various topics (e.g., work or life, public or private issues) and the way the partners present themselves (e.g., the use of emoticons, the speed of response or their sentence structure). Ho and Vathanophas (2003) examine the influence of personality traits in online discussion and find that group members' personality traits affect the process and outcome of the discussion. Hence, we expect that emoticon usage in various media communications to be influenced by interpersonal perception, i.e., how the sender perceives the receiver's personality. (Xu, Yi, Xu 2007). Thus, the attempt to signal emotions through signs in order to drive down ambiguity is key to the framing process, and easily and effectively enriches the communication process.

It is important to note that tone is aided by the fact that communication comes from a familiar device (smart phone) that is used fluidly throughout the users work and personal life. Laurel N. Hellerstein (1985) found that heavy users of e-mail and electronic conferencing, in a university setting, were more likely to use the computer to "initiate new friendships, make new friends, and communicate with others." Walther and D'Addario (2001) stated that without nonverbal cues, communicators adapt their relational behaviors to the remaining cues available in media, such as content and linguistic strategies, as well as emoticons and typographic cues. (Yigit, 2005)

Building Trust

- Sender and receiver must take responsibility for how the message may be received and interpreted.

- Seeking affiliation.

Example: "I need leave to leave the shop by 3; let me know ASAP if you need anything." Follow-up: "FYI...it's beautiful out, I love lemonade season." This response builds the personal relationship while focusing on the need for process execution; it both reduces personal in the task, and enhances the personal in the relationship by self-disclosure.

Organizational research has shown that employees seek help from members that they interact with frequently because they have developed a trusting relationship which allows them to share innovative information (Albrecht and Hall 1991; Cross and Borgatti 2001; Xu, Yi, Xu, 2007)

Self-disclosure refers to the voluntary provision of information to another that is of an intimate or personal nature. *Acts of self-disclosure promote trust.* Presumably, the discloser would not provide the information if he or she believed that it would be interpreted or used in a manner harmful to self. Thus, when disclosing positive information, one trusts that it will not be interpreted as boastful. And when disclosing negative information, one assumes that it will be kept confidential (Miller, 2002)

Validation

- Receiver confirms that the message has been received.
- There is timeliness to the response.
- Receiver offers empathy, validation or confirmation; details may be confirmed as well.

Example: "Got it." And "I'll start kicking butt as soon as Marty rolls in for the shift, shorty. We still on for 3:00 at the warehouse?" The interaction requires a response to the sent message to assure that sender and receiver are synchronous: that information has been *conveyed*, and that there is *convergence* on meaning.

This raises an interesting concern: how much of validation is about timing? Walther and Tidwell (1995) argue that various electronic media often convey nonverbal cues in terms of "chronemics," or "time-related messages." The different uses of time signals in e-mail affect the interpersonal perceptions of correspondents. They assert, with research support, that time is an "intrinsic part" of our social interaction and that time messages in a communication event

convey meaning "across multiple levels" (pg. 361). Walther and Tidwell state the following about time in our communications:

"Time is a resource in our culture, and may be akin to other resources the exchange of which marks more intimate relations. How time is used helps to define the nature and quality of relationships with others."

(pg. 362).

The culture jockey employs framing, building trust, and validation to both enhance operational flow, but also to maintain the culture. Media richness is extended with the extra effort of self-disclosure of mood which promotes convergence, and an operation is enhanced by disambiguation leading to more efficient conveyance. There are counterpoints to all of this in terms of matters of cognitive overload and richness (Yu, Xi,Yu, 2007; Dennis and Valacich, 1999); these concerns will not be addressed in this paper.

FUTURE RESEARCH

The prospects for small scale operations to fruitfully employ various media seem positive. To this end the following future research is planned.

- More data collection on use (survey) by organizational participants.
- Extend our thinking about the link between principal-agent problems and media richness.
- Test whether face-to-face enculturation is really needed to integrate well into the virtual culture.
- Test whether the virtual site is "culture jockey" dependent, or if that is simply a phase in starting such a site.

CONCLUSION

What emerges from this ethnography is a set of practices that coordinates activity, reinforces the organizational climate, and also develops a kind of shorthand of signals that challenge the "richness-hierarchy" as described in received theory. We further hypothesize that such media has a palpable impact in operationally reconfiguring organizational hierarchy and roles. Many of the problems and costs of monitoring associated with the principal-agent problem are largely removed with the speed, frequency, and multimedia form of interaction among organizational members. Thus members more

quickly converge on a common purpose (Dennis and Valacich, 1999).

This comprehensive adoption and melding of media allows small brick and mortar organizations to engage in a surprisingly high degree of virtual interaction that improves efficiency and effectiveness and highlights a new form of organizational communication with attending impact on structure, roles, accountability, culture and control. As tools improve and employees become fluent with the appropriate technology, small organizations may start to accrue benefits previously reserved for larger, more financially endowed organizations. Such potential benefits include:

- Small organizations can capture scale more easily given member of a virtual sites learn more easily from each other given their continuous virtual connection. Such connection, and also low cost monitoring reduces principal-agent issues, improves conveyance and convergence in communication.
- Cultures in small organizations may scale with standardization given site managers share experiences and learning in a more personal way and, again, continuously in the virtual site. This promotes convergence in media that formerly was considered inadequately rich to accomplish this task.
- Small organizations converge on best practices more rapidly with organizational memory and organizational input recorded and responded to in the virtual site.
- Small organizations can develop deeper analytics and thus greater responsiveness to adjust product mix and supply chain management. This becomes possible as the cost of integration drops with tools for virtual interconnection.

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ON THE SHOULDERS OF GIANTS: SOME CLASSICS AND CONSEQUENCES

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ABSTRACT

Two quotes have become instrumental in guiding scholarly activities. The first is attributed to Sir Isaac Newton, “If I have seen further it is by standing on the shoulders of giants.” The implication is that if we are to make progress, we do so by taking into account the work that has preceded us. The second is attributed to George Santayana, “Those who cannot learn from the past are condemned to repeat it.” Indeed, if we do not take previous work into consideration, then we must repeat the hard learning experiences of the past. In this vein, the substance of six papers are reviewed – Lindblom on scientific muddling, Kuhn on paradigm shifts, Lawrence and Lorsch on effective organizations, Simon on complexity and intuition, March on samples of one or fewer and Drucker on management. The backgrounds from these six papers are used to show inputs into some 15 field studies coming out of Sweden. It is suggested that these connections are not only important in interpreting our research, but we might be under some obligation to indicate to students the DNA on which our discipline is built.

INTRODUCTION

A semi-commitment has been made to write a series of articles for an Indian journal (Wilson, 2009a, b, c, d; 2010a, b). The running title of the series is “On the shoulders of giants,” and the idea is to recall some of the work of previous scholars that affects our management thinking and practice today. That is, two quotes have become instrumental in guiding scholarly activities. The first is attributed to Sir Isaac Newton (Quotationpage-1, 2009), “If I have seen further it is by standing on the shoulders of giants.” The implication is that if we are to make progress, we do so by taking into account the work that has preceded us. The second is attributed to George Santayana (Quotationpage-2, 2009), “Those who cannot learn from the past are condemned to repeat it.” Indeed, if we do not take previous work into consideration, then we must repeat the hard learning experiences of the past.

The first paper in the series dealt with Charles Lindblom’s (1959) seminal paper on decision making that related to his “muddling through” approach. The series then dealt with some of the concepts T. S. Kuhn (1962) noted on paradigm shifts and then went on to include Lawrence and Lorsch (1967) on effective organizations, Simon (1996) on complexity and intuition, March (1983) on samples of one or fewer and Drucker (1954,1963) on management. The selection of these topics has not been accidental. In other words some portion of them found use in other papers. The first two shared the characteristic of being associated with special issues of journals of which the author was a co-editor, i.e., Special Issue, *Journal of Business Research*; “Muddling Through Processes and Outcomes since Lindblom.” The second was: *Competitive Review*, “Changing Paradigms in Competition and Competitiveness.” Because this special edition involves paradigms,

Kuhn’s (1962) work was important as background material, i.e., he is responsible for attaching importance to the word.

The other thing these articles have in common is that in addition to being classics, they have served as foundations for explaining the results of some field studies in Sweden, which perhaps is the real test of what we “actually know.” In other words, in spite of the fact that these publications may be 40 or 50 years old, if they are still useful in interpreting current business observations, then they have survived a market test as it were. They are the giants upon which we build our current developments.

A short summary of paper contents that serves as a background and sets the tone of this paper is given in Appendix 1. This list admittedly is neither complete nor comprehensive. Neither is it historical. Rather, it is associated with the author’s experience in relating field observations to the classic literature in published articles. It was concluded in each case that we might benefit by learning from the lessons of the relevant approaches. It is hoped that colleagues also find the material useful.

OBSERVATIONS

Charles Lindblom – Decision Making

Background – In effect, Lindblom was attempting to describe “real life” and rationalize how simple appreciation of the policy-making process could lead to better policy. Put another way, he was attempting to move away from the world as academics and view the analyses of situations as they actually happen. In his 1959 paper, Lindblom suggested that it was important to understand that policy was developed through a “successively limited comparisons (branch)” approach. In clarifying and formalizing this approach, he contrasted it to the rational-

comprehensive (root) process, which existed as an ideal at that time. It was asserted that to continue to be affected by this method, “as well as some of the most sophisticated variants, operations research for example, will continue to be as foolish as they are wise.” Subsequently, he went on to develop the process of “muddling through” that to this day is associated with his name.

Lindblom (1979) followed with two more publications before a reprise twenty years later. In 1962 with Hirschman, the Lindblom approach was extended to economic development and research and development. Toward the end of this paper, the authors make an observation that is almost an afterthought, but is significant in describing everyday problems and processes. Snags, difficulties, and tensions cannot be avoided, but must on the contrary be utilized to propel the process further.

