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HISTORY AND PURPOSE OF NABET

The Northeastern Association of Business, Economics and Technology is in its thirty-fourth year of existence. It formerly was known as APUBEF (The Association of Pennsylvania University Business and Economics Faculty). It was founded by a group of economics and business professors from 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 34 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. Since 2006 NABET has been regional in scope. The October 2011 annual meeting presented 75 scholarly and pedagogical papers and workshops over two days. It featured authors from eight states and approximately 45 different colleges and universities. The organization continues to improve the annual Conference and embraces the business model of continuous improvement.

The original founders also established a referred journal, The Northeastern Journal of Business, Economics and Technology (formerly the Pennsylvania Journal of Business and Economics). 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.

ISLAMIC MARKET PORTFOLIO SELECTION: A NOTE ON THE USE OF MULTIDIMENSIONAL SCALING AND DATA REDUCTION

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ABSTRACT

Thirty five Islamic indices were examined in an attempt to determine which market sectors would be most suitable for investments. To accomplish this, daily returns were analyzed for the period between November 22, 2004 and November 13, 2009. Factor analysis was employed to divide the markets into uncorrelated groups in an effort to understand which markets provide a better selection when constructing portfolios. The results showed that the independent groups explained almost 87% of the variability of the original variables. Further analysis will focus on the common characteristics of each index as they relate to such factors as region, industry and size.

INTRODUCTION

This research describes the use of multivariate methods, specifically the exploratory common factor analysis on data containing a large number of variables. The main initial purpose of the study is to reduce the dimensionality and scope of the observed responses. Islamic finance is a new phenomenon that started in the late 1970s. The huge inflow of the petro-funds to oil exporting countries especially to the Moslem member countries who have limited economic absorptive capacity led to the accumulation of huge balances of petro dollars by governments, businesses, and individuals in these countries. The result of this was a wave of new Islamic banks with latest estimates of 250 institutions that have absorbed $300 billion dollars**.** In addition, equity markets have been established in the oil producing countries to absorb and help in reinvesting and recycling the accumulated petro-funds. As a consequence, Islamic finance emerged as an independent and distinguished discipline that complies with the requirements of the Islamic or Shariah law. Several conventional finance institutions and organizations have joined in the Islamic finance discipline by offering products and services that comply with the Shariah's law to benefit from the huge influx and recycling of the petro-funds that is estimated at $450 billion dollars (e-stock, February 13, 2007) and is growing at 15%-20% annually as a result of the high oil prices that average $80 per barrel over the last two years. One of the instruments that were introduced in 1996 is the Dow Jones Islamic Market Indexes.

The Dow Jones Islamic Market Indexes (DJIMI) family was introduced in 1999 as the first benchmark to represent Islamic-compliant portfolios. This Market Indexes includes forty seven indexes as a subset of the Dow Jones Global Indexes (DJGI). By the end of 2009, more than 100 indices were developed by several providers including Dow Jones, JP Morgan, Citigroup, MSCI, S&P, FTSE and others. The leading provider is Dow Jones who developed the Islamic Market World Index (DJIMWI) in 1999 to provide recognizable and acceptable benchmarks that can be used by Muslim investors to evaluate the performance of their investment portfolios. It is particularly useful for passive investment products. By the end of 2009, Dow Jones developed 62 Global, Regional and Country Islamic investment indices.

The securities that are involved in constructing each index require screening of companies using Islamic-Faith norms, financial norms and some environmental norms by a Supervisory Board which counsels Dow Jones Indexes on matters related to the compliance of index-eligible companies. These guidelines cover principles which include all businesses that produce or serve alcohol products, pork and non-Halal meat products, gambling products & services, magic products & services, and usury products & services in addition to transactions that involve excessive speculation and risk. The environment norms are not explicitly prohibited by Islam but are considered unacceptable investments by most Muslim Scholars because they could damage health, peace and the welfare of individuals, society and the environment. The financial norms, decided by Muslim Scholars, require the exclusion of companies that violate three predetermined ratios: 1**)** the company's total debt divided by the trailing 24-month average market capitalization should not exceed 33%, 2) the sum of a company's cash and interest – bearing securities divided by the trailing 24 – month average capitalization, should not exceed 33%, and 3) the company's total accounts receivables divided by the trailing 24 – month average capitalization, should not exceed 33%. Furthermore, The Islamic Market Indexes are weighted by float-adjusted market capitalization that is reviewed quarterly.

The selection of the component companies in each industry included in the DJIMI Index is based on the following factors:

- Float adjusted market capitalization (weighted at 60%)
- Sales/revenue (weighted at 20%)
- Net profit (weighted at 20%)

The qualified companies with the highest weighted rank will be selected to be included in the Index.

The Dow Jones Islamic Market family includes global, regional, country, industry and market-cap-based indexes. Listed below are the major indexes in the family.

Global Indexes

- Dow Jones Islamic Market Index
- Dow Jones Islamic Market Large-Cap Index
- Dow Jones Islamic Market Mid-Cap Index
- Dow Jones Islamic Market Small-Cap Index
- Dow Jones Islamic Market - Ex. U.S. Index
- Dow Jones Islamic Market Developed Index
- Dow Jones Islamic Market Developed - Ex. U.S. Index
- Dow Jones Islamic Market Emerging Markets Index

Global Industry Indexes

- Dow Jones Islamic Market Basic Materials Index
- Dow Jones Islamic Market Consumer Goods Index
- Dow Jones Islamic Market Consumer Services Index
- Dow Jones Islamic Market Oil & Gas Index
- Dow Jones Islamic Market Financials Index
- Dow Jones Islamic Market Health Care Index
- Dow Jones Islamic Market Industrials Index
- Dow Jones Islamic Market Technology Index
- Dow Jones Islamic Market Telecommunications Index
- Dow Jones Islamic Market Utilities Index

Titans (Blue-Chip) Indexes

- Dow Jones Islamic Market Titans 100 Index
- Dow Jones Islamic Market Europe Titans 25 Index
- Dow Jones Islamic Market Asia/Pacific Titans 25 Index
- Dow Jones Islamic Market U.S. Titans 50 Index

U.S. Indexes

- Dow Jones Islamic Market U.S. Index
- Dow Jones Islamic Market U.S. Large-Cap Index
- Dow Jones Islamic Market U.S. Mid-Cap Index
- Dow Jones Islamic Market U.S. Small-Cap Index

Europe and Eurozone Indexes

- Dow Jones Islamic Market Europe Index
- Dow Jones Islamic Market Europe Large-Cap Index
- Dow Jones Islamic Market Europe Mid-Cap Index
- Dow Jones Islamic Market Europe Small-Cap Index
- Dow Jones Islamic Market Euro Index
- Dow Jones Islamic Market Euro Large-Cap Index
- Dow Jones Islamic Market Euro Mid-Cap Index
- Dow Jones Islamic Market Euro Small-Cap Index

Asia/Pacific Indexes

- Dow Jones Islamic Market Asia/Pacific Index
- Dow Jones Islamic Market Asia/Pacific Large-Cap Index
- Dow Jones Islamic Market Asia/Pacific Mid-Cap Index
- Dow Jones Islamic Market Asia/Pacific Small-Cap Index

Other Country/Regional Indexes

- Dow Jones Islamic Market Canada Index
- Dow Jones Islamic Market U.K. Index
- Dow Jones Islamic Market Japan Index
- Dow Jones Islamic Market BRIC Index
- Dow Jones Islamic Market China Offshore Index
- Dow Jones Islamic Market Turkey Index
- Dow Jones-RHB Islamic Malaysia Index
- Dow Jones-JS Pakistan Islamic Index

Specialty Indexes

- Dow Jones Islamic Market Sustainability Index

LITERATURE REVIEW

The use of the 1st moment (mean), 2nd moment (variance), 3rd moment (skewness), and the 4th moment (kurtosis) in evaluating the performance of securities, portfolios and mutual funds have been the subject of several studies dealing with equity markets. Bekaert, Claude, Harvey and Viskanta, (1998) studied the distributional characteristics of the emerging market return and asset allocation. They used the four moments and concluded that skewness and kurtosis are important parameters in constructing portfolios, especially when returns have non-normal distribution. Factor analysis which is a generic term for a family of statistical techniques concerned with describing, if possible, the covariance relationships among many observable variables in terms of a few underlying, but unobservable, random quantities called factors (Johnson and Wichern, 2002) Although, it has been developed primarily for analyzing relationships among a number of measurable entities (such as survey items or test scores), it has been widely used as a tool for data reduction and summarization. The underlying assumption of factor analysis is that there exists a number of unobserved variables (or "factors") that account for the correlations among observed variables, such that if the latent variables (or "factors") are held constant, the partial correlations among observed variables all become zero. In other words, the latent factors determine the values of the observed variables. In addition, by using factor analysis, one may be able to hunt for relationships among the variables without any *a priori* hypothesis about the relationships among the variables.

METHODOLOGY

To achieve the above stated purpose, the analysis will be based on factor analysis to divide these markets into uncorrelated components which may shed some uniqueness of characteristics to certain groups of indexes which in turn may provide a better understanding of these markets' behavior plus a better selection when constructing portfolios.

Each observed variable (X) can be expressed as a weighted composite of a set of k factors (F_j; j=1, 2, 3, . . . , k) such that

$$X_i = W_{i1} F_1 + W_{i2} F_2 + ...+ W_{ik} F_k + \varepsilon_i \quad \text{Eq. (1)}$$

where X_i is the i^{th} observed variable (Market Index, in our case) on the factors, and ε_i is the residual of X_i on the factors. Given the assumption that the residuals are uncorrelated across the observed variables, the correlations among the observed variables (Market Indexes) are accounted for by the factors. That is, any correlation between a pair of the observed variables can be explained in terms of their relationships with the latent variables (or "factors").

The daily return of each index is calculated by using the following equation:

$$X_t = \text{Ln}\,(Y_t/Y_{t-1}) \ . \ . \ . \qquad \text{Eq. (2)}$$

Where,

X_i is the daily return;
Y_i is the price index end of Day i, and
Y_{i-1} is the price index on the prior day.

Using calculated returns (X_t) the four sample moments are calculated as follows:

1. First Moment (Mean/ Average Return):

$$\bar{X} = (1/n)\, \Sigma X_i \qquad \text{Eq. (3)}$$

where $\bar{X}$: average return
X_i: return of each period i; i = 1, 2, 3, . . . , n
n: number of periods

2. Second Moment (Variance of Return):

$$s^2 = (1/n)\, \Sigma(X_i-\bar{X})^2 \qquad \text{Eq. (4)}$$

where s^2: sample variance of return

The annualized average returns and the annualized standard deviations shown in Table 2I were calculated from the daily returns for each country, using the following formula:.

Annualized average return (u) = (1+Daily average return)^250-1
σ (Annualized) = σ (Daily) * (250)^0.5
Eq. (5)

Further, the analysis involves assessing the dependence of each index. The pair-wise correlation coefficient will be calculated (Table 1) to identify the statistical relationship of each Islamic Index with the conventional indexes of the S&P 500 Index and DJWI. The contention is that in fully integrated markets, volatility is strongly influenced by world factors, while in segmented capital markets volatility is more likely to be influenced by local factors (Bekaert and Harvey, 1997, p. 70). In addition, beta coefficient will be calculated by regressing each of the Islamic Indexes against the S&P 500 and DJI to test the dependency among these indexes (Table 4).

The analysis will be conducted to test the following hypothesis:

1. It can be shown that the Islamic Indexes can grouped (Factored) into unique unrelated components each with certain characteristics.

2. The Islamic Indexes have higher volatility than the conventional indexes due to the narrower diversification of each index due to the exclusion of

some economic sectors and specific companies to meet with Islamic Law.

3. Islamic Indexes have very high correlation coefficients with the conventional indexes, i.e. close to 1.0 and high correlation coefficients for the within groups' member.

4. Islamic Indexes have a higher coefficient of variation than conventional indexes due to the exclusion of some sectors and companies to comply with Islamic Law.

5. Islamic Indexes are not highly dependent on conventional indexes as measured by beta coefficient because of the exclusion of sectors and companies to comply with Islamic Law. But, for the within group members, they are highly dependent on one another.

DATA, ANALYSIS AND RESULTS

The data that is used is the daily price index for each of the three sets of indexes: Islamic Market Indexes, the S&P 500 Index, and Dow Jones World Index, beginning with November 22, 2004 to November 13, 2009 for 35 Islamic indices and 2 world indices, namely S&P 500 index and World Equity Index were used. They were obtained from the Morgan Stanley Capital International Index (MSCI) and Bloomberg for over fifty related markets. Although, there were 1815 daily indexes, only a total of 1246 were valid and usable cases that do not involve missing data. Thus, the 1246 by 35 data matrix was submitted to a factor analysis procedure.

The correlation coefficients between a single variable and every other variable in the investigation are shown in Table 1. The correlation matrix in Table 1 indicates that there are several high correlations which in turn, indicating the presence of possible factors.

Table 2 shows a set of summary statistics. In Table 3, the output from the Factor analysis procedure is shown which consists of a 35 by 4 factor-loading matrix, and it is representing the relationships among the observed variables (the 37 observed variables: Markets) and the 4 latent factors. The number of factors extracted and the pattern of relationships among the observed variables and the factors provided the researcher with information on how these markets are being classified into groups with characteristics to be identified in order to determine a better selection approach to optimizing portfolios.

ESTIMATING COMMUNALITIES AND NUMBER OF FACTORS

The communality estimate for a variable is the estimate of the proportion of the variance of the variable that is both error free and shared with other variables in the data. Since the concept of common variance is hypothetical, it is not possible to figure out in advance the exact proportion of common variance and the exact proportion of the unique variance among variables. In the SAS (Statistical Analysis System) manual, several approaches were described as to how estimates of communalities can be found for a factor analysis. Among these estimates are:

i) The largest **absolute correlation** for a variable with any other variable in the correlation matrix

ii) R^2, the squared multiple correlation (SMC) when regressing a variable on all other variables in the list

In this study**,** factor analysis is used to explore the interrelationships among variables in order to determine if those variables can be grouped into a smaller set of underlying factors or components.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.942
Bartlett's Test of Sphericity	Approx. Chi-Square	121389.862
	df	561
	Sig.	.000

In order to check for the suitability of the data for structure detection and factor analysis, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy is used along with Bartlett's Test of Sphericity (Chi-Square test) which is very high with 561 d.f., and P-value = 0.0 (Table 3). The KMO is a statistic that measures the proportion of variance in the variables that might be caused by underlying factors. KMO takes values between 0 and 1, with small values meaning that overall the variables have too little in common to warrant a factor analysis. High values, such as the case for this analysis which is 0.942 (i.e., close to 1.0) generally indicate that a factor analysis may be useful with these data. If the value is less than 0.50, the results of the factor analysis probably won't be very useful. Heuristically, it is known that values of KMO between 0.00 and 0.49 implies unacceptable, 0.50 to 0.59 implies miserable, and 0.90 to 1.00 implies marvelous for doing factor analysis. The second test is Bartlett's test of sphericity. It tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that all the variables under study are unrelated and therefore unsuitable for structure detection. That is, we want to get a statistically significant result for the Chi-Square test indicating that the variables do covary. Small values (less than 0.05) of the significance level indicate that a factor analysis may be useful with the data. In our case, the Chi-Square test statistic is very high (121389.86) and significant at P-value = 0 and hence the data is appropriate for factor analysis.

In addition, the extracted communalities are all very high except for the variable JAKISL at .631 (Table 4). This indicates that the extracted components represent the variables well. Note that the extracted communalities are estimates of the variance in each variable accounted for by the components (or factors).

It is clear from Table 4 that the 35 variables under study can be grouped into a smaller set of underlying factors, and when Applying factor analysis indicates that the original variables can be grouped into four independent components that can explain almost 87.261% of the variance in the original variables. That is, a loss of only 12.74% of variability in the original data as shown in the following table.
as shown in Table 5. In this Table, the initial solution consists of “Initial Eigenvalues” and Extracted Components. In the “Total” column, the eigenvalue, or amount of variance in the original variables accounted for by each component are displayed. The % of Variance column gives the ratio of the variance accounted for by each component to the total variance in all of the variables. The Cumulative % column gives the percentage of variance accounted for by the first *K* components. For example, the cumulative percentage for the second component is the sum of the percentage of variance for the first and second components and accounts for 78.97% of the total variance in all of the variables. For the initial solution, there are as many components as variables in the study. The extracted solution consists of the components that have eigenvalues greater than 1 so the first four principal components form the extracted solution. Note that a total of 87.26% of variability in the data can be accounted for by these four components. This new set of uncorrelated variables which reproduces the co-variability observed among the set of original variables will now be used in this analysis. The objective is now to identify the hierarchical grouping of these original variables on the four factor scores that would be produced. In addition, the scree plot (Figure 1) which is a graph of the eigenvalues against all the factors confirms this conclusion of four components. The graph is useful for determining how many factors to retain. The point of interest is where the curve starts to flatten. It can be seen that the curve begins to flatten between factors 4 and 5. Note also that factor 5 has an eigenvalue of less than 1, so only four factors will be retained.

The rotated component matrix helps you to determine what the components represent. The first component is most highly correlated with [IMUS, IMUSL, DBUSCIUT, DBUSDHC, DBUSIU, DJITEC, DJIDEV, DJILRG, DJIMID, DJISML, DBGLCIGT, DJIHCR, DBGLIGEP, QISMITDZ]. IMUSL is a better representative, however, because it is less correlated with the other three components. The second component is most highly correlated with [DJIEU, DBEECIET, DBEECIEP, DBEEDHCI, DJIUK, DJIEZL, DBEESITR, DJIXUS, DJIUTI, DJIBSC], etc. as shown in Table 6.

For each case and each component, the component score was computed by multiplying the case's original variable values by the component's score coefficients. The resulting three component score variables are representative of, and can be used in place of, the 34 original variables with only a 12.74% loss of information.

Table 7: Grouping Based on Factor Analysis

Factor 1	Factor 2
IMUS	DJIEU
IMUSL	DBEECIET
DBUSCIUT	DBEECIEP
DBUSDHC	DBEEDHCI
DBUSIU	DJIUK
DJITEC	DJIEZL
DJIDEV	DBEESITR
DJILRG	DJIXUS
DJIMID	DJIUTI
DJISML	DJIBSC
DBGLCIGT	
DJIHCR	
DBGLIGEP	
QISMITDZ	

Factor 3	Factor 4
DJIAPL	BNPIMI8T
DJIAP	EFJPIU8E
DBAPCIJT	
DBAPDHCI	
DJIJP	
DBAPIAEP	
DJIEMG	
JAKISL	

CONCLUSION AND FUTURE DIRECTION

The objective of this study is quite ambitious. It is to form an optimized portfolio for each group of the factor analysis results using modern portfolio theory developed by Markowitz (1952, 1959) along with Kritzman's (1994) suggestion to use higher moments in constructing efficient portfolios. To get the efficiency of the portfolios, the S.D of portfolios, the sharp ratio (Returns - Risk free returns / S.D), the trainer ratio ((Returns - Risk free returns / Portfolio beta, this beta is calculated by multiplying the country beta against the appropriate weights) and the C.V (S.D/ Returns) will all be computed and ranked. It is clear that these markets can easily be grouped (factored) and the additional research on this topic could yield important decision making information for the individual investor.

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Table 1: The Correlation Matrix

	JAKISL	DJILRG	DBAPCIJT	DJIEMG	EFJPIUBE	DJIAP	IMUS	DJIDEV
JAKISL	1.0000							
DJILRG	0.3201	1.0000						
DBAPCIJT	0.4190	0.3726	1.0000					
DJIEMG	0.5944	0.7199	0.6130	1.0000				
EFJPIU8E	0.3088	0.6036	0.2645	0.5432	1.0000			
DJIAP	0.5845	0.4840	0.8319	0.8140	0.4038	1.0000		
IMUS	0.1240	0.8931	0.1083	0.4456	0.4864	0.1548	1.0000	
DJIDEV	0.2913	0.9920	0.3391	0.6827	0.5958	0.4391	0.9148	1.0000
DJIEU	0.3550	0.8168	0.3796	0.7226	0.5186	0.5081	0.5313	0.7995
DJIJP	0.3871	0.2805	0.8401	0.5199	0.2716	0.8766	0.0043	0.2478
BNPIMI8T	0.3385	0.4070	0.2459	0.4836	0.7120	0.3949	0.2735	0.3936
DBGLCIGT	0.2945	0.9624	0.4457	0.7126	0.5604	0.5050	0.8397	0.9614
DJITEC	0.2128	0.8748	0.2524	0.5715	0.4740	0.3207	0.9045	0.8878
DJIMID	0.3429	0.9606	0.3673	0.7375	0.5993	0.4871	0.8798	0.9712
DJIXUS	0.4857	0.8344	0.5922	0.8683	0.5786	0.7528	0.5136	0.8077
DBEECIET	0.3294	0.7839	0.3889	0.6869	0.4606	0.4454	0.5627	0.7737
DJIHCR	0.2003	0.8336	0.2203	0.4730	0.4416	0.2872	0.8005	0.8330
DBEESITR	0.3822	0.7752	0.3891	0.6991	0.4789	0.4527	0.5556	0.7673
DJIBSC	0.4360	0.8758	0.4749	0.8290	0.6194	0.6416	0.6465	0.8626
DJIEZL	0.3238	0.7986	0.3643	0.6879	0.4780	0.4795	0.5262	0.7830
DJIAPL	0.5779	0.4814	0.8379	0.8133	0.4001	0.9979	0.1542	0.4365
IMUSL	0.1159	0.8900	0.1042	0.4308	0.4772	0.1463	0.9968	0.9085
DBUSCIUT	0.1148	0.8766	0.1139	0.4499	0.4650	0.1567	0.9686	0.8968
DBEEDHCI	0.3238	0.7758	0.3846	0.6838	0.4488	0.4411	0.5549	0.7656
DBGLIGEP	0.3581	0.9581	0.3840	0.7411	0.6155	0.5126	0.8229	0.9563
DBUSDHC	0.1317	0.8882	0.1363	0.4642	0.4720	0.1786	0.9709	0.9078
DBAPIAEP	0.5410	0.4003	0.6854	0.6728	0.3630	0.8247	0.1207	0.3661
DJISML	0.3426	0.9373	0.3271	0.7187	0.5908	0.4579	0.8666	0.9499
DJIUK	0.3501	0.7913	0.3762	0.7032	0.5180	0.4864	0.5160	0.7739
DBAPDHCI	0.4179	0.3720	0.9976	0.6134	0.2615	0.8313	0.1075	0.3386
DBUSIU	0.1398	0.8773	0.1187	0.4592	0.5150	0.1780	0.9604	0.8992
DBAPCIJP	0.4195	0.3719	0.9996	0.6122	0.2643	0.8315	0.1075	0.3383
QISMITDZ	0.3657	0.8913	0.6048	0.7599	0.5397	0.6723	0.7167	0.8844
DBEECIEP	0.3288	0.7840	0.3892	0.6858	0.4613	0.4450	0.5633	0.7739
DJIUTI	0.3589	0.8173	0.3651	0.6732	0.4934	0.4903	0.5897	0.7979
SPX	0.1148	0.8592	0.0988	0.4231	0.4275	0.1334	0.9783	0.8834
WORLD	0.3967	0.9517	0.4634	0.7830	0.6016	0.5793	0.8131	0.9459

Table 1: The Correlation Matrix (cont.)

	DJIEU	DJIJP	BNPIMI8T	DBGLCIGT	DJITEC	DJIMID	DJIXUS	DBEECIET
DJIEU	1.0000							
DJIJP	0.2901	1.0000						
BNPIMI8T	0.3976	0.2753	1.0000					
DBGLCIGT	0.8302	0.3397	0.3573	1.0000				
DJITEC	0.5923	0.1491	0.3247	0.8408	1.0000			
DJIMID	0.7797	0.2751	0.4130	0.9415	0.8839	1.0000		
DJIXUS	0.9337	0.5390	0.4584	0.8456	0.6049	0.8147	1.0000	
DBEECIET	0.9028	0.2246	0.3487	0.8294	0.6276	0.7614	0.8422	1.0000
DJIHCR	0.6677	0.1565	0.2755	0.7971	0.7206	0.7578	0.6181	0.6364
DBEESITR	0.8943	0.2272	0.3899	0.7817	0.6131	0.7676	0.8385	0.9314
DJIBSC	0.8463	0.4106	0.4651	0.8654	0.6773	0.8839	0.9189	0.7841
DJIEZL	0.9745	0.2760	0.3640	0.8134	0.5892	0.7589	0.9054	0.8781
DJIAPL	0.5040	0.8739	0.3917	0.5055	0.3198	0.4822	0.7489	0.4453
IMUSL	0.5233	0.0014	0.2620	0.8329	0.8950	0.8595	0.5027	0.5538
DBUSCIUT	0.5376	0.0067	0.2354	0.8698	0.8671	0.8649	0.5209	0.5784
DBEEDHCI	0.8974	0.2212	0.3452	0.8221	0.6193	0.7537	0.8364	0.9893
DBGLIGEP	0.8431	0.3026	0.4257	0.9259	0.8089	0.9409	0.8590	0.7999
DBUSDHC	0.5535	0.0282	0.2428	0.8731	0.8711	0.8765	0.5406	0.5941
DBAPIAEP	0.4417	0.7043	0.3862	0.3936	0.2379	0.4034	0.6326	0.4143
DJISML	0.7640	0.2382	0.4223	0.9143	0.8768	0.9834	0.7885	0.7461
DJIUK	0.9666	0.2678	0.3923	0.8026	0.5643	0.7496	0.9012	0.8916
DBAPDHCI	0.3803	0.8387	0.2424	0.4451	0.2519	0.3676	0.5924	0.3890
DBUSIU	0.5426	0.0281	0.2764	0.8202	0.8506	0.8697	0.5351	0.5601
DBAPCIJP	0.3792	0.8401	0.2462	0.4452	0.2518	0.3666	0.5916	0.3889
QISMITDZ	0.7850	0.5514	0.3937	0.9245	0.7683	0.8964	0.8651	0.7581
DBEECIEP	0.9023	0.2259	0.3502	0.8294	0.6279	0.7613	0.8415	0.9989
DJIUTI	0.8746	0.2829	0.3220	0.8010	0.5831	0.7584	0.8485	0.7726
SPX	0.5069	-0.0141	0.2275	0.8175	0.8878	0.8539	0.4812	0.5508
WORLD	0.8152	0.3638	0.4326	0.9328	0.8377	0.9444	0.8595	0.7919

Table 1: The Correlation Matrix (cont.)

	DJIHCR	DBEESITR	DJIBSC	DJIEZL	DJIAPL	IMUSL	DBUSCIUT	DBEEDHCI
DJIHCR	1.0000							
DBEESITR	0.6269	1.0000						
DJIBSC	0.5966	0.7884	1.0000					
DJIEZL	0.6478	0.8602	0.8187	1.0000				
DJIAPL	0.2850	0.4517	0.6380	0.4757	1.0000			
IMUSL	0.8105	0.5451	0.6307	0.5180	0.1458	1.0000		
DBUSCIUT	0.7761	0.5556	0.6483	0.5302	0.1576	0.9657	1.0000	
DBEEDHCI	0.6315	0.9226	0.7770	0.8736	0.4413	0.5459	0.5725	1.0000
DBGLIGEP	0.7963	0.8160	0.8969	0.8238	0.5102	0.8156	0.8009	0.7872
DBUSDHC	0.7862	0.5703	0.6610	0.5473	0.1786	0.9679	0.9873	0.5876
DBAPIAEP	0.2537	0.4485	0.5468	0.4175	0.8215	0.1146	0.1082	0.3847
DJISML	0.7514	0.7524	0.8555	0.7427	0.4522	0.8424	0.8462	0.7381
DJIUK	0.6405	0.8902	0.8232	0.9038	0.4840	0.5100	0.5261	0.8847
DBAPDHCI	0.2198	0.3892	0.4754	0.3650	0.8371	0.1032	0.1131	0.3873
DBUSIU	0.7844	0.5639	0.6752	0.5379	0.1772	0.9564	0.9256	0.5523
DBAPCIJP	0.2199	0.3890	0.4745	0.3637	0.8376	0.1034	0.1135	0.3845
QISMITDZ	0.6767	0.7303	0.8526	0.7641	0.6697	0.7044	0.7226	0.7511
DBEECIEP	0.6371	0.9301	0.7838	0.8774	0.4449	0.5544	0.5785	0.9882
DJIUTI	0.6949	0.7753	0.7876	0.8780	0.4853	0.5902	0.5928	0.7663
SPX	0.7907	0.5388	0.6007	0.5007	0.1334	0.9749	0.9510	0.5437
WORLD	0.7804	0.7937	0.8698	0.7919	0.5757	0.8045	0.7991	0.7838

Table 1: The Correlation Matrix (cont.)

	DBGLIG EP	DBUSDHC	DBAPIA EP	DJISML	DJIUK	DBAPDHCI	DBUSIU	DBAPCIJP
DBGLIGEP	1.0000							
hsu	0.8121	1.0000						
DBAPIAEP	0.4896	0.1322	1.0000					
DJISML	0.9159	0.8573	0.3858	1.0000				
DJIUK	0.8144	0.5394	0.4334	0.7319	1.0000			
DBAPDHCI	0.3832	0.1358	0.6812	0.3268	0.3767	1.0000		
DBUSIU	0.8618	0.9281	0.1431	0.8486	0.5254	0.1183	1.0000	
DBAPCIJP	0.3830	0.1357	0.6840	0.3264	0.3761	0.9972	0.1176	1.0000
QISMITDZ	0.8592	0.7404	0.5207	0.8665	0.7559	0.6041	0.6946	0.6040
DBEECIEP	0.7997	0.5945	0.4138	0.7460	0.8912	0.3891	0.5601	0.3891
DJIUTI	0.8307	0.6077	0.4367	0.7338	0.8311	0.3650	0.6054	0.3645
SPX	0.7864	0.9577	0.1023	0.8472	0.4903	0.0981	0.9261	0.0983
WORLD	0.9314	0.8173	0.4904	0.9275	0.7878	0.4637	0.7992	0.4627

Table 1: The Correlation Matrix (cont.)

	QISMITDZ	DBEECIEP	DJIUTI	SPX	World
QISMITDZ	1.0000				
DBEECIEP	0.7585	1.0000			
DJIUTI	0.7379	0.7720	1.0000		
SPX	0.7054	0.5512	0.5543	1.0000	
WORLD	0.9056	0.7919	0.7926	0.8055	1.0000

Table 2: Summary Statistics (N=1246)

VAR	Annualized	Annualized	Coefficient of Variance	Skewness	Kurtosis
JAKISL	0.1938	0.3006	1.5513	-0.7513	6.5865
DJILRG	0.0275	0.1918	6.9704	-0.3168	11.3925
DBAPCIJT	0.0418	0.2911	6.9617	-0.3160	8.9226
DJIEMG	0.0972	0.2449	2.5201	-0.5722	7.0407
EFJPIU8E	0.0608	0.0966	1.5896	-0.3370	2.3646
DJIAP	0.0414	0.2311	5.5794	-0.6699	7.6064
IMUS	0.0202	0.2251	11.1358	-0.0520	11.4155
DJIDEV	0.0263	0.1972	7.5101	-0.4258	10.8104
DJIEU	0.0333	0.2566	7.7160	0.1159	9.5284
DJIJP	-0.0138	0.2472	-17.8601	-0.3083	5.5761
BNPIMI8T	0.0915	0.0749	0.8181	-0.7083	4.0079
DBGLCIGT	0.0933	0.2165	2.3213	-0.4071	11.4963
DJITEC	0.0128	0.2177	17.0219	-0.0867	6.2515
DJIMID	0.0481	0.2132	4.4319	-0.6383	7.1055
DJIXUS	0.0477	0.2227	4.6708	-0.4387	7.9709
DBEECIET	0.0870	0.2466	2.8363	0.1569	9.5449
DJIHCR	0.0198	0.1522	7.6792	-0.1955	14.7796
DBEESITR	0.0521	0.2288	4.3944	-0.0816	8.7290
DJIBSC	0.1004	0.2983	2.9694	-0.6108	6.5297
DJIEZL	0.0149	0.2840	19.0734	0.3060	11.3756
DJIAPL	0.0393	0.2365	6.0217	-0.5959	7.6174
IMUSL	0.0150	0.2187	14.5787	0.0846	13.0038
DBUSCIUT	0.0793	0.2689	3.3923	-0.2244	13.5923
DBEEDHCI	0.0551	0.2485	4.5136	0.1626	9.2900
DBGLIGEP	0.0255	0.2009	7.8873	-0.4838	11.7027
DBUSDHC	0.0230	0.2648	11.5099	-0.3049	12.9288
DBAPIAEP	0.0198	0.2495	12.6014	-0.8186	8.4497
DJISML	0.0440	0.2159	4.9120	-0.6247	5.4019
DJIUK	0.0305	0.2717	8.9168	-0.0086	8.3069
DBAPDHCI	0.0315	0.2905	9.2157	-0.3157	9.0113
DBUSIU	0.0073	0.2355	32.0480	-0.1908	12.3865
DBAPCIJP	0.0287	0.2912	10.1544	-0.3129	8.9072
QISMITDZ	0.0696	0.2088	3.0014	-0.2833	6.4475
DBEECIEP	0.0657	0.2467	3.7541	0.1487	9.4679
DJIUTI	0.0233	0.2356	10.0957	0.0426	16.7701
SPX	-0.0191	0.2403	-12.6069	-0.2371	10.1414
WORLD	0.0259	0.1860	7.1760	-0.4663	8.5586

Table 4: Communalities

	Initial	Extraction
JAKISL	.470	.361
DJILRG	.995	.985
DBAPCIJT	.996	.883
DJIEMG	.921	.816
EFJPIU8E	.668	.666
DJIAP	.997	.969
IMUS	.999	.997
DJIDEV	.995	.992
DJIEU	.996	.963
DJIJP	.944	.836
BNPIMI8T	.590	.566
DBGLCIGT	.995	.968
DJITEC	.903	.830
DJIMID	.992	.958
DJIXUS	.991	.969
DBEECIET	.998	.932
DJIHCR	.858	.693
DBEESITR	.942	.875
DJIBSC	.942	.871
DJIEZL	.979	.900
DJIAPL	.997	.967
IMUSL	.998	.987
DBUSCIUT	.992	.957
DBEEDHCI	.983	.920
DBGLIGEP	.984	.942
DBUSDHC	.981	.961
DBAPIAEP	.841	.681
DJISML	.976	.918
DJIUK	.972	.910
DBAPDHCI	.996	.882
DBUSIU	.976	.925
QISMITDZ	.948	.905
DBEECIEP	.998	.930
DJIUTI	.849	.756
Extraction Method: Principal Axis Factoring.		

Table 5: Cumulative % of Variance (Extraction Method: Principal Axis Factoring.)

	Initial Eigenvalues			**Extraction Sums of Squared Loadings**			**Rotation Sums of Squared Loadings**		
Factor	**Total**	**% of Variance**	**Cumulat. %**	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	21.563	63.421	63.421	21.466	63.135	63.135	11.572	34.034	34.034
2	5.287	15.550	78.971	5.167	15.198	78.333	9.206	27.076	61.110
3	2.176	6.400	85.371	2.090	6.148	84.482	6.929	20.379	81.489
4	1.277	3.755	89.126	.945	2.780	87.261	1.963	5.772	87.261
5	.741	2.178	91.305						
6	.534	1.570	92.874						
7	.429	1.262	94.137						
8	.349	1.025	95.162						
9	.279	.821	95.983						
10	.217	.638	96.621						
11	.204	.601	97.222						
12	.160	.471	97.693						
13	.153	.451	98.144						
14	.124	.366	98.510						
15	0.0926	.272	98.782						
16	0.0924	.272	99.054						
17	0.0657	.193	99.247						
18	0.0606	.178	99.425						
19	0.0453	.133	99.559						
20	0.0373	.110	99.668						
21	0.0302	0.0890	99.757						
22	0.0155	0.0456	99.803						
23	0.0130	0.0383	99.841						
24	0.0125	0.0369	99.878						
25	0.0111	0.0327	99.910						
26	0.0089	0.0261	99.937						
27	0.0053	0.0155	99.952						
28	0.0044	0.0130	99.965						
29	0.0040	0.0119	99.977						
30	0.0023	0.0068	99.984						
31	0.0021	0.0062	99.990						
32	0.0017	0.0049	99.995						
33	0.0011	0.0031	99.998						
34	0.0007	0.0021	100.000						

Figure 1: Scree Plot

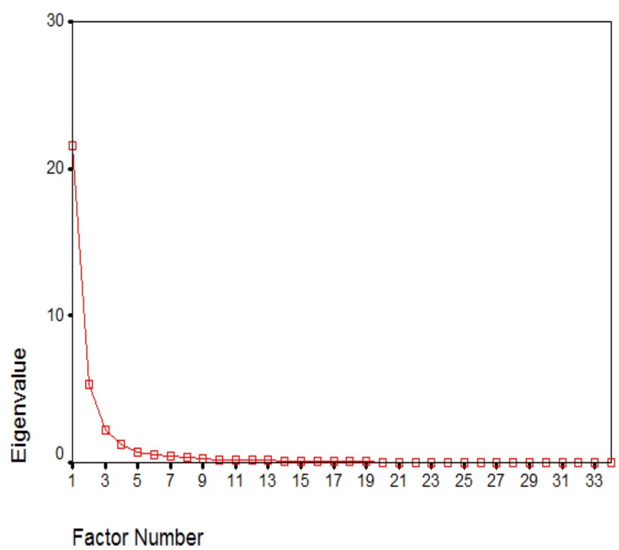

Table 6: Rotated Factor Matrix(a)

	Factor			
	1	2	3	4
IMUS	.970	.214	-1.670E-02	.103
IMUSL	.967	.209	-2.138E-02	8.794E-02
DBUSCIUT	.946	.245	-1.101E-02	5.390E-02
DBUSDHC	.944	.257	1.069E-02	5.451E-02
DBUSIU	.921	.235	-5.775E-04	.145
DJITEC	.843	.291	.145	.114
DJIDEV	.823	.484	.215	.183
DJILRG	.795	.500	.255	.197
DJIMID	.789	.461	.264	.230
DJISML	.771	.455	.228	.253
DBGLCIGT	.753	.548	.308	7.718E-02
DJIHCR	.714	.410	.102	7.000E-02
DBGLIGEP	.706	.550	.276	.253
QISMITDZ	.638	.470	.517	9.996E-02
DJIEU	.347	.864	.237	.196
DBEECIET	.379	.861	.207	7.049E-02
DBEECIEP	.380	.859	.207	7.129E-02
DBEEDHCI	.374	.858	.202	6.227E-02
DJIUK	.333	.842	.227	.197
DJIEZL	.354	.837	.224	.154
DBEESITR	.370	.816	.217	.156
DJIXUS	.362	.707	.518	.264
DJIUTI	.448	.680	.255	.165
DJIBSC	.517	.581	.401	.324
DJIAPL	9.897E-02	.238	.921	.228
DJIAP	9.873E-02	.240	.919	.237
DBAPCIJT	9.040E-02	.179	.914	-8.010E-02
DBAPDHCI	8.970E-02	.181	.913	-8.383E-02
DJIJP	1.338E-02	4.506E-02	.911	5.929E-02
DBAPIAEP	4.637E-02	.249	.738	.267
DJIEMG	.326	.478	.596	.354
JAKISL	4.623E-02	.223	.461	.310
BNPIMI8T	.167	.187	.225	.672
EFJPIU8E	.384	.243	.204	.646

Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.

TEACHING FRAUD PREVENTION AND DETECTION TO THE NON-ACCOUNTING MAJOR

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ABSTRACT

Every two years the Association of Certified Fraud Examiners produces a Report to the Nations on Occupational Fraud and Abuse. An analysis of the last five reports reveals interesting trends regarding the types of fraud being perpetrated, profiles of perpetrators, and industries hardest hit by occupational fraud. Although many accounting programs are including courses in financial fraud in their curricula, students in other business majors who pursue non-accounting careers also need to understand fraud's impact on industries such as banking, financial services, manufacturing, government and public administration, retail, and others. This paper will identify trends in occupational fraud and recommend ways fraud prevention and detection education can be integrated into the undergraduate curricula of non-accounting majors.

Introduction

In the last decade, due to many high-profile fraud scandals (e.g., Enron, WorldCom, Tyco, etc.), the landscape for fraud and business activities has drastically changed. The Sarbanes-Oxley Act of 2002, the creation of the Public Company Accounting Oversight Board, and the increased importance of audit committees have all created new levels of accountability for businesses and management, as well as new levels of responsibility for auditors in detecting fraud.

As a result, the study of fraud has become an increasingly important inclusion in college-level curricula for accounting majors. Seda and Kramer (2008) stress the importance of including a fraud component in the college and university accounting curriculum to help train future accountants in preventing and detecting fraud. The authors also report the results of a survey given to accounting academics (150 respondents), finding that 34% have a curriculum that now offers a course in forensic accounting or fraud, and an additional 34% indicate that forensic accounting is integrated throughout traditional accounting and auditing courses. Meier et al. (2010) investigated websites of 171 AACSB accredited schools and found that 20 offer at least one course in forensic accounting, 27 offer courses in fraud, and four offer courses in both. Pedagogical research has also stressed the importance of fraud courses or modules, and many papers have offered various suggestions on how to incorporate these components into accounting curriculum (e.g., Curtis 2008, Heitger and Heitger 2008, Kranacher et al. 2008, Pearson and Singleton 2008).

Many schools focus on fraud within the accounting curricula, either as a standalone fraud or forensic accounting course, or as a component of auditing. However, accountants and auditors are not necessarily the only parties who should have knowledge of fraud, nor should they be the only ones trained to detect it. A strong support of this viewpoint can be found in the Report to the Nations on Occupational Fraud and Abuse released in 2010 by the Association of Certified Fraud Examiners (hereafter referred to as the "ACFE Report"). This report compiled data based on detailed information provided by Certified Fraud Examiners on 1,843 cases of occupational fraud that occurred between January 2008 and December 2009. One significant finding of this report is that organizations tend to "over-rely on audits" (5); furthermore, while external audits were the most frequently used control mechanism, they ranked poorly with respect to detecting fraud and limiting losses. In other words, the auditor's role is relatively minor with respect to finding and controlling actual fraud. Instead, the *ACFE Report* recommends that all employees—not just accountants— be trained to understand and detect fraud: "Employee education is the foundation of preventing and detecting occupational fraud. Staff members are an organization's top fraud detection method; employees must be trained in what constitutes fraud, how it hurts everyone in the company and how to report any questionable activity. Our data show not only that most frauds are detected by tips, but also that organizations that have anti-fraud training for employees and managers experience lower fraud losses"(5).

Because employee education may be the most useful tool in detecting fraud, the purpose of this paper is to provide an outline that will allow all business majors—not just those in accounting—to be exposed to learning about and detecting fraud, but without needing to create an additional standalone fraud course. Instead we suggest that all business majors be exposed to a module on corruption, the fraud triangle, and the red flags associated with fraud within a business law class. Then, using the *ACFE Report* as a guide, courses within each business major can be modified to include a relatively short component that focuses on the detection of fraud schemes that are the most prevalent within careers relating to that particular major.

The purpose of this approach is twofold. First, providing future employees with training on preventing and detecting fraud will give them a competitive advantage in the job market and save employers time and money on employee education. Second, the *ACFE Report* estimates that organizations lose approximately 5% of their revenues to fraud (approximately $2.9 trillion when applied to the global Gross World Product), and that frauds lasted a median of 18 months before being detected. It is possible that fraud will be detected earlier and the losses will be smaller if all employees have received training on finding fraud. The remainder of this paper will further address information found in the *ACFE Report*, discuss the most common fraud schemes, and present suggestions on how to include education on various fraud schemes in the curriculum that will allow all business majors to become more aware of fraud.

The *ACFE Report* Highlights

In the media, fraud is often reported as being perpetrated by accountants at large, publicly traded companies, who attempt to "cook the books" and engage in financial shenanigans in order to defraud companies or mislead investors and creditors. However, the *ACFE Report* indicates that only 4.8% of reported cases involved financial statement fraud. Instead, corruption (defined as employees violating their duties to the employer for the purpose of benefiting themselves) and thefts of cash and other assets were far more prevalent (32.8% and 86.3%, respectively). Also noteworthy is that the majority of fraud does not occur in large, publicly traded companies. Over the last six years, on average, only 31% of reported cases occurred in companies that were publicly traded, while 39% occurred in privately owned companies, and the remaining 30% occurred in governmental and non-profit organizations. Furthermore, frauds perpetrated in private companies generated higher median losses; the average median loss for public companies over the last six years was $121,000, while the average median loss for private companies over the same period was $163,000. Additionally, 35% of reported frauds occurred in companies with fewer than 100 employees.

Interestingly, the majority of frauds are not uncovered through audits by accountants. In fact, according to the *ACFE Report*, over the last six years, on average only 18% of fraud occurrences were found by internal auditors and only 9% were found by external auditors. In contrast, 40% of frauds were discovered through tips from employees. Clearly, all employees—and not just the accountants—can be invaluable to organizations in uncovering fraud, and the *ACFE Report* strongly recommends that organizations train all employees to detect fraud. However, we suggest that an alternative option may be to introduce fraud education into the curriculum for all business majors. First, it will not only save employers training costs, but students will graduate with skills that may result in saving organizations thousands or even millions of dollars by earlier prevention and detection of fraud.

To determine how best to introduce fraud study into the curriculum, insight can be gained by further exploration of the *ACFE Report*. This report shows that—excluding accounting—the five departments in which fraud is the most prevalent are: day-to-day operations, sales, upper management, customer service, and purchasing. Furthermore, the *ACFE Report* also shows which fraud schemes are the most common within these five departments. This information is replicated in Table 1. The definitions of the various schemes are replicated in Table 2. As is shown in Table 1, corruption is by far the most significant fraud scheme within each of the departments and within organizations as a whole. Because corruption is predominant, we propose that all business majors should be exposed to education on corruption. An ideal place for this exposure would be in a business law class, for reasons that will be discussed in the next section.

Table 1: The most common schemes of fraud and the frequency of occurrence, by the five non-accounting departments where fraud is most prevalent, according to the 2010 ACFE report.[1]

Operations	Sales	Upper Management/ Executive	Customer Service	Purchasing
**Corruption (30.8%)	**Corruption (33.8%)	**Corruption (48.7%)	**Corruption (21.7%)	**Corruption (71.8%)
**Billing (22.1%)	**Non-Cash Thefts (23.6%)	**Billing (40.6%)	*Skimming (19.2%)	**Billing (42.7%)
*Expense Reimbursement (15.1%)	*Skimming (16.4%)	*Expense Reimbursement (29.9%)	*Cash on Hand Thefts (18.3%)	**Non-Cash Thefts (13.6%)
**Non-Cash Thefts (15.4%)	*Expense Reimbursement (15.6%)	**Non-Cash Thefts (18.3%)	**Non-Cash Thefts (17.5%)	*Expense Reimbursement (9.7%)
*Skimming (14.7%)	**Billing (13.8%)	Payroll (16.1%)	Cash Larceny (9.2%)	*Skimming (5.8%)
*Cash on Hand Thefts (13.0%)	*Cash on Hand Thefts (12.0%)	Check Tampering (14.3%)	**Billing (8.3%)	*Cash on Hand Thefts (4.9%)

** denotes that the scheme occurred in all five departments.
* denotes that the scheme occurred in four of the five departments.

The total percent in each column sums up to more than 100% because some cases involve schemes form more than one category.

Corruption (See Table 2 in the Appendix) is defined as schemes that involve the employee's use of his or her influence in business transactions in a way that violates his or her duty to the employer for the purpose of obtaining a benefit for him- or herself or someone else (page 10 of the ACFE report). Examples of corruption schemes include bribery, extortion and a conflict of interest.

Once students have learned about corruption, then classes within respective majors could include modules that outline the fraud schemes most prevalent within that discipline. For example, marketing majors could learn about the most common frauds within sales departments (non-cash asset misappropriation, skimming, expense reimbursement and billing fraud, and cash on hand thefts). Majors that tend to produce CEOs and CFOs (e.g., finance or management) could learn about the schemes common to upper management. Operations majors could learn about schemes found in production and purchasing. Other majors that do not necessarily lend themselves to one of the departments found in the report (e.g., information systems, entrepreneurship, and business administration) could learn about the schemes most prevalent in day-to-day operations.

The remainder of this paper will go into more detail on the most common fraud schemes and how to teach students within business programs how to prevent and recognize them. First we will address how to cover within a business law class the topics of corruption, the fraud triangle, and warning signs of fraud. We will then discuss the most common fraud schemes that could be included within various majors: billing and expense reimbursement fraud and non-cash misappropriation.

Business Law Course: Corruption/Fraud Triangle/Red Flags

Corruption

According to the *ACFE Report*, corruption schemes make up approximately 32.8% of all occupational frauds, and as shown in Table 1, are by far the most common type of fraud scheme found within each department. A corrupt act is one in which an employee violates his or her duty to their employer for their own personal benefit or the benefit of a third party. The frequency of corruption cases varies drastically from one region of the world to the next, but corruption is the most common scheme found in Asia, Europe, Africa, Central and South America, and Oceania; it is the second most common scheme found in the United States and Canada (second only to billing schemes). Although understanding domestic fraud may be of paramount importance, as business operations are increasingly global, frauds likely to occur in international operations are also important for students to understand.

The most typical corrupt acts are bribery, extortion, and conflicts of interest. Bribery occurs when an individual is given a reward to perform certain acts or to make specific decisions. Extortion is similar to bribery in that an individual is requested to act a certain way, but unlike bribery, the motivation is due to a threat made against the individual. Conflicts of

[1] Because accounting majors are already typically exposed to fraud and accounting majors are not the focus of this paper, the accounting department is excluded from this table.

interest can occur when the individual acts against the interests of his or her employer for various reasons. Because corruption contributes to so many frauds and because corruption is not department-specific within an organization, the ideal time to include a module on corruption would be within a business law course required by all business majors. In addition, we also suggest that students should be exposed to the fraud triangle and red flag fraud indicators in order to better understand the circumstances that lead to fraud.

According to a study done by Miller and Crain (2011), over 97% of AACSB colleges and universities have a business law component as part of their core business requirements. At the vast majority of these institutions, this requirement is met with a single three-credit-hour course or its equivalent. The majority of institutions design their curricula so that the business law course is taken during the sophomore year of study by giving the course either a 2XX or a 3XX prefix. [2] Therefore, the business law course would provide an ideal first place to expose all business students to the study of fraud.

Currently, many business law courses limit their discussion of fraud to legal or equitable defenses to contracts or negotiable instruments (i.e. fraud in the inducement or fraud in the factum). These types of fraud receive relatively complete depth of coverage. The issue of occupational fraud, however, is not given significant coverage in the leading business law or legal environment texts (Clarkson, et al 2009; Kubasek 2011; Mallor, et al , and Melvin). Instead, the coverage in these texts is limited to a cursory description of white collar crime, such as mail or wire fraud, embezzlement, and computer crimes.[3] By broadening the scope of the discussion to include a module on bribery, extortion, and conflicts of interest, supported by recent examples in fraud cases, students will have their first exposure to understanding and detecting fraud within organizations.

The Fraud Triangle

In addition to including a discussion on corruption, we also propose including a brief overview of the fraud triangle as a way to explain the factors that often lead to fraud. The fraud triangle is a concept that is typically confined to auditing and accounting courses but could be very beneficial in training all business majors to better understand fraud. The fraud triangle has three sides: perceived pressure, perceived opportunity, and rationalization. The theory states that when each of these sides is present, a fraud is more likely to occur. Perceived pressure comes in the form of a need, either financial or non-financial. A financial need could be increased financial pressure on the employee because of excessive debt, financial problems, personal greed, a desire to maintain or create a certain lifestyle, or the need to fund substance abuse. Non-financial pressures can be the pressure to manipulate financial results to make the company look better. Perceived opportunity occurs when the employee believes that he or she would be able to successfully “get away” with a fraudulent activity (e.g., an employee sees that sales invoices are not systematically verified for accuracy). Rationalizations of fraudulent activity are as varied as the individuals that commit frauds, and can include: feeling that the company owes them, believing that the company will not miss the money or other assets, considering the theft as merely temporary borrowing, and defining their actions as “Robin Hood” would (believing their actions benefit a more important purpose than the companies’ interest).

Red Flags

In addition to learning about corruption and the fraud triangle, it may behoove business majors to learn about those who are more likely to commit fraud. However, the *ACFE Report* finds that fraudsters are not exclusive to one set of demographics. For example, perpetrators can be rank and file employees (42.1%), managers (41.0%), or executives (16.9%). Perpetrators were most commonly male, but a significant number were female (66.7% and 33.3%, respectively). The majority of fraud was committed by individuals who had been with the company between one and five years (45.7%), but fraud was still found among those who had been with the company less than one year (5.7%), between five and ten years (23.2%), and more than ten years (25.4%). Fraudsters are also found within all age ranges and all educational backgrounds. [4]

[2] 49% of AACSB institutions denote the required business law course with a 2XX prefix, 38% denote the course with a 3XX prefix, 5% denote a 1XX and 5% denote a 4XX number.

[3] Based on a review of a database of syllabi maintained by the Academy of Legal Studies in Business at www.alsb.org (login credential required).

[4] The Report found the percentage of perpetrators based on age to be the following: Younger than 26 (5.2%); 26-30 (9.6%); 31-35 (16.1%); 36-40 (19.3%); 41-45 (19.3%); 46-50 (13.7%); 51-55 (9.4%); 56-60 (5.2%); and older than 60 (2.2%).

Although gender, tenure, and age demographics may not indicate likely fraud perpetrators, the *ACFE Report* does point out some behavioral red flags with respect to those who are more likely to engage in fraudulent activities. The most common behavioral red flags with respect to corruption and asset misappropriation schemes include: living beyond one's means, experiencing financial difficulties, having control issues, fostering unusually close association with vendors and/or customers, and having a "wheeler-dealer" attitude. The *ACFE Report* recommends that employees should be on the lookout for these types of behaviors: "These red flags…will not be identified by traditional controls. Auditors and employees alike should be trained to recognize the common behavioral signs that a fraud is occurring and encouraged not to ignore such red flags, as they might be the key to detecting or deterring a fraud" (5).

Therefore, along with introducing modules on how to detect and deter fraud in an organization, it may also be important to include a component in the curriculum about recognizing and identifying some of the more common red flags. Additionally, discussions on unusual behaviors are often suggested topics within fraud textbooks. For example, Albrecht et al. (2009) suggest that stress prompts unusual and observable behaviors, including insomnia, increased use of alcohol and drugs, unusual irritability, inability to relax, lack of pleasure in things usually enjoyed, inability to look people in the eyes, defensiveness, and unusual belligerence, among others. Learning about these red flags would likely be most useful to those majoring in human resources and/or management, as they might be the ones best suited to observe behaviors. However, to increase employee diligence, it would be beneficial for all majors to learn about these typical "red flags."

In summary, we believe that a business law course would be an ideal venue in which to expose all business majors to an overview on where and how fraud is likely to occur, behavioral red flags associated with fraud perpetrators, as well as a discussion on corruption. As mentioned earlier, the average fraud is perpetrated for 18 months before being discovered by authorities, and the most common method of fraud discovery is tips from employees. If more business people were aware of the conditions that commonly coincide with fraud, then tips might occur in a more timely fashion. Furthermore, covering these topics in the business law course would give students a solid understanding of elements of occupational fraud before they enter their junior year. This understanding of fraud will lay the foundation for when business majors are exposed to fraud schemes that are common within their chosen majors, as outlined next.

FRAUD SCHEMES

After business majors have learned about fraud and corruption in their business law course, we propose a second fraud module that they would receive in an intermediate or advanced level course specific to their major. This second module would focus on a discussion of common fraud schemes specific to that major, as outlined in the *ACFE Report*. We propose teaching this second module in an intermediate or advanced class for two reasons. First, students would have already taken the business law class and have some preliminary knowledge relating to fraud; and second, it would be easier to explain and apply fraud detection within the various disciplines once students have obtained a significant understanding of the material relevant to their majors.

According to the *ACFE Report*, outside of accounting, the five departments in which fraud is the most prevalent are day-to-day operations, sales, upper management, customer service, and purchasing. The *ACFE Report* further discusses which fraud schemes (after corruption) are the most common within each department. Therefore, we propose that the second module that students should be exposed to will cover the most common schemes found in their respective disciplines. This information is contained in Figure 1.

Following this logic, we propose that marketing majors could be exposed to the most common fraud schemes found within sales departments: non-cash misappropriations, skimming, expense reimbursement and billing fraud. Finance and management majors (majors that tend to produce a lot of managers, CEOs, and CFOs) could learn about fraud schemes common among upper management: billing and expense reimbursement fraud, non-cash misappropriation, and payroll fraud. Operations majors could focus on schemes found within purchasing: billing fraud, non-cash misappropriation, expense reimbursement fraud, and skimming. Finally, other majors not related to a specific department could include a module focusing on common schemes found within the day-to-day operations: billing and expense reimbursement fraud, non-cash misappropriation, and skimming.

As indicated above, a fair amount of overlap does exist, but we suggest that professors tailor the specific fraud scheme being discussed to their specific major. The remainder of this section will discuss three of the most common fraud schemes found in the most recent *ACFE Report*: billing and expense reimbursement fraud, and non-cash asset misappropriation.

Billing and Expense Reimbursement Schemes

According to the *ACFE Report*, billing schemes involve "a person who causes his employer to issue a payment by submitting invoices for fictitious goods or services, inflated invoices or invoices for personal purchases" (15), and account for 22% of the frauds found in operations, 14% of the frauds found in sales, and 41% of frauds attributed to executive and upper management. Expense reimbursement fraud is "any scheme in which an employee makes a claim for reimbursement of fictitious or inflated business expenses" (15) and was found in 16% of the frauds found in operations, 16% of frauds in sales, and 30% of frauds attributed to executive and upper management. These schemes can be structured in a number of ways, and students studying operations, sales, or other disciplines that lead to executive positions should know how these frauds are committed so prevention or detection can occur.

Because most businesses disburse large amounts of cash in the purchasing aspect of operations, purchasing is a prime location for fraudulent billing schemes. Employees in any part of an organization's operations who recognize that companies handle thousands of transactions monthly have been known to establish dummy or shell companies and submit relatively small invoices that are not likely to garner much scrutiny. These invoices can be for relatively innocuous services such as carpet cleaning, catering, repairs to company cars - expenses that any large company is likely to have and which do not trigger extensive invoice review. The perpetrators open bank accounts for the dummy or shell companies, list themselves as signers on the accounts, and then simply endorse the checks when they start arriving at the company's post office box. If collusion is involved, they may share the proceeds with a purchasing agent or accounts payable employee.

Additionally, sales representatives often receive reimbursements for expenses incurred in travel, lodging, meals, and other costs associated with sales trips and conventions. Although the majority of the expenses are legitimate, unscrupulous employees can submit altered receipts or receipts for personal expenses or the expenses of others. Some receipts, such as those from taxi drivers, allow the passenger to fill out the receipt with amounts that may not accurately reflect amounts paid. Executives in non-sales departments are also frequently reimbursed for business expenses they incur and scrutiny of these expense reports on an item-by-item basis can reveal erroneous or duplicate receipts or receipts of a personal, rather than business, nature.

Another type of billing scheme that is more easily committed by senior management is the authorizing of fictitious invoices. If an invoice has the approval of an executive, rank and file payable clerks are not likely to question the appropriateness of payment. The payments can be made to shell companies as described above or to legitimate companies in collusion who have not earned the invoiced amount; when they cash the check, they remit a portion of it to the dishonest executive who initially authorized the payment. If the amounts involved are comparatively small such that only one person's review or signature is required, numerous fraudulent payments can be made over long periods of time before anyone questions the payments.

For non-accounting students to effectively prevent or detect billing or expense reimbursement fraud, they need to learn how it can be committed within their disciplines of study. For example, when teaching operations students about cost control and lean operating systems, supervisory review of all costs attributable to a department or operation – not just direct costs and allocated overhead – should be emphasized. Students should be taught to question expenses: did the department really have their rugs cleaned, the group meeting catered, or their delivery vans serviced? Sales or marketing students need to be advised of the temptation to pad expense accounts or to rationalize submitting for reimbursement expenses of a non-business nature. These topics can be addressed in any module where sales and marketing ethics are discussed. Likewise, all business programs offer management or leadership courses that prepare students to consider decision making at the highest levels in organizations. In addition to discussing leadership models, motivation, and conflict resolution, these courses should include modules, cases, or exercises that require students to address the opportunities leaders have to inappropriately use their power for personal gain. Many times the ethics training students receive involve cases dealing with environmental degradation, exploitation of workers in developing nations, or other "big picture" concerns. Although these issues are important, students will also benefit from bringing the ethical discussion to a more personal level where they examine how fraud at the executive level is committed.

Non-Cash Asset Misappropriation Schemes

The *ACFE Report* states that non-cash misappropriation is "any scheme in which an employee steals or misuses non-case assets of the victim organization." (15) This type of fraud accounts for 17.5% of all frauds; however, this type of fraud was more likely to occur in sales departments and among upper management. Non-cash misappropriation frauds made up 23.6% (65) of all frauds perpetrated in the sales departments and 18.3% (66) of total frauds committed by upper management.

Non-cash asset misappropriation includes two main categories: theft and misuse. Misuse of assets typically involves an employee using a company owned asset for personal use. Assets that are frequently misused include but are not limited to vehicles, supplies, computers, office equipment, and information. Because misuse of information is an increasing area of exposure in companies, teaching the prevention and detection of this aspect of asset misappropriation is essential. Employees may have access to sensitive customer information in the scope of their duties; this access leads to the potential for misuse. The exposure in this area comes with potentially high costs, some of which may be difficult to quantify such as loss of consumer confidence, system downtime, and negative goodwill. Employees also may use customer information to convince established customers to take their business elsewhere, particularly if the employee is setting up his or her own business.

In addition to the misuse of information, this module should also address misuse of other types of assets. Misuse can become part of a company's culture; for example, sales people may run personal errands in a company vehicle or print personal items on work printers. Employees may not see these activities as wrong, but rather as socially accepted workplace practices. Some employees may begin to think of company owned assets as their own personal assets. When this happens the employee is able to misuse assets without seeing their actions as wrong. These misuses can be controlled with well defined policies that are communicated to employees and adhered to by all levels of personnel. Even though the cost of some types of misuse may be difficult to quantify or expensive to measure, companies have a vested interest in minimizing the cost of asset misuse.

Misuse is an area of serious exposure, but theft of assets is a bigger and more expensive problem companies face. For many manufacturing firms, inventory is the asset largest in magnitude on the balance sheet. The production activities of a firm include activities that transform raw materials, labor and other resources into finished or saleable goods. Thus inventory, by its very nature, needs to be handled by several employees during the production process. In a typical manufacturing environment, several types of employees will have access to inventory including inventory clerks, warehouse personnel, and shipping clerks. Firms are aware of this exposure and devise ways to limit shrinkage. Shrinkage is the difference in what the accounting records indicate inventory should be and the amount of inventory that physically exists. Shrinkage can result from many sources including theft, intentional damage, or the creation of excess scrap.

This module might also include a discussion of inventory control points. Creating inventory control points can be an effective tool to establish responsibility for the safeguarding of inventory. Typically as raw materials are processed through various departments the responsible party for the safeguarding of that inventory will change. When control points are in place, responsibility is established for safeguarding non-cash assets and should motivate the responsible party to protect assets while entrusted to their care. When employees allow control points to be compromised, asset misappropriation fraud is more likely to occur.

Since inventory is the largest asset for many companies, this module should include a discussion of common frauds related to inventory. There are numerous ways inventory can be misappropriated. Perhaps the most common is employee theft of inventory. Most inventory shrinkage schemes are not complicated schemes. Many times there is a documented internal control that was designed to prevent inventory shrinkage but this control is not being followed or is being circumvented. When employees are aware their productivity is being monitored (i.e. through volume or throughput), they are likely to look for ways to save time and may be less likely to closely adhere to documented internal control procedures. Shortcuts enacted during crunch times and rushed orders allow dishonest employees to take advantage of weakened controls. Additionally, employees can collude to generate fabricated control documents and share the proceeds of the stolen inventory. As collusion makes it more difficult to discover fraud, a tip from a non-colluding employee could mean the difference between a detected and a non-detected fraud. Not only are inventory components subject to theft, but so is scrap. Scrap is product left over after raw materials are processed.

Efficient operations minimize waste through effective scrap management. Absent effective scrap management, there may be a motive for an employee to generate excess scrap and later convert it for personal use.

It is important for business majors other than accounting majors to understand the risk and exposure associated with misuse and theft of non cash assets. For instance, marketing students may benefit from understanding why the proper use of entrusted assets is important to their company's bottom line and the career of the salesperson. Management information systems students may benefit from understanding the risk associated with misuse of sensitive information. The operations students will need a working knowledge of the general production process. In addition, they will be of more value to their future employers if they understand the nature of raw materials and how to safeguard them. Generally, the better any business major understands fraud, the more value they have to their future employers.

Conclusion

Adding new content to already crowded curricula is never easy, but educators are encouraged to constantly review and update their courses. We feel that by adding fraud education modules to already existing business law courses and upper division courses within business disciplines, students will graduate with a greater understanding of the complex business environments they are about to enter and with a value-added marketable skill employers will appreciate. Even an abbreviated understanding of corruption, the fraud triangle, fraud schemes, and the red flags that indicate fraud could be occurring will serve students and employers well.

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APPENDIX

Table 2: Definitions of Fraud Schemes, taken from the 2010 ACFE Report to the Nations, Page 10.

Asset Misappropriation Sub-Categories

Category	Description	Examples	Cases Reported	Percent of all cases[5]	Median Loss
Schemes Involving Theft of Cash Receipts					
Skimming	Any scheme in which cash is stolen from an organization *before* it is recorded on the organization's books and records	• Employee accepts payment from a customer, but does not record the sale, and instead pockets the money	267	14.5%	\$60,000
Cash Larceny	Any scheme in which cash is stolen from an organization *after* it has been recorded on the organization's books and records	• Employee steals cash and checks from daily receipts before they can be deposited in the bank	181	9.8%	\$100,000
Schemes Involving Fraudulent Disbursements of Cash					
Billing	Any scheme in which a person causes his employer to issue a payment by submitting invoices for fictitious goods or services, inflated invoices or invoices for personal purchases	• Employee creates a shell company and bills employer for services not actually rendered • Employee purchases personal items and submits invoice to employer for payment	479	26.0%	\$128,000
Expense Reimbursements	Any scheme in which an employee makes a claim for reimbursement of fictitious or inflated business expenses	• Employee files fraudulent expense report, claiming personal travel, nonexistent meals, etc.	278	15.1%	\$33,000
Check Tampering	Any scheme in which a person steals his employer's funds by intercepting, forging or altering a check drawn on one of the organization's bank accounts	• Employee steals blank company checks, makes them out to himself or an accomplice • Employee steals outgoing check to a vendor, deposits it into his own bank account	274	13.4%	\$131,000
Payroll	Any scheme in which an employee causes his employer to issue a payment by making false claims for compensation	• Employee claims overtime for hours not worked • Employee adds ghost employees to the payroll	157	8.5%	\$72,000
Cash Register Disbursements	Any scheme in which an employee makes false entries on a cash register to conceal the fraudulent removal of cash	• Employee fraudulently voids a sale on his cash register and steals the cash	55	3.0%	\$23,000
Other Asset Misappropriation Schemes					
Cash on Hand Misappropriations	Any scheme in which the perpetrator misappropriates cash kept on hand at the victim organization's premises	• Employee steals cash from a company vault	121	12.6%	\$23,000
Non-Cash Misappropriations	Any scheme in which an employee steals or misuses non-cash assets of the victim organization	• Employee steals inventory from a warehouse or storeroom • Employee steals or misuses confidential customer financial information	156	16.3%	\$90,000

DISCRIMINATORY PRACTICES USING INDEPENDENT CONTRACTOR STATUS: HAS THE ELECTION OF AN AFRICAN AMERICAN PRESIDENT IMPACTED RACIAL DISCRIMINATION?

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Abstract

The election of an African American President was certainly a milestone in the cultural history of the United States of America. Even during the height of the Civil Rights Movement, Martin Luther King's, "I have a Dream" speech did not dare to dream of the election of a Black president. This paper explores the evidence of a change in racial discrimination in real estate from the 2008 study period as compared to three years later in 2011.

Introduction

Title VII of the Civil Rights Act of 1964 strove to eliminate racial discrimination in employment in this country by making it illegal to discriminate against protected classes in the choice of hiring employees. However, the law provides an exemption for the firm in the hiring of independent contractors.

Just prior to the election of President Barak Obama, a previous paper by the authors, [5] found that employment of minorities in real estate brokerage offices were underrepresented relative to the minority's population where the offices were located. As it pertains to real estate brokerage offices, at lease, the Civil Rights Act of 1964 apparently had not yet achieved the goal of the elimination of a racial discrimination barrier to employment.

Just prior to the election of President Obama, David Hollinger expressed the hope that things were getting better and that the inequalities would diminish. "The United States is still a long way from the cosmopolitan society that I sketched as an ideal 13 years ago in my book *Postethnic America: Beyond Multiculturalism.* But today we seem closer to engaging inequalities that are too often understood in ethnoracial rather than economic terms."[6]

This optimism was also lifted up by Lawrence Bobo "Enormous positive changes in racial attitudes and relations have occurred in the United States, and these appear to be deeply rooted, not superficial transformations. Obama assembled a winning multiracial political coalition that is now part of American history. There are ample grounds, particularly in light of his intelligence, skill and character, to expect that Obama will prove able to sustain a high level of support from these voters. Despite the evidence that we still have a long way to go to heal the real racial divisions and tensions that persist in the United States, it is fair to say that this nation remains pointed in the direction."[7]

Gregory Parks and Jeffery Rachlinski went so far as to suggest that the election of President Obama has moved the nation to a point where racism may no longer be a significant part of our culture. "Barack Obama's rapid rise in American politics and his ascension to the nation's highest office is historic. Without question, his election signals a seismic shift in the way Americans think and talk about race. It is a significant leap in America's long journey towards racial equality. Americans on both the political left and right have begun to assert that we now live in a post-racial country".[8]

Ian Haney-Lopex writes that perhaps we do not yet live in a post-racial society but rather that we may now approach racism in a different way. "Barack Obama's election has inspired many to marvel that we now live in a "post-racial" America. Obama himself seems to embrace this notion, not perhaps as a claim about where we are now, but as a political stance that dictates how best to approach society's persistent racial problems."[9]

With this increased optimism and claims that the country has moved or begun to move away from racism, it is reasonable to expect that the level of discriminatory behavior should have been reduced and opportunities for minorities should have increased. Trina Jones warns that the country should not assume that we have beat racism in employment.

[5] Belloit, Jerry D. and Shepard, C. Frank, "Discriminatory Practices Using Independent Contractor Status", *NABET 2008 Proceedings*, pp. 11-14

[6] Hollinger, David A., February 29, 2008, Chronicle of Higher Education, 2008

[7] Bobo, Lawrence D., Focus Magazine, Joint Center For Political And Economic Studies, 2009,p. 16-17

[8] Parks, Gregory S. and Rachlinski, Jeffery J., "Implicit Bias, Election '08, and the Myth of a Post-Racial America," Florida State University Law Review, Spring, 2010, 37 Fla. St. U.L. Rev. 659

[9] Haney-Lopez, Ian F., Yeshiva University Cardozo Law Review, January, 2011 32 Cardozo L. Rev. 807

"Equally essential are affirmative measures to open previously closed employment arenas and to ensure that questions of disadvantage and privilege, and of discrimination and merit, are kept in the forefront of policy debates."[10]

Methodology

Consistent with the previous study, the analysis was limited to twenty cities across the United States. These cities are listed below:

New York, N.Y.
Los Angeles, Calif.
Chicago, Ill.
Houston, Tex.
Philadelphia, Pa.
Phoenix, Ariz.
San Antonio, Tex.
San Diego, Calif.
Dallas, Tex.
San Jose, Calif.
Detroit, Mich.
Indianapolis, Ind.
Jacksonville, Fla.
San Francisco, Calif.
Columbus, Ohio
Austin, Tex.
Memphis, Tenn.
Baltimore, Md.
Fort Worth, Tex.
Charlotte, N.C.

Web sites of real estate firms from each of these cities were examined. Of the 53 offices in the original study[11], only 39 are still in business under the same name. From the names and photographs of the sales persons shown on the web sites of the real estate offices still in business, the sales staff was categorized into the following groups:

Male
Female
White
Black
Hispanic
Asian

Next the percentage of the salespersons belonging to each of the above six categories was calculated. That percentage was then compared to the population percentages for these groups for the zip code where the office was located. Then a paired was conducted.

Results

Three years after the election of a minority president, it would be expected that minorities may have made some significant gains. However, the results in this study do not support this hypothesis. Only men and Asians have shown improvement. In contrast, blacks and Hispanics actually appear to have become more under represented.

Men

The previous study confirmed the popular belief that men were under-represented in real estate offices. Over the three years since that original study, men have made significant gains. In 2008 men were under represented by 9.06%. In 2011, men were underrepresented by only 5.44%. Below are the results from the paired t-test.

t-Test: Paired Two Sample for Means

	2008	*2011*
Mean	-0.09604	-0.05437
Variance	0.021353	0.018382
Observations	39	39
Pearson Correlation	0.77693	
Hypothesized Mean Difference	0	
df	38	
t Stat	-2.75095	
P(T<=t) one-tail	0.004526	
t Critical one-tail	1.685954	
P(T<=t) two-tail	0.009052	
t Critical two-tail	2.024394	

Blacks

The literature suggested that America was moving into a post-racial country as evidenced by the election of a black president. One could hypothesize that increased opportunities at the presidential level would translate into increased opportunities for black real estate agents. However, the results of this study do not support that hypothesis. Underrepresentation appears to have increased. Below are the results of the paired t-test.

10 Jones, Trina, Law and Contemporary Problems, 2009, Vol. 72:56-87.
11 Belloit, Op. Cit.

t-Test: Paired Two Sample for Means

	2008	*2011*
Mean	-0.01637	-0.03262
Variance	0.020254	0.018378
Observations	39	39
Pearson Correlation	0.885874	
Hypothesized Mean Difference	0	
df	38	
t Stat	1.521849	
P(T<=t) one-tail	0.068163	
t Critical one-tail	1.685954	
P(T<=t) two-tail	0.136326	
t Critical two-tail	2.024394	

Hispanics

The election of a minority president would likewise be expected to benefit other minority communities. Opportunities for Hispanics real estate agents would be expected to have improved. Again, the results of this study do not support that hypothesis. Below is a summary of the t-test results:

t-Test: Paired Two Sample for Means

	2008	*2011*
Mean	-0.01522	-0.0398
Variance	0.007935	0.007232
Observations	39	39
Pearson Correlation	0.533708	
Hypothesized Mean Difference	0	
df	38	
t Stat	1.824555	
P(T<=t) one-tail	0.037969	
t Critical one-tail	1.685954	
P(T<=t) two-tail	0.075938	
t Critical two-tail	2.024394	

Asians

Interestingly, Asians appear to have fared well since President Obama was elected. The went from being underrepresented in real estate brokerage offices to actually being overrepresented. Below are the t-test results for Asian real estate agents:

t-Test: Paired Two Sample for Means

	2008	*2011*
Mean	-0.02602	0.014423
Variance	0.004274	0.009201
Observations	39	39
Pearson Correlation	0.373701	
Hypothesized Mean Difference	0	
df	38	
t Stat	-2.69446	
P(T<=t) one-tail	0.00522	
t Critical one-tail	1.685954	
P(T<=t) two-tail	0.010439	
t Critical two-tail	2.024394	

Conclusions

The results of this study indicate that the election of a minority president have not have not reduced racial discrimination for Blacks or Hispanics and that their opportunities appear to have declined. Perhaps the impact of the election of President Obama has not had the expected impact on opportunities for minorities because of a decline in his approval ratings. Shortly after his election, President Obama had an approval rating of 69.2%. His popularity has declined over his three years in office to below 50%. In fact his disapproval rates have exceed his approval rates most of the time since mid-May 1010.[12]

Another possible explanation for the increased underrepresentation of the Black and Hispanic real estate agents might be the result of the decline in economic activity over the first three years of the Obama presidency, particularly in the real estate industry. It may well be that Blacks and Hispanics may have been forced out of the profession because they lacked enough reserve capital to continue during the difficulty times.