Braybrooke and Lindblom (1963) may include some of the clearest writing on muddling. The idea that the process was remedial, serial and exploratory was clarified as was the applicable range of the approach. That is, decisions were discussed in a two dimensional space defined by understanding and degree of change required to solve problems or take advantage of opportunities. One particularly relevant section in this publication is the section devoted to discussing the nature of problems. In this section, one may appreciate the applicability of the approach to business situations. That is, “the problem” may in fact be a cluster of interlocked problems with interdependent solutions. Put another way, an attempt to solve one problem may indicate that it is associated with another problem that was overlooked in the initial analysis. Thus, a second problem must also be addressed simultaneously. Further, this text suggests that steps taken in the process tend to be “remedial, serial and exploratory” (p. 74), and finally, the approach taken is moving away from the present situation – not particularly toward something. In other words, the decision maker cannot tolerate the present situation and will only recognize success when he/she gets there.

From Sweden – Several recent studies contained a rationalization that depended upon observations made by Professor Lindblom during his career. For example, in a study of a niche-oriented, capital goods producer, it was exactly this service that established their position in the market (Wilson, Boström, & Lundin, 1999). Consequently, the company decided to place even greater emphasis on its service provision and had as one of its goals for the year “to be the best on site (in service provision)” (Zackariasson & Wilson, 2004). As another

example, group creativity and the development of video games have been studied. In a series of papers (Zackariasson, Walfisz, & Wilson, 2006a, b; Walfisz, Zackariasson, & Wilson, 2006), the operations of a firm were described as it successfully developed these games. The company had developed a heuristic (Simon, 1996) that allowed it to systematically approach its opportunities while maintaining an element of control. This model not only affected each project individually, but the whole company as an enterprise (Zackariasson, Blomquist, & Wilson, 2004). In effect, the company had developed its own prescript that protected its technology without necessarily relying upon key individuals (Anell & Wilson, 2002). Advancement tended to be shrouded with complexity, uncertainty, inadequacy of incentives, and inducements for decision making as suggested in the Hirschman (1962) paper. At the end of ten days, however, things were put together and progress was evaluated toward the “(more) fun” game. These builds impacted future goals (Walfisz et al., 2006). Lindblom entered this process as consequence of the inability (again) to specify an initial goal and the necessity to deal with a cluster of problems, which went so far as to affect the organizational structure (Zackariasson et al., 2006a).

Finally, a paper was written on the purchase of customized ERP systems (Andersson & Wilson, 2006), which is worth mentioning because less tends to be written on purchasing than marketing as business functions. In the case that was studied, the buying firm went through six separate steps taking 26 months (€681.4) on its way to getting its final system. It started with a rather small project (14 months, €27.5) equipping 20 users and moved onto finally completing its needs. The initial time and money was assessed as well as spent. The company did not know what it really needed, and the time spent helped to define that need. Subsequently, purchases were essentially spec items. Lindblom (1979) might say that it had been set “on a productive course of analysis while turning away from conventional attempts at formal completeness that always lapse, for complex problems, into ill-defined makeshifts” (p. 519). Further, this case suggests that steps taken in the process tended to be “remedial, serial and exploratory” (Braybrooke & Lindblom, 1963, p. 74), and finally, the approach taken was moving away from the present situation – not particularly toward something (op. cit. 102).

T. S. Kuhn – Paradigm Shifts

Background – One of the major worries of business executives and strategic planners has to be that their business somehow gets away from them. In other

words, somehow the business model that they presently employ is markedly changed by the introduction of new technologies, new economies, or major competitors. Thus, the descriptive applications of the term *paradigm shift*. T. S. Kuhn (1962) is perhaps responsible for popularizing the word “paradigm.” In his postscript to the second (1970) and third (1996) editions of the monogram Kuhn (1996), however, allowed as he had two meanings on the word in mind in his original writing. It is the second meaning that comes closest to our usage of the term in business. It has been used as a synonym for idea, style, format, pattern, hypothesis, and/or approach. That brings us to the term “paradigm shift” and the meaning associated with it. Kuhn (1962) noted that science does not progress smoothly, but goes through periods of turbulence in which one paradigm replaces another. It was during the period that there was a change in beliefs, a paradigm shift as it were. This model would appear particularly applicable in analyzing the changes that occur in paradigm shifts. That is, a new way is found to conduct business. It might be noted that there is not only jockeying among the current competitors, but entry of new organizations (Porter, 1979). Part of the success of these new entrants, of course, is associated with new products they offer and the bargaining power they represent for customers.

From Sweden – I am indebted to two of my younger colleagues, Gert-Olof Boström and Peter Zackariasson, for the examples of paradigm shifts that are used here – one concerning a professional service, the other perhaps more product-oriented. Gert-Olof studied the adoption of CAD in the architectural industry in Sweden, which contributed first to his licentiate (Boström, 1997) and then his doctorate (Boström, 2001) in business administration from Umeå University. Similarly, Peter did an extensive study of the development of video games, which formed the basis for his licentiate degree and then his doctorate (Zackariasson, 2007, 2003).

The case of CAD adoption into the architectural industry reflected the impact new technology can have on industry structure and practice. Technology came from suppliers to users, which in turn affected customers to the extent that they endorsed use. Early adopters considered the adoption as an experiment, i.e., they had adopted equipment for evaluation. Nevertheless, as time went by it was customers who drove adoption. They saw advantages in both visualization and subsequent modification of documents. As a consequence of adoption, the process of producing output changed, and change had to be addressed at three levels - in the *process* of

producing output, in the *output* itself, and in the *industry* as an apparent consequence of the technological introduction (Boström, Zachariasson & Wilson, 2003).

The second example came in our video game studies. In chronicling his history of the video game industry, Kent (2001) did not start with the early contributions of the MIT student who developed the first computer game, or the entrepreneur who started Atari. Instead, he devoted his first chapter to pinball and the pinball game industry. If one can legitimately talk of an entertainment paradigm, then a shift from pinball to video games introduced the video game industry. A paradigm was established that suggested that firms could succeed in satisfying the need for entertainment through the offering of “video games.” This paradigm featured strong individuals around whom integrated firms were formed. The general business model as exemplified by Atari was one of selling consoles as cheaply as possible and making profits from the game software (Kent, 2001). An attempt has been made to update shifts in the industry (Zackariasson & Wilson, 2010). This industry has of course been rife with changes, but not all of them rise to the level of paradigm shifts. Of those that might, we see clearly the following paradigm shifts:

- The emphasis on PCs and MMOGs as a direction in game development especially as it affects the Pacific Rim and developing economies.
- The adoption of an “athletic shoe” approach to game software, where more of it is being done in developing countries.
- Microsoft’s shift to a hardware producer and retailer.

Peter R. Lawrence and Jay W. Lorsch – Specialization and Integration

Background – Effective and efficient coordination of activities in complex organizations is an ongoing concern of managers and planners. In their classic study, Lawrence and Lorsch (1967/1986) posited that adaptation is a contingent matter. Specifically, firms must adapt their organizations to their environment in order to be effective. Simply put, it was concluded that firms in industries facing high degrees of uncertainty tended to function more effectively when both departmental differentiation and cross-functional integration were high. In contrast, low departmental differentiation and cross-functional integration were associated with low industry uncertainty. As might be expected, medium

departmental differentiation and cross-functional integration were associated with medium industry uncertainty.

From Sweden – As part of an ongoing exploratory effort in the study of projects and temporary organizations, a comprehensive field study has been made of project management activities (Blomquist, 2003). Interest in specialization and integration come into play in such organizations when management and marketing are considered. Surprisingly, this association has not been studied for project contacting firms. In fact, it has only been recently that marketing for project firms has received academic interest (Cova & Salle, 2007). The actual study was developed to ascertain the apparent strategy and tactics used by project firms in a cross-section of situations as affected by Lawrence and Lorsch considerations. These firms were drawn from an industrial sector that could be characterized as being composed of multi-project, multi-level, high-technology firms. A 2x2 matrix was used in firm selection. One dimension in this matrix was an industry variable, which could be characterized as either relatively *stable* (engineered products and systems) or *dynamic* (information systems and technology). The second dimension was a size dimension. One firm in each sector was the dominant firm – a firm that even the most casual observer could identify. The second firms were specialists. They tended to handle a narrow range of project types, generally of the smaller variety, for a limited segment or segments of customers.

The following observations were made from the study. First, firm size had little to do with differentiation and integration between the marketing and management functions in the project organizations. Regardless of size, conduct tended to be similar. With regard to environment, however, there was a difference. Firms in the stable environment tended to have greater differentiation and specialization than the firms in the dynamic environment. In the dynamic environment, marketing and management tended to work closely together. Integration was high, but differentiation was low – in one company, the sales process was a project management process itself. Thus, it was concluded that although a Lawrence and Lorsch approach provided the framework for analysis, there was this significant difference in observations.

H. A. Simon – Complexity and Intuition

Background – It is an understatement to suggest Herbert Simon was an amazing scholar. His

compilation of lectures at Massachusetts Institute of Technology (MIT) and California Institute of Technology (Caltech) on the sciences of the artificial, which will be used here, has received nearly 10,000 citations. He received the Nobel prize in 1978 for his pioneering research into the decision-making process within economic organizations, yet he may be best known for his work on artificial intelligence. With this background, it is not the contributions in artificial intelligence, nor his treatment of decision making, nor his contributions in organizational theory that we wish to focus upon. It is instead, two perhaps minor areas – complexity and intuition that has interested us and which has led to important areas of practical applications to which Simon himself has referred. With regard to complexity, he made the simple, but powerful, observation that complex systems need not to be totally complex, i.e., made up of completely random structures and events, but instead have some degree of redundancy. Further, systems tend to be hierarchic. That is, they tend to be built up from their elemental, redundant parts. Hence, they can be decomposed into their component parts and the aggregation of these parts provides the description of the system. He suggests that the task of science is to make use of the world's redundancy to describe the world simply.

The question becomes, do similar considerations extend to areas of sociology and management? To that, Simon's (1996) observation is "The notion of substituting a process description for a state description of nature has played a central role in the development of science" (p.215). For instance, subsequent developments in understanding industrial buying behavior tend to go back to the original study by Cyert, Simon and Trow (1956) that laid out the process in a single case. With regard to intuition, Simon defines it as the ability to know things without conscious reasoning. "Insight" may be a good synonym; a phrase that describes the phenomenon may be "gut feeling." It goes beyond just a feeling, however, and at times includes a prescient aspect that permits individuals to have strong feelings about outcomes. In that respect, there is an almost supernatural aspect to consider. Consequently, "clairvoyance" could be added to the list of synonyms for intuition. Whatever the case, reflections from industry suggest that experiences of some individuals have served them well. In the Nobel acceptance lecture, Simon noted, "Like Humpty Dumpty, we can make words mean anything we want them to mean." There should be no mistake in what he means in intuition. He (Simon, 1996) suggests that intuition is a genuine enough phenomenon. "It is the sudden flash that sometimes

allow the expert to arrive immediately at the answer that the novice can find (if at all) only after protracted search. It is a *process* (emphasis added), not an explanation of one, which can be explained rather simply – most intuitive leaps are acts of recognition” (p.89).

From Sweden –The reflections on complexity and intuition come from a series of papers written with another young colleague, Markus Hällgren (Hällgren & Wilson, 2007, 2008), on deviations and crises in construction projects. Trained individuals understand that underlying the apparent random activity is a stringent plan and devoted management. Nevertheless, even with a plan in place, deviations from the plan occur and these deviations must be handled. These deviations were studied by onsite observations and were the subject of our treatment. Both elements of complexity and intuition were involved in the understanding of their treatment.

With regard to complexity, Simon’s (1996) analysis proved useful by suggesting that real projects contain deviations, but the projects themselves have an underlying regularity that makes their implementation within time and cost constraints possible. That is, projects tend to be complex, hierarchic systems as defined by Simon. The uniqueness aspect of projects makes them *complex*. It is this property that makes the hierarchic system incompletely, but frequently and fortunately, nearly decomposable. In other words, interactions between and within the tasks cannot be completely specified at the planning stage (Simon, 1996). It is a little beyond the scope of this paper to get into how the company under study managed the deviations, but they developed a heuristic that involved early communication and organizational slack. Adjustments might take days or weeks, but the projects invariably got back on track in an effective and relatively efficient manner.

With respect to intuition, an insidious form of crises faced by organizations who conduct projects is the cumulative or creeping crisis. These situations are not associated with spontaneous or even specific events, but instead develop over time. Consequently, management of these situations was dependent to a large degree upon intuitive feelings of individuals in the management chain – the ability to recognize the evolution of potentially debilitating problems (Hällgren & Wilson, 2008).

James G. March – Samples of One or Fewer

Background – This last paper was really a fun one to write because it dealt with a topic on which managers make their reputations. That is, they have an apparent ability to extrapolate from samples of one or fewer. James March with two colleagues clarified this situation (March, Sproull & Tamuz, 1983). Essentially, two cases were treated – one case involved the situation where there is some history in the organization, the sample of one case. In that situation, it was suggested that in order to make full benefit from their history, organizations must experience events “richly.” Put another way, instead of treating unique incidents as single data points, they should be appreciated as detailed stories. The other situation is the one in which there is no directly applicable history, the “or fewer” situation. In this situation, it was suggested that organizations can use near histories or hypothetical histories for guidance.

To make a long story short, this approach was used to assist managers in their responsibilities. With regard to near histories, March and his associates (1983) identified three things that help to enrich incidents even before consequences are evident. First, an organization may experience more aspects of an event. That is, if aspects of a decision were friendly and positive, it will tend to be repeated even if feedback is slow. Likewise, if the expected results were positive, similar actions will tend to be reinforced. Secondly, organizations may experience more interpretations of an event. A CEO who debriefs the group that participated in a decision essentially is taking advantage of this opportunity. Individuals experience events differently. Consequently, they learn different lessons from their experience. By sharing, a more complete picture evolves, which can be used as a point of reference in the future. Third, organizations may experience more preferences. Organizations discover values, aspirations and identities in the process of their actions. When one talks about the core values of an organization, it is from these actions that they come.

With regard to near histories, sometimes we hear the expression, “We dodged a bullet there.” It is a hyperbole for a near miss. It turns out that in many situations, the difference between success and failure is a consequence of a single intervening factor. The firm is, in effect, using a near history to improve its operations. By identifying the favorable intervention and institutionalizing the preferred practice, the organization has not only learned from the experience but acted upon it. Finally, with regard to hypothetical histories, to go along with the cliché on dodging

bullets, we might consider the one of “necessity being the mother of invention.” In this case, however, we would like to substitute “opportunity being the mother of invention.” In this instance, we turn to what March et al. call hypothetical histories. Hypothetical histories play a role in organizational learning through mental models and/or simulations. March et al. (1983) point out that hypothetical future scenarios are indistinguishable from hypothetical histories. In other words, CEOs can look back on what might have been to construct a theory of history from which a variety of unrealized, but possible, additional scenarios are generated. Put simply, missing the boat once does not preclude missing the next one.

From Sweden – We first started looking at March’s work when reviewing our observations on learning from projects. Conventional wisdom is that project organizations have a real difficulty in learning from projects (Ekstedt et al., 1999). This conclusion comes from presuming that projects are conducted by temporary organizations and since much of the learning from projects is tacit, that learning is lost to the permanent organization. Our reflection was that March and his co-authors would seemingly argue that not only do permanent organizations learn from projects, but its competitors would also (Anell & Wilson, 2002). Essentially, every time a company bids or plans a project (unique by definition), it makes use of the “small samples of specific historical events” about which March writes. Thus, a learning model is not discerned by how a team stores knowledge, but by how an organization uses knowledge.

Although important to management, these reflections tend to be philosophical. Our studies on crises in projects were more specific (Hällgren & Wilson, 2008a, b). Crises are primarily singular events that have the propensity to impart significant injury to the company. Fundamentally, the observation is made that complex organizations somewhere along the line will experience *unimaginable* events that destabilize the organization. Multi-project firms are exposed to this threat on a continual basis. That is, the efficiency and effectiveness of the organization depends upon carefully planning and conducting projects. Deviations from plan, however, invariably occur and when these deviations are on the critical path, a crisis results. Fifteen such crises were described from the study of experience of an international construction firm to see how they were handled in actual practice. The first line of defense for the company was a risk-management approach. That is, the company could look back on its and the

industry’s history of near-misses and anticipate things that might happen. That approach, of course, only goes so far so what the company tended to do was develop an approach for handling these events. As a consequence of debriefing of situations, a system evolved that had elements of a dual structure in the company’s organization. That is, both a site team and corporate team were responsible for projects. One consequence of dual structure was “instantaneous” communication of crises between site team and corporate project team. It was obvious from past histories, regardless of crisis detail, that nothing was set in motion until an initial call was made. Finally, both formally- and informally-developed teams were used to handle situations. Collins (2001) in his treatise of “great” firms indicated that it is the system that must be managed. This company had found a way to manage the system – based literally on samples of one or fewer.

Peter F. Drucker – On Management

Background – Because Professor Drucker has written so much and so much has been written about him, it is difficult to say anything new about him or his interpretations of business and management. In the paper written for the Indian journal, two items received focus – the definition of specific business entities and the role knowledge workers play in these businesses. On the first, he wrote, “*What is our business is not determined by the producer but by the consumer*” (from Drucker - 2, 1954/1982, p. 50). As an answer to the rhetorical question, who is an executive? Drucker writes, “*Every knowledge worker in modern organization is an ‘executive’ knowledge worker in modern organization is an ‘executive’ if, by virtue of his position or knowledge, he is responsible for a contribution that materially affects the capacity of the organization to perform and to obtain results*” (from Drucker - 2, 1967/1996, p. 5).

From Sweden – Drucker’s ideas on business just seem to drift into papers. As this paper is being revised, a paper on managing by objectives in the Swedish secondary school system is going to press (Lindberg & Wilson, 2011). Before and besides that, the basics of Drucker’s ideas of business evolution have been revisited many times in manuscripts from Sweden including stakeholder salience in Tanzania (Masoud & Wilson, 2011), technology and change in the Swedish architectural industry (Zackariasson, Boström & Wilson, 2009), development of video games (Zackariasson, Walfisz & Wilson, 2006) and the production of after-sales services (Zackariasson & Wilson, 2004). With regard to the need to have

“people at the bench” making executive decisions, this example has been revisited over and over in the papers relating to creativity in video game development (Zackariasson, Styhre & Wilson, 2006; Walfisz, Zackariasson & Wilson, 2006; Zackariasson, Walfisz & Wilson, 2006).

REFLECTIONS

The purpose of this paper has been to reflect on some of the author’s observations associated with rationalizing contemporary field studies in terms of classic background considerations. The list here is truncated because the field studies themselves dictated the classics that were included. There is no implied importance or priorities with regard to the field of management. There certainly are more and perhaps readers have their own favorites that they use in their own studies. In principle, it matters not; the idea is to associate current observations with those “things we know.” As this paper was being assembled, it was amazing how many practices ended up being covered – from marketing of IT systems to after-sales service, from video games to Swedish architecture, from learning in projects to treatment of crises. These gentlemen did indeed have broad shoulders and much was gained with the time spent with them.