Nevid and McClelland did an interesting study that suggesting that darker skin color among blacks might lead to increased prejudice.[13] Extrapolating from that research, more of an impact might have been noticed if President Obama had darker skin." To this end, it

[12] http://elections.huffingtonpost.com/pollster/obama-job-approval

[13] Nevid, J. S., & McClelland, N. (2010). Measurement of implicit and explicit attitudes toward Barack Obama. *Psychology & Marketing*, 27(10), 989-1000. Retrieved from EBSCO*host*.

would have been very interesting if Herman Cain was elected president.

There may be other explanations for the observed differences in employment rates of African-American, Hispanic, and Asian real estate agents. However, it may well be possible that real estate brokers may be using the independent contractor status to circumvent the intent behind the 1964 Civil Rights Act of curtailing discrimination against protected classes.

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TOWARDS ALIGNMENT AND SHARED UNDERSTANDING IN TEAMS

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ABSTRACT

This paper investigates a crucial component of alignment in teams, achieving a shared understanding. First, it provides a rationale for alignment and shared understanding in the context of teams. Second, it identifies a set of prerequisites for effective engagement in teams and then highlights two methods and processes that enable teams to achieve a more robust and shared understanding of complex situations. It concludes by identifying teamwork competencies our business students must possess to excel in a highly competitive global marketplace and by generating recommendations to further strengthen the education of business students in the context of teams.

INTRODUCTION

The professional context in which business program graduates do their work has changed considerably over the past decade due to increased globalization, technological advances and changes in industry practices (Topi et al., 2008). Jobs now require capabilities in globally distributed development sourced through complex arrangements. Graduates are increasingly called upon to participate and engage in team and in multi-team systems (Zacarro, Marks and DeChurch, 2011) that need to rapidly respond to highly complex, problematic, ambiguous and poorly understood situations that require improvement. These situations are complex because they are dynamic and involve many stakeholders whose demands and expectations for broader-impact improvements are rapidly rising in organizations experiencing massive pressures from within and without to survive and thrive. Such situations can be characterized by ambiguity, confusion and feelings of disorientation (Maitlis and Sonenshein, 2010). In such situations, achieving and sustaining alignment and shared understanding among team members is crucial.

This paper investigates a crucial component of alignment in teams, achieving a shared understanding. First, it provides a rationale for alignment and shared understanding in the context of teams. Second, it identifies a set of prerequisites for effective engagement in teams and then highlights two methods and processes that enable teams to achieve a more robust and shared understanding of complex situations. It concludes by identifying teamwork competencies our business students must possess to excel in a highly competitive global marketplace and by generating recommendations to further strengthen the education of business students in the context of teams.

RATIONALE FOR ALIGNMENT IN TEAMS

Since teams possess the potential for enabling organizations to execute better, learn faster, and change more easily, teams are increasingly seen as an appropriate structure for implementing strategies formulated to deal with the performance demands presented by the changing business environment (Mohrman et al, 1995). Increasingly, teams have become a way of work as industrial, military and governmental organizations employ them as a meanto tackle difficult, interdependent, stressful, and complex tasks (Salas et al, 2009a). Also, teams are seen as structural mechanisms through which task interdependencies can be worked out, issues involving trade-offs between various perspectives can be resolved, and solutions and approaches that build upon the diversity of relevant expertise and perspectives can be determined (Morhman et al, 1995). As people and organizations are forced to deal with more complex and interdependent issues where no one individual knows the answer, the only viable option is for teams of informed and committed individuals to think together and arrive at new insights (Senge et al, 1994).

While teams possess tremendous potential for dealing with complex and interdependent situations, however, many teams underperform because of the dismal way they conduct teamwork:

People 'discuss' ideas to win; they heave ideas against each other, to see whose ideas will be the strongest. It is a dismal way to conduct teamwork, not just because it undermines learning, but because ideas and 'solutions' rarely get the consideration they deserve. They are judged according to who said them, and whether or not they reflect conventional wisdom. [Consequently] most teams need new tools and skills to both broaden and focus the scale and scope of their conversation ... to make them both more divergent and more convergent ... when appropriate (Ross, 1994).

An essential element to overcome underperformance in teams is alignment. For example, lack of alignment has been identified as an important factor for not realizing the advantage of teams (Jamieson, 1996). On the other hand, alignment has been accounted for the fluid, implicit interaction often observed in successful, high performance teams (Kraiger and Wenzel, 1997). Also, some have argued that the team's understanding of complex situations can become richer and more robust through the process of alignment:

Alignment means 'functioning as a whole.' Building alignment [therefore] is about enhancing a team's capacity to think and act in new synergistic ways with full coordination and a sense of unity, because team members know each other's hearts and minds. As alignment develops, people do not have to overlook or hide their disagreements: indeed, they develop their capacity to use their disagreements to make their collective understanding richer (Senge et al, 1994).

In this paper we will limit our discussion to an important component of alignment in teams, achieving shared understanding.

RATIONALE FOR SHARED UNDERSTANDING IN TEAMS

Mental models are the 'images, assumptions, and stories that we carry in our minds of ourselves, other people, institutions, and every aspect of the world (Senge et al 1994). Vickers (1981; also in Checkland 1981, 1985; Checkland & Scholes, 1990) refers to mental models as appreciative systems. He claims that because reality is such a rich phenomenon, one's appreciative system highlights (appreciates) certain facets of a complex situation while forcing other facets into a background role. Senge et al (1994) concur with Vickers. They claim that 'human beings cannot navigate through the complex environments of our world without cognitive 'mental maps.' A mental model, therefore, acts as a *filter* or as an *internal frame of reference* to what one sees and consequently, how one acts. This is crucial because a primary determinant of solutions to complex business situations is how the situation was first perceived and represented (Dumdum, 1993). Pondy et al (1988), for example, indicate that 'our image of an organization largely determines how we are able to sense what is going well with it and what is problematic.' Consequently, one's mental model can open up or constrain one's understanding of causes (Dery, 1984) and the solution domain from which workable solutions may be generated (Volkema, 1983).

Since a mental model highlights certain facets of reality and misses out on other aspects, *blind spots* or *frame blindness* may occur in a manner that limits one's capacity to deal with complex situations (Russo and Schoemaker, 1989). When this happens, one loses out because one would have overlooked other, and perhaps, better options.

Mental models are usually tacit and typically exist below the level of awareness (Senge et al, 1994). Therefore, mental models are typically not surfaced, unexamined, unchallenged, and untested for their appropriateness and relevance in dealing with problematic situations (Dumdum, 1993). Finally, mental models are generative and, consequently, can be expanded or changed as team members constructively engage to draw insights from and mutually learn from one another (Senge et al, 1994).

Building on the discussion of mental models above, a rationale for shared understanding in the context of teams include the following: First, there is a need to explicitly surface, examine, draw and learn from each team member's mental model so that, jointly, the team can transcend individual limitations to adequately deal with ill-structured, complex problematic situations. Solutions based on inadequate or inappropriate mental models can be costly and even disastrous. Second, since team members will most likely perceive and interpret situations in their own way and make judgments about the situation using standards and values which, initially, may not be shared by others (Checkland & Scholes, 1990), it is essential that each member be exposed to the various perceptions and assumptions of other team members in order to mutually learn from one another and to have a broader, deeper, more robust and shared understanding of the issues at hand. It must, however, be noted that a prerequisite to achieving a shared understanding is an environment that fosters openness, trust and minimal defensiveness. This is crucial because shared understanding is not achieved by a simple summation of diverse perspectives. Instead, it is best achieved through *deep dialogue* in which mental models (perspectives) are surfaced and critiqued and conflicts recognized and discussed in open, constructive fashion (Boland et al,1992; Senge et al, 1994).

PREREQUISITES FOR EFFECTIVE ENGAGEMENT IN TEAMS

The prerequisites for effective engagement in teams include the *spirit* and *premise* of collaboration, teamwork, and agreements that build a positive team environment.

The literature on collaboration typically has a much broader base of stakeholder participants and concerns than in teams. Many insights can be drawn and learned from extant literature on collaboration to develop deeper agreements through mutual learning and shared understanding in teams. The *spirit of* *collaboration* exemplifies the manner by which meaningful engagement in teams can best take place: *Instead of advocacy, collaboration demands engagement, dialogue instead of debate, inclusion instead of exclusion, shared power instead of domination and control, and mutual learning instead of rigid adherence to mutually exclusive positions* (Chrislip, 2002). The work of Chrislip and Larson (1994) and Chrislip (2002) are noteworthy examples of literature on collaboration. There also is much that can be learned from extant literature on team performance, team effectiveness and team competencies in complex organizations. The work of Salas et al (2009a; 2009b) are noteworthy examples.

The operating assumption for achieving shared understanding that leads to more innovative solutions is referred to as the *collaborative premise*: *If you bring the appropriate people in constructive ways with good information, they will create authentic visions and strategies for addressing the shared concerns of the organization or community* (Chrislip, 2002). This premise strongly advocates that (a) one must trust collaboration among appropriate people to work and one must let go of preconceived notions about what the solutions or strategies should be; (b) appropriate, more responsive, and more innovative solutions than anyone imagines can emerge through constructive engagement with good information; and (c) good results come from the right people in a good process, not from manipulation and control.

From literature on teams, a team is defined as a set of two or more individuals that adaptively and dynamically interacts through specified roles as they work toward shared and valued goals (Salas et al, 2009b). Team members often have different specializations in knowledge and skills, the diversity of which, creates the potential for teams to complete work beyond the scope of any one individual's capabilities. To realize the potential of teams, the social dynamics of effective teamwork are necessary. *Teamwork*, then, is the means by which individual task expertise is translated, magnified, and synergistically combined to yield superior performance, outcomes, the wisdom of the collectives (Salas et al, 2009b). From their extensive research work on team effectiveness, Salas et al (2009b) have identified many factors essential for effective teamwork including (a) *team leadership* which is the ability to direct and coordinate the activities of other team members, assess team performance, assign tasks, develop team knowledge, skills, and abilities, plan and organize, and establish and sustain a positive atmosphere of openness, trust and minimal defensiveness; (b) *mutual trust* which is the shared belief among team members that each member will perform their roles and protect the interests of their teammates; (c) *psychological safety* which is a shared belief that the team is safe for interpersonal risk taking; and (d) *team collective orientation* in which team members value team goals over individual goals.

A positive team environment and a good collaborative process requires time to build trust, skills for working together, and an understanding of issues necessary for effective engagement (Chrislip, 2002). It is built upon a series of progressively deeper and more comprehensive agreements among team members (Chrislip, 2002):

- Agreement that shared concerns exist that should be addressed
- Agreement to work together to address the concerns
- Agreement on how to work together
- Agreement on a shared understanding of the relevant information
- Agreement on the definition of the problem or the vision
- Agreement on the solution to the problem or the strategies to achieve the vision
- Agreement on the action steps or implementation plans for implementing the solutions or strategies

METHODS FOR ACHIEVING SHARED UNDERSTANDING IN TEAMS

Two methods for achieving shared understanding in teams are *Dialogue* and *Socratic Inquiry*. The basis and assumptions, description and how to learn to apply the method appear in detail in Table 1 located in the Appendix (Senge et al, 1994; Chrislip, 2002; Strong 1997). It must be noted that both methods require (a) constructive engagement through listening, inquiring and advocating; (b) conditions created under which each method can constructively occur because neither method can be forced; and (c) a facilitator, initially, because the process can be unfamiliar to many and because the conversation can bring up difficult emotions and misunderstandings that may potentially derail the process. Furthermore, both methods aim to (a) bring to the surface and alter the *tacit infrastructure* of thought of team members as the team mutually learn from one another and (b) develop a shared understanding as the team learns to think together and occupy a *collective sensibility*, a *shared understanding*, in which thoughts, emotions, and resulting actions belong not to one individual team member but to all of them together (Senge et al, 1994; Chrislip, 2002; Strong, 1997). While both methods have vast similarities, the Socratic Inquiry method relies on questioning to probe the meaning of a text and gain knowledge and perspective through a deeper and shared understanding of written information.

TEAMWORK COMPETENCIES FOR ALIGNMENT AND SHARED UNDERSTANDING

Salas et al (2009a, 2009b) have done an outstanding job of compiling and reviewing the current understanding of teams and teamwork and recent developments in the field. They argue that a vital element that separates exceptional from average and poorer performing teams are their *processes of teamwork*, the means by which teams successfully interact to establish and sustain a team environment of openness, trust and minimal defensiveness to produce alignment, mutual learning, shared understanding and superior team outcomes. They developed, based on a synthesis of research findings from many researchers, a comprehensive *Summary of the ABCs of Teamwork* which refers to the Attitudes, Behaviors, and Cognitions that constitute teamwork competencies. Their summary is a superb compilation of proposed KSAs, their description, and behavioral markers. Attitudes are the affective attributes necessary for effective team performance; behaviors are the skills and procedures needed for teamwork; and cognitions are the necessary elements of knowledge and experience necessary for effective teamwork.

Teamwork competencies that Salas et al (2009b) have identified as vital include team leadership, psychological safety, team learning orientation, team cohesion, mutual trust, adaptability, conflict resolution/management, problem solving, accurate problem solving, team mission objectives, norms and resources, and understanding of multi-team systems. The description of each of the above along with their behavioral markers are as shown in Table 2 located in the Appendix.

DISCUSSION AND RECOMENDATIONS

Achieving and sustaining alignment and shared understanding in teams do not just happen. Neither does a positive team environment of openness, trust, and minimal defensiveness and effective leadership and teamwork to consistently produce alignment, mutual learning, shared understanding and superior team outcomes. Consequently, it is rather surprising that while most professors in Business assign projects and deploy students in team settings, most students are not taught the fundamentals, methods, and processes vital for effective teamwork. For example, at a regional and at an international conference, we asked how many faculty deployed teams in their classes. Everybody raised their hands. When asked how many specifically trained their students in the fundamentals, methods, and processes for effective teamwork, there was no one who raised their hand. It is no small wonder that many of our business students have a rather dismal experience of working in team settings. This situation must be remedied if we are to prepare our students for the demands of industry to more fully harness the potential of teams in ways that consistently produce alignment, mutual learning, shared understanding and superior team outcomes.

Shown below are our recommendations to strengthen the education of Business students in the context of teams:

Recommendation 1: We must endeavor to intentionally and strategically equip our students with the rudiments of teams along with the appropriate means - team orientation, methods and processes - leading to the development of effective team leadership/membership and teamwork competencies.

Recommendation 2: Most of our students are provided team learning experience in the context of face-to-face single team settings. Consequently, we also need to intentionally and systematically expose, engage and equip our students with competencies appropriate for a variety of team interaction settings: single team and multi-team settings; face-to-face, purely virtual, and hybrid face-to-face/virtual team settings; highly dynamic and relatively stable team settings; crisis and non-crisis settings; information-intensive and non-information intensive settings; within and across cultures; and in a variety of team leadership styles and computer-mediated virtual environments.

Recommendation 3: We need to expose our students to real-life case studies of teams and to research findings and best practices in exceptionally and poorly performing teams for actionable principles and insights.

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APPENDIX
TABLE 1: TWO METHODS FOR ACHIEVING SHARED UNDERSTANDING IN TEAMS

Method 1: Dialogue [Adapted from Senge et al, 1994 and Chrislip, 2002]	
Basis	Dialogue comes from two Greek roots: ***dia*** (meaning *through* or *with each other)* and ***logos*** (meaning the spoken word). Dialogue carries a *sense of meaning flowing through* between and among people speaking through. • Assumes many people have part of the answer • Collaborative participants work together toward common understanding • About exploring common ground • Listening to understand, create shared meaning and find agreements • Revealing assumptions for evaluation • Seeing all sides of an issue • Admitting that others' thinking can improve one's own • Searching for strengths and value in others' position • Keeping the topic open even after the discussion ends • Discovering new options, not seeking closure
Description	Dialogue is a method for exploring the role of conversation and collective thought in addressing pressing issues. Its goal is to open up new ground for establishing a field of inquiry, a setting where people can become more aware of the context around their experience, and of the processes of thought and feeling that created that experience. Dialogue is a new form of conversation which focuses on bringing to the surface and altering the 'tacit infrastructure' of thought. • A team of people sit in a circle on a stage, talking with intensity. In this form of intimate theater, they are both the performers and the audience. They are arguing, because they do not agree, but there's a quality of engagement about their argument. They listen intently to each other's language, rhythms, and sounds. The silences between statements seem as striking as the words. • Every time someone says something, a texture changes subtly; something new has been seen. Everyone knows that everyone in the group has seen it, and that it represents more than just one person's model of the truth. As the people in the circle continue to talk, the sense of meaning they share grows larger and sharper. They begin to gain unprecedented insight into their fundamental views. No one can muster this form of thinking alone, and even in a group it takes a willful desire to build a context for thinking together. It takes practice. • During the dialogue process, a people learn how to think together ... not just in the sense of analyzing a shared problem or creating new pieces of shared knowledge, but in the sense of occupying a collective sensibility, in which thoughts, emotions, and resulting actions belong not to one individual but to all of them together. • Dialogue cannot be forced. It can, however, be nurtured. One can therefore help create conditions under which it can occur. • Dialogue may initially require a facilitator because the process is unfamiliar to many and because it can bring up difficult emotions and misunderstandings.
Learning the Skills	• **Choose a topic or issue:** A dialogue generally focuses on a particular topic or issue. • **Surface personal perspectives on the topic:** Allow participants to reflect on and outline their own perspective about the topic or issue. Have them identify the reasons or rationale for their perspective. Have each verbally describe his or her perspective and the rationale behind it. This process provides practice in making thought processes visible to others. Other participants listen carefully without interrupting. • **Build Shared Understanding.** Allow listeners to ask clarifying questions that check for understanding. They are not to comment on or rebut what others say. This provides practice in inquiring to understand others' perspective without attacking them. • **Refine personal perspectives.** As participants begin to understand the perspectives of others, ask them to refine their personal perspective based on what they have learned from others. • **Focus on new insights and perspectives.** Repeat the process as necessary in dyads, triads, and in team settings. When using dyads or triads, do several rounds, changing partners with each round. Observe how individual and team thinking evolves. New insights and perspectives emerge as learning takes place, and an organic consensus tends to develop as thinking converges.
Protocols	• Making One's Thinking Visible • Publicly Testing One's Conclusions and Assumptions • Asking Others to Make their Thinking Process Visible • Comparing Your Assumptions with Others' • When Facing a Point of View with which You Disagree • When at an Impasse

<table>
<tr><th colspan="2">Method 2: Working with Written Information Via Socratic Inquiry
[Adapted from Strong, 1997; Chrislip, 2002]</th></tr>
<tr><td>Basis</td><td>The Socratic method relies on questioning to probe the meaning of a text, sought to elicit through leading questions.

A process of inquiry using open-ended questions that leads to shared understanding of the text.
• Gain knowledge and perspective through deeper understanding of written information
• Understand how others think about ideas, values, and information
• Gain new insights and learning from other participants
• Create shared meaning of the text
• Build relationships of trust and respect
• Develop skills for listening, inquiry, and advocacy</td></tr>
<tr><td>Description</td><td>Socratic Inquiry is a method for understanding issues, ideas, and values in the text, for acquiring new insights and perspectives from the text and from other participants, and for making meaning from the text through joint exploration.

As in dialogue, a circle of chairs for participants is essential. Each person should have a copy of the text in order to refer to it. People who have not read the text sit outside the circle and serve as process observers and offer comments after the session. Large teams must be broken down to smaller, more manageable sub-teams, conduct a separate inquiry for each, and then integrate learnings later. The facilitator starts the conversation, keeps it focused on the text and the issues raised by the text, keeps it moving, and ends it an appropriate or strategic time.</td></tr>
<tr><td>Learning the Skills</td><td>• Select and distribute a relevant text. The best texts for Socratic Inquiry are rich in issues, ideas, and values. Since ambiguity about issues, ideas, and values characterize most concerns, texts that uncover ambiguities serve better than those that are narrow or one-sided.
• Read the text. Ask participants to read the text several times before the Inquiry and to note important points or questions raised by the text. Some facilitators encourage participants to read the text like a love letter, examining every word, phrase, sentence, or paragraph for different meanings or interpretations.
• Begin the conversation. When the group is gathered, ask an opening question to begin the conversation. Opening questions should be open-ended, lead participants deeper into the text, and reflect something about which the facilitator has genuine curiosity. If this fails to start the conversation, drop the question and try another.
• Keep the conversation moving. Once the conversation is moving, intervene only to keep it focused on the text and moving but not to promote your own agenda. Ask participants to indicate and read specific paragraphs and pages within the text that support your points. Encourage them to say more if necessary. Ask what others think or how a point one person raises relates to that of another. Remember than the first objective is to understand what the author says, not to disagree or critique the author.
• End the conversation. Stop the conversation as energy decreases and before conclusions are drawn. Socratic Inquiry is not a decision-making process; rather, it creates shared meaning and understanding that informs future decisions.
• Reflect on the experience. Debrief the experience by quickly eliciting a word or two from each participant about his or her experience in the process. If this learning the skills introduction is part of an education phase of a collaborative process, capture content points to remember from the text itself.</td></tr>
<tr><td>Protocols</td><td>• Making One's Thinking Visible
• Publicly Testing One's Conclusions and Assumptions
• Asking Others to Make their Thinking Process Visible
• Comparing Your Assumptions with Others'
• When Facing a Point of View with which You Disagree
• When at an Impasse</td></tr>
</table>

TABLE 2: TEAMWORK COMPETENCIES
(Adapted from Salas et al., 2009b)

KSA	Description	Behavioral Markers
Team Leader-ship	Ability to direct and coordinate the activities of other team members, assess team performance, assign tasks, develop team knowledge, skills, and abilities, motivate team members, plan and organize, and establish a positive atmosphere	• Team leaders instill shared affects and motivation and define team goals with prebriefs • Team leaders promote team learning through two-way interactions in debriefs to generate lessons learned from performance episodes • Team leaders create team interdependencies • Team leaders communicate a clear mission and vision for the team • Team leaders gather and provide performance relevant information to team members • Team leaders work to keep teams intact
Psycho-logical Safety	A shared belief that the team is safe for inter-personal risk taking.	• Team members believe other members have positive intentions • Team members are not rejected for being themselves • Team members respect each other's abilities • Team members are interested in each other as people • Team members have high team efficacy
Team Lear-ning Orienta-tion	A shared perception of team goals related to learning and competence development goals that guide the extent, scope, and magnitude of learning behaviors pursued within a team.	• Team members seek and give feedback • Team members discuss errors • Team members experiment with processes and procedures • Team members make changes and improvements in processes • Team members seek info & feedback from outside the team • Team members manage conflict constructively
Team Cohe-sion	The degree to which team members exhibit interpersonal attraction, group pride, and commitment to the task	• Team members have a shared task focus and commitment to attaining the goals of the team • Team members have a desire to remain a member of the team • Team members express pride associated with team membership
Mutual Trust	The shared belief that team members will perform their roles and protect the interest of their teammates	• Team members share a belief that team members will perform their tasks and roles • Team members share a belief that fellow team members will work to protect the interests of the team • Team members are willing to admit mistakes: they are not fearful of reprisal • Team members share information openly
Adapta bility	Ability to adjust strategies based on information gathered from the environment through the use of backup behavior and reallocation of intra-team resources. Altering a course of action or team repertoire in response to changing conditions, internal and external	• Team members modify or replace routine performance strategies when characteristics of the environment and task change • Team members detect changes in the internal team and external environments. • Team members make accurate assessments about underlying causes environmental changes
Conflict Resolu-tion/ Manage ment	Preemptive conflict management involves establishing conditions to prevent, control, or guide team conflict before it occurs. Reactive conflict management involves working through task and interpersonal disagreements among team members	• Team members work solutions that have mutual gains for all interests • Team members openly discuss task related conflict • Team members find it acceptable to change their minds and express their doubts

Prob-lem Solving	The process of (1) identifying and representing a discrepancy between the present and desired state of the environment and (2) discovering a means to close the 'gap'	• Team members rapidly know information when needed • Team members engage in contingency planning • Team members accurately recognize the internal expertise in the team and weighs input accordingly • Team members accurately prioritize problem features • Team members dynamically assess and adjust their problem solution
Accu-rate Prob-lem Solving	Shared understanding of the problem, the nature of the problem, the cause of the problem, the meaning of available cues, what is likely to happen in the future, with or without action by the team members, shared understanding of the goal or desired outcomes, and a shared understanding of the solution strategy	• Team members are able to recognize when other team members need information they have • Team members anticipate and predict the needs of their fellow team members • Team members implicitly adjust performance strategies to changing conditions in the team, task, and environment as needed • Team members use standardized terminology (phraseology)
Team Mission Objec-tives, Norms, Re-sources	An understanding of the purpose, vision, and means available to the team for reaching the team objectives and completing the mission as well as the shared expectations that constrain and drive the action of group members	• Team members make compatible task prioritizations. • Team members agree on the methods and approaches the team should take to work toward its goal
Underst-anding of Multi-Team Sys-tems	An understanding in the team of how their performance (inputs, processes and outcomes) is tied to the larger organizational structure, including other teams.	• Team members (especially leaders) understand the goal hierarchies in the larger organizational unit and work to meet these goals • Team members (especially leaders) engage in appropriate levels of effective conflict management with other team leaders in the multi-team system when different aspects of the goal hierarchy conflict

RETHINKING FIRE DEPARTMENT ORGANIZATIONAL DESIGN: ESTABLISHING OPERATIONAL AND ADMINISTRATIVE DIVISIONS

Robert S. Fleming, Rowan University

ABSTRACT

Contemporary fire departments face many unprecedented challenges that derive from their evolving mission and corresponding enhancement of the services that they provide. Successful fulfillment of its mission, as well as meeting the corresponding expectations of stakeholders, requires that the fire department be positioned with the necessary "response readiness" in terms of personnel, apparatus, equipment, facilities, and financial resources. The enactment of a comprehensive set of operational and administrative duties and responsibilities is essential in ensuring a fire department's ability to operate effectively, efficiently, and safely. While an organizational structure that is primarily or exclusively comprised of "line" positions has traditionally been used throughout the fire service, some enlightened fire departments have changed their organizational structure paradigm through the establishment of two divisions – one for Operations and one for Administration – each under the oversight of a senior-level chief fire officer reporting to the fire chief.

INTRODUCTION

Contemporary fire departments face many challenges as they seek to fulfill their mission of providing fire and related emergency services to the communities that they serve. While there are certainly many challenges facing these organizations, including budgetary and staffing issues, perhaps one of the greatest challenges is the fact that the mission of most contemporary fire departments, as well as the expectations of their stakeholders, have significantly changed in recent years. This is a trend in fire departments throughout the United States.

The traditional fire department organizational structure is often described as "paramilitary." The chain of command from the fire chief through the firefighters primarily incorporates "line" positions. Some fire departments have added a limited number of "staff" positions over the years, but rarely are these positions organized into an "administrative division" under the direction and oversight of a senior-level fire officer. This paper will report on the recent reorganization experience of several fire departments in the establishment of two divisions – one responsible for Operations and the other responsible for Administration – each under the direction of a senior-level deputy fire chief reporting to the fire chief.

THE CONTEMPORARY FIRE DEPARTMENT

The primary mission of a fire department is to respond to and mitigate emergency situations and incidents that occur within its coverage area in a manner that meets and, when possible, exceeds the realistic expectations of its stakeholders. These expectations typically include accessibility, completeness, consistency, courtesy, effectiveness, efficiency, professionalism, responsiveness, and timeliness. The fact that the services provided by a fire department are mission-critical, time-sensitive, labor-intensive, and customized can present challenges in service delivery, as can the fact that the requests for fire department emergency services are unscheduled and thus result in varying transaction volumes.

In addition to responding to incidents, such as fires, vehicle and specialized/technical rescues, hazardous materials incidents, and emergency medical service calls, fire departments routinely enact an array of related support activities including community, public, government, and media relations; public education and public information; and participation in special events. The overall goals of a fire department include operating both on and off the scene of emergency incidents in an effective, efficient, and safe manner. The universal priorities of fire departments in the management of emergency incidents, in priority order, are (1) life safety, (2) incident stabilization, and (3) property conservation.

NEW CHALLENGES IN SERVICE DELIVERY

In addition to the evolving organizational mission, resulting expansion of service offerings, and growing stakeholder expectations referenced earlier, fire departments and those that lead them face the additional challenges of demographic changes, including significant growth in the elderly population within many communities, as the "baby boomer" generation reaches their retirement years. Even with the many advances in medicine and technology that have resulted in people living longer, the reality is that an aging population will generate the need for increased fire and emergency services within a community, which fire and emergency service organizations must be prepared to address. Many enlightened fire and emergency service organizations are pursuing proactive agendas designed to identify and reduce the risks faced by all populations and individuals within the communities that they serve. Through a community risk reduction approach, a fire department stands to improve its effectiveness and efficiency, as well as contribute to an enhanced quality of life for community residents.

The economic realities of the contemporary world present further challenges to fire departments in terms of resource constraints, wherein they may experience budget and/or staffing reductions. The pressure for fire and emergency service organizations, as well as elected and appointed officials, to consider major organizational changes, including fire department consolidations and regionalization will likely continue for the foreseeable future.

ENSURING "RESPONSE READINESS"

The effective, efficient, and safe enactment of a fire department's responsibilities on and off the scene of emergency incidents is based on its preparedness or "response readiness" in terms of a number of essential areas. Personnel with the necessary knowledge and skills must be recruited, motivated, empowered, and retained. Training and professional development are essential to ensuring a fire department's personnel readiness.

While personnel are certainly the most important resource of any organization, including fire departments, additional physical resources are also required if the organization is to succeed in achieving its mission and in meeting the expectations of its stakeholders. Apparatus and equipment must be properly maintained and in a state of operational readiness, as must the facilities that house this apparatus and equipment.

ESSENTIAL DUTIES AND RESPONSIBILITIES

Just as the services offered by fire departments have grown over time, so too have the operational and administrative duties and responsibilities whose proper execution is likewise a crucial determinant of fire department success. In addition to the operational roles and responsibilities associated with the successful management of emergency incidents, a growing number of administrative duties and responsibilities must also be properly and fully enacted.

Strategic planning that incorporates environmental scanning and strategy formulation is essential in the charting of the future success of the organization and its ability to fully serve the evolving needs of the community. Policies and procedures must be developed, implemented, and periodically reviewed and, as necessary, revised. A comprehensive health and safety program must also be developed, implemented, and administered.

A highly-qualified cadre of personnel must be recruited and retained. The knowledge and skills of all fire department personnel must be developed and maintained through training and professional development. Management responsibilities likewise should involve administering performance evaluations and discipline, as necessary. Effective internal communication is also essential.

The contemporary fire department is expected to engage in appropriate interactions with its stakeholders. These responsibilities will include community and public relations, government relations, and media relations. The provision of accurate and complete information to various stakeholder groups is essential in maintaining a fire department's reputation, image, and credibility, as well as the formal and informal support that it receives.

The organization's financial and physical resources must also be properly managed. This includes the management of financial resources, apparatus, equipment, and facilities. Seeking and managing alternative revenue sources such as grants is also of growing importance to contemporary fire departments.

TRADITIONAL FIRE DEPARTMENT ORGANIZATIONAL STRUCTURE

The structure that has been traditionally and commonly used in most fire departments incorporates "line" positions, as shown in Exhibit 1. Over the years, a growing number of fire departments have added a small number of "staff" positions, with limited duties and responsibilities. Exhibit 2 illustrates the incorporation of "staff" positions into the traditional "line" organizational structure. The primary role of fire officers and firefighters under such organizational designs is to respond to emergency incidents. These same fire officers and firefighters enact supporting roles, such as training;

and apparatus, equipment, and station maintenance, when they are not handling emergencies. Under these traditional organizational designs, most administrative and support responsibilities fall on senior officers, particularly the fire chief.

Exhibit 1
Traditional Fire Department Structure

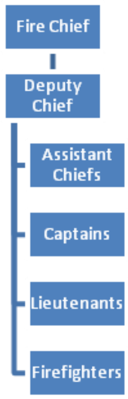
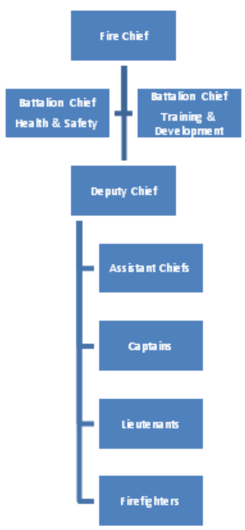


Exhibit 2

Fire Department Structure Incorporating Staff Positions

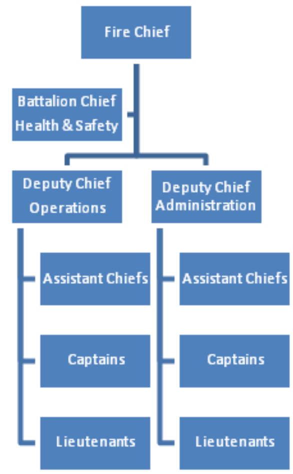


ESTABLISHING AN "ADMINISTRATIVE DIVISION"

Some enlightened fire departments have reorganized so as to incorporate two senior-level chief officers reporting directly to the fire chief with each responsible for their respective division – the Operations Division or the Administrative Division. Exhibit 3 shows one such design wherein each division is assigned to a deputy fire chief, who reports directly to the fire chief.

Exhibit 3

Fire Department Structure Incorporating Operational and Administrative Divisions



Under such an organizational design the fire chief is able to focus on the "big picture" or strategic issues of managing the fire department in a manner that prepares it for both present and future success and survival. On the scene of a major emergency incident, the fire chief continues to serve as the Incident Commander, with overall responsibility for the effective, efficient, and safe management of the incident. The fire chief retains responsibility for a number of administrative functions including: strategic planning, policies and procedures, performance evaluation of chief officers, reports and documentation, budget development, and community risk reduction.

On the scene of an emergency incident, the deputy chief for operations serves as the Incident Commander, in the absence of the fire chief, or as Operations Officer, overseeing all tactical operations. Administrative responsibilities assigned to this position could include: customer service, personnel recruitment and retention, internal communication, and event scheduling.

While the primary role and responsibilities of the deputy chief for administration are enacted off the scene of an emergency incident, at times this position also involves serving as the Incident Safety Officer. While this position is responsible for providing oversight of a significant number of administrative activities, other members of the fire officer staff assist in the enactment of many of these responsibilities.

The deputy chief for administration has human resource management responsibilities related to training and professional development, health and safety, performance evaluation of company officers (captains and lieutenants) and firefighters, and discipline. The position is responsible for establishing and maintaining positive relations with the community, elected and appointed officials, the public, and the media, and serves as the departmental Public Information Officer (PIO). This position is responsible for purchasing and resource management of apparatus, equipment, and facilities, as well as for the administration of the fire department's budget. Additional responsibilities assigned to this position include conducting internal investigations, facilitating post-incident analysis, grant writing and administration, and research and development.

SUMMARY

The challenges faced by a contemporary fire department and those who manage and lead it have increased in recent years and are likely to continue to increase in the future. The duties and responsibilities of the fire chief and other senior fire department officers, particularly those of an administrative nature, have likewise increased in number and significance. The establishment of an administrative division and staffing it with a fire department officer with the necessary qualifications and willingness to successfully enact its associated responsibilities will enable a contemporary fire department to more effectively and efficiently enact the growing number of administrative activities and tasks, as well as enable the fire chief to focus his or her time and attention on the "high-level" and strategic tasks that will position the organization for both present and future success in these challenging times.

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SOCIAL MEDIA AND EMERGENCY PREPAREDNESS: FRIEND OR FOE?

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ABSTRACT

The growing availability and increased use of social media within contemporary society has transformed the methods and frequency with which individuals, groups, and organizations communicate. Once communication tools used by the younger generation, the Internet and social media now represent sources of timely information for individuals of all ages. This paper examines the role that social media now plays in emergency preparedness in terms of the dissemination of information to the public before, during, and after the occurrence of an emergency, such as a hurricane. The advantages and disadvantages associated with the dissemination of emergency-related information through social media will likewise be considered.

INTRODUCTION

The growing availability and increased use of social media within contemporary society has transformed the methods and frequency with which individuals, groups, and organizations communicate. While the specific social media utilized will likely evolve over time as will its capabilities, it is clear that social media as a communications tool is here to stay. Once a communication tool mainly used by the younger generation, the use of social media has grown and will continue to grow across all demographic audiences.

The rapid growth in numbers of social media users has been accompanied by an equally impressive exponential growth in the frequency with which these users initiate and receive timely communications from individuals, groups, and organizations. While a significant amount of the communications and information shared through social media is obviously of a personal nature, many individuals now rely on social media to communicate with others for a wide range of reasons, including business.

Through social media, information can be initiated and transmitted with unprecedented speed. The timely, almost instantaneous, communication capabilities of social media have certainly contributed to its growth in popularity and use. It is particularly useful to update friends and acquaintances on breaking news, whether related to the home team prevailing in a sporting event or the occurrence of an emergency situation within the community or the larger world. This amazing speed of social media communications and information dissemination is illustrated by the fact that individuals in Cambridge, Massachusetts learned about the occurrence of the August 2011 earthquake that occurred in Virginia, through text messages from their friends and colleagues in Washington, DC, several seconds before the earthquake was felt in the Boston area.

INFORMATION NEEDS IN TIMES OF EMERGENCY

While many members of contemporary society, particularly those under the spell of social media, have demonstrated their interest and often eagerness to initiate and receive timely information about people and events in the world around them, a shared desire of people, regardless of whether they have become converted disciples of social media or not, is to receive timely information about emergency situations and incidents. Hurricane Irene, a weather-related natural emergency that occurred in August 2011, serves to illustrate the desire that residents and those traveling on the East Coast had regarding receiving timely information updates before, during, and following the hurricane impacting their region. It is fair to say that in cases of a minor emergency incident, there will be a limited audience that has a desire or would like to receive such information; whereas in a major emergency event that has the potential for significant and widespread consequences, rather than a desire or "want," we would be correct in categorizing this as a "need" for timely information.