None the less, even though these individual contributors remain “giants,” one wonders if the tendency among academics is not to lose their contributions in history – Santayana’s (1905) warning to the contrary. For instance, we might ask ourselves as educators why we have tended to stick with case studies as an approach to teaching managerial decision making. The structured, comprehensive formalism associated with that approach is exactly the type that Lindblom criticized and relevant only to administrative decisions (Braybrooke & Lindblom, 1963). If muddling is the way decisions are made, or at least a lot of them, is/was this approach to decision making not a step in the wrong direction? It would be interesting to reflect on that question. Fortunately, some relief or at least an alternative is available. In a recent article in *Business Week*, Francesca Di Meglio (2008) made this observation, “Case studies, once considered the only way to train MBAs, are losing some of their street cred (sic). The latest challenge: computer simulations that allow students to run virtual companies. The games, now used by more than half of all B-schools, can last a couple of days or all semester. Students are assigned management roles and presented with a problem, then get to work. Professors track their every move and supply

feedback.” As it were, a book is being developed with another young colleague (Jensen & Wilson, 2011) in which a selection of Swedish scholars are permitted to select their giants and indicate how they have affected their research. In his proposal, he wrote about understanding the DNA of our discipline. That is a nice thought. Perhaps we should spend more time as educators relaying to students of what we are constructed. In our joint venture (Jensen & Wilson, 2011), the selection of Drucker was imposed on me by my co-editor. Thus, one can see why I finally got around to writing the sixth paper in the series – Drucker on Management (Wilson, 2010), but I cannot complain; his quotation on the customer defining a business has been used in at least a half-dozen papers. These things being said, there is a comfort in knowing these concepts, these models, remain useful in rationalizing contemporary observations. They do not stop, however, us from seeking new and better concepts. That is the nature of academic life just as Kuhn (1996) would have us believe. At the same time, we sustain respect for the shoulders of the giants.

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Appendix 1

Reflections on “Giants” Featured in Shared Personal Publications

Author	Assertion	Research Relevance	Lessons for Managers
C. E. Lindblom, 1959	Decision making tends not to occur by a “root” but rather by a “branch” approach, i.e., muddling.	Observations in after sales service, development of video games and purchasing of IT systems. ¹	We should become better incrementalists in practice.
T. S. Kuhn, 1962	Science does not progress smoothly but goes through periods of turbulence in which one paradigm replaces another.	Competition and competitiveness in the video game industry and the Swedish architectural sector can be characterized by these paradigm shifts. ²	Paradigm shifts should not be viewed as threats, rather as opportunities for diligent, perceptive executives and strategic planners.
P. R. Lawrence & J. W. Lorsch, 1967	Specialization and integration of divisions in effective organizations depends upon the environment they face.	Interactions between marketing and production in IT and engineering projects are associated with relative market turbulence. ³	Focus on the environment and be flexible.
H. A. Simon, 1996	Complex systems tend to be built up of their elemental, redundant parts. Further intuition tends to be a function of experience.	Real projects may be complex, but have an underlying regularity that makes their implementation possible, frequently with an intuitive assist. ⁴	Seek simplicity in a world complexity, manage the interfaces, recognize intuition as a process to be pursued and get the right people on the bus.
J. G. March, Spoull, & Tamuz, 1983	Incidents can be enriched to provide guidance even before consequences are evident.	Not only do permanent organizations learn from projects, but its competitors can also. Crises treatments are particularly amenable. ⁵	Certainly make use of enriched, near and hypothetical histories to learn from this inventory of information.
P. F. Drucker, 1954, 1986	A business is determined not by the producer, but by the customer. Every knowledge worker in a modern organization is an executive.	Understanding customers and turning loose the capabilities of individuals can produce some amazingly good results. ⁶	Understand your business as your customers will see it tomorrow and turn the employees loose.

¹ Zackariasson, P., Walfisz, M. and Wilson, T. L. (2006); Walfisz, M., Zackariasson, P. and Wilson, T. L. (2006); Andersson, A. and Wilson, T. L. (2006); Zackariasson, P. and Wilson, T. L. (2004).

² Zackariasson, P. and Wilson, T. L. (2010); Zackariasson, P., Boström, G-O and Wilson, T. L. (2009); Boström, G-O, P. Zackariasson and Wilson, T. L. (2003).

³ Blomquist, T. and Wilson, T. L. (2008); Blomquist, T. and Wilson, T. L. (2007).

⁴ Hällgren, M. and Wilson, T. L. (2008); Hällgren, M. and Wilson, T. L. (2007).

⁵ Hällgren, M. and Wilson, T. L. (2008); Anell, B. I. and Wilson, T. L. (2002).

⁶ Masoud, M. S. and Wilson, T. L. (2011); Zackariasson, P., Boström, G-O and Wilson, T. L. (2009); Zackariasson, P., Styhre, A. and Wilson, T. L. (2006); Walfisz, M., Zackariasson, P., Wilson, T. L. (2006); Zackariasson, P., Walfisz, M. and Wilson, T. L. (2006); Zackariasson, P. and Wilson, T. L. (2004).

READABILITY OF INTRODUCTORY FINANCE TEXTBOOKS

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ABSTRACT

Selection of a textbook for an introductory finance course can be challenging. Many criteria may be considered in such decisions, including a textbook's readability level. However, no study of the readability of introductory finance textbooks has been published in nearly 30 years. Using the Flesch-Kincaid readability index, this study analyzes the predicted readability of five popular introductory finance textbooks. T-tests are performed to determine whether significant differences exist between the textbooks. The study finds that one text is clearly more readable than all of the others. These findings can be useful to adopters and editors of introductory finance textbooks.

INTRODUCTION

The selection of a textbook for use in introductory finance courses is an important decision for faculty. Since introductory finance is a required course in the typical business curriculum, all business majors are affected by this decision. But the text selection process is complicated by the large number of text attributes for faculty to consider. Such attributes may include: a text's pedagogical approach; coverage of material; exhibits, charts, and vignettes; end-of-chapter material; student and instructor supplements; and authors' reputations, as well as instructors' past experiences with the text. Faculty may also wish to consider a text's *readability*.

Readability may be defined as the degree to which a class of people finds certain reading matter compelling and comprehensible (McLaughlin, 1969). "Readability" should not be confused with "legibility," which refers to the ease of being read. Readability, in this context, refers to the qualities of writing which are related to reader comprehension. A variety of techniques have been used to predict readability, including several readability indexes (or formulas) which have been used widely since the 1950s. Examples of readability indexes include SMOG (developed by McLaughlin), Flesch Reading Ease, Flesch-Kincaid Grade Level, Gunning-Fog, and Fry.

Information on readability can be helpful to faculty when making textbook adoption decisions. Indeed, one of the criteria to which faculty attach the most significance in those decisions is textbook comprehensibility (Smith & DeRidder, 1997), which can be predicted, at least in part, using a readability index. Evidence also suggests that the higher the readability (difficulty) level of textbooks in core business courses, the lower the grade averages in those courses (Spinks & Wells, 1993).

LITERATURE REVIEW

A careful survey of literature concerning the readability of finance textbooks identifies only one

work, Gallagher and Thompson (1982), that includes the study of the readability of finance textbooks. In this study, the authors apply the Flesch Reading Ease Test to seven textbooks in each of three disciplines: finance, management, and marketing. For the finance area, they showed that Weston and Brigham's Essentials of Managerial Finance and Brigham's Fundamentals of Financial Management were the most readable textbooks of the time. The most recent studies of readability in the field of finance have concerned corporate financial reports. Loughran and McDonald (2010), for example, uses the Fog Index to show that the easier-to-read 10-Ks contribute to greater capital markets efficiency and cause better corporate governance.

Some of the studies of textbook readability for other business disciplines include: Gallagher and Thompson (1981) in economics, Pender, Stair, Stearns, and Villere (1976) in operations research, Raabe, Stevens, and Stevens (1984) in taxation, Razek and Cone (1976) in business communication, Shuptrine and Licktenstein (1985) in marketing, Villere and Stearns (1976) in organizational behavior, and Plucinski, Olsavsky, and Hall (2009) and Plucinski (2010) in accounting. It appears that among all business fields, accounting has received the most attention from the textbook readability scholars. However, no study of the readability of introductory finance textbooks has been published in nearly 30 years.

METHODS

Usually, undergraduate students take the introductory course in finance during their junior year, after completing the prerequisite courses in principles of accounting and economics. Prior familiarity with the basics of financial and managerial accounting on one hand, and the fundamentals of macro- and microeconomics on the other, is of utmost importance to a full grasp of the subject of business finance. In fact, a typical undergraduate finance textbook can be divided into two equal portions of micro- and macro-finance. The micro part deals with

the firm's internal financial situation, with heavy emphasis on accounting data. The macro part deals with the financial elements external to the firm, requiring economic theories and statistics. The location of the micro and macro finance chapters in the textbooks has always been largely dependent on the author's choice. For this reason, the present study chooses the sample chapters for readability analysis such that they represent the two main topics in equal proportions.

In the only study of readability of finance textbooks in nearly 30 years, Gallagher (1982) uses the Flesch Reading Ease methodology. The Flesch test is relatively easy to use. The reading ease is a function of the number of syllables per 100 words and the average sentence length. Although our sample textbooks are quite different from that of the Gallagher study (the only common author is Eugene Brigham), we use the Flesch-Kincaid readability index, which is based upon and related to the original Flesch index. In addition, since the Flesch-Kincaid index can be easily generated using word processing software, a large amount of text can be readily analyzed with results that are objective and easily replicated.

Flesch-Kincaid Grade Level

The Flesch-Kincaid Grade Level has its roots in the Flesch Reading Ease formula developed in 1948 by Rudolf Flesch. In 1975, J. Peter Kincaid tested over 500 enlisted United States (U.S.) Navy personnel on a reading-comprehension test and also on passages from Navy training manuals. This enabled him to derive a version of the Flesch Reading Ease formula which yielded reading grade-level scores. The resulting Flesch-Kincaid Grade Level has since been adopted by the U.S. military services as the basis for deciding whether technical manuals from suppliers meet their readability requirements (Pearson, 2002). The Flesch-Kincaid index is now one of the leading readability indexes. It is used extensively by the U.S. government and others, and it is included as a grammar-checking feature in the word processing software, Microsoft Word (MS-Word).

The Flesch-Kincaid Grade Level formula is based upon sentence length and word length. It rates text on a U.S. school grade level. For example, a score of 11.0 means that an eleventh grader can understand the document. The formula is:

$$(0.39 \times \text{ASL}) + (11.8 \times \text{ASW}) - 15.59$$

where:

ASL = average sentence length (the number of words divided by the number of sentences)

ASW = average number of syllables per word (the number of syllables divided by the number of words) (Pearson, 2002).

This study uses MS-Word to calculate the Flesch-Kincaid Grade Level of select passages. The formula used by MS-Word is confirmed by agreeing the formula above to that specified in the MS-Word help file. The MS-Word calculation is then validated by manually applying the formula above to a 200-word passage and agreeing the result to that provided by the grammar-checking function in MS-Word.

Selection and Adaptation of Text Passages

Discussions with representatives of the four largest publishers of business textbooks in the United States yield five major introductory finance textbooks currently being published in English. An examination of the website, *Amazon.com*, confirms that the texts so identified are the five best-selling introductory finance textbooks at Amazon. The five texts are listed in Table 1 (in the appendix), along with each textbook's particulars.

Six chapters are selected for analysis from throughout the texts. The chapters (topics) targeted are those covering: time value of money; risk analysis; valuation and rates of return; working capital management; financial analysis; and financial planning and forecasting. This approach provides passages for analysis from throughout the texts, covering about 30 percent of each text, based upon an average of 20 chapters per text.

A hardcopy of each text is obtained from the publishers. Digital content is then obtained for each of the six target chapters of each textbook by electronically scanning the relevant pages with optical character recognition (OCR) software. All files are then imported into MS-Word for analysis.

Only the sentences in the body of the chapters are subjected to analysis. Appendices are excluded. Since the Flesch-Kincaid formula analyzes only sentences, all material in figures, exhibits, and headings is omitted from analysis. Since material in graphics and vignettes cannot be readily converted to plain text by word-processing software, it is also omitted. End-of-chapter material (e.g., vocabulary, review, problems) is omitted as well, since it is largely quantitative/tabular in appearance and does not match the textual nature of the Flesch-Kincaid index.

When a colon appears at the end of a sentence, it is replaced with a period when the sentence is originally

followed by a calculation, list, or figure. This is necessary because, in the Flesch-Kincaid calculation, MS-Word does not recognize a colon as the end of a sentence. Since calculations, lists, and figures are removed from the text, a sentence with a colon preceding a figure, for example, would have been combined with the one following the figure, thereby inflating the length of the sentence. In that case, replacing the colon with a period “ends” the sentence before the figure. Colons appearing in sentences that eventually ended in a period are unchanged.

After converting, importing, and pruning all files, the spelling and grammar function in MS-Word is applied to all files to correct occasional errors that arise and then to obtain the Flesch-Kincaid Grade Level. The text matter in the target chapters is not just sampled; the entire text matter of each of the six target chapters of each textbook is subjected to the Flesch-Kincaid calculation.

RESULTS

Comparison of Textbooks by Chapter

Table 2 (in the appendix) shows the Flesch-Kincaid Grade Levels for the six target chapters of each textbook. The mean of the six grade levels for each text (MGL) is also shown. Since the grade level indicates the U.S. school grade level required to understand a text passage, the lower the grade level, the more readable the chapter.

An examination of Table 2 reveals that among the five textbooks analyzed, the Ross textbook is the most readable (has the lowest grade level) for each of the six chapters tested. For the *Time Value of Money* chapter, the Ross textbook has a grade level of 9.0, compared to a range of 9.9 to 12.2 for the other textbooks. In fact, this chapter received the lowest grade level among the six chapters under study. Being the most fundamental chapter in any finance textbook, this low score is a welcome sign for an undergraduate student of finance. Furthermore, the next best level for the Ross text is 9.3 for the next most fundamental chapter, *Valuation and Rates of Return* (the range for the other texts for this chapter was 10.7 to 12.5). The least readable Ross chapter is *Financial Planning and Forecasting* (10.9, compared to a range of 11.9 to 13.1 for the others). This result is expected as the topic is fairly rigorous. Overall, with a Mean Grade Level (MGL) of 10.1, the Ross textbook appears to be the most readable by a wide margin. On the other hand, the Gitman and Block texts, with MGLs of 12.8 and 12.7, respectively, appear to be the least readable textbooks. Another interesting observation is that all five textbooks on average were more readable for the first three

chapters tested than the last three chapters. This is perhaps because the last three chapters deal with the micro-financial topics that are largely accounting oriented and therefore more difficult to verbalize.

Overall Comparison of Textbooks

While the entire text of each target chapter is analyzed, those results constitute sample passages relative to the text overall. Therefore, t-tests are performed to determine whether significant differences exist between the textbooks overall. Independent-samples t-tests are performed on the sample means, without assuming equality of variances. Table 3 (in the appendix) shows the p-values of differences between the MGLs of each textbook. The Ross textbook is clearly the most readable. Its Mean Grade Level (MGL) of 10.1 is significantly lower than the Block, Gitman, and Keown texts (at the .01 level), and the Brigham text (.10 level). The Gitman textbook, with a mean of 12.8, is the least readable text; it is significantly higher than Ross's (.01 level), Keown's (.10 level), and Brigham's (.01 level). However, its mean difference with that of Block's is not statistically significant at all.

Concentrating on the other books whose readability indexes fall somewhere between Ross's and Gitman's, we observe: Block's MGL is significantly (.01 level) different from Brigham's, but not significantly different from Keown's; Brigham's is significantly different from Keown's (.05 level) and Block's (.01 level).

CONCLUSIONS AND LIMITATIONS

Conclusions

If an instructor places substantial emphasis on readability in selecting an introductory finance textbook, he/she should strongly consider the Ross textbook. Its predicted readability is significantly higher than any of the other textbooks studied. The Brigham text is a strong second-choice. Gitman's and Block's, on the other hand, should be discounted, unless readability is not a major consideration in the textbook adoption decision. Also, in terms of readability, there is no compelling evidence to choose Keown's textbook.

Editors of introductory finance texts can also use these findings. There is more to comprehensibility of a subject than the readability of text matter. The diagrams, charts, demonstrations, calculations, and figures included in textbooks are intended to aid in the student's comprehension of the subject matter. Nonetheless, long, complicated sentences, while sometimes necessary, may hinder a student's

comprehension when used extensively. Textbook editors may use these findings to set their expectations of authors of future introductory finance textbooks.

Limitations

One limitation in this study concerns readability formulas in general. They assume that the lower the readability level the better; but an unrealistically low readability level may lead to lower transferability of the content. In addition, readability formulas *predict* readability; they do not *measure* it. While there have been many critics that questioned the validity and value of readability formulas, there is ample research to suggest that formulas, despite their faults, can predict whether one piece of text will be easier to read than another (Pearson, 2002).

Secondly, the results of this study should not be the sole basis for judging the appropriateness of a particular introductory finance textbook. Only the main body of each target chapter was analyzed in this study. The calculations, vignettes, journal entries, charts, exhibits, graphics, figures, and end-of-chapter material are excluded from analysis. Ancillaries such as instructor and student supplements are also not considered. It is likely that an instructor will subjectively evaluate the effectiveness of this material separately from the main body of the textbook.

Finally, as Smith and DeRidder (1997) indicated, business faculty, when making a textbook selection, attach the most significance to comprehensibility to students, timeliness of text material, compatibility between text material and homework problems, and exposition quality of text, respectively. The first of those criteria, comprehensibility, is addressed (at least in part) by this study. Future studies might address comparisons of texts based upon the remaining criteria.

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Table 1
Introductory Finance Textbooks Tested

Authors	Block, Hirt, Danielsen	Brigham, Houston	Gitman	Keown, Martin, Petty, Scott	Ross, Westerfield, Jordan
Title	Foundations of Financial Management	Fundamentals of Financial Management	Principles of Managerial Finance	Foundations of Finance	Fundamentals of Corporate Finance
Edition	13	12	12	6	9
Year	2009	2010	2009	2008	2010
Publisher	McGraw-Hill	Cengage	Pearson	Pearson	McGraw-Hill
ISBN	9780073363639	9780324786415	9780321524133	9780132339223	9780073382395
Chapter Numbers Tested:					
Time Value of Money	9	5	4	5	5
Risk Analysis	13	8	5	6	13
Valuation and Rates of Return	10	9	7	8	8
Working Capital Management	7	16	14	15	18
Financial Analysis	3	4	2	4	3
Financial Planning and Forecasting	4	17	3	14	4

Table 2
Computed Flesch-Kincaid Grade Levels of Textbook Chapters

	Textbook (Author, et al)				
<u>Chapter Content</u>	Block	Brigham	Gitman	Keown	Ross
Time Value of Money	11.8	9.9	12.2	10.9	9.0
Risk Analysis	13.2	10.7	13.1	12.4	10.2
Valuation and Rates of Return	11.2	10.7	12.5	11.7	9.3
Working Capital Management	13.3	11.4	13.0	12.6	10.4
Financial Analysis	13.4	11.1	13.2	12.1	10.7
Financial Planning and Forecasting	13.1	11.9	12.9	12.9	10.9
Mean Grade Level (MGL)	12.7	11.0	12.8	12.1	10.1

Table 3
T-Test Results: P-Values of Differences Between Textbook Mean Grade Levels (MGLs)

Textbook Author, et al. (MGL)					
Block (12.7)					
Brigham (11.0)	.005* **				
Gitman (12.8)	.726	.000***			
Keown (12.1)	.266	.018**	.065*		
Ross (10.1)	.000* **	.067*	.000***	.001***	
	Block (12.7)	Brigham (11.0)	Gitman (12.8)	Keown (12.1)	Ross (10.1)
	Textbook Author, et al. (MGL)				

Notes:

*** Statistically significant difference at the .01 level;

** Statistically significant difference at the .05 level;

* Statistically significant difference at the .10 level.