The informational needs of the public in times of an emergency extend beyond the requirement that information be disseminated and received in a timely manner. The expectations of stakeholders in need of this information also include that the information be accurate, comprehensive, and credible. Ideally, the information is also delivered in a professional manner. These expectations are realistic, given the fact that the information that an individual receives before, during, and after the occurrence of an emergency, such as a hurricane, often serves as the basis for such life safety decisions as deciding whether the prudent action is to hunker down with one's family and shelter in place, or to load up the car and evacuate to a safer location.

ROLE OF THE TRADITIONAL NEWS MEDIA

For many years the only formal source of information available to the public regarding the occurrence of an emergency was the traditional news media. The public learned about breaking news stories, including emergencies, through reading a newspaper, listening to a radio station, or viewing a television newscast. It was not unusual for members of the public to rely on more than one media type or outlet to get their news.

While we typically think of the traditional news media in terms of media type, such as a newspaper or television station, or a specific media organization, the essence of professional news reporting brought to an audience of newspaper readers, radio listeners, or television viewers, is the skillful journalism of reporters and other media professionals, such as news anchors.

The traditional news media has demonstrated its capabilities in professionally gathering and reporting the news. These news organizations are likewise well positioned to fully meet stakeholder expectations that their news coverage and related emergency information, including alerts and warnings that they disseminate be accurate and complete. Their ability to deliver information in a timely manner is more problematic these days. In earlier times when the public had no other option than wait for a newspaper to hit the streets or for the scheduled television news broadcast, they had or knew of no more timely option. Today, the timeliness through which information becomes available through the traditional news media is frequently judged in comparison to the instantaneous information dissemination capabilities of nontraditional media. This certainly explains why a growing number of traditional news media organizations now utilize websites and social media in bringing breaking news and essential information to their audiences.

SOCIAL MEDIA – THE NEW KID ON THE BLOCK

Although the Internet has been around for many years, only in recent years did it gain its current popularity and prominence within almost every aspect of modern society and daily life. The advent of the Internet served as a catalyst for many advances in information dissemination initially through websites and more recently through social media tools, such as Facebook and Twitter.

Whereas those in need of timely information on emergency incidents have traditionally been at the mercy of the information dissemination timetable of traditional media organizations, the Internet allowed users to "go online" in search of information at any time. Thus, in many ways the Internet offers more convenience in accessing timely information. Prior to the introduction of wireless technologies and mobile computing devices, accessing the Internet from a desktop computer was similar to watching a television news broadcast, in that you had to be in a location where a computer or television was available.

The advent of portable radios many years ago extended the reach and availability of radio stations and their news broadcasts by enabling listeners to tune in to the news regardless of where they were, offering the convenience that had been previously lacking in radio and television news. The introduction of mobile computing devices has likewise revolutionized information dissemination in the contemporary world and has provided the technological platform necessary to support the robust virtual world of social media that permeates a growing number of aspects of our lives, including how many people receive their news, including information on emergency incidents.

SOCIAL MEDIA HAS CHANGED EMERGENCY NEWS COVERAGE

The Internet and social media have changed emergency news coverage in a number of ways. Most traditional media outlets – newspapers, radio, and television – now supplement their traditional news coverage of emergency incidents through websites that provide incident updates, as well as emergency information, warnings, and alerts. Their coverage is enhanced through the incorporation of digital images and video segments. A growing number of media organizations proactively solicit their readers, listeners, or viewers to contribute information and images for possible inclusion in their news coverage. Reporters likewise use social media to communicate with a newsroom or a radio or television studio.

The most recent trend in news reporting is to have members of a news organization's audience sign up to receive information through such social media tools as Facebook and Twitter. Technological advances have made available the platforms and mobile devices required to support social media. The rapid growth in its availability, popularity, and use has changed the playing field of news reporting and information dissemination.

ROLE OF PUBLIC SAFETY AGENCIES

In times of emergency, public safety agencies and organizations have a responsibility to the public to ensure that accurate, comprehensive, and credible information is disseminated before, during, and after emergencies. The priorities of these agencies, in order of importance, are: (1) life safety, (2) incident stabilization, and (3) property conservation. The dissemination of information that is inaccurate, incomplete, or misleading can have tragic consequences in times of an emergency.

It is imperative that the public receive timely, accurate, and credible information about what has happened, what is happening now, and what is likely to happen, as well as guidance and direction on the actions that they should take, as well as those that they should refrain from taking, in order to protect themselves and their families. Often such information will relate to whether it is being recommended or required that residents evacuate or whether they should shelter in place. Ensuring that correct information is disseminated before, during, and after the occurrence of an emergency is a primary responsibility of any public safety agency or organization.

USE OF SOCIAL MEDIA BY PUBLIC SAFETY AGENCIES

A growing number of public safety agencies and organizations now utilize the Internet and social media to communicate with the public before, during, and after the occurrence of an emergency. Emergency management agencies at all levels of government have informative websites that provide generic information and resources related to various types of emergency incidents, as well as informational updates, warnings and alerts upon the occurrence of a particular emergency. Fire and emergency service organizations likewise provide such valuable and essential information on their websites.

These organizations are also using social media with increasing frequency to communicate with the public in times of an emergency. Through social media tools accurate information can be disseminated in a timely manner from an emergency incident scene or an emergency operations center. Some public safety organizations are also using social media to receive information updates from both emergency responders and the public in times of emergency.

ANYONE CAN BE A "REPORTER"

A major benefit of the use of social media by either the traditional news media or public safety agencies or organizations is the vast number of individuals in a community that can be reached through these innovative technologies and communication tools. Social media represents another tool in a journalist's communication toolbox; a tool that with increasing frequency is selected to report the news and disseminate information to an interested target audience.

While an obvious generic advantage of social media is that it is readily available for use by anyone with the necessary equipment and skill in its use, this same availability can also represent the most significant disadvantage of social media. A rudimentary mobile electronic device with texting capabilities can equip anyone to essentially become a "reporter" and initiate the dissemination of information regarding an emergency incident. An electronic device with the added capability of capturing and disseminating still and video images further enhances the ability of an individual with a camera or smart phone to begin their "reporting" of the breaking news.

SOCIAL MEDIA: FRIEND OR FOE?

It has been suggested that social media may not be a friend or ally of public safety agencies and organizations, in that it may at times complicate their ability to ensure that the public is receiving the accurate, complete, credible, and timely information that they may desperately need in the time of an emergency. While information initiation and dissemination through social media will often be timely, almost instantaneous, the rush to report or disseminate emergency related information may result in inaccurate, incomplete, misleading, or confusing information being received by the public.

The hurricane mentioned earlier clearly illustrates this potential. At the same time that news organizations throughout the East Coast were disseminating accurate information through both traditional means and through their websites and social media, massive numbers of individuals were using social media to share their perceptions of the emergency. There were cases where the traditional news media were correctly advising the public to avoid driving in certain low-lying areas where roads or streets were subject to flooding, based on information that they had received from public safety and emergency management agencies and the weather bureau, while individuals using social media were sending contradictory information and advice.

The answer to the question of whether social media represents a friend or foe of emergency preparedness is thus conditioned on whose hands these powerful communication tools are in and how responsible they are in using social media in the time of an emergency. The effective use of social media by the traditional news media and public safety agencies and organizations can enhance the effectiveness and efficiency of information dissemination during an emergency. The use of these communication tools in a manner that results in irresponsible and unprofessional information dissemination not only complicates the efforts of public safety agencies, but often creates additional work in terms of correcting incorrect information that has been disseminated by uninformed, often careless individuals using social media.

SUMMARY

It is likely that social media availability, use, and popularity will continue to grow in the future. Its use in most aspects of contemporary society and daily life will also continue. The potential of social media to reach large numbers of individuals, including the public, in times of emergency has been demonstrated during recent emergency situations and incidents.

In the hands of the professional journalists that gather and report news stories on behalf of the traditional news media and their counterparts responsible for public information dissemination within public safety agencies, social media can be a powerful communication tool that can contribute to reporting and disseminating information that is not only timely, but also accurate, complete, credible, and professional. Unfortunately, although many individuals who initiate the dissemination of emergency-related information through social media may engage in accurate "reporting," there will always be those who do not recognize the importance of accuracy and completeness when communicating certain incident-specific information during an emergency, as well as the potential serious and tragic consequences that can result when members of the public rely and act on such uninformed information.

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A CASE STUDY OF ORGANIZATIONAL ASSESSMENT FOR A NON-PROFIT ORGANIZATION FOR THE DISABLED

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ABSTRACT

Many non-profit organizations have a growing need for internal and reliable assessments of their organization. This research project is a case study involving an internal assessment of a non-profit organization for the disabled (NODA). This study uses a set of assessment questions to measure performance, motivation, capacity, and enabling environment. Strategic leadership is also examined based on strategic leadership environment, and the Contingency Model is applied to measure situational favorability of the organization. The goal of the assessment is to identify the areas of weaknesses, strengths, threats, and opportunities for the organization so that the improvement can be made.

INTRODUCTION

NODA is a non-governmental and non-profit organization that was founded in the early 1950 by parents of children with disabilities. It provides services to more than 3,500 children and adults with wide range of conditions and diagnoses. Presently it is offering 21 different facilities for community support, including adult day programs, community homes, and assisted living apartment complex. In addition, NODA supports not only children or adults, but it also supports their family. Its mission is providing equality, independent living and good hope to patients, which lead them to a hope of new life…a life well lived and without limits. It offers both community and center-based programs and services in several counties of Central Pennsylvania: Centre, Columbia, Cumberland, Dauphin, Juniata, Lancaster, Lebanon, Lycoming, Mifflin, Montour, Northern York, Northumberland, Perry, Snyder, and Union counties. NODA received 2011 Healthcare Heroes Award.

Although NODA has provided many high quality and valuable programs and services for the disabled and their family, it continuously strives for improvement. The objective of this study is to suggest areas of improvement for NODA based on our internal assessment.

LITERATURE REVIEW

Lusthaus (2002) views organizational assessment as a framework for improvement focused on four areas: organizational performance, motivation, capacity, and enabling environment. Leadership effectiveness is closely related to the performance of an organization. According to Fiedler (1964), there is no ideal leader. Leaders can be effective if their leadership orientation fits the situation. He suggests that leader effectiveness is determined by selecting the right kind of leader for a certain situation or changing the situation to fit the particular leader's style. Fiedler's proposed Contingency Model of leadership is perceived almost the opposite of Situational Leadership Model (SLT). SLT focuses flexibility in leader behaviors, whereas the Contingency Model focuses on consistency in the leader behaviors. The Contingency Model reported that leader effectiveness is determined by selecting the right kind of leader for a certain situation or changing the situation to fit the particular leader's style. For NODA, the leadership behaviors consistency optimize very easily. That is, there is a consistency; we can prove it with the help of octant structure in Contingency Model (Lusthaus, 2002).

Force Field Analysis developed by Kurt Lewin is a general tool for analyzing the factors or pressures that support the status quo (restraining forces) and those pressures that support change in the desired direction (driving forces). It looks at forces that are either driving movement toward a goal or blocking movement toward a goal. The analysis is a strategic tool used to understand the areas of changes needed in an organizational.

Motivation provides direction, intensity and persistence behaviors to an individual. Herzberg (1966) proposed the two- factor theory which identified two types of factors: motivators (led to satisfaction at work), and hygiene factors (led to dissatisfaction at work). Herzberg believed that if hygiene factors improve then the motivation or satisfaction factors also increase in the organization.

Non-profit organizations are often told to maximize their capacity as a way to improve their performance. Tools that define and assess organizational capacity can help organizations identify their unique capacity building needs and guide the development of plans to address them. Lusthaus (2002) suggests that several areas of organizational capacity assessment, including strategic leadership, human resources, program and process management. The results deepen the understanding of the capacity of the organization, track the growth, and improve the performance.

Enabling environment is identified by the administrative, technological, political, economic, socio-cultural, and stakeholder factors (Lusthaus, Anderson and Murphy, 1995). It indicates how external factors influenced internal factors. Environment includes market changes, governmental regulation and laws, competitors, financial institution and weather pattern.

METHODOLOGY

One of the organizational assessments for this study is done by phone or face-to-face interviews. The interview questions are similar to what were suggested by Lusthaus (2002). Several departments within the organization and services provided by NODA participated in the interview, including finance department, marketing department, adult services, community services, technology fiscal agent services, family services, and CEO. In addition, foundation reports, UCP's website, data file, artifacts, and information obtained by site visits are also used for the purpose of assessment.

The assessment for this study is focused on organizational performance, motivation, capacity, and enabling environment, Additionally, SWOT analysis is conducted to evaluate the Strengths, Weaknesses, Opportunities, and Threats of the organization. It specified the objective of the organization and identified the internal and external factors.

RESULTS

Performance assessment

The performance for the individual employee, the team or small group, program, and organization are discussed and measured. Table 1 describes the performance of individual and groups. The performance of the employees is evaluated every three month. Director of childhood monitors the program performance including tuition, budget, target, and employee evaluations. Yearly surveys for parents and staffs also help to evaluate overall organization performance. NODA has several programs; every department quarterly tracks its own budget such as, staff hours, wages, and other expenses. All of the NODA programs are maintained such that the enrollment criteria set by the state government are met. It is encouraging to find that NODA has an open door policy that welcomes any new ideas. For examples, NODA's therapists or other therapists who come to serve NODA from outside the organization are free to find more resources (grants, fund raising ideas, and etc.) for the organization. NODA provides grant writing seminars to any therapists who serve NODA.

The performance assessment also includes evaluation of leadership effectiveness, organizational efficiency, relevance, and financial viability.

Leadership effectiveness

Fiedler's Contingency Theory of leadership is adopted for this study. It suggests that the performance of interacting groups is contingent upon the interaction of leadership styles and the favorability of the situation for the leader. With the help of octant structure in Contingency Model, it shows that the overall leadership situation for NODA is favorable.

The idea of organizational effectiveness is especially important for non-profit organizations as most people who donate money to non-profit organizations and charities are interested in knowing whether the organization is effective in accomplishing its goals. According to Richard et al. (2009) organizational effectiveness captures organizational performance. It is found that NODA is moving very effectively toward its mission. Different programs and activities of NODA are in line with its goals. NODA monitored its effectiveness with their yearly surveys.

Efficiency

Organizational efficiency can be described as an organization that is productive without waste. That is, the ability of the organization to produce desired results with a minimum expenditure of energy, time, money, personnel, materiel, etc. Kurt Lewin (1939) proposes Force Field Analysis as a strategic tool used to understand what's needed for change in both corporate and personal environments. More specifically, the force field analysis proposes that an organization is typically in a state of equilibrium. There are two forces which maintain organizational stability: driving forces and restraining forces. The driving forces are those elements of the organization which support a desired organizational change.

Keeping the organization in equilibrium are the restraining forces. If the two forces are equal, the organization will remain static. Change occurs when one of these two forces becomes stronger than the other (disequilibrium). Once the change has occurred, the organization reverts to a new state of equilibrium which reflects the desired change. For measuring the efficiency of NODA, Force Field Analysis is used. It should be pointed out that NODA provides services for more than 3,300 people with limited fund from the state government.

Relevance

NODA develops different programs for raising funds, and its Foundation supports the unfunded and underfunded programs. Since 2009, the Foundation has provided ongoing support to NODA's *Changing Hands Program* which provides restored assistive technology devices and home medical equipments to individuals and families throughout the state of Pennsylvania.

Effective January 2011, the Board of Directors approved a Grants Allocation Panel which creates the internal process by which a NODA programs can apply for funds through the NODA Foundation in support of a new or existing program. The panel is comprised of investors in the NODA Foundation who will review proposals and make recommendations for program funding. Every year NODA also published the Tax Act for their donors, including gift tax, estate tax and generation skipping transfer tax.

Financial Viability

Financial viability should also be view as a performance criterion, because many non-profit organizations today are required to be more market driven. They must focus on the demand and revenue side of their work as much as the supply side. The organization must maintain the ability to raise funds required so that it can continue to achieve its operating objectives and fulfill its mission over the long term.

NODA's revenue was $2 million in 1993, in 2007 it reached $ 16 million; presently, NODA's revenue is $22 million and it is growing rapidly. Some of the programs in NODA are funded by the state government, while other programs must be funded by other sources. Approximately 96% of NODA's budget goes directly to programs and services. This percentage is phenomenally high when it compared to other charitable organizations. NODA Foundation generates fund over $431,218 from community investors in 2010. NODA foundation provides two $10,000 grants to support unfunded community needs.

Motivation Assessment

Motivated employees usually show greater willingness to work and often produce high quality performance. There are several key work values and motivational strategies, such as recognition, power, hedonism, altruistic, affiliation, tradition, security, commerce, aesthetics, and science (Hogan, 1996). A good leader can identify followers' work values and use motivational strategies effectively. At NODA, most of the staff are motivated by altruistic and affiliation values, although there is no statistical evidence for it, but continuous involvement of employees and their belief in team approaches help us to predict the outcome.

Capacity assessment

Organizational performance is often influenced by its capacity, the external environment in which it operates, and its internal environment. There are various types of capacities the organization needed for them to carry out day-to-day activities, there are also some others types of capacities needed by organization for them to learn and adapt to changes in market, politics, technology, and other external or internal factors. In simple terms, an organization's capacity is its ability to successfully apply its skills and resources to accomplish its goals and satisfy its shareholders expectations. The organizational capacity considered in this study can be broadly classified into two types: resources (human and financial) and management (strategic leadership, program and process management).

Resources

NODA links its mission and goals to staff planning. The governing and operating structure of NODA are functional, practical, and well-organized; they are also clear to all employees. NODA identifies and provides training or other educational needs for the employees. The reward and compensation policies are competitive compared to other non-profit organization. In addition to the funding from the state government, NODA conducts several fundraising events. The board of directors and committee members plan the budgets, implement and monitor the monetary resources of the organization.

Management

NODA's leaders practiced honesty; they are also experienced and knowledgeable. CEO and Board of Directors have the decision making authority. Their strategic thinking skills, competency contributes to NODA's rapid growth. They inspire staff through bonus, service recognition award, company picnic, annual staff retreat. They also give motivational speech and express their belief in team effort. The quality of services provided by NODA has brought huge success and, the performance has reached above expectation, which in turn brings in more clients.

Most of the program at NODA are licensed and funded by state government, thus, NODA has to follow some strict rules and protocols. The strategic planning management team and the Board of Directors are involved in the program management as well as process management of the organization. Any member of the management team is encouraged to give ideas about new programs or response to the development of the new program. NODA provides a unique service in the non-profit sectors. It not only supports the individuals with special needs but also supports their families. For example, NODA provides the speech, physical, developmental, and occupational therapies, childcare, adult day programs, in-home care, independent living supports and community homes. Also, NODA at central PA does have sufficient committees to ensure legal and organizational accountability. It also has strong mechanism to review its performance regularly. In fact, NODA does not only conduct internal evaluation (program monitoring, staff feedback), but also has external evaluation (parents feedback).

Enabling Environment assessment

Enabling environment is identified by the administrative, technological, political, economic, socio-cultural, and stakeholder factors (Lusthaus, Anderson and Murphy, 1995). Environment also includes market changes, governmental regulation and laws, competitors, financial institution and weather pattern. At NODA, it is affected by state budget; it is both a political and an economic issue.

NODA has its own policy and procedures to protect the organization from any criminal actions. NODA believes in equality and honesty; it tries every effort to ensure that the rules set by the organization are in line with their culture. NODA is committed to provide high quality services and to form relationships with their consumers that are built on trust. It respects all consumers' rights to privacy and confidentiality. As a covered entity, NODA has implemented the Health Insurance Portability and Accountability Act (HIPAA) and invites all to review their Notice of Privacy Policy.

Presently, there are more than 50 million adults and children with disabilities. While prevention research remains a priority, funding for clinical trials is needed in order to provide evidence-based clinical care that can improve functionality, as well as quality of life for those with developmental disabilities. There have been many advances in treating neurological conditions such as adult stroke and spinal injury that may have a role in restoring motor and cognitive function in persons with cerebral palsy. Despite advances in the prevention of cerebral palsy, the incidence has increased 25% over the last decade and is likely attributable to the concomitant increases in the number of multiple fetal births and improper neo-natal care. NODA has updated knowledge of therapies and ways to help individual with disabilities.

Most of the programs at NODA are funded by state government. There are several fund raising activities for unfunded programs; parents also contribute to unfunded programs.

CONCLUSION

Overall NODA is an effective non-profit organization. Its strength lies in the areas of effective and strong leadership, committed employees, quality services, reputation, community-based programs, and state government funding. The weakness includes accessibility, mostly reliant on state government funds, and confined by government protocols. Yet, NODA has many opportunities such as, niche target market, development of different services, strong technical support, and strong industrial base. However, NODA is not without threat. State government budget reduction, legislative related changes, and market demands are the most apparent threats.
According to their CEO, "My assessment of where we stand today is: while we've accomplished much, there is still much to be done." If NODA can utilize their strengths and opportunities then it can fulfilled its mission.

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ARCHITECTURE AND STRATEGY IN HIGHER EDUCATION

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ABSTRACT

The optimal method of implementation of a CRM in higher education can be difficult to ascertain because the situation depends heavily on the structure of the organization. Therefore it is important to align the IT implementation model with the current culture and institutional structure of the organization. When there is alignment between the business strategy and the IT strategy, implementation of programs is likely to successfully come to fruition. Therefore, it is best to start with the organizational objectives and then work to align the IT implementation model with the business practice. Once the overarching model is explained, based on the benefits and constraints as they relate to the organization in higher education, the model can be applied to the development and deployment of IT implementation. The IT model needs to be developed based on environment and then defined by the strategic plan. The following pages will discuss an electronic communication plan using a customer relationship application in higher education. Three models of IT implementation will be explained including the hard model, the soft model and the PrOH model. Finally, a system development life cycle will be constructed to assess the effectiveness and long term sustainability from end-to-end of the IT process.

INTRODUCTION

Architecture and Strategy in Higher Education

It is important to find opportunities to align business process management with IT planning so that management views match the infrastructure capabilities (Chen, Mocker, Preston, & Teubner, 2010). In addition to this alignment, the organization should seek to use the system to gain a competitive advantage because the costs for implementing a new system in terms of money and resources will be relatively high (Chen, Mocker, Preston, & Teubner, 2010). Chen, Mocker, Preston, and Teubner (2010) posit that implementing any IT plan is difficult and there are few methods available that actively measure and define parameters relative to the success of implementation.

Even with these challenges, higher education, like every other industry, needs to find ways to align the business goals and strategies with IT capabilities to enhance the business process and provide more quality service to customers. The marketplace is becoming more competitive and therefore customers expect the highest quality service at the lowest price (Prasad, 1994). Most industries are interested in finding effective ways to enhance customer relationships through the use of social networking (Hagal & Armstrong, 1997).

This process requires having a substantial amount of information on both potential and current customers (Zailskaitė-Jakštė & Kuvykaitė, 2010). In the case of higher education, customers are known as students and it is necessary to find the opportunity for establishing two-way communications (Zailskaitė-Jakštė & Kuvykaitė, 2010). Competition for students has become fierce because of the growth in number of academic programs, and reduction in financial aid forcing traditional universities to develop strategic plans targeted at specific demographics (Zailskaitė-Jakštė & Kuvykaitė, 2010). The recruitment strategies call for interaction with prospects with more frequency and more intensity to stay competitive (Zailskaitė-Jakštė & Kuvykaitė, 2010). Therefore higher education is looking for products that can enhance social networks to help carry out the revised strategic plans (Zailskaitė-Jakštė & Kuvykaitė, 2010). One effective method is to use a CRM (Customer Relationship Management) system. Investing in this type of technology can be beneficial to communicate effectively with potential students.

CRM

Finding an effective way to develop interpersonal relationships online is the only way to stay completive in higher education (Clemons, 2010). Developing an IT process that utilizes Customer Relationship Management (CRM) to impact the communication system will create seamless communication channel that will maximize the value for the organization (Boulding, Staelin, Ehret & Johnston, 2005). CRM uses information to make decisions and target the market with the intention of creating brand equity for the firm (Boulding, Staelin, Ehret & Johnston, 2005). The process uses one-to-one marketing methods that are established both in physical and virtual forms of communication (Payne & Frow, 2005).

There are several effective models to align business strategy and IT, including hybrid, contingent, IT enabled, systemic and holistic models (Melão & Pidd, 2000). The most effective method takes into consideration the strategic thinking from the holistic perspective and therefore aligns the IT plan with models that create value for the customer (Clegg & Shaw, 2008).

Hard and Soft Design Models

The model created by Clegg and Shaw (2008) called the process-oriented holonic (PrOH) model is recommended because it provides a holistic methodology that is developed based on the complexity of the system while helping to incorporate key decision makers in the process through action research.

The hard design model organizes information based on conceptual frameworks that can be used to analyze the system with the intention of making systematic improvements to the process (Melão & Pidd, 2000). These system designs will include information on how the technology will interact at each stage that is integrated seamlessly into the operational system (Melão & Pidd, 2000). This method of Business Process Management (BPM) can be explained using four views; "deterministic machines, complex dynamic systems, interacting feedback loops and social construct" (Melão & Pidd, 2000 p.112). The first three are considered hard design models and the last model called the social construct is a soft model.

Designing a business process according to the deterministic machine perspective posits that activities performed by humans creating inputs into a system from various vantage points. (Melão & Pidd, 2000). Input is not fluid but static, based on the rules of the system, hence responsibility for these inputs are clearly defined based on those who input the data (Melão & Pidd, 2000).

The system using the deterministic machine perspective is a pervasive model because resources are used effectively to satisfy the goals of the organization (Melão & Pidd, 2000). This method is used in traditional bureaucratic environments like higher education (Melão & Pidd, 2000). Therefore introducing CRM using this method would provide significant comfort and would constitute minimal change in the normal business practices for the administration in universities.

Unfortunately CRM has a human component that is holistic in nature and use of the deterministic machine does not help with relationship management, it does however help to create a process-based framework for decision making and analysis (Payne & Frow, 2005). This mechanical perspective misses the opportunity to incorporate culture and social techniques into the process (Melão & Pidd, 2000).

The second method of modeling hard systems looks at the internal and external environment with subsystems made up of the technology, the structure and the people (Earl & Khan, 1994). Because this model looks at external environments, it is much more beneficial in BPM than the deterministic machine perspective (Melão & Pidd, 2000). It is less than optimal because the cost of implementing this perspective that takes into account all of the environmental factors which can be costly and consequently there is more risk associated with using this method (Melão & Pidd, 2000). Higher education is not likely to implement any IT systems by using this method because these types of institutions are already risk adverse.

The third method of modeling using a hard system is using a process of feedback loops where each change happens independently but is part of the overall system. This method allows for sophisticated forecasting models, because each section of the diagram can be quickly translated in equations for evaluation and analysis (Melão & Pidd, 2000). Unfortunately there is lack of systems thinking because each segment of the system is managed separately and there is little coordination between each segment (Wolstenhome, 1993).

Checkland and Poulter (2006) posit the use of the soft systems methodology (SSM) that generally takes the experience of the project manager and utilizing brainstorming activities that build the model based on best practices (Checkland & Poulter, 2006). The system is designed to initiate debates based on social constructs on how information is shared between divisions (Melão & Pidd, 2000). It is less technical in nature but does not completely eliminate the technical perspective during the process (Melão & Pidd, 2000). The practitioners use process-based language to establish the most effective methods of implementation (Checkland & Poulter, 2006).

The SSM is created to allow for immediate action based on current problems and the process is developed to fulfill a need in the workplace (Checkland & Poulter, 2006). Some of the complexity of real scenarios may call for radical approaches that cannot be easily implemented because of various perspectives on what constitutes the correct process (Checkland & Poulter, 2006). Furthermore, even when a solution can be agreed upon the process is never in a static state and change is always necessary (Checkland & Poulter, 2006).

In higher education the culture typically does not support this method of valuing people and their contributions based on experience and therefore even though using this process to implement a CRM would be beneficial, higher education would not support such a radical change in methodology (Melão & Pidd, 2000). Furthermore if experienced practitioners cannot be found within the organization, implementation of SSM becomes problematic (Clegg & Shaw, 2008).

PROH MODEL IMPLEMENTED

If the PrOH model is used in higher education this holistic process will be both collaborative and agile (Clegg & Shaw, 2008). The implementation of the CRM system should include a well-organized plan that includes milestones for every stage of the process (Prasad, 1994). However even with the best-designed plan, there are instances when the technology is available but the culture at the institution makes implementation of the software difficult and sometimes impossible (Clegg & Shaw, 2008). Furthermore the end user may not take ownership of the plan and resist assisting with the project (Clegg & Shaw, 2008).

Therefore even though there is support for the need of a new CRM system, it might be difficult to find the necessary support to have the system implemented. For this reason it is important to create data flow and organize the process from both the human and the electronic methods collectively (Clegg & Shaw, 2008). The method for hard coding information has advantages because of the structure. The soft coding method can be more inclusive, but it is more beneficial to find ways to bring the hard and soft coding into alignment. Therefore the process-oriented holonic model becomes the optimal choice (Clegg & Shaw, 2008).

This implementation of the CRM involves more than just the technology; a culture shift and decreasing the perceived potential risk need to be enacted (Ward & Peppard, 2002). CRM also requires relationship marketing to be established as part of the culture (Payne & Frow, 2005). This requires analysis of employee, customer and shareholder value as well as analysis of the environment where the CRM will be implemented (Payne & Frow, 2005). A CRM system also needs to function based on the internal and external systems and therefore requires a business strategy to be incorporated with the IT process (Chen, Mocker, Preston, & Teubner, 2010).

Using the PrOH model to implement a CRM in higher education helps by blending the strengths of the hard methods with those of the soft methods and through this process strengthens the entire design (Clegg & Shaw, 2008). The process is an iterative method that incorporates the action research methodology found in the SSM to overcome the single mode method that is used in the hard methods (Boardman &Cole, 1996).

Implementing this method can incorporate the experience of the practitioner but allows for additional education from the models on how the system operates (Clegg & Shaw, 2008). Practitioners want an easy model that has a structure that can be easily incorporated with other models in an intuitive way (Clegg & Shaw, 2008). Data flows for implementing a CRM may be established, but learning the new software application will be the most difficult part of the process. Additionally, setting up flow charts of the current process and applying the current process models to the new technology and explaining the implications of the necessary changes will provide a great opportunity to observe the PrOH model implementation of the CRM in higher education. In this way the CRM implementation becomes a Holon, where it is part of the current process and part of a new process at the same time (Clegg & Shaw, 2008). The Holon also incorporates the human aspect as well as the current technology and the new technology, making it an effective use of both the hard and soft models for implementation (Clegg & Shaw, 2008).

CONSTRAINTS ON THE SYSTEM

The PrOH model, like every model has constraints because even though organizations may have clear objectives, departments and individuals have their own personal agendas and interests in the implementation of system projects (Melão & Pidd, 2000). These social constructs can limit the success of the information technology delivery. There is a need to evaluate the impact of factors that influence the likelihood of success in information technology delivery.

Using any implementation strategy, hard, soft or blended means a significant strain on the current system during the cross-over to the new process (Choi, Nazareth, & Jain, 2010). The cost of implementation in terms of time and resources can be extreme. However if the benefits to efficiency in the system are calculated, the implementation can save the organization money in the long run (Choi, Nazareth, & Jain, 2010). The analysis may be difficult to calculate for organizations and therefore opportunities may pass until there is no other choice except to upgrade the system. This can be problematic when system upgrades are done when the legacy system is in crisis mode (Choi, Nazareth, & Jain, 2010).

Choi, Nazareth and Jain (2010) recommend using agility which allows for the system implementation to occur quickly to apply the smallest interruption in operations possible because if the system is designed for speed organizations, they can gain a competitive advantage by getting in the operation before the competition (Choi, Nazareth, & Jain, 2010). In higher education, having a fully functioning social network can help with the recruitment of prospective students because few traditional universities have this strategy firmly in place (Zailskaitė-Jakštė & Kuvykaitė, 2010).

RECOMMENDATIONS

The optimal method will be to incorporate the traditional practices that are familiar to those who work in higher education with the new technologies and methods (Cleg & Shaw, 2008). The future for CRM systems will require the implementation of a loosely bounded dynamic system that precisely manages strong business relationships with customers (Keller, Kar, Ludwig, Dan, & Hellerstein, 2002). Utilizing agile methods will integrate more naturally with other systems, however this is also going to open up opportunities for violations in terms of personal information and therefore will need higher levels of monitoring and provisions from experienced project managers (Keller, Kar, Ludwig, Dan, & Hellerstein, 2002). As systems advance, it is difficult to see what difficulties are not being addressed, but by working together it is likely the issues can be identified before the problem gets out of hand and the technology can be adapted as needed (Clemons, 2010).

The social perspective is important for organizations that have a human component that is less concrete, similarly to the environment found in higher education (Melão & Pidd, 2000). The implementation will also require diffusion of the new process into the organization. This diffusion will occur at two levels for the organization and for the industry (Choi, Nazareth, & Jain, 2010). The human component associated with this process is critical to the successful implementation of the technology (Choi, Nazareth, & Jain, 2010).

The organizational diffusion requires integration of the organizational characteristics of the community and the organizational environment (Choi, Nazareth, & Jain, 2010). Therefore, if an organization is risk adverse it is important that the IT implementation strategy align with this structure (Raz, Michael, 2001). The institutional theory helps to align the IT process with the strategy in a cogent way improving the chances of successful implementation (Choi, Nazareth, & Jain, 2010).

The industry diffusion process looks at the success of IT implementation for the industry (Choi, Nazareth, & Jain, 2010). The industry diffusion model is actually easier to implement because the first organization has set the course. The next organization can learn from the mistakes of the first organization. Consequently, it is easier to establish an IT plan as well because organizations in higher education seek industry homogeneity whenever possible (Choi, Nazareth, & Jain, 2010). Choi, Nazareth, & Jain (2010) posit that it is better to adopt a new IT system because it will make the operation run more smoothly, but this is seldom the case in traditional bureaucracy.

ARCHITECTURE

The PrOH model presents the standard by which other models like Checkland and Poulter's (2006) soft model and Melão and Pidd's (1996) hard model can be evaluated against. The architecture for the implementation of a CRM is going to be an advanced design because it will incorporate the new concepts in modern management science with an effective customer relationship strategy (Zhao-hong, 2010).

The CRM process has changed over the past decade and will continue to evolve. This process will work best by using the PrOH method because its method of establishing the needs based on action research and incorporating the best process flows will lead to progress for the field (Boulding, Staelin, Ehret & Johnston, 2005). The intention is that more agile methods will be introduced to impact the development of CRM for organizations (Hoffer, George, & Valacich, 2011).

Organizations do not like to be the early adopters of new models because the implementation is longer and this means the operations in the organization will be unstable for longer (Choi, Nazareth, & Jain, 2010). Therefore it is important for organizations not to be easily swayed by vendors who make huge promises and do not discuss complications that could arise (Choi, Nazareth, & Jain, 2010). It is always best to consider the human as well as the technological constraints of any new system design. This paper offers a comprehensive view of the hard and soft models and shows how the benefits of each can be incorporated into one Holon model that takes all the parts of the system and uses them together implementing the PrHO Model.

CONCLUSIONS

To effectively integrate technology within the business model, the structure must support the business process and assist in meeting the organizations objectives (Clemons, 2010). Therefore the governance structure must support the IT initiatives. If the mission of the organization includes improving the IT process to meet the objectives, this will ensure the success of the implementation (Clemons, 2010). Finding ways to get the end users involved with the process is paramount to the success of the project (Chen, Mocker, Preston, & Teubner, 2010). Each member needs to understand how the IT change will impact their workday.

To get stakeholders involved with the implementation plan from the beginning it works best to create cross-functional teams made up of individuals from the affected departments, peers from other universities and outside vendors, when possible (Chen, Mocker, Preston, & Teubner, 2010). Using key clients and stakeholders creates the opportunity to share effective business practices and insights based on the collaborative work of the group (Chen, Mocker, Preston, & Teubner, 2010). The cross-functional team planning should first establish targets for improvement in the system and establish the objectives for the project showing where each aligns with the overarching mission of the institution (Clemons, 2010). In this way there will be buy-in at each level of the project.

Most organizations fail to look to the literature for ideas on how to implement projects leading to system failures because without aligning the business process to the organizational strategy the project is likely to be underfunded at all levels (Hoffer, George, & Valacich, 2011). The stakeholders need to be informed and need to see the value in the implementation and this buy-in comes from active regular involvement at all levels of the project implementation. This inclusive process allows the soft model to reign supreme. This is not to undermine the need for hard work and the hard data to ensure the model has the substance necessary so the plan can be successfully implemented (Melão & Pidd, 2000).

Even when an IT plan is implemented, it still needs to be maintained with a process for planned improvement and integration. Therefore the model should attempt to avoid keeping information proprietary and whenever possible the system should include a common language that can be used across industries so that other systems can be built to interface with the implemented system (Kroenke & Gray, 2006). The most difficult problem always hinges on understanding of terms and vocabulary and therefore finding a way to speak the same language is more than half the battle (Kroenke & Gray, 2006). This concept is difficult to get across to the business minded individual because of the fear that others will copy ideas.

It is important to understand that the best ideas will be copied and the originator is still reaping the benefits (Raz & Michael, 2001). One can just look at the credit card division that Ford created which was then copied by GM (Raz & Michael, 2001). When GM copied the strategy of establishing a credit card that gave discounts on cars for using the credit card, it strengthened the awareness of Ford's product in the market (Raz & Michael, 2001). Ford and GM both benefited from this new business division. Individuals need to stop looking out for their own best interest long enough to see how the entire industry could benefit from innovation (Raz & Michael, 2001). Unfortunately in most American industries this idea not part of the culture (Tsung-Yi, Tsaih, & Yuh-Min, 2010).