NABET'S OPEN CONFERENCE SYSTEM WORKSHOP

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ABSTRACT

The Northeastern Association of Business, Economics, and Technology (NABET) has had a web presence for three years now (www.nabet.us). We use this web presence to support our annual conference and the Journal of NABET. Recently, we moved toward providing online support for author submission of conference articles and workshops. The Open Conference System (OCS) is the open source vehicle that implements the software support for this effort. This paper describes the OCS, its history and applications, and our experience with the OCS. Since many of our colleagues have experienced difficulty using the OCS, we present a brief overview of two tasks that authors need to understand using the OCS including creating a profile and submitting a paper.

INTRODUCTION

Up to now, NABET (www.nabet.us) has employed web technology for the support of our annual conference in a media broadcast fashion. That is, once a conference is completed and articles published, colleagues can navigate to our web site using a browser, click on the Conference link in the left margin of the home page, and select an annual proceeding to read in the right margin of the Conference page. We currently have six years of conference proceedings online. The online articles are either papers or workshops.

We desired to make our publication process less onerous in two primary areas. One, we wished to have a central repository of articles that editors can access while creating the final version of a proceeding. In the past, authors submitted papers to be published via email to one of our editors. As a result, the papers were maintained in several of our editors email spaces. Two, we desired to have an automated clerk, so to speak, to keep track of where papers were in the submission and review processes. That is, we desired to have emails generated by the system when decisions were made, for instance, whether to accept or deny a paper or workshop. In addition, we hoped to shorten our turnaround time (from the date of the conference to the publishing of the articles online). Time will tell whether it takes less time to complete the process from the conference until publication.

BACKGROUND

To assist us in the search, evaluation, and installation of an online conference management system, we employed some of our senior students during the spring semester of 2010. They reviewed several candidate systems and evaluated them for our purposes. As we suspected, it turned out that the Open Conference System (OCS) was the best candidate for NABET.

Our students then installed the OCS on several test platforms. Then, they installed it on our host systems at www.nabet.us. Since the OCS is very powerful and has evolved over time, we knew that it would be difficult for some of our colleagues to use. Finally, we had our students create several help files including creating a profile, submitting a paper, and reviewing a paper.

ABOUT THE OCS

The OCS is the product of the Public Knowledge Project (PKP) which was founded by John Willinsky in 1998. The About page tells one that the PKP “is dedicated to improving the scholarly and public quality of research” and that their mission is “to expand the realm of public education by improving social science’s contribution to public knowledge, in the belief that such a contribution is critical to academic freedom, the public use of reason, and deliberative forms of democracy” (Public Knowledge Project 2010). In addition to the OCS, the PKP has produced other open source products such as the Open Journal System, Open Monograph Press, and the Open Harvester Systems. For more information on the history and development of the products created by the PKP, the interested reader should check out Willinsky’s article (Willinsky 2005).

The open access initiative espoused by the PKP is catching on in the world of academic publishing. For instance, Geser (2007) reports on forty projects that promote open education and open access publishing programs. Many reasons for the growth of the open access initiative can be contemplated. Certainly, at the top of the list is the rising cost of publishing and the cost to libraries of purchasing journals from a “commercially dominated market” (Pyati 2007). Finally, scholars should understand that open access journals and articles supported by open source software hosted on inexpensive web sites possibly have more advantages than publishing in traditional

journals. For instance, Eysenbach (2006) reports that articles published on open access websites have a higher impact in the scientific community, that the articles are recognized faster by peer researchers, that they are cited more often, and that they are accelerating the pace of research.

DISCUSSION

Since the purpose of this article and the PowerPoint presentation given during the conference is to improve the usage of NABET's OCS, the discussion will describe two processes that authors need to understand to use the website. Those processes are creating a user profile and submitting an article.

Authors are required to create a user profile in order to submit an article for review by the editors of the conference. A profile is a collection of digital information about an author. The collection includes personal information, keywords about the article, and roles that the author might wish to play during the conference such as reader, author, or reviewer. However, authors only need enter four personal facts: name, user identifier, a password, and a valid email address. The reader should understand that none of this information will be used by NABET for any purpose other than supporting the conference. There is a privacy statement on NABET's website that makes this clear. NABET's editors will review the article for appropriateness to our mission and for formatting only. Our mission and style guidelines also appear on our website. Once the article is accepted, then it will be open to anyone who comes to our website when the conference proceedings are published on our website.

To create a user profile, open the NABET website (www.nabet.us), click on the Conference link in the left margin. On the Conference page is a link which is currently labeled 'Submit/Read Paper.' That link takes the author to NABET's OCS. For the sake of brevity, this article includes no screen shots. However, a PowerPoint presentation accompanies this article. It has a few screen shots, and, more importantly, helpful links to online videos authored by members of the PKP.

At the OCS Log In screen, there is a link labeled '[Not a user? Create an account with this site.](#)' Clicking on that link takes the author to the Account page where the author should click on 'NABET.' Next, select a conference by clicking on 'NABET 2010.' The author can enter information required as described above as well as other information to help NABET better support the author and the conference.

Once an author is logged in, then she can upload an article and supporting documents. There are five steps in the submission process.

1. Start
2. Enter metadata
3. Upload submission
4. Upload supplementary files
5. Confirmation

The Start process requires that the author affirm that the article has not been submitted to another publisher and that the article is in the correct format. The copyright statement on this page clearly states that the author retains copyright, that the author may enter into agreement with another publisher, and that they may post or share their article. In fact, we encourage the author to attempt to publish elsewhere and to share their research. To go to the next step in the submission process, the author should click on the button labeled 'Save and continue.'

Step 2 in the submission process, allows the author to enter important information about the article such as title and abstract. Since the author should be logged in, information about the author is automatically filled in by OCS. Also, information about another author can be entered during step 2. Finally, the author is encouraged to enter the submission type, indexing information, and supporting agencies such as college name. The author should click 'Save and continue' to go to the next step.

Step 3 gives the author a 'Browse' button where she can go to the location on her local computer's file system to begin the process to upload the article. Once the article has been located using the 'Browse' button, be careful to click on the 'Upload' button. To go to the final process, click 'Save and continue.'

Finally, step 4 allows the author to upload supplementary files such as data sets, and PowerPoint presentations. Step 5 gives the author summary file information about the article and supplementary materials. If the author is satisfied, then s/he can click 'Finish Submission' or 'Cancel' to abort the process.

CONCLUSIONS

Granted that the processes to create a user profile and submit a paper may appear to be difficult at first, there are several advantages to learning NABET's OCS. Advantages that accrue to the author include publication in an open access website once the article has been accepted and published. Also, attending the conference should give the author input from faculty

members who have similar research interests leading to a better article.

NABET hopes to achieve advantages from the use of OCS as well. First, our website offers a central repository which is superior to our editor's email repositories. Also, OCS assists with the clerical tasks associated with the review process such as generating email messages, scheduling and timing reviews. In the future, the OCS will assist us by providing automatic indexing for retrieval by peers of the articles submitted by authors.

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Dr. William R. Eddins is a Professor of Information Systems in the Department of Business Administration at York College of Pennsylvania. His research interests include cognitive issues in learning, assessment of computer literacy, and development of databases and web-based systems.

Dr. Marlene E. Burkhardt is a Professor of Business in the Accounting, Business, and Economics Department at Juniata College. Her research interests include technology in the workplace, social networks, cyber marketing, and managing new technologies.

THE MANY CHALLENGES OF TEACHING BUSINESS CLASSES ON-LINE

Corina N. Slaff, Misericordia University

Jennifer Edmonds, Wilkes University

Dean Frear, Wilkes University

John Kachurick, Misericordia University

ABSTRACT

There are many challenges to teaching online. This panel discussed the issues regarding methods of delivery, required number of contact hours, student assessment and engagement, and student characteristics in online learning. Panelists shared their successes and issues regarding the above and discussed the same with conference participants. The results of this panel session were that teaching online is still facing many challenges for which we do not yet have good solutions and that further research is recommended. The panel was comprised of Dr. Jennifer Edmonds and Dr. Dean Frear of Wilkes University, Wilkes-Barre, PA and Dr. John Kachurick and Dr. Corina Slaff of Misericordia University, Dallas, PA with extensive experience with teaching business classes on-line, especially at the graduate level.

The session consisted of the four panelists sharing their successes and challenges in teaching business classes in an on-line environment, and an open floor discussion with session participants.

The topics covered during this session were:

1. Synchronous vs. Asynchronous teaching
2. Class size for on-line courses
3. On-line models
4. Validity of 42 hours of required contact time
5. Assessment
6. Student Related Challenges:
 - Deadlines, student's expectations, and course information
 - Maturity level of students
 - Student engagement

The session opened with a brief introduction of the panelist and was followed by the start of the discussion with Dr. Frear and Dr. Slaff discussing their extensive experiences with the online environment. The synchronous vs. asynchronous online teaching was discussed and both panelists supported the asynchronous version of online teaching as their preferred method, especially for graduate courses.

All panelists discussed the need to keep the online classes, especially at the graduate level, to a maximum of 15 -20 students. However, some session attendants did share their experiences with online teaching and stated that they taught classes as large as 40-50 students per online class at the undergraduate level.

Dr. Edmonds shared with the audience her online teaching model for quantitative courses, one of the

hardest to teach online courses, and did share that her students do have some synchronous times that they have to spend in classes in which they discuss and share results to statistical problems by groups via chat sessions. Dr. Edmonds also shared her experience with pre-recorded lectures that students can view in her online classes or for the online portion of her hybrid classes.

Dr. Slaff shared with the session participants a model of "Course Equivalencies" that was developed by Misericordia University and presented at many regional and national conferences for how faculty can meet the required 42 hours of contact time in a hybrid or online course. Faculty that teach courses at Misericordia University that do not meet for 42 hours total are required to present and attach to their syllabi a form in which they show concretely how they make up for the missed face-to-face contact. A template is provided for this.