Trying to create a model of change can be very difficult because in many cases all of the information depends on the situation. But, if IT can figure out a way to make systems more intuitive, more interactive and more collaborative a structured system can easily adaptable to any project and will benefit the society in general. IT can revolutionize any the business industry. Unfortunately in higher education, the culture is not designed to allow this open format and internal competition sometimes limits the effectiveness of the plan. Times are changing and it seems that resistance is weakening.

All IT models, including the PrOH model, have risks that need to be considered. The PrOH model has the benefits of blending the best of all the approaches into one process which helps to mitigate the risk. Therefore PrOH model gives and organization the opportunity to thrive even during time of uncertainty.

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THE SUPPLY CHAIN IDEA: WHERE IT'S AT AND WHERE IT'S GOING

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ABSTRACT

The supply chain idea is a great success. The idea arose in the US in complex manufacturing industries like auto manufacturing and consumer electronics and has spread to many more industries and types of organizations. These developments might lead one to expect that the supply chain idea will be common in many profit, non profit, and perhaps even governmental organizations – a clean sweep. Such a prediction would be premature as there are powerful forces and movements that will guide supply chains in an entirely different direction. The paper ends by looking at where SCM might be heading.

INTRODUCTION

Supply chain management [SCM] is based in a simple idea: Organizations can be more effective if the activities of the producing organization, supplier organizations, and distributing organizations cooperate to produce a service or product. The emphasis is on cooperation. Furthermore, closely coordinating their activities will result in organizations producing better outcomes than otherwise. SCM also presumes that the producing organization is also the designer - or maestro - of the supply chain.

The term "supply chain idea" will be used here to refer to the core of the definition of SCM -- the cooperation and coordination of organizations involved in making and providing a certain product or service.

This paper looks at the development of the supply chain idea with an emphasis on the present and future. The sources for these ideas come mainly from developments reported in the business press. The latter half of the paper looks ahead to how US supply chain management might look like in the future.

EARLY USES OF THE SUPPLY CHAIN IDEA

Current supply chain ideas and practices arguably have at least two precursors: US supermarkets chains, such as A & P, and the Japanese trade organizations, such as Sumitomo Corporation. Both types of organizations had well developed supply chain practices. However, my focus in this paper is on the period when SCM got its name and began developing explicit ideas and practices – around the mid-1980s when Japanese mass manufacturers began marketing their products in the US became noticed. Before that period, US mass manufacturers had developed their own, very different, practices with suppliers, distributors, and retailers.

With the rise of sales of Japanese mass products in the US in the mid-1980s, many in the US took notice. Many saw Japanese manufacturing practices as different – and superior – to US practices. Some researchers and executives asked, What are they doing that's different and that makes them better than us? Writers and researchers were happy to investigate and discuss such differences. One difference among many that they pointed to was the difference in how Japanese manufacturers, such as Toyota and Honda, worked with and treated their suppliers, distributors, and retailers. It became clear that Japanese mass manufacturers gave a lot more thought and work to building a network of suppliers and distributing organizations than US organizations.

CURRENT USES OF THE SUPPLY CHAIN IDEA IN THE US

Supply chain thinking – or use of the supply chain idea – is now well known and common in a variety of US industries and markets. This section of the paper will briefly illustrate the variety of organizations that use the supply chain idea. They include for profit, non-profit, and governmental organizations.

This section will summarize use of the supply chain idea by: big box retailer, such as Wal-Mart, chain supermarkets, eCommerce firms, hospitals, pharmaceutical houses, providers of digital contents, such as Disney, disaster relief organizations, and the local food movement. Some of these organizations use the supply chain idea explicitly while others practice the idea but don't apply that label.

Big box retailers. Chain retailers such as Best Buy, Home Depot, and Wal-Mart, are earnest practitioners of the supply chain idea. Of these Wal-Mart is the most polished and indeed is acknowledged to be the master of SCM. Wal-Mart works closely with suppliers to, for example, find new products, lower prices, examines supplier financial records to find ways to lower supplier costs, etc. Wal-Mart has sought to introduce RFID to suppliers so as to make a product's travel in the supply chain more easily visible, worked with suppliers to help them reduce energy and packaging use, has re-thought and redesigned warehouses so as to increase inventory velocity, and XXX. Wal-Mart is a good example of an organization that gives serious attention to its supply chains.

Chain supermarkets. Before WW II and before the rise of the supply chain idea, large chain supermarkets like A & P worked closely with suppliers to assure a steady flow of products to their stores. Since supermarkets rotate inventory quite often -- twice or more a week – managing supplies and suppliers has been a familiar concern to them. Not surprisingly, all large supermarket chains give a lot of concern to working with and developing suppliers.

Hospitals and the big pharmaceutical houses. Hospitals, which use hundreds if not thousands of supplies, have also long been practitioners of SCM in purchasing supplies. As hospitals have increasingly formed alliances with other hospitals, a common tactic has been create a common purchasing organization for the group so as to enjoy scale economies and higher purchasing power. However, hospitals have another concern and that is to ensure that their supply chains are not subject to tampering, or aren't fakes.

eCommerce. Supply chains in eCommerce include physical portions – from manufacturer to distributor to the eCommerce firm, as well as a digital portion which includes marketing and related activities that center in a web site. The "last mile" to the customer is reached with the use of a parcel delivery service such as the USPO, UPS, or FedEx.

eCommerce firms face the usual tasks of maintaining their supply chain in their distribution centers and delivery as well as the challenges of connecting electronically with customers.

Distributors of digital content. Some US firms explicitly see themselves as managers or maestros of digital supply chains. Digital supply chains involve the aggregation of rights to digital content such as books, music, images or videos which are stored on their own servers and distributed electronically.
Examples of firms with sizeable digital supply chains include Disney, Netflix, Amazon, and Hulu. Disney, for example, sees itself as managing physical as well digital supply chains and designs each network separately.
It is interesting to note that the federal government is supporting efforts to build electronic health records in hospitals. If such efforts succeed they may well develop digital networks of health records between government agencies, insurance firms, hospitals, and other related organizations.

Disaster relief. Disasters and disaster relief pose some unusual and pointed challenges: the need for a rapid response, often in very difficult situations and the difficulty of coordinating relief efforts. Some who study past disaster relief efforts have come to frame them in the supply chain concept. INSEAD with its humanitarian logistics studies is notable in this regard.

Two major practices have come out of such ongoing studies: prepositioning and better coordination of volunteer relief agencies. Prepostioning involves identifying possible sites that may have natural disasters then storing needed equipment, supplies, etc in a nearby location. So the prepositioning site for Haiti was Miami, FL, where the Red Cross had stored relief equipment and supplies and had accounts in Miami banks.

To avoid confusion and duplication of efforts, the Red Cross has asked each volunteer agency to select a relief area they want to work in - before a disaster. This prevents duplication, confusion, and allows better coordination during the relief efforts.

Local food movement. The local food movement is responding to several disparate goals. Some who push local food do so to get fresher, more natural, and tastier fruits and vegetables than what can be bought at the local chain supermarket. Others want to work with and help local farmers. Still others are concerned about the possibility of bad fruit and vegetables in the food chain and on being able to identify it and remove it.

Summary: Where is SCM now? The above brief discussion has said that although the supply chain idea has been practiced for some time, perhaps beginning with the logistics used by Alexander's army, the supply chain idea developed in the US around the middle 1980s and has spread to a number of industries and activities. What is the future of SCM in the US: will SCM continue to be used by even more industries, types of organizations, and in more markets? The next section discusses that question – with some surprising twists.

WHERE IS SCM GOING – THE FUTURE OF SCM

Will we see a further spread of the supply chain idea in the future? Given the globalization of many industries, will the supply chain idea "take over"?

The answer I provide below is: yes and no. This section will paint a broad brush picture of the future of SCM in the US and perhaps other developed countries.

Increasing and wider use of the supply chain idea. The first force we can see continuing is the further spread of supply chain thinking and its spread to other types of organizations. Wherever an organization seeks to provide a service or product, it must in most cases deal with other organizations. And here is where SCM proves its value: organizations that must rely on suppliers and distributing organizations will find it useful to do so under the overarching idea of a supply chain or network. In other words, it will make sense for organizations to see themselves as a major partner in a supply network.

Why? The supply chain idea promises desirable outcomes that can't be ignored. It simply says that things go better for organizations if they cooperate and coordinate with their supplying and distributing partners. Where the producing organization designs a supply chain it can more productively achieve its organizational goals. These goals may include high quality products or services, introducing new products more quickly, introducing novel products, lowering costs and/or prices, or some other goals. Designing a supply chain helps assure that the goals of the supply chain and of the organization will be achieved. So we can expect to see the spread of the supply chain idea -- along with its values of cooperation and coordination among complementary organizations.

Shorter supply chains. It is commonplace to think of long, if not very long, supply chains – e.g., fresh food from Mexico or Chile, clothing, consumer electronics, and household products from China or other parts of East Asia, etc. However, long supply chains are based in several assumptions about the future that will be increasingly questioned:

- energy, especially petroleum-based, will be reasonably priced and readily available;
- wages will remain low in China and other East Asian countries relative to US wages;
- disruptions of long supply chains by natural or other causes will not be major and can be overcome;
- use of petroleum based energy will not be taxed; with the result that
- offshoring of US and European manufacturing will continue;

The first force altering future supply networks may be the imposition of a carbon tax as a way of paying for the pollution caused by ship, train, and truck transport. Increasing concern about petroleum-associated pollution and its effects on climate, will make long and very long supply networks less feasible.

The second force will be the future equalization of global wages. Average US manufacturing wages are falling while wages in Asia, especially China, are rising. At some point total costs of long supply networks - especially for low labor content products - will equalize between the US and Asian countries.
The fourth force promoting shorter supply chains will be the possibility of supply chain disruptions from natural disasters and the difficulty of recovering from them. Supply chain managers have witnessed several severe supply chain disruptions:

- the 2011 and 1993 floods of the Mississippi River severely disrupted train, truck, and barge traffic;
- Hurricane Karina in 2005 stopped truck, rail, port, and barge traffic, among other disruptions;
- Honda and Toyota parts and auto production were greatly affected by the 2011 Fukushima earthquake.
- Supply chain managers are becoming much more aware of the fragility of supply chains. Increasingly, supply chain managers weigh the benefits of long supply chains against the costs of rebuilding severed ones.

Last, although world supplies of gas and petroleum are increasing with increased Arctic exploration, sea exploration, and shale oil discoveries, such supplies will be more costly than current supplies. Consequently, oil and gas may be available in the near future – but at higher, perhaps much higher, costs and prices.

Local manufacturing. There are two additional movements that will shorten and "pull in" supply chains: increasing use of automated, digitized "idea-to-shop floor" manufacturing, and the rise of local, that is US based, contract manufacturers. These two movements and the above forces together will encourage "backshoring" or "reshoring," returning some manufacturing to the US.

"Idea-to-shop floor" manufacturing makes it possible to design and manufacture one -- or many copies -- of a product – with minimal human help. It is now possible to design a part using CAD software, transmit the design electronically to a machine which, with the help of a three- dimensional "printer," will make the product – one or a thousand copies, and require few workers to aid or supervise the process. 3D printers, which can make a product from a variety of materials including plastic and metal, are falling in price; some costing less than $10,000.

Let me add that idea-to-shop floor manufacturing also plays into US manufacturing's strengths: it requires highly specialized workers to write the software; design and make the machines; as well as highly trained workers to assemble and operate the manufacturing system. Furthermore, such manufacturing holds the possibility of bringing manufacturing back to the US, albeit in a much form different than the old manufacturing.

The shift to local manufacturing will be aided by the rise of local subcontract manufacturers and assemblers, often located nearby the producing organization.

CONCLUSIONS AND IMPLICATIONS

The foregoing discussion has at least three implications for SCM practices, the study of SCM, and for economic policy.

First, the SCM field needs to consider the possibility that future supply chains may likely look very different that current ones, that is, they will likely be much shorter and therefore simpler. Rather than seeking to minimize energy use in each segment of a supply chain, future supply chain managers will see to minimize total energy use over the entire supply chain.

Second, much of SCM as taught in colleges and universities focuses on its use in mass manufacturing and distribution. This paper has argued, however, that supply chain thinking has been extended to a variety of organizations, markets, and activities – non-profit and governmental organizations; digital content and eCommerce, local food chains, big box retailers, and disaster recovery. Students should come to know that SCM is much more flexible than as it's currently taught.

Last, the foregoing ideas have implications for US economic policy. It will be, and is now, possible and feasible to have local manufacturing. A combination of forces, including the low prices of 3D printers and the presence of local contract manufacturers and assemblers, will together make local manufacturing more feasible. This possibility in turn suggests economic policies that support and favor such developments. Much of future US manufacturing will be local, require highly trained workers, flexible, and will rely on local contract assemblers. The model for future supply chains may be the local food movement where food is raised and distributed locally. Future manufacturing may have a similar look.

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THE EVOLUTION TO THE CLOUD – ARE PROCESS THEORY APPROACHES FOR ERP IMPLEMENTATION LIFECYCLES STILL VALID?

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ABSTRACT

Enterprise Resource Planning Systems (ERP) have been implemented for the past 15 years in both large-scale and Small & Mid-size Enterprise (SME) organizations. The implementation processes have evolved as the result of perilous attempts as organizations encountered numerous problems, financial strains, organizational difficulties, organizational cultural challenges, resulting in successful implementations but also failures to the extent of bankruptcy filings. There have been a number of process theory approaches developed to support these implementation efforts in traditional infrastructures, greatly reducing the risk of failure during the past decade. Concomitantly, a possible paradigm shift is in the evolutionary process with the emergence of Cloud ERP systems. Cloud systems are ERP operations that are hosted remotely and the vendor provides all systems software, maintenance, backup and security.

This paper will examine the various process theory methodologies available to ERP implementation project teams, Champions, consultants and software vendors, as alternative approaches for a successful implementation. The paper will explore if these process theory approaches are still valid given the movement to Cloud hosting and the perceived need for acceleration in implementation processes for cost and productivity purposes.

INTRODUCTION

From an enterprise systems research perspective, small and medium sized enterprises (SMEs) are the leading market segment of organizations that provide a wide variety of researchable theories and experiences. Not only are these organizations crucial to industrial economies, but also demonstrate operational qualities that promote cause and effect relationships that are proving to be enormously interesting to researchers (Katz, Aldrich, Welbourne and Williams, 2000).

"SMEs' performance is essential for the development of any country's economy" and establish a foundation for future economic growth and prosperity with their development into large enterprises as we consider the current global economy environment (Abouzeedan and Busler, 2004). Statistics indicate that historically most new businesses do not survive the first five years of operations (Castrogiovanni, 1996; Monk, 2000).

If a higher proportion of these fledging enterprises survived and grew into global economic competitors there would be a very positive impact on the global economy (Monk, 2000). The operational enterprise must be able to create, analyze and ultimately utilize business information systems reflecting its operations to provide quality leadership in products, improve business processes, enhance its supply chain, and create better customer relationships; this is crucial to compete and survive(Schubert & Leimstoll, 2007).

The majority of ERP systems were implemented in large-scale organizations in the mid to late 1990's to the current day and generally were done to: 1) overcome the millennium date problem (often known as the Y2K initiative), 2) resolve issues of disparate systems within the organization, 3) resolve poor quality/visibility of information, 4) resolve lack of business processes and/or systems not integrated, 5) replace obsolete systems, 6) assist in integrating acquisitions, and 7) resolve issues of lack of support for organizational growth (Deloitte, 1999; Plant & Wilcocks, 2007).

Without due diligence, many organizations will find the ERP software system dictating the operational aspects of the business (Bajwa, Garcia & Mooney, 2004). Consequently, the challenge for the adopting organization is to properly choose how various processes will be implemented within the programmatic (configuration) options. Furthermore, it is critical how these options are selected to maximize the efficiencies and effectiveness of the organization (Shanks, Parr, Hu, et. al., 2000).

Given these factors, issues related to user satisfaction and perceived usefulness in the ERP implementation must be considered (Zviran, Pliskin, & Levin, 2005). Even considering the highly configurable nature of ERP systems (Bancroft, Seip & Spregel, 1998), the inherent data structures, programming code, and existent assumptions about business processes can impose a behavior on organizations that many management teams will find difficult to adopt (Piszczalski, M., 1997; Al-Mashari, Al-Mudimigh & Zairi, 2003).

A significant number of organizations, for existing legitimate managerial reasons: financial, personnel, infrastructure resource limitations, etc. have not considered adoption of a new or upgraded system (Adam and O'Doherty, 2000). It is important to note that simply having an accounting information system (AIS) is not the equivalent of implementing a true ERP for the enterprise. AIS are typically a component, module, or subsystem of a complete ERP system.

Certainly, some SME organizations were compelled, or were in a position to be strongly influenced by a vendor/client relationship in their value chain to adopt a particular system, even though it may not be the most appropriate fit. Some SME organizations may be legal units of some larger organization and may be essentially forced to adopt a particular enterprise solution to remain within the strategic goals of the parent organization. It has been suggested by other researchers (Sistach et. al. 1999; Sistach and Pastor, 2000) that this phenomenon may also occur in Supply Chain Management (SCM) situations and other modules.

There are numerous critical success factors (CSF) affecting successful implementation of ERP programs into any organization. Numerous studies have addressed these CSFs for the larger scale market. These CSFs have not been fully identified and described for the SME market. A research effort (Argyropoulou, Ioannou, & Prastacos, 2007) specifically addressing SME implementations, reported that these organizations were much more likely not to use a structured methodology for implementation. Further the study reported that SMEs were either not familiar or unsophisticated with techniques such as business process reengineering (BPR) and change management.

The Data Envelopment Analysis (DEA) model was developed in 2004 to help mid-size organizations select ERP systems to best assess costs with capabilities/services to evaluate relative performance. Most SME firms lack the technical and financial resources to make the appropriate selection of ERP software. Historically SME IS professionals often used software selection guides or surveys to choose an organizational software package (Fisher, et. al., 2004).

SMALL AND MEDIUM ENTERPRISES (SME)

Many organizations are aware of limiting factors, subsequently cautious and hesitant to implement new ERP solutions due to well publicized problems and failures, and the financial and technical resources necessary. However, SME organizations are in a unique position to leverage this risk and financial commitment with a significant opportunity to gain a considerable competitive advantage and exploit future system evolutions by adopting ERP "best practice" systems (Wang, Ragsdale, & Schuler, 2006).

SME organizations – marketplace definition

The market segments for software products, particularly ERP solutions, are differentiated into several strata including: large organizations, SME organizations, and SMB markets. There are no generally accepted definition parameters of SMEs in the United States, including the federal government (Ou, 2006).

The following distinctions in market profiles are adopted for this paper and were sourced from the *Journal of Accountancy* (Johnston, 2003). *Large organizations* typically implement full ERP software applications and have annualized sales in excess of $500 million, and have more than 500 employees. *Small to medium enterprises* (SME) have sales up to $500 million, and have no more than 500 employees. This stratum represents more than 84,000 U.S. companies. *Small to medium businesses* (SMB) have sales up to $100 million, and have no more than 100 employees. This represents more than 516,000 companies in the U.S. SME organizations that have < 500 employees and <$500 million in annualized sales is the focus and definition adopted within this research.

SME organizations – ERP perspectives and challenges

In March 2006 a report was released: *Thinking big: Midsize companies in the United States and the challenges of growth*. The Economist Intelligence Unit interviewed 240 U.S. senior executives from a total 3,722 global midsize company business executives using similar SME segment parameters. These firms indicate an aggressive expansion of their customer base using a strategy of product and service diversification to secure new geographic (global) markets.

The keys to successfully infusing this strategy are: improved operating efficiency, excellent work force, and *critically efficient information technology infrastructure* (Ramaswani, Holloway & Kenny, 2006). The executives identified growth priorities substantially influenced by a strong IS environment and information systems. The executives indicate IS are critical to enabling growth (76%), and a deficiency of talented staff (36%) to manage the growth and constraints such as resistance to change and lack of technical skills, are major impediments to IS investment (Ramaswani, Holloway & Kenny, 2006).

The Aberdeen Group (2006) provided their *ERP in the Mid-Market* benchmark report. Their definition of SMEs was much larger but findings were similar in most regards, but did focus more on the larger companies that tended to be financially and organizationally related to larger Fortune 1000 and S & P 500 type organizations. There were noteworthy analytical points, such as the correlation between ERP functionality utilized and company size. Their analysis demonstrated that functionality rose steadily and peaked at the $100-$250 million size organization (the typical definition of an SME), and then dropped. They concluded these companies did not have unlimited resources like their larger competitors, but have sufficient resources to maximize their implementations value and have learned to leverage these investments, with a greater incentive for productivity and efficiency (Aberdeen Group, 2006).

Forrester Research (2011) created a report: *The State of ERP in 2011: Customers Have More Options in Spite of Market Consolidation* addressing the current status of ERP system offerings and examined the possibility of S*oftware-as-a-Service (SaaS)*, i.e. cloud applications and their viability in the current marketplace. "Companies need to rapidly respond to an ever-increasing amount of geography- and industry-specific change in the global economy. It's vital that organizations have flexible ERP systems so they can plan for these market shifts—like facing a new set of competitors as a result of industry consolidation or complying with increased government regulation—and move quickly to address them".

Hamerman & Martens (2011) indicate in the above study that the ERP market is predicted to shift from licensed to subscription model in five years, i.e. user organizations will consider the SaaS/Cloud model much more viable given constraints. The global ERP market will grow to $45.5bn in 2011, and to $50.3bn by 2015, according to the report. This growth follows the trend of the ERP market size which has been growing steadily over recent years with $43bn in 2010 and $40.6bn in 2009.

THE CLOUD

The concept of The Cloud has metamorphosed over the past decade, working through three titles: Application Service Providers (ASP), Software-as-a-Service (SaaS), and now finally The Cloud. There are subtle differences between these terms, but all revert back to the same basis; providing IT services to a client base by providing the software system on a license basis rather than selling the system to the client.

Cloud Computing was first identified in an academic context by Prof. Kenneth K Chellapa. The venue was the 1997 Informs Conference in Dallas was described as "a computing paradigm where the boundaries of computing will be determined by economic rationale rather than technical limits". This description is probably more simplistic than the various definitions offered by other authors, researchers, internet sources, vendors, and the NIST.

The National Institute of Standards and Technology (NIST) created the following document establishing a standard for the cloud: National Institute of Standards and Technology Special Publication 800-145 (2011). The National Institute of Standards and Technology (NIST) developed this document in furtherance of its statutory responsibilities under the Federal Information Security Management Act (FISMA) of 2002, Public Law 107-347.

"NIST suggested this informal definition to enhance and inform the public debate on cloud computing. Cloud computing is still an evolving paradigm. Its definition, use cases, underlying technologies, issues, risks, and benefits will be refined and better understood with a spirited debate by the public and private sectors. This definition, its attributes, characteristics, and underlying rationale will evolve over time" (2011).

The NIST definition of Cloud Computing

Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model promotes availability and is composed of five essential characteristics, three service models, and four deployment models (2011).

Essential characteristics

NIST defined the Cloud as having five essential characteristics: 1) on-demand self-service, 2) broad network access, 3) resource pooling, 4) rapid elasticity, and 5) measured service. These characteristics deal with the consumer/client having the ability to acquire computing capabilities automatically as necessary. These capabilities would be available over the internet and accessible using standard computing and communication products such as laptops, PDAs, iPad and similar, and smart phones. The service provider possesses various resources that are pooled to serve multiple user/organizations, and those users generally have no control or knowledge of the exact location of the resources. The capabilities are scalable and easily and quickly expanded to meet needs. Finally, Cloud systems automatically control and optimize resource usage.

Service Models:

Cloud Software as a Service (SaaS). Essentially the system user accesses the provider's applications running on a cloud infrastructure. The applications are accessible from various user devices and utilize a web browser (e.g. IE, Firefox, Safari). The user has no role in the management or control of the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities. The user may be able to access and customize limited user-specific application configuration settings.

Cloud Platform as a Service (PaaS). This approach is similar to the SaaS model. The difference in model is the capability for the user is to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages and tools supported by the provider. The user has no role in the management or control of the underlying cloud infrastructure including network, servers, operating systems, storage, but has control over the deployed applications and possibly application hosting environment configurations.

Cloud Infrastructure as a Service (IaaS). The final model approach has the user in the position to license processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software. This software may include operating systems and user applications (e.g. ERP). The user has no role in the management or control the underlying cloud infrastructure, but importantly has control over operating systems, storage, deployed applications, and possibly limited control of select networking components (e.g., host firewalls).

Deployment Models:

Private cloud. The cloud infrastructure is operated solely for an organization. It may be managed by the organization or a third party and may exist on premise or off premise.

Community cloud. The cloud infrastructure is shared by several organizations and supports a specific community that has shared concerns (e.g., mission, security requirements, policy, and compliance considerations). It may be managed by the organizations or a third party and may exist on premise or off premise.

Public cloud. The cloud infrastructure is made available to the general public or a large industry group and is owned by an organization selling cloud services.

Hybrid cloud. The cloud infrastructure is a composition of two or more clouds (private, community, or public) that remain unique entities but are bound together by standardized

or proprietary technology that enables data and application portability (e.g., cloud bursting for load balancing between clouds).

Cloud cost considerations:

The cost structure for SaaS (cloud) does not have a direct correlation to the operating and capital cost structures of traditional ERP hosted systems. With traditional systems the user/client typically purchases the software system license (on an application or total system basis) and incurs all the other costs separately. Typically these other costs include: infrastructure costs related to hardware, network, storage, operating systems, and implementation, maintenance and post implementation support costs. It is not unusual for the system software license cost to comprise as little as ten percent of the total system cost.

In contrast to the traditional ERP (hosted model), the Cloud application provider generally includes a majority of these "other costs" within the monthly user fee. Often the perception by a potential cloud application user is that a SaaS/cloud ERP software system is very expensive, compared to traditional software. ROI and cost of traditional ERP systems could be hidden or not correctly allocated. The cost of in-house operators, servers, and storage are frequently not considered providing misleading total costs and metric analysis.

ERP IMPLEMENTATION

Historical perspective

In a classic MIS article, Kydd (1989) suggests that" failure to address the uncertainty and equivocality that exist during the development and implementation of a new management information system is a major reason why projects fail". *Implementation* as a process has different definitions and connotations, spanning from the fully encompassing process of selection and ultimate upgrades years hence, vs. a very narrowly defined step in one project phase. This paper will adopt the broader, fully encompassing process approach definition that includes a complete process theory ERP lifecycle.

Supporting research indicates a sound IT strategy is linked to a full understanding of any organization's business strategy. "IT strategy is the alignment of the information technology infrastructure and investment with the business' strategic direction" (Norris, Wright, et. al., 1998). ERP popularity can be traced to greater global organizational activity, mergers and acquisitions, short product life cycles, and system disaster fears from older legacy systems (Bingi, Sharma, & Godla, 1999).

There are a number of primary reasons to implement an ERP system (Nadkarni & Nah, 2003). ERP can integrate disparate domestic and global systems under one enterprise operation, resulting in one consolidated database and the elimination of "islands of automation" (Kerr, 1988) that so politically and operationally plagued IS systems in the 1975-2000 time frames. Secondly, the "Y2K" date bug was effectively eliminated, and the organization/enterprise was expected to benefit with greater functionality and improved business processes; although fueling the original efforts, this not no longer exists as a major implementation factor.

Too often ERP solutions were viewed by a majority of enterprises as a panacea for their organizational ills. Many of these implementations were failures (at one point in the late 1990's the failure rate was approaching 70% by some professional estimates) for any number of reasons, while some implementations were limited successes. There were many implications to managements of these organizations and they also had a profound effect on the accounting functions and financial and managerial reporting efforts. The literature reports have identified countless successes and failures. Some have been such monumental failures that lawsuits were filed and some organizations have been forced into bankruptcy proceedings (e.g. FoxMeyer Drugs driven into bankruptcy, 1998) from the subsequent business difficulties. Several implementations like Hershey's have seen copious financial losses while others encountered extensive costs when the realization that the software would not fit the organization's needs, similar to Dell's circumstances (Bingi, Sharma, & Godla, 1999; Esteves, & Pastor, 1999; Shang, & Seddon, 2000; Umble, & Umble, 2002).

ERP systems have taken a more dramatic role than originally envisioned in the early 1990s. Organizations are rapidly being tested and asked to respond with qualified and well-trained professionals utilizing complex information systems (ERP) to meet not only the daily informational and operational needs, but also an ever-expanding governmental compliance initiative, e.g. SOX 404 compliance. Consequently, managements are facing an increasingly dedicated technological environment with significant challenges. In the last 18 years (1990 – present), information technology provided a methodology for contemporary organizations to integrate supply, production, and delivery processes. Prior competitive advantage in these organizations was persistently maintained with the previous deployment of technology into physical assets and excellent balance sheet management, but this could no longer be the champion of growth and management (Kaplan & Norton, 1996; Swanson & Ramiller, 2004).

A fully integrated ERP effectively defines the tasks and objectives of an organization. "The information age organization operates with integrated business processes that cut across traditional business functions. It combines the specialization benefits from functional expertise with the speed, efficiency, and quality of integrated business processes" (Champy & Hammer, 1993). Additionally "all employees must contribute value … by the information they can provide. Investing in, managing, and exploiting the knowledge … has become critical to the success of information age companies" (Kaplan & Norton, 1996; Jacobs & Whybark, 2000). In contrast to ERP, *legacy systems* are long-tenured, non-ERP, dedicated mainframe systems where each organizational subdivision may have its own dedicated computer system, often not integrated with other systems. Historically these have also been referred to as "islands of information" or "islands of automation" (Kerr, 1988).

ERP has been historically touted as cheaper to purchase and install/maintain than to classically construct legacy systems that are replaced, thus appearing to be a panacea to large and complex organizations (Nah & Delgado, 2006). ERP are perceived to be highly flexible and adaptable. History has proven ERP can generate organizational behavior restrictions, and behaviors that organizations did not expect. The discipline of the programming code, the DBMS complex data structure, the intricate integration of applications, and built-in assumptions of normal business processes, can and have taxed and frustrated many organizations.

"First/Second/Third Waves"

The "First Wave" of ERP implementation presented a fundamental transformation of any organization. Adoption and implementation of ERP systems experienced the "First Wave" as a far-reaching scope of business processes impact, and generates a paradigm change to businesses/organizations simply due to the magnitude of the changes. The efforts were predominately focused on the technical aspects of the implementation, i.e. software, infrastructure, basic training initiatives. However the business process changes envisioned and deemed necessary usually generated low priority. Hence, business process changes and operational enhancements were fundamentally deferred and became the major factors of the "Second Wave".

Marketers, researchers, practitioners, and software vendors coined the "Second Wave" and "Third Wave" of ERP implementations during the past 8 years. These characterize the time frame in the system implementation and operation, after the base system has been installed, and the "go live" point has occurred, and refer to major updates and enhancements to the software. These normally include business processes such as the implementations of Customer Relationship Management (CRM) and Supply Chain Management (SCM) modules. These efforts all provide *value-added* contributions to the ERP system and take the organization to the point of leveraging the system for overall operational and financial gains, i.e. ROI opportunities and value chain optimization (Hawking, McCarthy & Stein, 2004; Stein, Hawking, & Foster, 2004, 2003; Smith, & Fingar, 2003; Deloitte Consulting, 1999).

In summary, companies were seeking *efficiency* benefits, higher-order *effectiveness* benefits, and ultimately *transformation*. Transformation is the ability of an organization/strategic business unit to fundamentally change how they conduct their business and associated processes (Deloitte Consulting, 1999).

Success and failure parameters

The ERP implementation efforts suggest an essential issue: "the key questions about enterprise systems from the perspective of an adopting organization's executive leadership are questions about success" (Markus & Tanis, 2000). These questions are also posed by others (Davenport, 2000a, 2000b; Deloitte Consulting, 1998; Markus & Tanis, 2000; Ross & Vitale, 2000) all noting the multidimensional accrued benefits of these systems, running the spectrum of operational improvements to enhanced decision support systems for strategic goals.

Deloitte Consulting (1998) published a study that was based on in-depth interviews of 62 Fortune 500 companies, and although not an academic composition, it is accepted in the ERP industry, academics and professionals serving the industry as a benchmark publication in ERP implementation efforts. The study concludes: "Until now, conventional wisdom saw going live as the end. In sharp contrast to this view, our study uncovers at least two distinct waves of ERP enabled enterprise transformations. The First Wave refers to the changes to an organization that include and accompany going live with ERP. The Second Wave, on the other hand, refers to the actions that are taken after going live that help organizations achieve the full capabilities and benefits of ERP enabled processes" (Deloitte Consulting, 1998).

Success in information systems (IS) implementations has long been a focus of academic research efforts (Lyytinen & Hirschheim, 1987; DeLone & McLean, 1992, 2003; Ballantine et. al., 1996). Others research efforts focused on the measurement of success, antecedents and explanations of success or failure (Markus, Axline, Petrie & Tanis, 2000; Koh, Soh, & Markus, 2000). The exigency affiliated with success or failure in ERP systems results from the inherent risks and colossal costs, sometimes rivaling the expected benefits of these systems. In many cases, failures have led to losses and bankruptcies (Bulkeley, 1996; Davenport, 1998; Bingi, Sharma, & Godla, 1999; Esteves, & Pastor, 1999; Markus & Tanis, 2000; Ross & Vitale, 2000; Shang, & Seddon, 2000; Davenport, 2001; Umble, & Umble, 2002).

There are different dimensions, e.g. technical, financial, economic, operational or strategic that can be assessed to measure success in ERP implementations (Markus, et. al., 2000). Success can and should be measured at different time points (Larsen & Myers, 1999) to assess value, with evidence pointing to changing levels, e.g. early failure but later success. Paradoxally, research indicates performance slides after initial implementation with moderate to severe business disruptions (Ross & Vitale, 2000).

ERP IMPLEMENTATION – LIFECYCLE MODELS

The literature on ERP lifecycle models is somewhat dispersed with the resulting absence of a generally accepted enterprise lifecycle model (Rosemann, 2003). This is curious considering the extensive research conducted on systems analysis and design and software development without a significant effort towards the management of enterprise systems (Gable et. al., 1997; Klaus, Rosemann, & Gable, 2000). Currently, there are a number of software development models, (e.g. waterfall model, spiral model), but no standardized ERP lifecycle model. There is a concentration on implementation issues and critical success factors both in the literature and the trade press (Bingi, Sharma, & Godla, 1999; Holland, Light & Gibson, 1999; Stefanou, 1999; Sumner, 1999; Nah, Lau & Kuang, 2001; Umble, Haft, & Umble, 2003). Process theory in a case study (Koh, Soh & Markus, 2000) was contrasted with variance theory utilizing a ERP process model. Several authors (Shanks et. al., 2000; Markus & Tanis, 2000; Nah & Delgado, 2006; Plant & Willcocks, 2007) stress the point that an ERP implementation project is best conceptualized as a business project and not simply the installation or update of an innovative technology.

Cooper and Zmud (1990) developed one of the first ERP related models that includes the following six lifecycle stages in an ERP implementation: 1) *initiation phase* – establishing the business case and identifying the problems and opportunities, 2) *adoption phase* – gain organizational support for the implementation effort, 3) *adaptation phase* – acquire the system, installation, maintenance, 4) *acceptance phase* – system has complete functionality and user training completed, 5) *routinization phase* – normal operations in daily activity, and 6) *infusion phase* – incremental organizational effectiveness.. These stages have similarities to other researcher-developed models and as they are examined, these lifecycle models tend to have between three and six phases. Each of these phases' success can be gauged and evaluated by a series of defined metrics including factors of human and organizational learning.

There are numerous highly referenced alternative ERP lifecycle models emanate from, Bancroft, (1997); Bancroft, Seip and Sprengel, (1998); Gable, Scott and Davenport, (1998); Esteves and Pastor, (1999); Holland and Light (1999); Holland, Light and Gibson, (1999); Parr, Shanks and Darke, (1999); Markus and Tanis (2000); Parr and Shanks, (2000); Ross and Vitale, (2000); Sandoe, Corbitt, and Boykin (2001); and Ahituv, Neumann and Zviran (2002). Essentially, all of the above models distinguish similar, but not entirely identical phases; additionally, they group and name these phases differently.

Bancroft (1997) proposed a lifecycle model with an emphasis on the initiating phases starting with focus to the actual implementation. Gable, Scott and Davenport (1998) created a different approach with an initial focus on the consulting effort, through implementation to phases of training and knowledge transfer. Esteves and Pastor (1999) have six phases also, but they included a final phase, *retirement* dealing with the next evolution of the ERP software. Markus and Tanis (2000) compressed the lifecycle model down to four phases of *chartering, project, shakedown, and onward and upward*. Finally, Ahituv, Neumann, and Zviran (2002) developed a four-phase model, including *selection, definition, implementation, and operation* that closely resembles the actual implementation phases expected in SMEs.

Structured lifecycle models – process theory basis

The implementation of an ERP system is the result of many phases of organizational, professional and consulting firm review and analysis. Often this is a structured format similar to the MIS concept of SDLC. Some of these phases become nebulous and overlap during the actual implementation projects. Implementation is often confusingly referred to as the entire adoption, installation, and operational process of bringing an ERP system online, yet alternately can refer to the single phase within the overall project where the software system becomes operational.

Cooper and Zmud's (1990) phases of *adaptation, acceptance and routinization* are discussed by many researchers and practitioners as the "Second" and "Third Waves" of ERP implementation and post-implementation activity. Alternative ERP lifecycle models create a full spectrum of grounded theory: Esteves and Pastor (1999), Markus and Tanis (2000) and Ahituv, Neumann and Zviran (2002).

Substantively, all four models address near identical phases, although grouped and titled differently.

PROCESS THEORY APPROACH – ERP LIFECYCLE MODELS

There are a number of ERP lifecycle models identified in the literature. Included in this detail review are a representative group that are chosen because of their multiple references in other literature or their inclusion of different phases of the lifecycle model: 1) Cooper and Zmud (1990) advocate a six phase model, similar to SDLC, but with different and more descriptive names for the phases and some differences as to where various sub-phases should be included, 2) Esteves and Pastor (1999) advocate a six phase model very similar to classic SDLC models, 3) Ahituv, Neumann and Zviran (2002) developed a four phase model, including selection, definition, implementation, and operation, and 4) Markus and Tanis (2000) developed a simpler four phase system, that essentially merged most of the above phases.