All panelists shared their thoughts that PDE and other accrediting bodies have not kept up with the challenging landscape of higher education in that the online environment is more demanding in contact time than a face-to-face course is and thus such equivalencies sometimes create more "busy work" for the students, which is unnecessary.

Student expectations and engagements were also briefly discussed by Dr. Edmonds and Dr. Slaff. One difficulty that faculty face in the online environment is the need to engage students more in discussions, and a second difficulty is to relate information to the students, those students who choose to ask rather than read required information posted, all related to the maturity level of the students in their classes. The other panelist and session participants all agreed that

all these difficulties exist and are rather hard to overcome.

Dr. Kachurick introduced the challenge of assessment of on-line courses as well as the appropriateness of using these assessments to evaluate business programs that use on-line courses.

The use of on-line testing poses an array of challenges including the selection of an acceptable testing method. The primary question is determining who takes the test: is it the enrolled student or someone else? This poses a problem with all forms of

on-line testing. Other areas of concern that arose include the use of multiple choice, fill-in-the-blank, and other forms of tests.

The challenge of determining whether course objectives are met also was discussed.

The session was well attended and the discussions between panelists and session participants were very lively and beneficial to all participants.

Dr. Corina N. Slaff is an Assistant Professor at Misericordia University. Her research interests include leadership, emotional intelligence, strategic management, international business management, business ethics, and higher education administration.

Dr. Jennifer Edmonds is an Associate Professor of Statistics & Operations Management at Wilkes University. Her research interests include lean and green business operations, effective pedagogies for quantitative learning, and mathematical programming and applied operations research as they apply to computer adaptive test assembly.

Dr. Dean Frear is an Assistant Professor at Wilkes University. His research interests include Gender Issues in Leadership and Management, Leadership, Marketing, Entrepreneurship, Finance and Management Roles in Financial Settings.

Dr. John Kachurick is an Associate Professor at Misericordia University. His research interests include Applications of On-line Learning Technologies and Human Capital Management.

NABET CONFERENCE PROGRAM

**Northeastern
Association
of
Business,
Economics
and
Technology
(NABET)
33rd Annual Meeting
October 19th & 20th, 2010**



Days Inn
240 South Pugh St.
State College, PA 16801
(814) 238 - 8454

NABET

Tuesday October 19, 2010

Registration	Days Inn Atrium	7:30 am - 5:00 pm
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Breakfast	Sylvan Room	7:30 am - 9:00 am
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Welcome - Norman Sigmond, Board Chair	8:00 am - 8:15 am
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Dean Frear, President

Session 1: Sylvan Room	8:15 am – 9:15 am
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Session Chair: Mary Williams

An Analysis of Technology-Enhanced Pedagogy and Learning: Student Response Systems (Clickers) - Tool or Toys?

Justin Matus	Wilkes University
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Kristin Summa	Wilkes University
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Robert Kuschke	University of Missouri
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Do Clickers Click in the Classroom?

Eric Blazer	Millersville University of Pennsylvania
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The Use of Cabell's as a Guide to Scholarly Publishing

James Talaga	LaSalle University
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David Martin	LaSalle University
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Session 2: Sylvan Room

9:20 am – 10:20 am

Session Chair: Stacy Mastrolia

Customer Touch Points and Financial Productivity: The Case of Nepotism at the Branch Level of a Commercial Bank

Dennis Laker

Widener University

Mary Williams

Widener University

Path Dependence and Locked-in Values for the Differences in Vending Machine Retailing in USA and Japan

Torey Hewitt

Central Washington University

Michael Bantog

Central Washington University

Sana Becker

Central Washington University

Hideki Takei

Central Washington University

Session 3: Willow Room

9:20 am – 10:20 am

Session Chair: Margaret O'Connor

Global Business Ethics and Leadership: A Grounded Theory Approach

John Bennett

Regent University

Social Media Privacy Issues and Ethical Marketing Practices

Melissa Zimmerman

Capella University

Critical Thinking Through Case Study Analysis

James Pomykalski

Susquehanna University

Session 4: Centre Room

9:20 am – 10:20 am

Session Chair: Justin Matus

An Analysis of Religious Leadership

Stephen Bowers

Ursinus College

Andrew Economopoulos

Ursinus College

Mentoring Together: A Literature Review of Group Mentoring

Russell Huizing

Regent University

The Use of Mentoring in Preparing Chief Officers in Contemporary Fire Departments

Robert Fleming

Rohrer College

Session 5: Arbor Room

9:20 am – 10:20 am

Session Chair: John Kruglinski

Liberalizing Accounting Education

Stephen Willits

Bucknell University

The Unified Tax Credit: The Dirty Little Secrets

Norman Sigmond

Kutztown University of Pennsylvania

The Influence of Political Interference on the Accounting Standard-Setting Process

Mary MacAusland

Penn State University - Harrisburg

Coffee Break– Sylvan Room

10:20 am – 10:45 am

Session 6: Sylvan Room

10:45 am – 11:45 am

Session Chair: Janis Stamm

Has Sarbanes-Oxley Improved Quarterly Financial Reporting?

Stacy Mastrolia

Bucknell University

The Role of Monetary Policy in Economic Instability

Yaya Sissoko

Indiana University of Pennsylvania

Mete Feridun

Eastern Mediterranean University, Turkey

Conscious Capitalism

Minoo Ghoreishi

Millersville University of Pennsylvania

Sarah Taghavi

IT Industry

Dariush Rezaei

Kent State University

Session 7: Willow Room

10:45 am – 11:45 am

Session Chair: Stephen Willits

Academic Dishonesty: Perceptions of Business Professors

Stephen Batory

Bloomsburg University of Pennsylvania

Anne Heinman Batory

Wilkes University

Dean Frear

Wilkes University

How to Prevent the Next Financial Crisis

James Haley

Point Park University

Financial Crisis: Causes, Consequences, and Policy Responses

Farhad Saboori

Albright College

Session 8: Centre Room

10:45 am – 11:45 am

Workshop 30 Minutes Each

Session Chair: Melissa Zimmerman

Using Multimedia Resources in Accounting and Finance Classes

John Kruglinski

Albright College

Terrence Reilly

Albright College

How to Use the NABET Open Conference System

William Eddins

York College of Pennsylvania

Marlene Burkhardt

Juniata College

Session 9: Arbor Room

10:45 am – 11:45 am

Session Chair: Robert Fleming

In the Cloud and on the Ground, Blending the Virtual with Bricks & Mortar: A Qualitative Analysis of use of Google Sites and Smartphones in the Growth and Management of a Small Café

James Wilson

Bay Path College

Kyle Pewtherer

University of Massachusetts

Introduction to Business/ Ecommerce: Integrating Web 2.0 Technologies

Loreen Powell

Bloomsburg University of Pennsylvania

Margaret O'Connor

Bloomsburg University of Pennsylvania

Ann Kieser

Bloomsburg University of Pennsylvania

A Note on the Potential of Virtualization in the Classroom and Beyond

Mohamed Albohali

Indiana University of Pennsylvania

Pankaj

Indiana University of Pennsylvania

Lunch – Linden Room

12:00 pm – 1:00 pm

Session 10: Sylvan Room

1:15 pm – 2:15 pm

Session Chair: Johnnie Linn

Cognitive Analysis of SharePoint Usage

William Eddins

York College of Pennsylvania

Reward Systems: Perceptions of Fairness and Satisfaction in Project Teams

Kathleen Hartzel

Duquesne University

Michaela Noakes

Duquesne University

Eric Backstrom

Duquesne University

Ryan George

Duquesne University

Tim Hutchko

Duquesne University

Session 11: Willow Room

1:15 pm – 2:15 pm

Session Chair: Farhad Saboori

Executive Compensation at U.S. Community Banks: An Empirical Study of the Relationship between Pay and Fundamental Return

John Walker

Kutztown University of Pennsylvania

Jonathan Kramer

Kutztown University of Pennsylvania

In Defense of Deductible Insurance, Forest Fires, Bank Runs, And Bank Failures

Bill Carlson

Duquesne University

Conway Lackman

Duquesne University

Sovereign Debt Crisis and the Socio-Political Impacts of Austerity: The Case of Greece and the European Union

Mohammed Sidky

Point Park University

Session 12: Centre Room

1:15 pm – 2:15 pm

Session Chair: Chris Ruebeck

Using Electronic Portfolios Across and Through an Undergraduate Business Curriculum

Dana D'Angelo Drexel University

Jennifer Wright Drexel University

Chris Finnin Drexel University

Assessing Student Satisfaction with Media-Based Experiential Learning

Marilyn Vito Richard Stockton College of New Jersey

Gurprit Chhatwal Richard Stockton College of New Jersey

Aakash Taneja Richard Stockton College of New Jersey

Providing Students with Useful Information on the Web via Social Tagging Systems for Exploratory and Fact Retrieval Searches

Loreen Powell Bloomsburg University of Pennsylvania

Barbara Brazon Bloomsburg University of Pennsylvania

Session 13: Arbor Room

1:15 pm – 2:15 pm

Workshop 30 Minutes for Each

Session Chair: Lisa Wilder

A Workshop on Teaching Estimation to Business Students

Phillip Anderson Ramapo College of New Jersey

Cherie Ann Sherman Ramapo College of New Jersey

Using a Practicum Course to Promote Business Learning Within the Context of an Authentic Business Assignment

Arlene Peltola Cedar Crest College

Session 14: Sylvan Room

2:15 pm – 3:15 pm

Session Chair: William Eddins

Socially Responsible Investing and Pension Fiduciaries: Ethical Choices, Legal Obligations Janis Stamm
Edinboro University of Pennsylvania

An Analysis of the Financial Condition at Private Nonprofit Baccalaureate Colleges - 1998 through 2007