ERP lifecycle model – Cooper and Zmud

The Cooper and Zmud (1990) model identifies six phases: initiation, adoption, adaptation, acceptance, routinization, and infusion. This approach looks upon IS implementation from a general perspective and is somewhat similar to Esteves and Pastor, but with different nomenclature.

The lifecycle model includes six phases of ERP implementation during its life in an organization (see Figure 1).

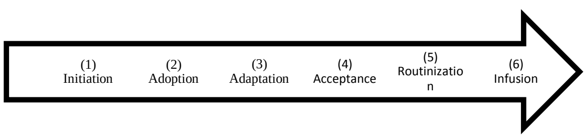

Figure 1. ERP Lifecycle model – Cooper & Zmud

The *initiation phase* is characterized by identifying the organizational problems and opportunities for IS solutions. Likewise, these are seen as "push" "pull" alternatives. "Push" as a result of new technological innovation and "pull" as a result of an organizational need. The *adoption phase* has various activities and negotiations occurring to acquire and solidify organizational support for the implementation effort of the IS solution. The *adaptation phase* has the actual system developed or acquired, installed and maintained. This is the main core of the implementation process and requires great managerial, financial and human resources support. The *acceptance phase* sees the system operated as a live system with complete feature functionality, including user and system training. Acceptance however does not assume full operational functioning, just acceptance that the system meets all operational compliance factors. The *routinization* assumes that the IS system, in this instance the implemented ERP system is now operated in daily activity. The *infusion phase* assumed incremental organization effectiveness as a result of normal system operation. The system is used to its fullest potential.

ERP lifecycle model – Esteves and Pastor

Esteves and Pastor (EP) (1999) suggested an ERP lifecycle model, representing the various phases that an ERP system would chronologically implement in an organization. The lifecycle is structured in phases going through the whole ERP project and functional life: adoption decision, acquisition, implementation, use and maintenance, evolution, and retirement.

The lifecycle model includes six phases of ERP implementation during its life in an organization (see Figure 2).

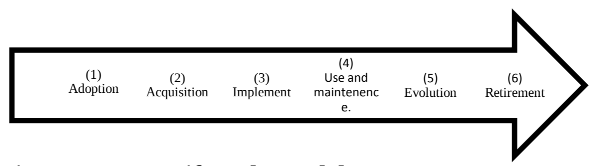

Figure 2. ERP Lifecycle model – Esteves & Pastor

The *adoption decision* represents the time when management determines that a new ERP system is necessary for any number of reasons. The phase includes systems requirements definition, the desired goals and benefits, and the impact of the ERP system adoption. The *acquisition* relates to the decision of system choice as a result of the systems requirements definition in the adoption phase. This also considers the system that needs the least amount of customization. The *implementation* deals with the actual adoption of the system into the computer infrastructure and any customization necessary to make the system functional. This phase is also characterized by the greatest degree of training. The *use and maintenance* deals with the functionality, usability and adequacy of the system to the organization. Post implementation issues include required maintenance, updates, correction of malfunctions both programmatic and option selection, systems operational optimization and overall general improvements. The *evolution* represents the period when additional capabilities are integrated into the ERP system for additional benefits. The evolution phase has benefits both "upwards" and "outwards". The *retirement phase* deals with the period when an ERP solution no longer meets organizational goals and objectives and needs to be replaced (Esteves & Pastor, 1999).

ERP lifecycle model – Ahituv, Neumann, and Zviran

This model developed by Ahituv, Neumann, and Zviran (2002) is a blended model of traditional SDLC, Prototyping and Application Software Package purchase approaches. This model is comprised of four phases: selection phase, definition phase, implementation phase, and operation phase. There are many overlays and consistencies with the previous three models, and is probably most closely related to the Esteves and Pastor ERP lifecycle model, with some phases combined.

The Ahituv et. al. model is similar to the others, but has various detailed activities identified in each of the phases. It is a blended approach of three traditional system development models the authors defined, Information System Life Cycle (The Waterfall Model) and very much like classic SDLC, Prototyping Model that is the antithesis of SDLC and creates a prototype system for further development, and Application Software Package Model that is related to the purchase of a preexisting system.

The authors also identified a series of characteristics that would influence the selection of an ERP lifecycle model for development methodology: system complexity, system strategic importance, system flexibility, application scope, technological infrastructure, organizational process changes, intensity of relationship with vendor, employment of external consultants, and users' involvement.

The lifecycle model includes four phases of ERP implementation during its life in an organization (see Figure 3).

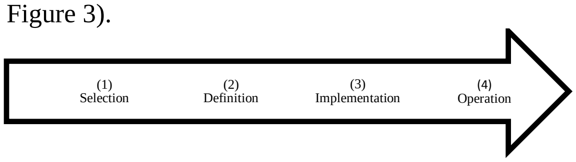

Figure 3. ERP Lifecycle model – Ahituv, Neumann, & Zviran

The first or *selection phase* identifies the most appropriate ERP package and includes the definition of project objectives, collection of vital information about systems, vendors, and consulting firms, needs analysis, feasibility study, contract negotiation and signing. The second or *definition phase* is the shortest in duration and includes all preparatory activities for the following implementation phase. The third or *implementation phase* is the predominant phase of the ERP lifecycle and is designed to provide maximum organizational efficiency and effectiveness plus financial rewards upon movement into the operation phase. The phase is characterized by the iterative implementation of various system modules passing through activities to either add processes or organizational layers to the accomplished project objectives. The fourth and final phase is the *operations phase*. Here the system is brought to normal operations and is the longest of the phases, potentially lasting multiple years.

ERP lifecycle model – Markus and Tanis

The Markus and Tanis (2000) lifecycle model created a unique phasing approach unlike the other models. Their proposed ERP lifecycle model reflects a more streamlined and simplified approach. Their life cycle consists of four phases: chartering, project, shakedown, and onward and upward. These phases have more commonality with the Cooper and Zmud lifecycle model than with Esteves and Pastor's approach. They obviously combine some elements into broader categories, and thoroughly ignore any retirement and replacement issues.

The lifecycle model includes four phases of ERP implementation during its life in an organization (see Figure 4).

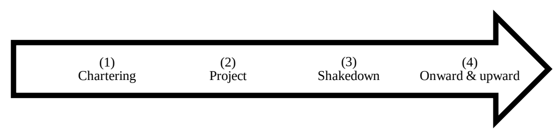

Figure 4. ERP Lifecycle model – Markus & Tanis

The *chartering phase* is the first in the process and includes all elements related to the original vision to adopt or upgrade an ERP system. This includes the feasibility studies, initial system design and selection process of the overall implementation process. The scheduling and planning for the system implementation is completed and all project leaders, champions and consultants are selected. This effectively is the combination of at least the first two phases in the other lifecycle models.

The second or *project phase* includes all installation and most implementation issues. The system is rolled out to the users, all training occurs for users and systems personnel, all data conversion activity occurs along with required acceptance testing and any integration with existing legacy systems. This includes parts of a number of other phases in each model.

The third *shakedown phase* has a definite time line delineated by the point of normal operations commencement by all users, though the point of when normal daily routine activity begins. Essentially this extends through all bug fixes and performance fine-tuning resulting in a stabilized functional system.

The fourth *onward and upward phase* assumes that the system has reached normalcy, i.e. routine and efficient operational status. This phase includes all time from this initiation point until the system is replaced or upgraded. When these events occur, it is assumed that the process restarts at the beginning of the lifecycle similar to Cooper and Zmud. Keys elements of this phase include assessing the actual and perceived benefits as a result of the implementation process, advancing the training and skill sets of the users and upgrading the software plus instituting all business process improvements.

The interesting element of the Markus and Tanis model is that all implementation and upgrade operations can use each of the four stages of the model. Any upgrades will begin again with the chartering phase and stage through all phases until completion.

The Markus and Tanis model is generally accepted as the simplest to understand and reference. It provides a well-delineated set of phases and also includes the contingency for upgrading of the system and replacement with a new evolution of IS systems. The Ahituv model could be the closest to what the real world has migrated into over the past ten years and has the most detailed structure and would also be an effective choice. This option would probably be more appropriate in large scale ERP implementation efforts since these enterprises are characterized as more complex and have more resources, both human and financial, to utilize in the implementation. Attempting to utilize this approach in the SME marketplace could burden the enterprise and the implementation team to a greater degree than is appropriate for the SME scale.

SUMMARY

SMEs certainly have different constraints than the large-scale organizations that led the ERP marketplace for many years. SMEs do not have the same financial resources, in-house technical competencies, and often have unique organizational cultures, all generating greater risk for any attempted ERP implementation. There are countless studies of critical success factors to promote a positive result in these efforts. Choosing a process theory approach combined with vendor tools, an exceptional ERP implementation team, a strong project Champion, and most importantly management commitment promote a successful project.

When considering a cloud computing ERP solution, organizations have the option to utilize one of the above models, or creating a hybrid approach based on one of the model. Likewise, choosing to implement a Cloud ERP solution using a legitimate vendor typically offers the option of some rapid deployment model offered by experienced consultants. Some of the lifecycle steps can be minimized, for example any phase dealing with development.

Most Cloud ERPs will be “one size fits all” applications with the obvious configuration options and flags, but typically little development costs. Organizations may be currently experiencing “version lock”, a phenomenon that occurs when a customization has been written by in-house IT staff or outside software consultants. But when new versions are offered by the ERP vendor, the organization may be unable to upgrade because the customization may not work or may require extensive costs to upgrade also, plus additional implementation and training costs. The only way to migrate these customizations is to recode them from scratch, which takes too much time, money, and resources, and can often be fragile. Often this is not a consideration with cloud ERP vendors.

Customization within the cloud computing environment typically are structured so all processes rely on a single code base and utilize a managed version upgrade process. This approach is very advantageous in the lifecycle stages identified above particularly in the phases related to post-implementation maintenance. Customizing ERP applications in the cloud suggests that these can be accomplished quicker and easier than traditional ERP on-premise hosting platforms because the code base is standards-based instead of proprietary. This code base development approach provide cloud companies to code their customizations into individual components and have these components interact with other customizations through standards-based web development frameworks.

These web development frameworks automatically provide functionality of integration procedures throughout the entire technology application. Consequently, in the event a cloud application is upgraded to a newer version, customized components are migrated over to the new version seamlessly. This minimizes utilization of costly resources to manually migrate customizations to the newer version, and benefits the cloud organization users with improved process functionality or features innovation supplied with the upgrade.

Additionally, third party integrated solutions for specialized needs exist also eliminating the need for development. Regardless, cloud ERP adopters still much exercise their due diligence in the search, examination, selection and implementation processes. Other factors such as the safety of information and redundancy of systems will take on a different role. Since the adopters will not have the custody of information nor the requirement of backup systems and disaster locations, risk management issues will still exist but will be formatted differently for the cloud, when evaluating issues of system as a robust entity.

The process theory approach should help the project team and executive management understand and plan for the various stages the implementation will progress through. Some SMEs will be forced to take steps such as the "big bang approach" rather than a "phase-in" approach because of some of the constraints. But in all cases, this is a significant undertaking for any organization, and without a good structured plan based on one of the process theory models, organizations will do little to promote risk aversion in their implementation efforts.

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ACCOUNTING ETHICS: POST-CONVENTIONAL MORAL DEVELOPMENT AND NON-MANDATORY VIRTUES

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ABSTRACT

In the wake of corporate accounting scandals, confidence in the integrity of the US capital markets has been negatively affected. At the heart of this problem lies the role of the certified public accountant, the gatekeeper for the integrity of these financial statements. This paper examines many of the underlying ethical accounting issues considered responsible for the recent deluge of business and corporate scandals and concludes that the profession must embrace post-conventional moral development and non-mandatory virtues.

INTRODUCTION

In the wake of recent corporate scandals, confidence in the integrity of the US capital markets has been adversely. At the heart of this confidence lies the role of the Certified Public Accountant (CPA) who, since the passage of the Security Act of 1933 and 1934, has been legislatively mandated to conduct audits of company financial statements as a condition for participating in the securities market. In effect, this legislation provides the accounting profession with a service monopoly as it pertains to the accounting and auditing of publicly traded companies (Rodgers, Dillard & Yuthas, 2005). Fundamental to the role of the audit is the assurance that the financial statements fairly represent the financial position of the company (Gaa, 2001, cited in Libby & Thorne, 2004).

The dominate view among accountants is that the primary purpose of financial statements issued by management is to provide financial information that will be used by investors and creditors to make economic decisions. This paper will examine the underlying ethical accounting issues responsible for the recent deluge of business and corporate scandals in which financial reporting and auditing were central elements.

BACKGROUND

To get a better understand of the current ethical challenges facing the accounting profession, a brief history on the evolution of the public accounting firm is necessary. According to Boyd, the structure of the accounting profession was stable up until the 1960s and enjoyed a rather insulated and protected environment (2004).

During the late 1950s and 1960s, accounting clients began to shift their geographic focus, moving from a local to regional or national format, forcing accounting firms to follow suit to match the geographic structure of their largest and most important clients. In many instances, mergers of partnership based accounting firms in different cities and towns supported these alignment efforts, naturally increasing the degree of concentration in the industry (Boyd, 2004).

Global growth via international mergers was just the next step for emerging national accounting firms. Boyd, notes, "Global growth via international mergers was achievable for the major accounting firms because the services they offer are more or less homogeneous across national boundaries, reflecting the degree of homogeneity of accounting standards across nations" (2004, p. 379). Successive waves of mergers produced the "Big Eight", then the "Big Six", finally culminating in 1997 with the "Big Five" accounting firms. Also in 1997, a failed merger attempt between KPMG and Ernst and Young prevented further consolidation down to the "Big Four" accounting firms (Boyd, 2004).

Revenue and employment data showed the Big Five merger format produced an extreme degree of power and ownership in the accounting profession that no other profession has ever experienced (Boyd, 2004). Boyd notes, "During this period of tumultuous change in the industrial structure of the profession, there was no parallel change in the basic institutional structure of the profession" (2004, p. 380). During this same period, a major transformation of auditing services was taking place, shifting from the most conspicuous and prestigious service provided to a low-profit activity within a collection of other more profitable services offered by the major accounting firms (Boyd, 2004; Reiter & Williams, 2004).

As auditing services became increasingly recognized as an undifferentiated commodity product, clients began to engage in price shopping and opinion shopping. Price shopping efforts saw clients and potential clients searching for the best price between auditing firms for auditing services. Opinion shopping was directed at the flexibility of different accounting standards and rules to see just how far they could persuade an auditor to apply a particular desired standard. Opinion shopping saw clients and potential clients searching for favorable standard and rule interpretations among auditing firms (Boyd, 2004).

During the 1980s, auditing services became increasingly unattractive to major accounting firms because of declining margins, ethical challenges, cost of compliance, insurance costs, and risk of litigation. However, the benefits of horizontal integration allowed accounting firms to enter the client's business through the audit process and discover how the client's various business systems operated, opening the door to very profitable consulting services designed to fix the client's problems. Consequently, the audit became a loss-leader product for accounting firms, producing even greater stimulus for low-ball bids for audits (Boyd, 2004).

> The emergence of possible conflicts of interest for audit firms relating to the simultaneous sale of consulting services to audit client was widely recognized by critics of the accounting profession, but this core problem remained substantially unrecognized or uncorrected by the profession itself. (Boyd, 2004, p. 386)

"More and more, it became clear that the auditors did not want to do anything to rock the boat with clients" (Levitt, 2002 cited in Boyd, 2004, p. 386). In the case of WorldCom, prior to its financial demise, consulting services generated three times the revenue and nine times the profit, compared to auditing services for Arthur Anderson (Boyd, 2004). "In a context where the power of audit partners had declined because of diversification into consulting, it is not surprising that there was intense pressure on the audit team to not rock the boat" (Boyd, 2004, p. 387).

In 2000, Arthur Levitt, chairmen of the Securities and Exchange Commission (SEC), proposed legislation to improve audits and minimize conflicts of interest. Levitt's proposed legislation failed, in part due to the intense political lobbying of the Big Five accounting firms. According to Boyd, "the Big Five had not just become powerful within the accounting institutes themselves, but their power and influence had extended deep into the external political sphere as well" (2004, p. 390. By the end of the twentieth century, the accounting profession no longer had a voice outside of the interests of the Big Five.

In summary, the culture of the major accounting firms had shifted from a central emphasis on professional service in a professional manner to emphasizing growing revenues and profits. This gradual change significantly altered the firm culture over the 40 years leading to the end of the 20th century. Also, the extreme concentration of the profession and the dominance of the Big Four accounting institutions still exist today and are important concerns that need to be resolved (Boyd, 2004).

BUSINESS & ACCOUNTING ETHICS

"The purpose of ethics in accounting and business is to direct business men and women to abide by a code of conduct that facilitates, indeed encourages, public confidence in their products or services" (Smith, 2003, p. 47). According to Garaventa, "Business ethics is the study of good, evil, right, wrong, just, and unjust actions in business dealings. Any definition of business ethics must also include a discussion of the rights and obligations accruing to various stakeholders in the organization" (1998, p. 536). However, the academic fields of business ethics and accounting ethics have developed without close empirical or theoretical connections (Gaa, 2004).

Business ethics began with the publication of *The Education of American Businessmen* by Pierson in 1959) and Higher Education for Business by Gordon and Howell, also in 1959. The primary emphasis at this time was the need for higher education in business to go beyond vocational training and to include an organization's external environment (Sims, 2002, p. 3).

Through 1960s and 1970s, there was a steady growth in the number of business ethics courses, with the emphasis on an ethical framework that addressed the ethical and moral decline in society that had occurred in the 1960s. Yet, as suggested by Powers and Vogel, these activities, like philosophy, were "remote from the traditional intellectual center of gravity of business education" (Sims, 2002, p. 3).

In the late 1980s both the academic and corporate communities voiced the need for ethics teaching in the academic environment. However, universities failed to take seriously their responsibility to instill a sense of ethics in college students and help students develop moral and ethical standards that they are unlikely to get elsewhere (Sims, 2002). While the raw numbers supported an increase in the number of academic institutions offering separate business ethics courses, questions still remained regarding their success in helping students learn to reason more carefully about moral issues and respond to ethical questions. During the 1980s and 1990s, specialization, academic work load, a lack of knowledge relating to ethics or the writings of moral philosophers, along with efforts to divide the responsibility among a large number of faculty members, all contributed to giving moral and ethical issues little attention or positioning the discussion as an addendum or deviation (Sims, 2002).

Leading corporations expect students to relate to ethical policies and understand the background and impetus for companies' commitments to ethical behavior and reasons for adopting ethical codes of conduct. Today's organizations need employees who know how to think their way through difficult situations and often make decisions between what is essentially right and wrong. In order to do this effectively, students need to practice this type of analysis in a safe learning environment. But this type of training is not yet fully integrated into business school curricula (Sims, 2002).

According to Larue, business values are changing; moral and social responsibilities are now viewed by many business managers as important corporate concerns. This increase in moral rationality is based on risk reduction, organizational integrity, market reputation and community reputation. More importantly, the focus on these elements is shifting from an instrumental motivation based on revenue, profits and costs to a value emphasis. This value emphasis can't be fully explained by economic benefit or rationality and points to the coming importance of social expectations and the need for greater integration of moral rationality in business ethics (2004).

Sims (2002) recognizes Domenec's notes that in the United States, public accounting has had some form of ethical standards since the beginning of the 20th century. However, specific training on accounting ethics for accounting students or a systematic presentation of this matter had rarely been undertaken until the 1970s. Since the mid-1980s, several institutions connected with accounting associations have encouraged ethical education in accounting (2005).

However, the primary foundation for accounting ethics is found in their respective code(s) of professional conduct. For accountants, codes are the most concrete form in which the profession acknowledges its societal obligation. In the case of public accounting, The American Institute of Certified Public Accountants (AICPA) code of professional conduct was tailored by its membership to provide guidance and rules in the performance of their professional responsibilities in public, private, government and educational environments (American Institute of Certified Public Accountants [AICPA], 2006).

> Compliance with the Code of Professional Conduct, as with all standards in an open society, depends primarily on members' understanding and voluntary actions, secondarily on reinforcement by peers and public opinion, and ultimately on disciplinary proceedings, when necessary, against members who fail to comply with the Rules (AICPA, 2006).

"The accounting profession, like most professions, engages in creating, managing, and if necessary, defending its image and reputation" (Rogers, Dillard & Yuthas, 2005, p. 159).Codes and possibly some procedures for enforcement are a public commitment of the profession and a basic element in achieving social recognition and public trust in the profession (Mele, 2005).

ACADEMIC ENVIRONMENT AND ACCOUNTING ETHICS

There is literature that suggests that ethics can't be taught in the business classroom because moral values are formed much earlier in life (Malone, 2006). Dissenters from both the business and academic communities have raised serious questions about whether ethics can or should be taught (Sims, 2002). For example, some question whether teaching ethics is possible, arguing that it is too late to start ethics education at the academic level because students arrive at this educational level with firmly set values that are not likely to change.

Actions by Arthur Anderson and Company in the late 1980s and the recent partnership with GEICO and Marymount University provide clear support for those who believe ethics can and should be taught (Sims, 2002). Bean & Bernardi propose that an initial course of ethics, along with a discipline-specific ethics course in accounting, is essential to educate students preparing for the profession (2005). Sims (2002) notes that research by Carlson & Burke in 1998 and Weber and Glyptis in 2000 has found that ethics courses have a significant impact on students' ethical sensitivity and reasoning skills and that moral behavior can be developed from a thorough understanding of ethical concepts and dilemmas and reinforced by awareness of ethical issues.

In a speech to the American Accounting Association in 2002, president G. Peter Wilson said that "in the classroom, educators need to increasingly emphasize two values that have long been the mainstay of the accountants' reputation: integrity and professional skepticism" (Smith, 2003, p. 2). In a 2004 speech at Texas A&M University, Harold Tinkler, chief ethics and compliance officer for Deloitte & Touche USA LLP, stated "I believe our core values are determined when we are young–it's a result of parenting, our religious environment, our education, and our culture. But, I also believe we continue shaping our values as we go through life" (Tinkler, 2005, p. 15). Cheffers and Pakaluk propose that if accounting ethics requires both intellectual and character virtues, intellectual virtues can be taught through good instruction, attention to case studies, and apprenticeship programs (2005).

AICPA CODE OF PROFESSIONAL CONDUCT

The current AICPA Code of Professional Conduct contains specific rules along with general principle statements. According to Herron and Gilbertson, rules are enforceable, but principles are not and the rules presented in the code are not logically derived from the principles. "By placing the public interest and other principled guidance in the unenforceable section of the code, the AICPA strongly signaled to its membership that these principles are unimportant, or least less important than the specific rules" (2004 p. 516). The logical disconnect between rules and principles, the lack of enforcement of principles, and other semantic defects may prevent professional accountants from deriving any ethical guidance at all from the code (Herron & Gilbertson, 2004).

However, ineffective and confusing guidance is not the only reason why the code may have failed; practicing auditors do not routinely employ principles-based reasoning, and the ethical culture of accounting firms may defeat the efficacy of the code (Herron & Gilbertson, 2004).

RULES VS. PRINCIPLES-BASED ACCOUNTING

The SEC notes "the primary characteristics of rules-based standards are the existence of exceptions and bright-lines, which lead to very detailed implementation guidance, which often leads to even more bright-lines" ("Study Pursuant to," 2003, Rules-Based Section). Bright-lines allow financial engineers to achieve technical compliance with the accounting standard, while evading the intent of the standard. Under rules-based accounting, the bright-line tests designed to distinguish the exceptions provide a roadmap for financial engineers to achieve desired accounting results. A consequence of such financial engineering is that transactions that are substantively the same may produce significantly different valuation results ("Study Pursuant to," 2003). According to Mano, Mouritsen, & Pace, rules-base systems encourage creativity, and not the good kind, in financial reporting. They allow some to stretch the limits of what is permissible under the law, even though it may not be ethically or morally acceptable (2006).

Looking at principles-based accounting standards (PBA), the SEC notes that the standard involves a concise statement of substantive accounting principle, where the accounting objective has been incorporated as an integral part of the standard and where few, if any, exceptions or internal inconsistencies are included in the standard. In addition, this standard should provide an appropriate amount of implementation guidance, given the nature of the class of transactions or events, and should be devoid of bright-line tests. Finally, such a standard should be consistent with, and derived from, a coherent conceptual framework of financial reporting. According to Mano et al., (2006) PBA requires companies to report and auditors to audit the substance or business purpose of transactions, not merely whether they can qualify as acceptable under incredibly complex or overly technical rules.

In response to the recent wave of accounting scandals that has led to numerous charges of unethical conduct on the part of accountants and auditors, the Financial Accounting Standards Board (FASB) issued its proposal for principle-based accounting in 2002 with the Sarbanes–Oxley Corporate Responsibility Act. It required the SEC to conduct a study on the adoption of principles-based accounting standards in the U.S.

However, the idea of PBA is not new. In 1989, The American Institute of Certified Public Accountants separated the Code of Professional Conduct into rules and principles. The AICPA believed the previous rules-based code contained too many technicalities that provided opportunities for loopholes, while broadly stated principles would encourage more ethical conduct in general, without loopholes. The bottom line was that principles in the code would encourage more ethical behavior and serve to express the basic tenets of ethical and professional conduct. However, the assumption that PBA will lead to more ethical conduct has not been empirically tested (Herron & Gilbertson, 2004).

According to Mano et al. (2006), the debate over principles-based accounting versus rules-based accounting is a waste of time because, for at least 35 years, the law established through the Continental Vending decision has required adherence to principles-based accounting. The fact that practitioners have ignored the law is one reason for the profession's current problems.

Herron and Gilbertson note that the level of moral development moderates the efficacy of the code. If one's level of moral development is mismatched with the form of the code (principles versus rules), one is less likely to reject a questionable audit engagement. Specifically, this level of moral development relates to solving independence dilemmas. Accountants with lower levels of conventional moral development tend to focus on rules and norms. Accountants with higher post conventional levels of moral development tend to focus on principles and values. Regarding compliance decisions, when the application of rules to their contemplated acts is more reasonable, reaction is more likely to reflect the context of previously promulgated rules, rather than principles.

Based upon this information, at lower levels of moral development, accountants are less likely to recognize that their independence may be impaired, and they are more likely to accept a questionable audit engagement when only principles are provided as guidance. Conversely, accountants at higher levels of moral reasoning are less likely to recognize that their independence may be impaired and more likely to accept a questionable audit engagement when only rules were provided. These findings suggest that the best way to optimize the ethical judgment of the accounting professional is to provide the code as a combination of principles and rules, or exactly the way it's currently structured (2004).

THE SARBANES-OXLEY ACT OF 2002

The Sarbanes-Oxley Act of 2002 (Pub. L. No. 107-204, 116 Stat. 745), also known as the Public Company Accounting Reform and Investor Protection Act of 2002, and commonly called SOX, was passed in direct response to a number of major corporate and accounting scandals involving Enron, Tyco International, and WorldCom. These scandals resulted in a loss of public trust in accounting and reporting practices (Wikipedia, 2006).

The legislation is wide ranging and establishes new or enhanced standards for all U.S. public company boards, management, and public accounting firms (Grumet, 2002). The primary purpose behind SOX was to prevent large companies like Enron and WorldCom from engaging in financial fraud and consequently misleading stockholders and investors ("Purpose of Sarbanes-Oxley," 2006).

SOX covers issues such as establishing a public company accounting oversight board, auditor independence, corporate responsibility, and enhanced financial disclosure. The Act contains 11 titles, or sections, ranging from additional corporate board responsibilities to criminal penalties, and it requires the SEC to implement rulings on requirements to comply with the new law. It is considered one of the most significant changes to United States' securities laws since the New Deal in the 1930s (Wikipedia, 2006). However, SOX only deals with public companies and their auditors. Standards enforcement and ethics are issues for the entire profession, including CPAs, auditors of nonpublic companies, industry, academia, and the nonprofit and government sectors (Grumet, 2002).

Is SOX effective? While complaints generally relate to administrative costs, short deadlines, uncertainty regarding required standards, and duplication, the overall impression from the accounting profession is that SOX is working. Tinkler (2005) said, "SOX is making a difference in the areas of corporate governance, internal control reporting, auditor independence, and financial reporting. PricewaterhouseCooper chairman Dennis Nally is quoted in Schoreder (2005, p. 1) as having said "I believe, over time, we'll see fewer major restatements, fewer financial reporting cases, and ultimately, fewer incidents involving accounting fraud."

In regard to auditor independence and conflicts of interest as they relate to consulting services, SOX may have missed the mark by not considering those audit conflicts of interest that are marketing-related. Given that there is not an outright ban on offering many consulting services to audit clients, it is conceivable that the profession could once again use the audit as means of expanding consulting (Boyd, 2004).

The apathy of the organizational cultures of some accounting firms has caused some to be skeptical about the effectiveness of the Sarbanes-Oxley Act in preventing future scandals. "The underlying causes of the decline in accounting professionalism remain in place" (Boyd, 2004, p. 392).

ETHICAL THEORY AND ACCOUNTING ISSUES

Egoism's general principle supports acting in support of your own self-interests (Beauchamp & Bowie, 2004; Koehn, 2005). While attitudes in business have often been considered fundamentally egoist because executives and corporations are said to act purely from prudence or self-interest (Beauchamp & Bowie, 2004), an accounting professional could not always behave as an egoist because doing so would often cause a conflict with the profession's charge to serve the public interest (Koehn, 2005). Beauchamp & Bowie note "Egoists do not care about the welfare of others unless it affects their welfare, and this desire for personal well-being alone motivates acceptance of the conventional rules of morality" (2004, p. 15).

Act utilitarian theory supports actions that produce the greatest good for the greatest number of people (Beauchamp & Bowie, 2004; Koehn, 2005). Rule utilitarian theory holds that actions are justified by abstract rules that appeal to the principle of utility (Beauchamp & Bowie, 2004). In the case of act utilitarianism, it could be argued that promoting the greatest good for the greatest number of people in support of utility, harmony, and efficiency would be perceived as doing the right thing.

In the case of rule utilitarianism, it could be argued that adhering to rules is justified by an appeal to the principle of utility, and preventing the changing of these rules for individual circumstances is perceived as doing the right thing. Looking at act utilitarian theory, the expansion beyond self-interest would support a better foundation for an accountant performing fiduciary duties through support of a cost-benefit approach to problem solving (Koehn, 2005). However, valuation conflicts would arise when asked to determine the greatest good.

Koehn asks "Should Utilitarians do what they think will bring about good, or should they do what they actually know will bring about the good, and how are they to know?" (2005, p. 524). From a standpoint of rule utilitarianism, promoting the rules alone as justification for doing the right thing could promote bright-line opportunities and cloud professional judgment in support of accounting principles. Koehn states "Kant's deontological philosophy recognizes that humans' decisions to act should be made not only to fulfill intentions or desires but should be based on a moral choice or duty" (2005, p. 524).

"Kant's theory finds motives for actions to be of the highest importance, in that it expects persons to make the right decision for the right reasons" (Beauchamp & Bowie, 2004 p. 23). When the right thing is done for profitability or good publicity, its decision is prudential, not moral (Beauchamp & Bowie, 2004). Kant's theory insists that all people must act for the sake of obligation, not merely in accordance with obligation. For accounting professionals relying on deontology, a problem can arise with conflicting duties, especially if both duties are equally compelling (Koehn, 2005).

The ethics of virtue or character deemphasize action or doing in favor what a person should be or become (Beauchamp & Bowie, 2004; Koehn, 2005). This ethical theory would require an accountant to consider questions like "What makes a good person?" or "What makes a good businessman or leader?" (Koehn, 2005). However, virtue ethics should not be entirely dismissed, as they have a place in accounting.

The AICPA replied on the idea of virtues in constructing the code of professional conduct (Koehn, 2005). Virtue ethics is important because

> A morally good person with the right choices or motivations is more likely to understand what should be done, more likely to be motivated to perform required acts and more likely to form or act on moral ideals than would a morally bad person. (Beauchamp & Bowie, 2004, p. 32)

GROUP EFFECTS ON AUDITORS' ETHICAL REASONING

Group decision-making plays a key role in most of the critical decisions made by auditors over the course of an audit engagement (Rick, Solomon, & Trotman, as cited in Thorne, Massey & Jones, 2004). Thorne, Massey & Jones indicate that group discussions by the audit team can have a significant impact on the final outcome of a contentious ethical issue.

When considering the appropriate response to ethical dilemmas, auditors tend to focus on rules, laws, and court decisions, and they recognize agreement from experts as a surrogate for accuracy when no objective criteria is available. When faced with prescriptive discussions that address ideally what should be done in ethical dilemmas, convergence from the minority's reasoning to the majority reasoning or conformity tends to take place. Conformity occurs when there is a search for the best response to a conflict and the majority view is recognized as the best.

When faced with deliberative discussions that address what actually would be done in ethical dilemmas, normalization takes place. Normalization occurs when there is a search for a reasonable ethical solution and several desirable alternatives exist simultaneously. Based upon the findings of Thorne et al. (2004), working toward a compromise or consensus when striving for the actual versus the ideal resolution to a particular ethical dilemma may be a detriment to the auditor's ethical reasoning.

AUDITORS' VIRTUES

Virtues are normative qualities that reflect individuals' tendencies to act ethically, and by so doing, manifest the ideals of the community to which they belong (Libby & Thorne, 2004). There are two subcategories of moral virtues, mandatory and non-mandatory. In the case of auditors, mandatory moral virtues are the virtues required at minimum to ensure formulation of professional judgment in accordance to Generally Accepted Accounting Principles (GAAP). Libby & Thorne note "Although it is important [that] auditors possess the mandatory virtues at minimum, mandatory auditor virtues may not be enough to ensure formulation of 'ideal' professional judgment" (2004, p. 487). For example, in the case of Enron, moving debt off the balance sheet into special purpose entities without disclosing the existence of these entities to investors was consistent with the possession of mandatory virtues, since the decision was not in direct contravention of specific professional standards (Libby & Thorne, 2004).

For auditors, non-mandatory moral virtues are those personal characteristics that result in making professional judgments in which the public interest is paramount. Once again, in the case of Enron, an auditor exhibiting non-mandatory moral virtues would have required the disclosure of special purpose entities in the spirit of fair disclosure to the public. In addition, the auditor would have qualified his opinion and/or resigned from the audit if the client refused to conform (Libby & Thorne, 2004). While the specifics and concerns of the special purpose entities and off balance risks at Enron were discussed with their board and extensively reviewed with the audit team as well as 14 senior Anderson partners, a decision was reached to retain Enron as a client ("Role of the Board of Directors," 2002).

Considering the current AICPA Code of Professional Conduct, the principles and rules support the mandatory auditors' virtues of honesty, integrity, independence, objectivity, and concern for the public interest. However, the non-mandatory virtues, which include putting public interest and professional interest ahead of self-interest, being farsighted, and being enlightened, are not explicitly delineated in the code (Libby & Thorne, 2004).

LEVEL OF MORAL DEVELOPMENT

Most models of ethical decision making agree that ethical decisions are affected by a decision maker's level of moral development, awareness of relevant professional standards, and contextuality (Herron & Gilbertson, 2004). Herron and Gilbertson report that Kohlberg believed that ethical decision making is largely a function of one's level of moral development, and he formulated a six-stage model of moral development that was further classified into three levels: pre-conventional, conventional, and post-conventional. While Kohlberg favors a developmental approach that places a person at a single progressive stage of moral development, research supports the notion that one moves upwards in terms of "gradually shifting distributions of the use and preferences for more developed thinking" (Herron & Gilbertson, 2004, pp. 501-502).

In terms of Rest's schematic approach, Herron & Gilbertson point out that the more developed the moral schema, the more frequently a higher level scheme will be invoked. Under Kohlberg's stage 4, or Rest's Maintaining Norms Schema, the emphasis is driven by law, rules, and duty to society. Auditors reasoning at this level would follow the rules or laws as prescribed in the situation, rather than follow their own principles.

This level of moral development emphasizes the importance of doing one's duty according to the situation and the individual's role in society. The post-conventional schema is more focused on values and principles. Duties and rights at this level come from the moral purpose behind the conventions. Post-conventional moral reasoning leads to judging an action as best because it is right, while conventional moral reasoning leads to judging an action as best because it is accepted by rule or law (2004).

CONCLUSION AND RECOMMENDATIONS

In summary, the accounting failures responsible for the recent deluge of business and corporate scandals rests on several pillars of responsibility. First, the code of professional conduct failed to provide the necessary foundation, support, and guidance. Second, the SEC and the government allowed the political power of the Big Five accounting firms to influence critical legislation designed to improve audits and minimize conflicts of interest. Third, the profession itself failed to perform its professional duties and social responsibility by regulating itself in the area of independence and conflicts of interests. However, underlying all these ethical issues rests a fundamental breakdown in the foundations of moral reasoning, integrity, and moral virtue.

While the AICPA code of professional conduct may provide ineffective and confusing guidance, and even prevent professional accountants from deriving ethical guidance, the accounting problems relating to the failure of Enron, Global Crossing, and WorldCom were directly related to a lack of specific rules and/or bright-line manipulation of the rules, not in the corresponding accounting principles. "However, as demonstrated by the Enron situation, ethical dilemmas are generally ambiguous and a single correct response is not usually evident" (Thorne et al., 2004 p. 529).

As long as the business dynamic changes, the accounting profession and its supporting code of professional conduct will continue to be challenged to evolve. In this process situations will occur where a specific rule(s) will support ambiguity, uncertainly, or bright-line manipulation. Professional accountants should expand their cognitive moral development to include practicing post-conventional moral reasoning that supports principles-based ethical reasoning and non-mandatory moral virtues. "A growing body of evidence suggests that moral development affects both the sensitivity to ethical issues and auditors' judgments with respect to work-related dilemmas" (Jeffrey, Dilla, & Weatherholt, 2004, p. 553).