Dominick Peruso

Juniata College

Alternative Wind and Solar Energy Subsidies Required for Public Adoption

Jerry Belloit

Clarion University of Pennsylvania

Session 15: Willow Room

2:15 pm – 3:15 pm

Session Chair: David Vance

Knowledge Discovery in University Student Application Data

Timothy Stanton

Mount Saint Mary's University

Nicholas Myers

Mount Saint Mary's University

The Economics of Altruism in the Classroom and Beyond

Lisa Wilder

Albright College

Readability of Introductory Finance Textbooks

Kenneth Plucinski

State University of New York - Fredonia

Mojtaba Seyedian

State University of New York -Fredonia

Session 16: Centre Room

2:15 pm – 3:15 pm

Session Chair: John Buttermore

Incorporating GIS data in an Agent-Based Model of the Inter-firm Shipping Pallet Supply Chain

Chris Ruebeck

Lafayette College

Jeffrey Pfaffmann

Lafayette College

Inventory Efficiency in Pennsylvania Firms: A Time-Series Analysis

Gary Leinberger

Millersville University of Pennsylvania

A Method for Classifying Risk in the New Product Development Cycle

Phillip Anderson

Ramapo College of New Jersey

Cherie Ann Sherman

Ramapo College of New Jersey

Session 17: Arbor Room

2:15 pm – 3:15 pm

Session Chair: Loreen Powell

Whistle-Blowing: A Recent Development and Its Implications

Mark Law

Bloomsburg University of Pennsylvania

David E. Magolis

Bloomsburg University of Pennsylvania

A. Blair Staley

Bloomsburg University of Pennsylvania

The Importance of Color in Product Choice and the Meaning of Color Among Hispanic Teenagers

Okan Akcay

Kutztown University of Pennsylvania

Paul Sable

Kutztown University of Pennsylvania

Muhammed Dalgin

Kutztown University of Pennsylvania

The Persuasive Power of Service Quality Claims In Local Retail Advertising

William Neese

Bloomsburg University of Pennsylvania

Coffee Break– Sylvan Room

3:15 pm – 3:30 pm

Session 18: Sylvan Room

3:30 pm – 4:30 pm

Session Chair: Phillip Anderson

Personal Chef Services: A Luxury for American Households

Rita Dynan

LaSalle University

Organizational Cultural Characteristics that Encourage Flexibility and Competitiveness in the Global Marketplace: A Message for U. S. Companies

Susanne Hartl

Nyack College

The Significance of Pollution Concern and Materialism in Determining Purchase Intentions for a Hybrid Automobile

William Neese

Bloomsburg University of Pennsylvania

Monica Favia

Bloomsburg University of Pennsylvania

Session 19: Willow Room

3:30 pm – 4:30 pm

Session Chair: Dominick Peruso

Wagner's Law Revisited: An Econometric Analysis

Yaya Sissoko

Indiana University of Pennsylvania

Mete Feridun

Eastern Mediterranean University, Turkey

From Singular to Global, from Primal to Dual: New Uses for the Herfindahl-Hirschman Index

Johnnie Linn

Concord University

Better Model for Computing Imputed Lease Interest

David Vance

Rutgers University

Session 20: Centre Room

3:30 pm – 4:30 pm

Session Chair: Gary Leinberger

Assessing the Effectiveness of a Business Simulation as A Capstone Integrating Tool- A Progress Report

John Buttermore

Slippery Rock University of Pennsylvania

Cash for Clunkers: Did it Work?

Roger Hibbs

Kutztown University of Pennsylvania

Factors Affecting Quality and Patient Satisfaction in Management of the Private Health Care Practice

Minoo Ghoreishi

Millersville University of Pennsylvania

Renato Goreshi

Howard University Hospital

Session 21: Arbor Room

3:30 pm – 4:30 pm

Session Chair: Dana D'Angelo

Using Web 2.0 Techniques in the Classroom: The Case for Sidewikis

Timothy Stanton

Mount Saint Mary's University

Effective Delivery of Accounting Courses Utilizing Asynchronous and Synchronous Web Based Tools in Online/Hybrid Pedagogies

Robert Kachur

Richard Stockton College of New Jersey

Robert Heinrich

Richard Stockton College of New Jersey

Were ABS-CDOs Rated Reasonably?

Michael Kelly

Lafayette College

Donald Chambers

Lafayette College

Qin Lu

Lafayette College

Executive Board Meeting- Sylvan Room	4:45pm – 5:45pm
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NABET Social Hour I – Windsor Suite/Room 208	6:00pm – 7:00pm
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Dinner – Linden Room	7:00pm – 8:00pm
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NABET Social Hour II – Windsor Suite/Room 208	8:00 pm - ?
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Wednesday, October 20, 2010

Registration – Days Inn Atrium	7:30 am -1:00 pm
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Breakfast - Sylvan Room	7:30 am - 9:00am
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Welcome - Norman Sigmond, Board Chair	7:45am - 8:15am
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Dean Frear, President

NABET Annual Fall Business Meeting

(All conference participants may attend)

Norman Sigmond, NABET Chairperson, and Dean Frear, NABET President

Session 23: Sylvan Room

8:30 am – 9:30 am

Session Chair: Donald Mong

Sustainability for Multinational Corporations through Knowledge Creation and Management

Dimitris Kraniou

Point Park University

Archish Maharaja

Point Park University

On the Shoulders of Giants: The Apparent Relevance of Some Classics

Timothy Wilson

Umeå School of Business

An Experiential “Jump Start” for an Organizational Behavior Course

Doug Reed

University of Pittsburgh - Johnstown

Session 24: Sylvan Room

9:30 am – 10:30 am

Session Chair: Frank Shepard

The Moosic Ridge Divide: A Comparison of the Economic Impact of Watershed Authorities in the Development of Marcellus Shale in Wyoming and Susquehanna Counties relative to Wayne County, Pennsylvania

Christopher Speicher

Marywood University

An Analysis of the Link Between a Community Bank’s Performance and the Absolute and Relative Size of its Loan Portfolio

John Walker

Kutztown University of Pennsylvania

Henry Check

Penn State University - Berks

Session 25: Willow Room

9:30 am – 10:30 am

Session Chair: James Otto

Just short of chaos: Simulating Complexity in the Classroom to Spur Innovative Thinking

Cori Myers

Lock Haven University of Pennsylvania

Richard Van Dyke

Lock Haven University of Pennsylvania

Follow The Cash: A Proxy for Capstone Business Learning

Donald Mong

Slippery Rock University of Pennsylvania

Trends in Global Outsourcing

Nora Palugod

Richard Stockton College of New Jersey

Paul Palugod

Insights Business Solutions

Session 26: Centre Room

9:30 am – 10:30 am

Session Chair: Archish Maharaja

Exploring the Impact of the Relationship between Emotional Intelligence and Leadership Styles of Top Management on the Success of Multinational Corporations

Gita Maharaja

Duquesne University

Andrew McIntyre

Duquesne University

Human Agency and Learner Autonomy: A New Science of Autonomous Leadership

Sharon Norris

Spring Arbor University

The Effect of Transformational Leadership on the Relationship between Self-Efficacy, Spirituality and the Motivation to Lead

Tracy Porter

Cleveland State University

Session 27: Arbor Room

9:30 am – 10:30 am

Panel Discussion – Education 30 Minutes **Session Chair:** Irene Houle

The Many Challenges of Teaching Business Classes On-Line

Corina Slaff	Misericordia University
Dean Frear	Wilkes University
Jennifer Edmonds	Wilkes University
John Kachurick	Misericordia University

Approaching Ethical Classroom Instruction Through Instructional Systems Design (ISD): Lessons on Teaching and Learning from the ADDIE ISD Model

George Smith	Albright College
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Coffee Break– Sylvan Room

10:30 am – 10:45 am

Session 28: Sylvan Room

10:45 am – 12:05pm

Session Chair: Corina Slaff

Social Selling Methods

Marlene Burkhardt	Juniata College
Andrew Steffan	Juniata College
Caleb Davis	Juniata College

Economics of Operating an Independent Physician Practice

Archish Maharaja	Point Park University
Gita Maharaja	Duquesne University

An Overview of Health Care in G8 Countries

Minoo Ghoreishi	Millersville University of Pennsylvania
Renato Goreschi	Howard University Hospital

OTC Market Research: Lessons for Viagra?

Marlene Burkhardt	Juniata College
Andrew Zipparo	Juniata College

Session 29: Willow Room

10:45 am – 11:45 am

Session Chair: George Smith

Benefits and Costs in Offshoring

Nora Palugod

Richard Stockton College of New Jersey

Paul Palugod

Insights Business Solutions

Comparing Customer Ratings From Multiple Reputation Systems: The Case of New York City Hotels

James Otto

Towson University

Douglas Sanford

Towson University

Legal Assistants in the Court Room

John Eichlin

Clarion University of Pennsylvania

Frank Shepard

Clarion University of Pennsylvania

Session 30: Centre Room

10:45 am – 11:45 am

Session Chair: Jennifer Edmonds

Measuring Environmentally Sustainable Business Practices

Edward Pitingolo

Bloomsburg University of Pennsylvania

Scale Development and the Courage Intentions of the Adult Self-directed Leader

David H. Hartley

Clarion University of Pennsylvania

The Generational Divide in the Workplace: Can the Boomers and the Millennials Coexist?

Kelly Gillerlain

Regent University

Session 31: Arbor Room

10:45am – 11:45am

Session Chair: James Ravelle

Making an Impression: The Influence of Self-Esteem, Locus of Control, Self-Monitoring and Narcissistic Personality on the Use of Impression Management Tactics

Tracy Porter

Cleveland State University

Sharon Norris

Spring Arbor University

The Pursuit of Accreditation

Irene Houle

Assumption College

Testing CAPM for the Istanbul Stock Exchange

M. Halim Dalgın

Kutztown University of Pennsylvania

Keshav Gupta

Kutztown University of Pennsylvania

Abdulwahab Sraieen

Kutztown University of Pennsylvania

Lunch – Linden Room

12:15 pm – 1:30 pm