"If we need public accountants to make the public interests their highest priority, we need to better develop their capacity to reason at post-conventional levels" (Herron & Gilbertson, 2004, p. 517). While the current code of professional conduct may not fully support principle-based accounting, rule 204 of the code of professional conduct supports a departure from GAAP if compliance with the rules would make the financial statements misleading (Mano et al., 2006). However, without post-conventional moral reasoning and non-mandatory moral virtues, auditors will continue to struggle with independence issues, conflicts of interest issues, and ethical and moral dilemmas that require putting public interests and professional interests ahead of self-interests.

While Sarbanes-Oxley is considered effective in addressing its primary directive—the prevention of large public companies from engaging in financial fraud and consequently misleading stockholders and investors—it only serves to mask the underlying issue, the profession's failure to police itself (Boyd, 2004) and excludes mutual fund markets, nonpublic companies, nonprofit companies, and government sectors. Consequently, it is only reasonable to assume that without post-conventional moral reasoning and non-mandatory moral virtues, significant ethical accounting issues will surface within these areas, as well.

While group decision-making can play a key role in critical decisions made by auditors in an audit engagement (Rick, Solomon and Trotman, cited in Thorne et al., 2004). The key is to shift auditors' group decision-making in response to ethical dilemmas away from rules, laws, and court decisions to support post-conventional moral reasoning and non-mandatory moral virtues. "In the Enron meeting, perhaps if the partners attempted to discuss what they ideally should do and to focus on the professional principles of integrity, due care, and objectivity, it is possible that the conclusion the partners reached would have been different" (Thorne et al., 2004, pp. 538-539).

Koehn notes, "Each ethical theory singularly fails to sufficiently guide the accounting professional in every ethical situation. Collectively, they provide a menu of approaches that accountants can and should consider when facing ethical dilemmas" (2005, p. 525). In practice, accountants often rely more on feelings, intuition and guts rather than supporting decision through reflection on ethical theory. Such situations point to the need for a code of ethics to be part of the structure, guided by post-conventional moral reasoning and non-mandatory moral virtues.

Self-regulation is the foundation behind any profession, and it is clear from the events leading up to Enron that the accounting profession failed to perform its most basic social duty. However, the key to the future of this profession is not through external regulators and legislators that take a reactive view to a continually changing global business dynamic. The profession must address the fundamental failure of its integrity and moral foundation. Simply stated, the keepers of the profession must possess a normative moral core of integrity and moral reasoning, devoid of any trace of evasion or manipulation.

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INSTRUCTIONAL STRATEGIES FOR THE NET GENERATION

Kurt Komaromi, Ithaca College

ABSTRACT

This paper presents instructional strategies to connect with students who have grown up with the Internet and digital media. Drawing upon the author's successful experience teaching marketing and integrated marketing communications courses to undergraduate students at Ithaca College, the paper attempts to connect these individual strategies to research on the media consumption habits of the current generation of college students. Tools such as weblogs, podcasts, and discussion boards will be discussed and placed within a larger pedagogical framework. The goal is to summarize one effective case study that can serve as a basis for further research.

INTRODUCTION

The biggest surprise when I began my second career in teaching in 2004 was the lack of training, guidance, and mentoring provided to new faculty members. I should clarify that I began as an adjunct instructor, or one of the galley slaves of the higher education system. I didn't mind the lack of oversight at all. After a long and successful career in corporate marketing, sales, and senior management, and armed with a newly earned Masters degree in Communications, I had a pretty clear idea of how to organize my course and the confidence to stand up in front of students to deliver my instructional materials.

My teaching was immediately successful. Student evaluation ratings were very high, feedback from my department chair was enthusiastic and supportive, and I was assigned to teach additional courses. My success as an adjunct continued and eventually, I secured a permanent, non-tenured faculty position.

Now, after five years as an Assistant Professor of Marketing/IMC, I'm reflecting on the strategies that I've employed which have produced high rates of student satisfaction, effective learning outcomes, and a respected profile within my institution.

STRATEGIES

Course Branding

I develop a unique brand identity for each course that I teach. This includes a logo and website. The course logo appears on all presentation slides, assignments, and course materials (see appendix 1). A brand is often described as a promise of an experience and I regard my courses as experiential products that I'm delivering to my students. Developing a unique identity for the course elevates it above the staid catalog listing and suggests to students that the learning experience that follows has been carefully designed. The branding also integrates me closely with each course, even though other instructors often teach sections. All of my courses were first put on the books by other faculty but I've made them my own with a branded experience. Students now associate these courses with me and I have valuable assets that I can take with me to another institution or transform into corporate training programs.

Course Weblogs

I use a custom-designed blog to manage each of my courses. Why a blog and not Blackboard or another course management system? The blog allows me to post content that's date stamped and current. This helps students stay focused on what we are covering in a specific week. It also allows me to tag all of the resources with the topics to which they belong. Students can then search the site for all of the relevant materials on a specific course topic. The flexibility in posting all types of media helps to create a diverse set of instructional materials. These can include presentation notes, podcasts, links to articles and supplemental resources, and embedded video clips. Another advantage to using a blog is that students can attach comments and feedback to specific posts. For example, I might embed a video clip of an advertisement, ask the students to watch it, analyze the techniques being employed, and post their comments. The comment stream is then available for all students to view.

Students have the flexibility of either logging in on the blog several times each week or subscribing through RSS to everything that's posted. It simplifies the process for students to be led as a cohort incrementally through the course topics and materials. I must admit that even though students spend many hours with social media, I don't get a lot of comments posted on the blog unless I emphasize the beneficial impact on their contribution grades. My goal was to foster a learning community with the blog serving as a foundational platform. Perhaps a better definition than community is the "collective" as defined by Thomas and Brown (2011, The emergence of the collective, paragraph 4) as a different sort of community. “In communities, people learn in order to belong. In a collective, people belong in order to learn.”

So if we think of the blog as a space or medium for learning then we are not constricted by the expectation that all students must post regularly for it to be a valid alternative to a traditional course management system such as Blackboard.

This notion of a learning collective is illustrated by another strategy that I’ve employed in my Internet Marketing class. Students are required to build and maintain a blog over the course of the semester. These student blogs are all linked to the main course blog to facilitate interaction. Students post their case studies, research ancillary resources, and comment on each other’s work.

The power of the course blog for me lies in the media flexibility, RSS tags to curate resources by topic, options for students to subscribe to new posts, comment threads attached to each post, and capability for multiple authors to populate content.

Podcasts

Podcasts come in several forms. They can be produced as purely audio, audio with graphics or full-motion video. The decision on which type to use depends upon the desired application within the educational framework. I use enhanced podcasts that are essentially narrated slide shows. My production process begins with my lecture slides, the same ones that I use for in-class lectures. I then record a narration along with the slide transitions. To enhance the audio quality of my narration, I use a Blue Snowball USB microphone instead of the standard laptop microphone. The podcast content is essentially the same as the class lecture, without the discussions. I begin with a Keynote presentation, record narration, and then send the file to GarageBand for final editing which generally includes just some theme music at the start and end along with a check of the audio levels. The file is then converted to MPV4 format optimized for iPod. I’ve found this setting to be a good tradeoff between legibility and file size. I then post the podcast to my course blog. In the past, I’ve also posted podcasts to our institutional iTunes U account, however my students prefer to have all of their instructional materials in one location. They can view the podcasts within their web browsers or download them for later viewing on their laptops, iPods, iPads, or smart phones.

There are many tools available today for producing podcasts. If I want to capture the contents of my computer screen and record audio simultaneously, I would choose Camtasia, which is available for both the Mac and PC operating systems. Screen captures work well for demonstrating sequential processes or techniques for using software tools.

The podcasts serve many useful purposes and enhance the educational experience. Students who miss class use the podcasts to review the material that was covered that day and get caught up. Some review the podcasts to prepare for exams or assignments. Many use them in lieu of the textbook readings. I will also use podcasts to cover course material that I do not have time to deliver in a regular class period or to supplement it. Podcasts are a form of multimedia that today’s students are comfortable with and often prefer to print media.

PDF documents

Producing all course documentation including syllabi, assignments, and exams in PDF format reduces compatibility problems among operating systems. Another benefit with this platform is the ability to preserve text, graphics and layouts in their original form with high resolution. Finally, I can embed media within a document, including audio and video content. This allows me to appeal to all learning styles and to create a richer format than a traditional Word document. When I produce customized course readings, I can embed the additional media content for a more engaging experience.

Using Acrobat Professional, I combine multiple documents such as assignments, readings and case studies into one PDF file. This creates a multimedia experience for students who have been raised on video games and interactive media. The resulting content can be distributed on the course website or burned on a CD when I prefer to use more traditional distribution methods.

Customized Assignments

Assignments are designed to allow as much flexibility and choice as possible while still having students apply key concepts. For example, the final project in the Internet Marketing class requires students to develop an original concept for a pure-play business and then construct a marketing plan to launch and promote it. Students respond positively to the opportunity to effectively design their own business. Another key feature of assignments is they simulate real-world marketing challenges that professionals face every day. In that sense, they are biased more to practice than theory.

Discussion Boards

For each post on my course weblog, students can post their comments. This creates a chain of commentary that's connected to a specific resource, be it an article, video clip, or link to another website. One weakness of the weblog platform is the discussion threads are not as robust as the tools found in Blackboard and other course management platforms. When I do use Blackboard for facilitating my professional development courses, I appreciate the ability for learners to respond to each other rather than simply post in a linear thread. Both types of online discussion tools work well for students who are comfortable using social media and texting to communicate. Despite their familiarity with electronic messaging, however, I do find that students will not post regularly on either boards or weblog threads unless it's required for grading purposes.

Classroom Lectures

With the reliance on new media one might then question the role of the classroom. Is it redundant if so much content is posted online? Will students even show up for class if they can access so much content in the clouds?

There is still a vital purpose for classroom instruction. For many students, the reality is the traditional lecture is still their primary resource for learning key concepts. The high cost of textbooks and the students' preference for other forms of media have made books a secondary resource among course materials. In a recent survey (Redden, 2011) seven in 10 students reported they had not purchased textbooks at least once due to high cost. For many of my students, the lecture notes replace textbook readings in communicating key principles and concepts. To facilitate this, I post my lecture slides a day before class. These are simply my Keynote slides organized in a six-per-page layout, full-color, in PDF format. While students are not required to download the notes, many prefer to do so, bring them to class, and then annotate them during my lecture.

While covering the material, I select one or two concepts for discussion so that my lecture does not become a monologue. The ability to draw out comments and facilitate a discussion is a key skill for instructors to develop. This is, of course, relative to the size of the class. My current class sizes run from about 28 to 40 students. Smaller seminar-style classes are certainly better suited to debate and discussion but I have effectively engaged classes of up to 120 students by moving up the aisles in the auditorium and soliciting comments in the style of a talk-show host.

There are inherent benefits to the classroom as a learning medium. Only in the classroom can the instructor outline, discuss, and clarify fundamental concepts from the course. The richness of the classroom discussion exceeds anything that can be accomplished with an online comment thread. The classroom is the best setting for students to share their insights and experiences, the ideal setting for the learning collective envisioned by Thomas and Brown. Most importantly, the ability of the instructor to inspire and motivate students cannot be underestimated. The enthusiasm and passion of the instructor can be the catalyst for learning and can ignite the students' desire to pursue their academic and career objectives.

INSTRUCTIONAL THEORY

A review of current instructional theory reveals some congruencies between my strategies and recent research. I chose to include examples of both the constructivist viewpoints regarding social learning and research on the specific learning preferences of today's generation of college students.

New Models for Learning

John Seely Brown and Douglas Thomas (2011) talk about a new culture of learning that is emerging in the 21st century. This cultural revolution is being driven by the power of the Internet, by new digital communication technologies, and by the rapid pace of change in the amount of information available to us and the tools we use to access it. Learning needs to move out of the traditional classroom and embrace this changing world.

Moving away from a mechanistic approach where students are encouraged to learn as much as they can in rapid fashion, the new culture stresses a learning environment in which a broad array of digital resources are assembled by both instructors and students. "In the new culture of learning, the classroom as a model is replaced by learning environments in which digital media provide access to a rich source of information and play" (The new culture of learning, paragraph 1).

Brown and Thomas argue a constructivist position in which learning emerges in the social interaction among students and instructors and particularly in the group work performed by students. This connects back to classical theories of social learning from Vygotsky.

In an earlier study, Brown and Adler (2008) articulate a new model for social learning. In their view, we are evolving from a Cartesian view where knowledge is a product that can be effectively transferred from instructor to learner using effective pedagogy to a model where understanding is socially constructed and learner participation is essential.

Learning Preferences of the Net Generation

According to the research done by Don Tapscott (2009) there are eight norms that characterize the net generation. I've summarized them here specifically as they might apply to a learning environment:

Freedom – having choices and the ability to chart their own direction. This has implications for a more open and flexible curriculum.

Customization – being able to customize and personalize their learning experiences.

Scrutiny – desiring a transparent set of resources, usually found online, that can be used in the learning process.

Integrity – looking for values that align with theirs. This would influence their choice of a college or university, major area of study, and elective courses.

Entertainment – these students want a healthy quotient of entertainment and play in their education. Having grown up with video games, they are accustomed to interactive experiences.

Collaboration – they value their relationships with peers and are more accustomed to sharing resources, and working together on tasks rather than individual research and assignments.

Speed – there is an expectation that information will be accessed immediately and that communication responses will be as fast as their text message responses.

Innovation – being accustomed to rapid development and short product lifecycles carries over to the educational realm. Students want new methods and innovative approaches from the traditional lecture & textbook format of learning.

Tapscott concludes that today's learners want to replace what he calls the "broadcast learning" methodology (p. 130) with an interactive approach. In this model, the instructor is more of a mentor than a "sage on the stage."

Another perspective on learning systems is offered by Bob Pletka (2007, p. 31)

> Because the new digital world is full of systems like Nike Plus, the Net Generation has come to expect multimedia, experiential, and interactive learning systems. They seek learning systems that provide instant feedback, such as those built into Nike Plus, so that they can adapt, acquire new skills, and collaborate with others.

A final insight on the learning expectations of the Net Generation comes from a survey conducted by Gregory Roberts (2005). When asked to rate the most important factor for a successful learning experience the expertise and commitment of the faulty member carries the most weight. This was followed very closely, however, by the professor's ability to customize the learning experience using technology, and to present lecture material using contemporary software tools.

CONCLUSIONS

My instructional strategies appear to be connected to current research and educational theories. Using digital tools such as weblogs, podcasts, and discussion threads, I have created a more flexible and social learning experience. My approach seems consistent with the learning preferences of the Net Generation as defined by Tapscott and others. In short, this preliminary investigation suggests that my successful outcomes may be more than a matter of individual competency and therefore, easier to replicate.

The primary caveat is obvious — despite positive feedback from more than 1,000 students over the last several years, we are still dealing with a very limited sample of one instructor at one liberal arts college.

I'm also a little skeptical about categorizing all of today's college students as tech-savvy members of the Net Generation, positively yearning for social learning engagement both in and outside the classroom. My experience has shown that many students still want me to provide structure, clear direction, and precise expectations for assignments. While I post a multitude of supplemental learning resources on my course blogs, not all students access them. As much as I encourage students to post their opinions on discussion threads, the results are very inconsistent unless the activity is connected to a grade assessment.

Despite doubts about broader applications, I'm strongly encouraged by the consistently positive feedback from my students. The next step is to measure student-learning attitudes in a more quantitative manner, ideally in collaboration with colleagues from other institutions. This will allow me to measure student response to specific instructional strategies, media preferences, and acceptance of social learning pedagogy. I'm particularly interested in learning if student attitudes vary much among different educational institutions.

Regardless of where this future research leads, there really is no greater joy for me than to engage with my students in the branded course experiences I have designed, using a broad array of digital tools and customized resources along with the power of the traditional classroom lecture.

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APPENDIX 1

marketing
on the internet
Course website for MKTG 49100
Home Archives Profile Subscribe
May 17, 2011
Final Exam Scores
Attached is an Excel file with the final exam scores. Please note when you open this file there are two tabs in the lower left corner of the worksheet for the 9 and 10 sections. Please click on the correct tab to find your ID# and exam score.
Download MOI S11 Exam Scores
May 10, 2011
Microsoft buys Skype - what's next?
As you may have heard, Microsoft is shelling out $8.5 billion to buy Skype. This article speculates on what the folks up in Redmond might do with their new toy.
Five things Microsoft may do with Skype - CNN.com.
Email Me
MAY 2011
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Final Exam Scores
Microsoft buys Skype - what's next?

Sales +
Sales
Promotion
Course website
for MKTG 32500
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Communication Styles
09/17/2011
Podcast - Communication Styles
Here's the podcast version of our discussion in class. We focused on defining communication styles and the four types used in our model.
Download Communication Styles
09/13/2011
Communication Styles: Assessment Tool
Here is a link to the website supporting our textbook. Look for the Communication Style Assessment tab on the left margin. When you click on it, a window opens that allows you to download an Excel file that contains the instrument used to assess your personal communication style. Please complete this before Fridays class.
Communication Styles: A Key to Adaptive Selling Today.
Presentation - Communication Styles
Here's the material we'll review on Wednesday and
Email Me
RECENT POSTS
Presentation - Product Solutions
Yanks win AL East (again)
The Right Gift For Your Industry
Podcast - Ethics
Podcast - Communication Styles
Presentation - Ethics
Study Guide for Exam #1
Top 10 Ways To Show Confidence With Body Language
Communication Styles: Assessment Tool
Presentation - Communication Styles
RECENT COMMENTS
Kit Tannenbaum on Yanks win AL East (again)

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Podcast - Communicating Strategically
Here is our lecture from today on communicating strategically. We examined Argenti's model of strategic communication.
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Project #4 - Deliverables for individual projects
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Presentation - Government Relations
Presentation - Investor Relations
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Here's the podcast version of my lecture on research methods. We discussed both primary and secondary research, quantitative, qualitative and mixed methods.
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Presentation - Research Methods
Here's my presentation for Wednesday on research methods. We are going to discuss the pros and cons of both primary and secondary research as well as the major paradigms.
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Presentation - Research Methods
Quick and easy guide to APA style
Readings for next week
The Maturing of Corporate Social Responsibility
APA QUIZ
Podcast - Corporate Social Responsibility
Presentation - Corporate Social Responsibility
Podcast - Stakeholder Relationships
Presentation - Stakeholder Relationships
RECENT COMMENTS

A FRACTAL MODEL OF CREATIVE DESTRUCTION

Johnnie B. Linn III, Concord University

ABSTRACT

Under Joseph Schumpeter's model of creative destruction, introduction of new products and industries does not increase the number of dimensions of the economic universe but causes changes in that universe as old products and industries are destroyed. A fractal model is used to show how successive new products and industries occupy a hierarchy of niches in economic space. Firms, industries, or commodities fill voids in a Sierpinksi triangle. The number of dimensions of a Sierpinski triangle can be deduced from the Herfindahl-Hirschman index of its voids. From observed Herfindahl-Hirschman indices of market concentration, the number of dimensions of the economic universe can be ascertained. The number of dimensions is likely to be about 25.

INTRODUCTION

Joseph Schumpeter appears to be aware of a biological analogue of his concept of creative destruction (Schumpeter, 1950), for in the paragraph before he introduces his famous phrase he says:

> The opening up of new markets, foreign or domestic, and the organizational development from the craft shop and factory to such concerns as U.S. Steel illustrate the same process of industrial mutation—if I may use that biological term—that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. (*Ibid*, p. 83.)

He also appears to be aware of the concept of niches in economics space because he says this:

> Popularizing a little and recognizing that by doing so we lose much of the meaning, we may say that it is our daily work which forms our minds, and that it is our location within the productive process which determines our outlook on things—or on the sides of things we see—and the social elbow-room at the command of each of us. (*Ibid*, p. 12)

The paper in hand offers the hypothesis that creative destruction causes a change within the hypervolume—or Schumpeterian universe—in which economic activity is imbedded but does not change its number of dimensions. Creative destruction arises because firms select niches in economic space, and in doing so they alter the environments around them and create new, more numerous, smaller niches which additional firms can occupy who in turn create additional smaller niches, and so on. The process by which successively larger number of niches are filled at a successively smaller scale can be modeled by a fractal, in which geometric properties at one scale are repeated at successively smaller scales. In the current paper we develop a fractal model of niche creation and attempt to ascertain the number of dimensions of the Schumpeterian universe.

MAPPING THE SCHUMPETERIAN UNIVERSE INTO A SIMPLEX

A simplex of a particular dimension is the simplest geometrical solid that can be created in that dimension. We will assume that the Schumpeterian universe fills a simplex of an as yet unknown number of dimensions.

Suppose we have a firm that can repair and replace car mufflers, repair and replace brakes, and repair and replace tires. Let the three kinds of service be represented by the three corners of a two-dimensional simplex—a triangle—as shown in Figure 1.

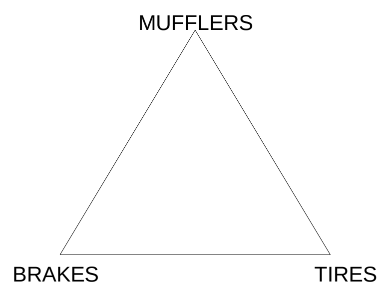

Figure 1. Empty Simplex.

The first firm to enter the simplex selects a combination of services to provide, as shown in Figure 2. This particular firm has chosen to concentrate more on brakes and mufflers than on tires. If the firm were to offer precisely the same mix of the three services at all times, its niche would be represented as a point, but this firm is able to vary the proportions of services it provides in response to variations in the markets, so the niche it occupies is an area.

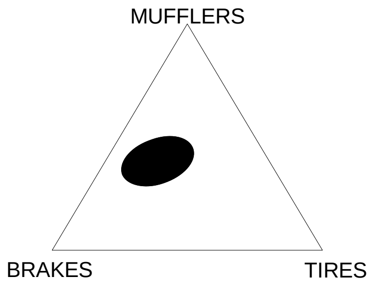

Figure 2. First Niche Dweller.

In Figure 3 is a generalist who occupies the central void of a Sierpinski triangle. The central void being filled alters its environment and creates three second-order voids. These can be occupied by firms that are not pure generalists but specialize somewhat in mufflers, brakes, or tires.

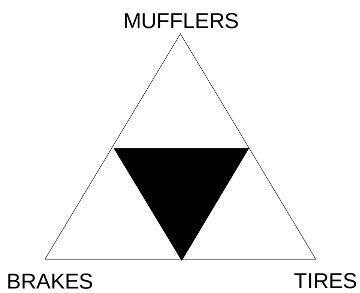

Figure 3. Central Void of Sierpinski Triangle.

When the second-order voids are filled, third-order voids are created. A Sierpinski triangle is a fractal, characterized by detail in larger scale being replicated in smaller scales. In the limit, all of the area of the triangle is occupied. Figure 4 shows a Sierpinski triangle whose voids of first, second, and third order have been occupied.

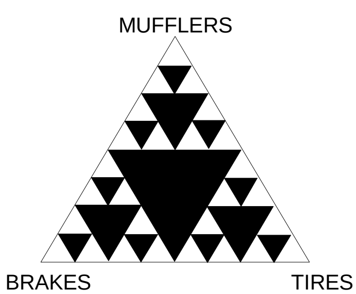

Figure 4. First Three Orders of Voids Occupied.

A Sierpinski triangle well describes the environment of creative destruction because whenever a firm or industry arises (filling a void of the triangle) it alters the environment of the adjacent areas in the triangle. Furthermore, we have voids of different sizes that can accommodate firms or industries of different ranges of specialization.

THE MEANING OF DIMENSION

In the above example, three kinds of service were mapped into a two-dimensional simplex. If we were to introduce a fourth kind of service (such as transmission work), the four kinds of service could be mapped into a three-dimensional simplex—a three-sided pyramid. Similarly, a fifth service (such as air conditioning) could be represented by expanding our simplex to four dimensions. But to conclude that we are to increase the dimension of our simplex by one for each new good or service introduced would be erroneous. We need to take into account the possibility that our goods and services are not orthogonal. The first three of our services listed are in a grouping that could be called "work that can be done from under a car". We would intuitively conclude that a firm that offered muffler, brake, and tire services would not occupy as many dimensions in economic space as a firm that offers, say, muffler services, photography services, and day care. The concept of creative destruction implies that new firms do not create additional room in the Schumpeterian universe but alter the configuration of that universe within a fixed number of dimensions. The dimensions of the Schumpeterian universe are to be determined from factor or principal component analysis and are unlikely to be identifiable with specific products or services.

Primality and Duality

The concept of creative destruction can be applied to either primal or dual economic dimensions. Primal dimensions apply to the kinds of output that are made available and dual dimensions apply to the kinds of inputs that are drawn upon.

THE MODEL

The Schumpeterian universe is be represented by a Sierpinski triangle whose central void and successively smaller voids are occupied by firms or industries that exhibit increasing degrees of specialization. The volume of a void is something measurable, such as value added. A Hirfindahl-Hirschman index (HHI) for the triangle is calculated. Since Sierpinski triangles of different dimensions have different HHI's, we can infer the number of dimensions of the Schumpeterian universe by finding the Sierpinski triangle whose HHI best approximates the observed HHI.

We can test the hypothesis that the Schumpeterian universe is a Sierpinski triangle by comparing the number dimensions we derive from the HHI to a number of dimensions that is inferred by some other means.

Let the largest void be designated order 1, and successively smaller sizes by order 2, 3, etc. The ratio of the volume of any niche *j* of order *i* to the volume of all the voids in the triangle is

$$s_{ij} = \left(\frac{1}{n+2}\right)^i, \quad (1)$$

so the square of its "market share" is

$$s_{ij}^2 = \left(\frac{1}{n+2}\right)^{2i}. \quad (2)$$

The number of niches of order *i* is

$$N_i = (n+1)^{(i-1)}, \quad (3)$$

so the sum of the squares of the market shares of all the niches of order *i* is

$$\sum_{j=1}^{(n+1)^{i-1}} s_{ij}^2 = (n+1)^{(i-1)} \left(\frac{1}{n+2}\right)^{2i}$$
$$= \frac{1}{n+1}\left[\frac{n+1}{(n+2)^2}\right]^i. \quad (4)$$

The HHI is the sum over all orders:

$$H(n) = \frac{1}{(n+1)}\sum_{i=1}^{\infty}\left[\frac{n+1}{(n+2)^2}\right]^i$$
$$= \frac{1}{n+1}\left[\sum_{i=0}^{\infty}\left[\frac{n+1}{(n+2)^2}\right]^i - 1\right], \quad (5)$$

or

$$H(n) = \frac{1}{(n+1)}\left[\frac{1}{1-\frac{(n+1)}{(n+2)^2}} - 1\right]$$
$$= \frac{1}{(n+2)^2-(n+1)}. \quad (6)$$

Each index is more conveniently expressed as its inverse:

$$H^{-1}(n) = (n+2)^2 - (n+1). \quad (7)$$

This is a quadratic equation in *n*, with the positive root

$$n = \frac{-3+\sqrt{9+4(H^{-1}-3)}}{2}. \quad (8)$$

Adelman (1969) interprets H^{-1} for a commodity's producers as the number of their effective competitors. In the analysis that follows, we will be compiling an aggregate *H* over different commodities. Firms that are competitors in a particular commodity are suppliers or customers of firms producing other commodities. Across commodities, a better description of H^{-1} would be to replace the word "competitors" with something more inclusive such as "participants". Equation (8) tells us that for a reasonably large value of H^{-1}, the dimension of the Schumpeterian universe goes as the square root of its number of effective participants, or, equivalently, the number of effective participants in a Schumpeterian universe goes as the square of its number of dimensions.

From application of Equation (3) it can be shown that for any dimension the number of effective participants in a Sierpinski triangle is an exact match to the number of its voids to the first three orders.

A FINITE NUMBER OF PARTICIPANTS

In real world data the number of participants will not be infinite, so a correction to *H* will be needed to account for this. Let us suppose that niches are filled in order of decreasing volume, that is, the largest void is filled first, then the voids of second order, and so on. What would be the HHI of a Sierpinski triangle whose voids of greater than order *b* are empty? We can find this by subtracting from the full Sierpinski triangle the volume of all the voids of order *b* or less. Let H_{-b} be the HHI for a Sierpinski triangle whose voids than order *b* or less are empty. Modifying Equation (5), we can define f_{-b} as the fraction of the HHI that is accounted for by the voids of order more than b:

$$f_{-b}(n) = \frac{1}{(n+1)}\sum_{i=b+1}^{\infty}\left[\frac{n+1}{(n+2)^2}\right]^i. \quad (9)$$

Now let us redefine the index *i*, thus:

$$k = i - b \quad . \quad (10)$$

Then we have

$$f_{-b}(n) = \frac{1}{(n+1)} \sum_{k=1}^{\infty} \left[\frac{n+1}{(n+2)^2}\right]^{k+b}$$
$$= \frac{(n+1)^b}{(n+2)^{2b}}. \quad (11)$$

Let us define $f_b(n)$ as the fraction of the HHI accounted for by the voids of up to level b. Then,

$$f_b(n) = \left[1 - \frac{(n+1)^b}{(n+2)^{2b}}\right] H(n). \quad (12)$$

The fraction of $H(n)$ accounted for by the first b orders is not the same as the HHI of the first b orders because an adjustment has to be made to the total volume occupied by the first b orders. If we sum the expression in Eq (1) instead of Eq (2) over all niches up to order b, and carried the calculations through Eq. (12), the value expressed in Eq. (12) with the exponent $2b$ replaced with b would be the volume of the triangle occupied by the first b orders, or

$$V_b(n) = \left[1 - \frac{(n+1)^b}{(n+2)^b}\right] V(n). \quad (13)$$

The square of this is used as a divisor with $f_b(n)$ to obtain the value of the HHI for the first b orders, so we will have

$$H_b(n) = \frac{\left[1 - \frac{(n+1)^b}{(n+2)^{2b}}\right]}{\left[1 - \frac{(n+1)^b}{(n+2)^b}\right]^2} H(n); \quad (14)$$

equivalently,

$$H_b^{-1}(n) = \frac{\left[1 - \frac{(n+1)^b}{(n+2)^b}\right]^2}{\left[1 - \frac{(n+1)^b}{(n+2)^{2b}}\right]} H^{-1}(n). \quad (15)$$

The measured values of the number of effective participants and of the number of dimensions of the Schumpeterian universe will be a little lower than those to be found if the Sierpinski triangle were completely filled.

PERCEPTION OF CLASS

Another consequence of having a finite population is that the number of orders that are populated will be finite. Then it is possible that there will be an empirical perception of the existence of classes, each class corresponding a particular order of voids. The distribution of members in each class, when compared with what would be expected by use of Equation (3) for a particular value of n, will give us an empirical measure of the best fit value of n.

THE GINI COEFFICIENT

Equation (15) gives us the cumulative volume of the triangle by increasing order of b, meaning that the largest void is counted first, then the next largest, and so on. To count the smallest voids first, then the next largest, and so on, we use the modulus of V_b, thus:

$$V_{-b}(n) = \left[\frac{(n+1)^b}{(n+2)^b}\right] V(n). \quad (16)$$

For all orders of b or higher, we use Eq. (3) in succession and substitute a population range for each order. Then, summing over all ranges we obtain the area under the Lorenz curve. For increasing values of n, the Lorenz curve will have smaller curvature and the resultant Gini coefficient will be smaller. With Gini coefficient data and a given population, we can find the value of n that gives us the best fit and the best estimate of the dimensionality of that population.

A Linear Approximation

The Lorenz curve for a Sierpinski triangle can be approximated by a two-step linear function as shown in Figure 5.

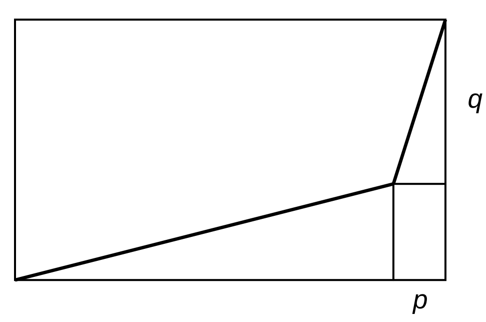

Figure 5. Two-Step Lorenz Curve

Let q represent the volume of the first three orders of voids and p represent their proportion of the total population. The integral of the Lorenz curve is then

$$\int_{x=0}^{1} L\,dx = \frac{(1-p)(1-q)+p(2-q)}{2}\,, \quad (17)$$

and the resultant Gini coefficient is

$$g = q - p \quad . \quad (18)$$

In the limit, as all the voids of the triangle are filled, p vanishes. Then, from Equation (15),

$$g_{p\to 0} = \frac{V_3(n)}{V(n)} = \left[1 - \frac{(n+1)^3}{(n+2)^3}\right]. \quad (19)$$

whose solution for a particular observed value of the Gini coefficient can be determined with a root-finding algorithm.

DATA AND RESULTS

We look at empirical studies that imply dimension and, when possible, test the hypothesis that the Sierpinski triangle model is a good predictor of dimension.

Geographic Variation

Since economic activity is embedded in a physical environment, we should expect environmental variables to play a role in defining the dimensionality of the Schumpeterian universe. Hargrove and Hoffman (2005) measured twenty-five terrestrial environmental variables in regions of approximately one-kilometer resolution in North America. Using factor analysis, they rendered the twenty-five variables into nine principal components: solar insolation, water holding capacity, soil bulk density, depth of mineral soil, depth to bedrock, annual temperature, annual precipitation, elevation, and slope (i*bid*, p. S51). These dimensions, since they apply to intakes, can be classified as dual.

The World Wildlife Fund or World Wildlife Fund for Nature identifies fourteen major habitat types, or biomes, thirteen of which are found in North American. (Olson, 2001). Among these biomes in North America are 125 ecoregions (Ricketts, 1999). Biomes and ecoregions are the second and third ranks of ecological classification in a series comprising biosphere, biome, ecoregion, ecosystem, biotope, taxon. A Sierpinski triangle of nine dimensions populated to six orders would have one biosphere, 10 biomes, 100 ecoregions, 1,000 ecosystems, 10,000 biotopes, and 100,000 taxa. Nine dimensions is our best fit for the data. We would expect to identify additional dimensions if the geographical resolution is improved.

Socioeconomic Class

The number of socioeconomic classes in the United States is set at six by Gilbert (2002) and at five by Thompson and Hickey (2005) and Beeghley (2004). The six classes identified by Gilbert are capitalist, upper middle, lower middle, working, working poor, and underclass. In the other two studies, working poor are not separated out.

We can look at socioeconomic class from either a primal perspective or a dual perspective. In the primal perspective, individuals are producers making themselves available for the market, and we look at the distribution of individuals in each class without regard to their earnings. In the primal perspective the central void is occupied not by the capitalist class but by the class that is least differentiated. The underclass and working poor, or poor, constitute from about 12% to 20% of the labor force according to the three studies cited above. The best fit for five orders is a Sierpinski triangle of a single dimension, whose central void accounts for 0.33% of its volume. All of the three studies list the level of education as a distinguishing characteristic of class and it is likely the single primal dimension that defines class.

From the dual perspective, individuals are consumers, and purchasing power is the relevant variable. The U.S. Census Bureau (2009) reports a Gini coefficient of 0.468 for the United States for 2009. The resultant estimate of the number of dual dimensions involving class is about 3.3.

Industry Concentration Data

Linn (2010) derived a global Herfindahl-Hirschman index to measure primal concentration across a selection of industries or a dual concentration across a selection of commodities. In the manufacturing sector, the global HHI derived from industry HHI data for total value of shipments for 2000 yielded an effective global number of participants of 439. This number is likely overstated because the national HHI'S are likely to be lower than local HHI's in some industries and there is multiple counting of intermediate goods. The resultant number of dimensions is about 19, a not-altogether surprising result since there are 21 manufacturing categories at the 3-digit NAICS level and it is likely that the designers of the NAICS categories had in mind to make them as orthogonal as possible.

Make-Use Data

Make-use tables at the industry and commodity level eliminate the problem of the intermediation of firms.

From the 2010 make table, Linn (2010) derived a value of 50 as the effective number of commodities produced, yielding about 5.5 primal dimensions. From the use table was derived a value of 479 for the number of effective industry purchasers of commodities. The corresponding number of dual dimensions is about 20.

IMPLICATIONS OF THE RESULTS

The most comprehensive aggregate data available, the make-use tables, suggest that there are about 5 primal dimensions and 20 dual dimensions that span economic activity. The preponderance of dual dimensions is consistent with everyday observations of economic activity, in which the mix of inputs is more variegated than the mix of outputs.

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CHALLENGES AND OPPORTUNITIES OF AN AGING WORKFORCE

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ABSTRACT

The average age of the American workforce is increasing and employees are retiring later, creating both challenges and opportunities for companies. Employers have learned that there are both advantages and disadvantages in hiring older, rather than younger, workers. Advantages include: (1) the work ethic of older employees is often better than that of younger generations; and (2) companies derive benefits from the knowledge and experience of older workers. Disadvantages include: (1) older workers may lack fresh ideas as compared with younger generations; and (2) there are increased costs associated with health benefits for older workers. As the age of the workforce increases, the organization needs to become even more concerned about employee well-being, as age generally has a direct impact on employee health and safety. A major concern of organizations may not be the aging process itself but rather the physical and cognitive changes that are related to this process. Such issues as sensory intact status and manual dexterity, and endurance and its effects on productivity must be considered. In addition, the costs and benefits of using ergonomics to improve workplace safety, designing tools and equipment to prevent injury, making environmental adaptations for the older worker, and implementing safety/fitness programs must be measured. Finally, knowledge management policies and practices, including succession planning/knowledge transfer, must be devised in order to protect the employer's intellectual assets.

INTRODUCTION

The average age of the American workforce is increasing and employees are retiring at later years than seen in past generations, creating both challenges and opportunities for companies. The American Association of Retired Persons estimates that 80% of baby boomers (those born between 1946 and 1964) plan to continue working beyond their 65th birthday. This is a substantial number, considering that the proportion of the population aged 65 and older will almost double by 2030 (Moberg, 2001).

DEMOGRAPHICS OF GENERAL POPULATION

According the Centers for Disease Control (CDC) National Vital Statistic Report, in 2006, the overall expectation of life at birth was 77.7 years, representing an increase of 0.3 years from life expectancy in 2005. From 2005 to 2006, life expectancy at birth increased for all groups – from 74.9 to 75.1 for males and from 79.9 to 80.2 for females. This increase is typical of the average annual changes that have occurred during the last 30 years. Throughout the past century, the trend in the United States life expectancy was one of gradual increases and this trend is expected to continue (CDC, 2010).

United States Census data from 2010 show a total population of 308,745.538 – a 9.7% increase from the previous census in 2000 (Census, 2010). According to the Department of Health and Human Services Administration on Aging, persons 65 years of age or older totaled 39.6 million in 2009 (the latest year for which data are available). These individuals constituted 12.9% of the U.S. population, or approximately one in every eight Americans. By 2030, there will be about 72.1 million older persons, more than twice their number in 2000. Individuals 65 plus constituted 12.4% of the population in the year 2000 and are expected to grow to be 19% of the population by 2030 (AOA, 2011).

This increase in the general population has a direct impact on the total labor force. The Bureau of Labor Statistics projects the total labor force to increase by 8.5% during the period 2006-2016. However, when this projection is analyzed by age, the number of workers in the youngest group, ages 16-24, is projected to decline during the period while the number of workers ages 25-54 will rise only slightly. In comparison, workers ages 55-64 are expected to climb by 36.5%. The most significant change is projected for the two oldest groups. The number of workers between the ages of 65 and 74 along with those aged 75 and older are predicted to increase by more than 80%. It is predicted that by 2016, workers age 65 and over are expected to account for 6.1% of the total labor force, up sharply from their 2006 share of 3.6% (BLS, 2010).

DELAYED RETIREMENT OF THE WORKFORCE

In addition to demographic changes, the workforce is also aging as a result of delayed retirements. There may be numerous reasons for this phenomenon.

According to statistics from the Bureau of Labor Statistics (BLS), earnings of workers 65 and older have been below those of all workers. In 1979, median weekly earnings for full-time workers age 65 and older were $198 compared to $240 for all full-time employees age 16 and up. In 2007, earnings of older workers were $605 per week, still below the median of $695 for all workers. However, over the long-term, earnings of older workers have risen at a slightly faster pace than those of the total workforce. In 1979, median earnings of older, full-time employees were 83% of those ages 16 and up but, by 2007, that ratio had climbed to 87% (BLS, 2010).

Data on weekly earnings depict that men aged 45 to 54 and 55 to 64 had the highest median weekly earnings, at $941 and $983, respectively. Usual weekly earnings were highest for women age 55 to 64 years of age with median weekly earnings of $739. This was followed by median earnings of $729 for women age 35 to 54 (BLS, 2010).

These statistics on the wages of the workforce, and specifically on aging workers, may imply that as workers age and become more experienced in their positions they are compensated according. Relating this fact back to the delay of retirement, workers may have become accustomed to a higher standard of living as their wages increased. The fear of losing this level of compensation, along with the uncertainty of retirement income, may also play a significant role in delayed retirements.

Another significant reason why workers delay retirement is the need for affordable healthcare coverage for themselves and their families. In most cases employers provide company-sponsored health insurance which provides healthcare coverage for employees that is either completely or partially funded by the company. As workers retire, they are often faced with the need to purchase their own insurance at substantially higher rates. Although Medicare is generally available to retirees, the amount of coverage is often insufficient to cover medical needs. In a study administered by the Society of Actuaries and the International Foundation for Retirement Education, retirees were asked how they plan to pay for health care coverage. For pre-Medicare aged retirees (under age 65), the most common way of obtaining coverage was through their previous employers who offered post-retirement coverage. The remainder received coverage through spouses or under a private insurance policy. Most Medicare eligible retirees relied on Medicare Parts A & B, with 29% choosing to purchase additional supplemental insurance coverage (Salter, 2011).

ADVANTAGES OF OLDER WORKERS IN THE WORKPLACE

Many employers have found advantages in hiring and retaining older workers. Employers should ignore the stereotypes of older workers – that they cannot, and will not, keep their skills current, and that they are cynical, stubborn, and difficult. “Mature workers bring a lot to the table. They are loyal, reliable, and focused. They have perseverance and maturity. These traits often place older adults among the most productive workers on the job” (Holmes, 2009).

The Work Ethic of Older Employees is Often Better Then Younger Generations

How people feel about the work they do, the jobs they hold, the people with whom they work, and the organization that employs them are important inputs into how employees respond to their work situation. It has been well documented that the work environment and the individual characteristics of workers both play major roles in the feelings and attitudes of workers. One of the most consistently reported findings of worker characteristics is the positive relationship between a worker’s age and his or her overall job satisfaction. This may be due to the fact that older workers generally have longer tenure, more work experience, and have advanced to higher occupation levels – all of which are factors considered to be at the core of job satisfaction (Shultz, 2007).

In addition, work motives and values of older employees are often more positive than those of younger generations. “In the most general sense, work motivation refers to workers’ willingness to direct their energies toward organizationally valued behaviors and outcomes” (Shultz, 2007). A study conducted by Smola and Sutton (2002) examined evidence of generational differences in work values and evidence demonstrated that work values change as employees age. The authors found evidence that younger “Generation X” workers placed more emphasis on quick promotions than did baby boomers, and placed more value on the moral importance of work. However, baby boomers ranked work as the primary focus in one’s life more often than did the younger generations (Shultz, 2007).

Companies Benefit From Knowledge and Experience of Older Workers

As employees retire, more companies are recognizing the value of the knowledge and experience of older workers as well as reduced training costs due to this previous knowledge and training. In SHRM's 2006 Weekly Online Survey, 71% of surveyed HR professionals felt that the greatest advantage of hiring older workers was that they have invaluable experiences in their careers. The second highest response was that older workers serve as mentors for workers with less experience. The third highest response was that older workers may be more likely to work part-time or seasonally to fulfill labor-on-demand needs. It should also be noted that 0% of respondents in the 2006 survey said there were no advantages to hiring older workers (SHRM, 2006).

DISADVANTAGES OF OLDER WORKERS IN THE WORKPLACE

Employers must also evaluate the potential disadvantages of hiring older workers. Along with experience in a given field often comes the tendency of being set in one's way of performing a function. Also, older workers frequently do not feel comfortable with changes that come with technological advancement in the workplace. Finally, with the aging process comes an increased number of health issues which, in turn, results in increased costs of health benefits.

Potential Lack of Fresh Ideas from Older Workers

In the 2006 SHRM survey, HR professionals were also asked their opinion regarding the disadvantages of hiring older workers. The top response, 49%, was that older workers do not keep up with technology. Secondly, 38% responded that older workers cause expenses such as healthcare costs to rise. Thirdly and interestingly, HR professionals responded that there are no disadvantages to hiring older workers as compared to other workers. With respect to training and the potential lack of fresh ideas from older workers with more recent education in the field, only 11% stated that older workers require more training, followed by only 10% stating the older workers stifle creativity in the organization with their old-school ideas (SHRM, 2006).

Increased Benefit Costs of Older Workers

As the workforce ages, employers, employees, insurers, and brokers will need to begin considering the impact of disability among older workers. Older employees sustain disabling conditions such as broken bones, fractures, and multiple injuries more frequently than do younger workers. In addition, these types of injuries often require more time to heal in older individuals. This extended recovery time contributes to an increased expense on worker's compensation, as well as increased health insurance utilization and expenses. Additionally, hospitalization and/or rehabilitation occur more often in older individuals, thereby leading to higher levels of absences pursuant to the Family and Medical Leave Act during the recovery process (McMahan, 2006).

OCCUPATIONAL HEALTH AND SAFETY OF AN AGING WORKFORCE

In recent years, companies have begun to focus more on employee health due to increasing health insurance premiums. As the age of the workforce increases, the organization needs to become even more concerned about employee health, as age generally has a direct impact on employee health and safety. The major concern of organizations may not be the aging process itself but rather the physical and cognitive changes that are related to the aging process.

Sensory Intact Status and Manual Dexterity

Sensory intact status and manual dexterity may be viewed by employers as major concerns with the aging workforce. It is known that with age comes the increase of certain types of chronic problems. In addition to illness, older workers may also have less resistance to harmful exposures within the workplace. The concern for employers is the relationship of physical limitations to the risk of work-related injuries and accidents due to these limitations. "Major findings from the Census of Fatal Occupational Injuries state that elderly persons have a higher risk of workplace fatalities relative to their share of employment" (McMahan,2006). Some of the major reasons for falls and similar accidents are environmental hazards, reduced physical fitness, and adverse effects of medications – all of which are escalated by the aging process.

Physiological changes affecting vision, hearing, and musculoskeletal systems have a direct relationship to productivity and safety in the workplace. As employees age, there are changes in their ability to see clearly, which has the potential to impair work performance. "These changes include a decline in static and dynamic visual acuity (DVA), a reduction in the range of accommodation, a loss of contract sensitivity, a decrease in dark adaptation, an increase in susceptibility to glare, a decline in the ability to detect targets against a background, and a decline in the ability to discriminate between certain colors." (McMahan, 2006)

DVA is the ability to resolve details of a moving target and its decline begins around age 45. This, along with the decrease in dark adaptation and an increase in susceptibility to glare, makes it more difficult for older workers to see critical information and easier to miss it because of environmental clutter which includes non-target information in the visual field.

Age related hearing loss includes loss of sensitivity to tone, difficulty understanding speech, difficulty localizing sounds, and increased sensitivity to loud noises. These physiological limitations could lead older workers to not hear or recognize alarms and not understand spoken details (McMahan, 2006).

Musculoskeletal changes also generally occur during the aging process. Studies show that muscular strength in general peaks between 25 and 30 years of age and then decreases to a level where the average 51-55 year old has only 80% of his or her peak strength. This decline continues to about 40% for individual ages 71-75 years of age (McMahan, 2006). The reduction in physical strength which occurs with aging can be especially hazardous to those workers who are in positions requiring exertion of high muscular forces such as lifting, lowering, carrying of moderate to heavy loads, and pushing or pulling of heavy material.

The most significant change which occurs in the aging process that may impact the aging workforce would be the ability for joint movement, especially small motor movements associated with grasping, gripping, twisting and turning, or large motor movements associated with walking, bending, sitting, climbing, stooping, and reaching. Changes in small motor movements affect the workers' dexterity and ability to hold and manipulate objects (McMahan, 2006).

Endurance and its Effects on Productivity

The cumulative effect of reduced musculoskeletal abilities, along with limitation of joint movement, as well as visual and hearing limitations can lead to an overall reduction in endurance which may affect the employee's productivity in the workplace. Older workers may be slower to respond and to maintain a given level of performance or productivity.

Previous research also has shown that, although reaction times and endurance may be reduced, older workers often have much more experience than younger employees and therefore apply previously learned skills to current situations resulting in comparable performance with younger workers (Perry, 2010). With tasks which involve decision-making it should be noted that decision quality did not seem to be affected by age. When an older person was given sufficient time to make a decision, the quality of that decision was as good as that of younger workers (Haight, 2003).

Ergonomics to Improve Workplace Safety

Employers can and should employ ergonomics to reduce the risk of workplace injuries, especially taking into consideration the effects of workplace aging. The fundamental ergonomic process followed by most practitioners includes a four-step approach:

1. identify the physical, physiological, and psychological demands of the job;
2. identify the physical, physiological, and psychological capabilities of the worker;
3. identify the physical, physiological, and psychological mismatches between the demand and the capability; and
4. minimize the mismatches through education, training along with work, tool, equipment, and environmental re-design (Perry, 2010).

When the job demands match the worker capabilities, the job-worker relationship is optimized, leading to maximum productivity and employee safety. Organizational ergonomic programs should have two fundamental control measures – engineering solutions and administrative solutions. Engineering solutions would include the physical adaptations to tool, task, and workplace design. These may include such areas as task design, workstation design, environmental design, tool design, manual materials handling design, and equipment design (Perry, 2010). Engineering solutions generally focus on the job and work environment with the goal to redesign the job, tools, equipment, and environment to address those risk factors associated with poor performance (Perry, 2010).

Administration controls within an ergonomic program are generally explored when engineering solutions are not available or they may be taken in coordination with engineering solutions to maximize the program. Administration controls are actions taken to limit the potentially harmful effects of a stressful job on workers and may be achieved by modifying personnel functions through managerial strategies, policies, and procedures.
Education and training programs would be included in these controls, as well as job rotations and sufficient breaks for employees to remain performing at a safe level. Education in the form of seminars and

training programs can help workers prevent job-related injuries, such as carpal tunnel from repeated movements, and back strain from lifting improperly (Haight, 2006).

It may also be beneficial for organizations to maintain consistent work schedules for older employees so as to encourage a regular sleep habits. Older workers generally benefit from working a day shift schedule as opposed to nightly second or third shift (Brown, 2007). Consideration should also be given to implementing health and exercise programs, as well as appropriate return-to-work programs for employees recovering from an injury or illness.

Tool and Equipment Design in Injury Prevention

Joint mobility and manual dexterity issues related to the aging workforce can be addressed by employers by increased awareness to quality tool design. Studies have demonstrated that, while tool design was unrelated to job performance in younger employees, it made a significant difference in the performance of older workers (McMahan, 2006). Tool design within an ergonomic program may include adjusting grips and leverage to compensate for demand and capability mismatches. In addition, tool weight, balance, and triggers may also be adjusted, as well as torque, vibration and handle design (Perry, 2010).

Equipment may also need to be adapted within the ergonomic program to improve employee performance and safety. Altering knobs and switches, as well as controlling location and brightness, can compensate for both musculoskeletal and visual limitations. Older workers especially benefit from controls that are well-lit and easy to locate against their background (McMahan. 2006).

Making Environmental Adaptations for the Older Worker

In addressing potential physical limitations, the risk of accident or injury from physiological change can often be mitigated with minor environmental adaptations. In terms of vision, improved lighting conditions can reduce the effect of some vision variances. Workers benefit from well-lit work areas and from clean and uncluttered work tables or desks, which can be individually lit with task lighting. To reduce glare, lighting sources should be perpendicular to the work area (Brown, 2007). In addition, large type and printed material, which includes black print on white background, helps to reduce eyestrain. Employers should further study where workers are likely to be looking and place signs at eye level. For employees who travel between various work areas, the lighting between work areas should be maintained at a similar level since aging workers are often slower to adapt to changes in lightness and darkness (McMahan, 2006).

For additional safety, ramp and surface level changes could be color-coded to help prevent falls. Making landings well-lit, and making steps and risers of different colors or brightness compared with other traffic areas so they are more distinguishable, can aid in visibility and therefore reduce the risk of slipping or tripping (McMahan, 2006).

The work environment can also be improved with noise reduction incentives that minimize loud machinery and air conditioning units. Sound absorbing material as simple as plants, carpeting, and window treatments could be incorporated in the workplace to reduce noise exposure. In environments where noise reduction initiatives are not operationally possible, the utilization of hearing protection devices should also be required.

In terms of musculoskeletal changes, injury risk for workers in physically demanding occupations can be reduced by automated processes whenever possible. Employers should also conduct studies to determine if tasks can be modified to avoid prolonged or excessive muscle utilizations leading to specific area overuse and fatigue.

Safety /Fitness Programs

As companies increase their awareness of the occupational health and safety of their workforces in terms of the aging worker, their policies and procedures can be updated to reflect their concern for safety and fitness amongst all employees. Employers should strongly consider conducting vision and hearing examinations. Eye exams are especially important for those employees who work with computers or perform tasks which could make them more susceptible to eye strain. Hearing exams should be considered as part of orientation of new employees and then annually thereafter to detect any changes in hearing during the course of employment.

A healthy lifestyle program offered by employers is at the center of a workforce injury prevention program. Sprains, strains, and tears continue to dominate the type of occupational injury suffered by all workers. In 2009, in the private employment sector, these types of injuries consisted of 39.3% of days away from work, followed by fractures, consisting of 7.8%. In addition, the highest percentage of these injuries occurred to the trunk of the body, consisting of the clavicle, scapula, back, and spinal cord (BLS, 2010). Since an individual's overall physical health condition, especially in terms of flexibility and muscle strength, can influence the risk of these types of injuries, an organizational incentive toward a healthy lifestyle can reduce the occurrences of these injuries.

KNOWLEDGE MANAGEMENT

Knowledge management within an organization includes two distinct types of knowledge – explicit knowledge and tactic knowledge. Explicit knowledge is formal, documented knowledge such as policies, procedures, patents, and copyrighted material. Tactic knowledge is the intuitive knowledge that individuals possess and acquire through years of experience at a given task. Although explicit knowledge is documented, tactic knowledge is often not and, therefore, it is more likely to be lost as employees retire from an organization.

Organizations may need to focus more on the tactic knowledge than the explicit knowledge. "A typical problem in capturing the expertise of veteran employees is that their expertise is so engrained that they may not recognize what is special about their personal knowledge" (Harris, 2006). While organizations may use interviewing techniques to attempt to capture the valued tactic knowledge, unfortunately, the interviewer may not be familiar enough with the process to ask the correct questions in order to elicit the appropriate information.

Succession Planning/Knowledge Transfer

As the value of knowledge is recognized, organizations must realize the importance of transferring that knowledge when the aging workforce begins the transition to retirement. Lost knowledge is a lost asset and holds a measurable expense to any organization. In recognizing the process of knowledge transfer, the organization should evaluate the roles of various departments and key individuals to achieve a successful succession planning.

The leading method of coping with the aging workforce may be through the use of part-time or flex-time options. Other methods included recruitment programs, work/life benefits, retention programs and knowledge transfer as older workers approach retirement (HR Focus, 2008). While initiating flexibility in schedules and roles to retain the experience as long as possible is important, the primary concern should remain on how to transfer knowledge during this period of transition to retirement. Some companies have looked to consultants utilized as success coaches to assist development of the "experience transfer" process.

A successful strategy may entail allowing older workers the opportunity to work fewer hours per week if they so choose. Strategies such as job sharing and part-time work schedules can be utilized to create senior level functions such that the older workers can be transitioned into a leadership capacity without necessarily having supervisory responsibility (HR Focus, 2008). This approach places these employees in a better position to share their knowledge and expertise with younger or less experienced workers. It is often the case that it is only after employees leave an organization for retirement that the value of the knowledge they possessed is realized by the organization.

CONCLUSION

It is an inevitable fact that the workforce is aging. The combination of factors including the largest age group of workers reaching retirement age as well as economic and political uncertainty are impacting retirement decisions and affecting the way employers need to view their current workforce. Studies have shown that there will be a shortage of younger workers to replace those retiring. With this in mind, companies are faced with the challenge of how to retain and manage their aging workforce. First, companies should undertake workforce planning by determining their core business model as a means of determining their immediate and future staffing needs. Knowledge management then plays a role in determining the vital information necessary to retain competitive advantage. Employers who can identify and transfer knowledge from forthcoming retirees to younger workers will be more effective in business succession planning.

With an aging workforce comes the need for employers to understand and to address their needs. Occupational health and safety should be the concern of all companies. Understanding the physical limitations associated with the aging process will enable employees to be more productive.

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INFLATION IN AN ERA OF LARGE BUDGET DEFICITS: THEORY AND EVIDENCE

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ABSTRACT

Developed countries have emerged from the 2008-09 global recession with large budget deficits. The corresponding increase in national debt has led to fears that governments will soon face higher interest rates and rising inflation. The experience of Ireland, Greece and Spain illustrate the bleak disfavor with which bond markets eye unsustainable government imbalances, and even the U.S., with its growing debt, may have to contend with higher interest rates and pernicious rates of inflation. In this paper we seek to analyze recent developments in public finances, interest rates and price levels in order to establish the determinants of inflation. We consider, in particular, the difference between the interest rates on 10-year Treasuries and the 10-year Treasury Inflation Protected securities as an indicator of expected inflation. We contrast this measure with other variables that might also explain expected inflation, including deficits, debt, and the price of gold.

INTRODUCTION

In recent years variables generally associated with higher inflation have risen. During this period, what has happened to inflation, and to inflationary expectations? We were motivated in part to tackle these questions from an academic point of view, but also from the point of view of financial planners who have to provide advice to their clients, in particular, about protecting their portfolios from inflation.

In a conventional Treasury security, the coupon rate is fixed at a nominal rate at the auction. In contrast, the real return to investors on a Treasury Inflation Protected Securities (TIPS) is fixed at auction time and is unaffected by the actual rate of inflation during the life of the security. Any increase in inflation during the period is accompanied by a corresponding rise in the dollar value of the principal, thereby rendering the real return constant. Since the introduction of TIPS in 1997, economists have thus, presumably, gained yet another measure of inflation forecasts: the difference in yields between conventional Treasuries and TIPS. The spread between the yields of a conventional nominal bond and an inflation-linked bond of the same maturity is often referred to as the “break-even” inflation rate (BEIR), as it would be the hypothetical rate of inflation at which the expected return from the two bonds would be the same. In an early study of TIPS, Shen and Corning (2001) investigate whether the yield difference has proven to be a good measure of market inflation expectations, and conclude that it hasn’t. Attributing the result to a difference in liquidity of the various kinds of assets, they prognosticate, however, that “yield difference between conventional and inflation protected Treasuries may approximate market inflation expectations better in the future.” Sack and Elsasser (2004) obtain similar results.

In this paper we seek to analyze recent developments in public finances, interest rates and price levels in order to establish the determinants of inflation. We consider, in particular, the difference between the interest rates on 10-year Treasuries and the 10-year TIPS as an indicator of expected inflation. We contrast this measure with other variables that might also explain expected inflation, including government debt, money supply and the price of gold.

THEORETICAL ISSUES

Standard macroeconomic theory tells us that inflation may rise due to an increase in aggregate demand or decrease in aggregate supply. An increase in aggregate demand may be engendered by larger budget deficits—increase in government spending or decrease in taxes—or a increases in money supply.

Current inflation may also be affected by expectations of inflation in the future. Higher inflationary expectations may be reflected in prices of assets—notably gold—and commodity prices.

The sharp rise in the price of gold in recent months has rekindled interest in the metal’s role as an inflationary hedge. In 1994, speaking before Congress, Alan Greenspan noted that the price of gold tends to rise as people switch from currency to gold as a hedge against expected inflation and cited gold as a "'store of value measure which has shown a fairly consistent lead on inflation expectations and has been over the years a reasonably good indicator." However, the relative price of gold may fluctuate in the short run as a result of various factors (including demand factors) that may not be related to an anticipation of future increases in the domestic price level, a finding confirmed by Mahdavi and Zhou (1997). In a study looking at returns over very long periods, Ghosh et al (2004) find that, in the long run gold has been an effective hedge against inflation, but in recent years, it has lost its power as an inflation hedge.

INFLATIONARY EXPECTATIONS AND TIPS

A measure of expected inflation could be the difference between yields on 10-year Treasury bond and 10-year TIP bond. Suppose i denotes the yield on a 10-year T-bond, and r the yield on a 10-year TIP bond for the same period. The issue we seek to consider is whether the difference $i - r$ provides a good measure of expected average inflation over the next 10 years.

If investors are risk-neutral, they will be indifferent between holding the two assets if the expected returns are equal, i.e., if

$$(1 + i) = (1 + r)(1 + \pi^e),$$

which leads to the approximation

$$\pi^e = i - r.$$

But future inflation is uncertain, and if investors are risk-averse, they will demand a premium for buying the regular T-bond. The equilbrium condition then becomes:

$$(1 + i) = (1 + r)(1 + \pi^e)(1 + \rho), \qquad (1)$$

where ρ is the risk premium necessary to compensate for the variability in inflation in the future.

Equation (1) may be approximated by

$$\pi^e = i - r - \rho,$$

which indicates that, once we take investors' risk-aversion into account, the difference $i - r$ may overstate the expected inflation. As future inflation erodes the payments on a nominal security, but not those on an inflation-linked bond, risk-averse investors are likely to demand a higher expected return on nominal securities when future inflation is uncertain. The required inflation compensation would then comprise not only the expected inflation rate over the life of the bond, but also a premium to compensate investors for bearing that inflation risk.

EMPIRICAL ANALYSIS

We use data on interest rates from the Federal Reserve, inflation from the Bureau of Labor Statistics, budget deficits from the Congressional Budget Office, and gold prices from the IMF International Financial Statistics. For inflation expectations, we use the Federal Reserve Bank of Philadelphia Survey of Professional Forecasters (SPF). The SPF publishes median forecasts for one-year-ahead and 10-year-ahead annual average inflation.

See Appendix for Fig. 1-5. Fig. 1 shows the movements in inflation and expected inflation for the period Jan 2003-Aug 2011. During this period, we find a positive and significant relationship between actual inflation and expected inflation. Using linear regression, we find that for a 1 percentage point increase in actual inflation over the preceding year, expected inflation over the next 10 years (as measured by the difference between the 10-year bond and the 10-year TIP yields) rises by 0.18 percentage points.

Fig. 2 shows the relationship between Inflation and Budget Deficits for the period 1971-2010. During this period, we find there is no significant relationship between actual inflation and the budget deficit (as percent of GDP).

Fig. 3 shows the relationship between national debt and actual for the period 1971-2010. We observe a negative relationship between actual inflation and the national debt (as percent of GDP).

Fig. 4 shows the movement of gold prices and the consumer price index for the period Jan 2003 – Aug 2011. We find there exists a positive relationship between actual inflation and the price of gold (in percent terms). For every 1 percentage point rise in inflation, gold prices have risen by 3.8%.

Fig. 5 shows the movements in the inflation forecasts of the Philadelphia Fed's SPF and expected inflation from the TIPs. We find that over the period 2003 Q1 – 2011 Q3, the SPF forecasts are relatively stable while the expected inflation from the TIPs is quite variable. Moreover, we find that the SPF forecasts of inflation are consistently higher than those generated by the difference between the yields on the 10-year T-bond and the 10-year TIP bond.

CONCLUSIONS

We seek to determine the relationship between actual inflation and expected inflation. We seek to establish whether the difference between yields on the 10-year T-bond and 10-year TIP bond over the same period provides useful information about expected inflation. We find that there exists a positive and significant relationship between actual inflation and expected inflation. We also find that, in recent years, despite increased budget deficits and debt and gold prices, inflation has remained largely restrained. We observe a stark difference in the inflation forecasts from the Philadelphia Fed's SPF and the data from TIPS—and this is a subject that requires further exploration. Another avenue of further research is the enlargement of the data set: we can gather the TIPS data going farther back and compare expected inflation with actual inflation over a longer period.

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Fig. 1 Expected Inflation vs Actual Inflation

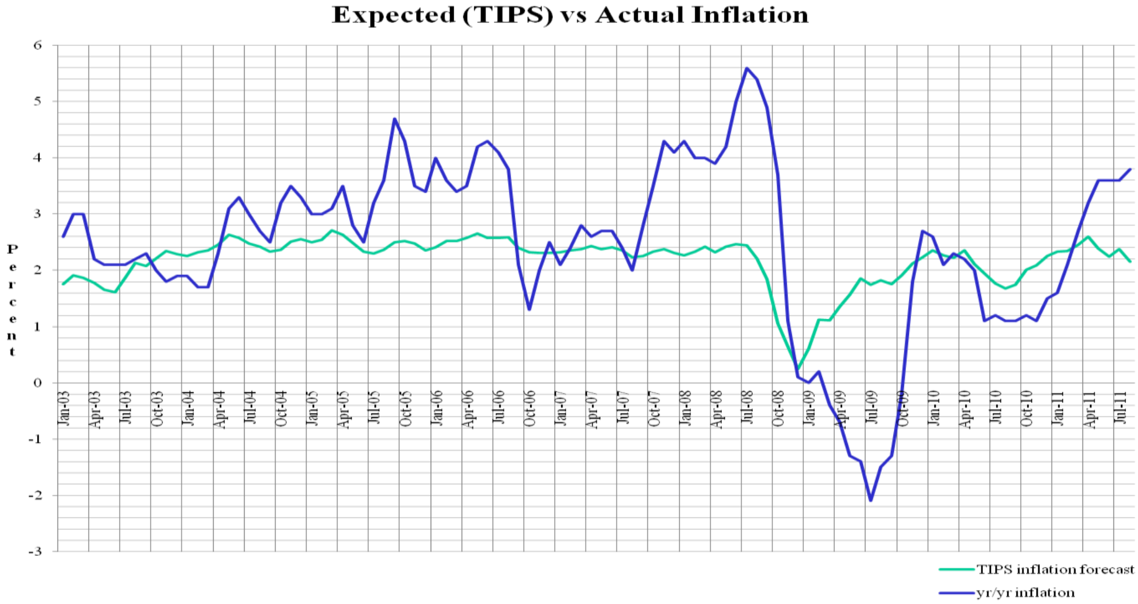


Fig. 2 Deficit vs Actual Inflation

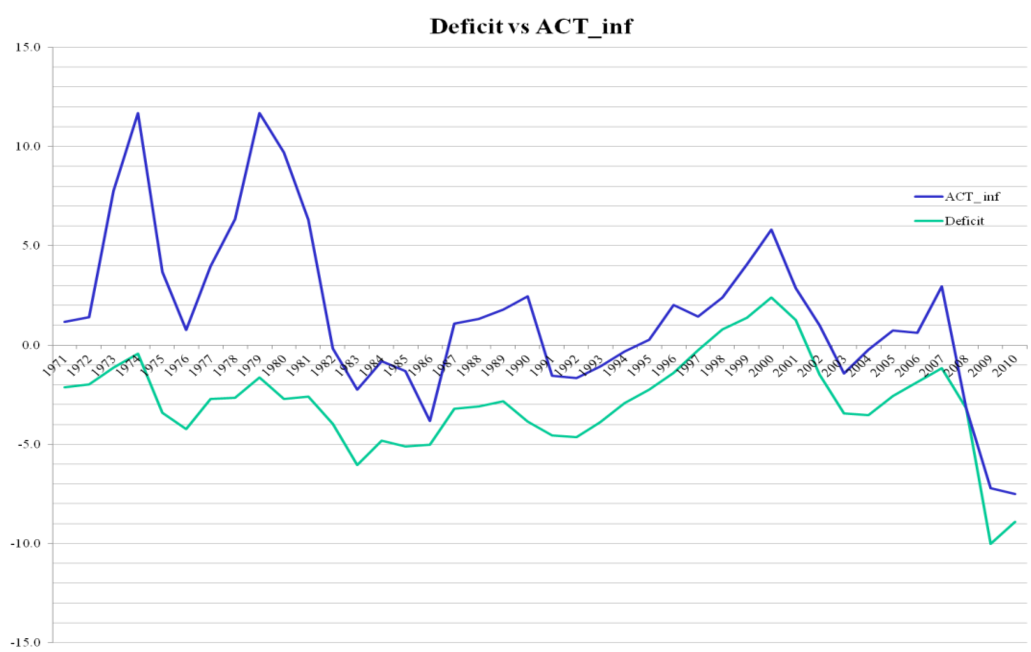


Fig. 3 Debt vs Actual Inflation

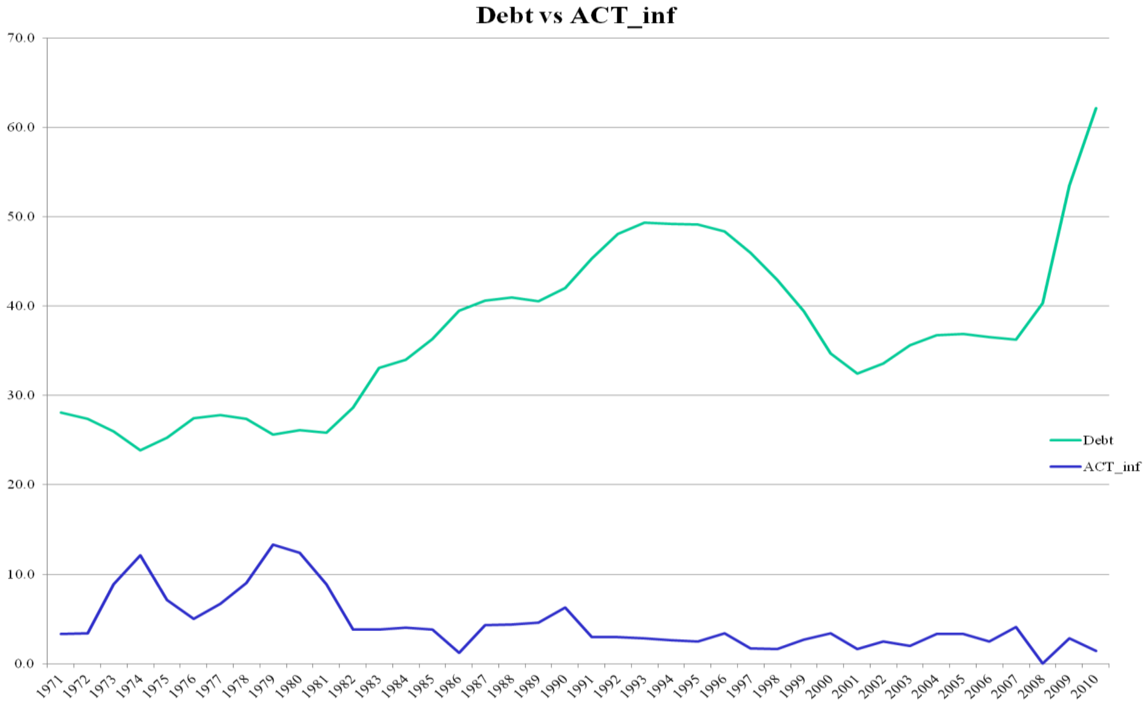


Fig. 4 Gold prices vs CPI

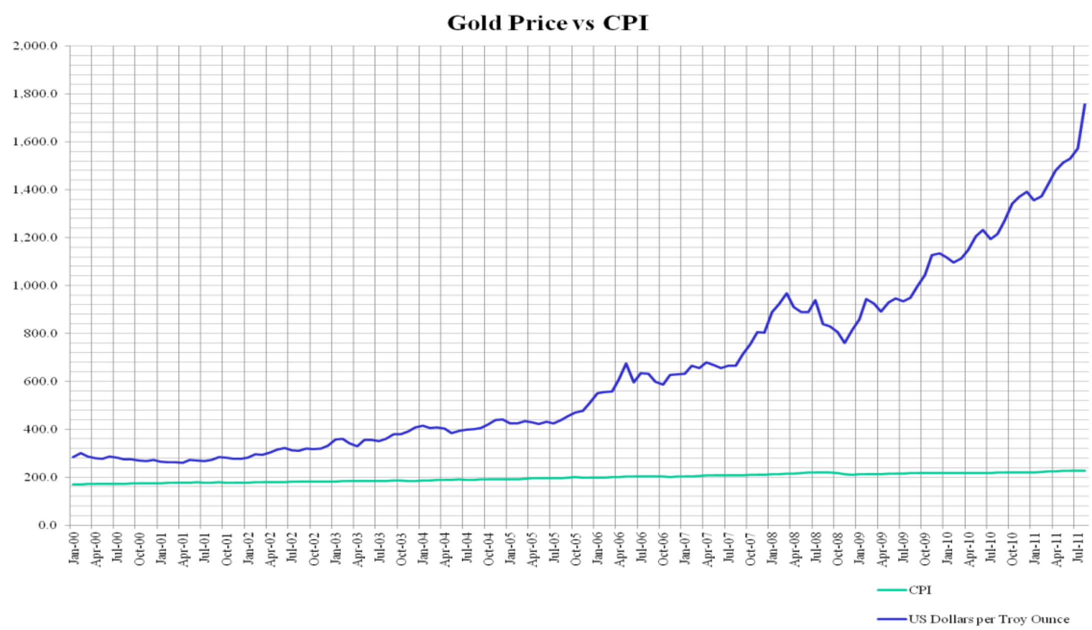
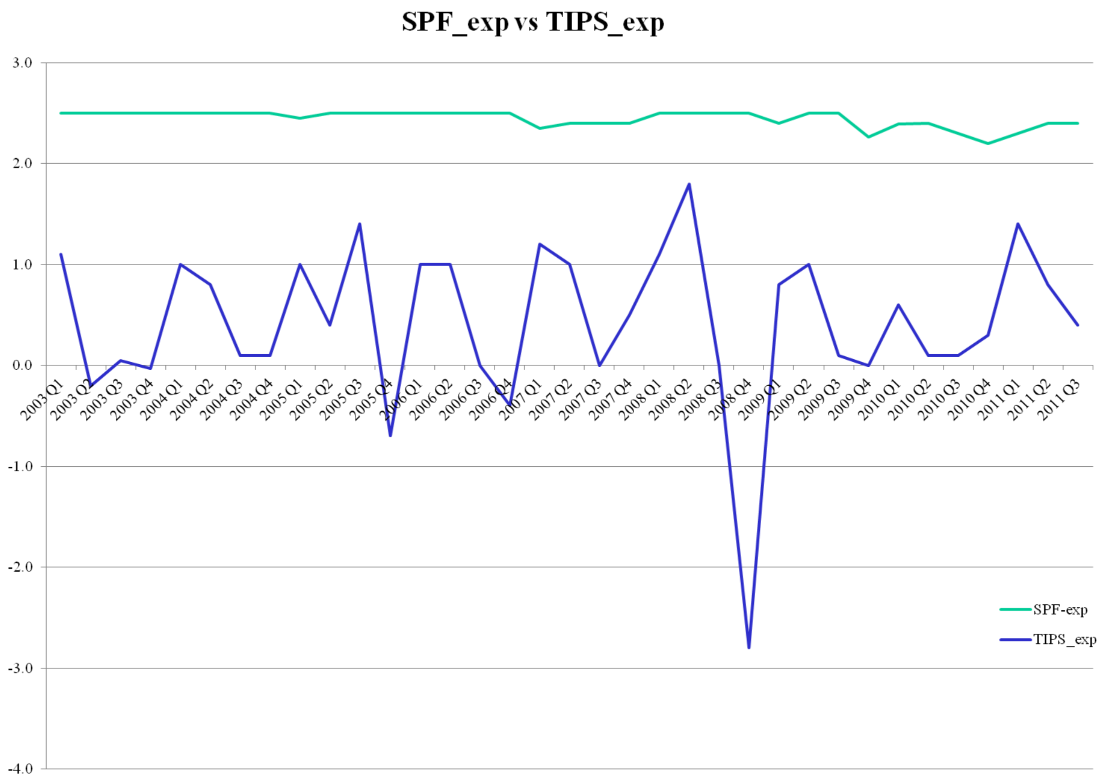


Fig. 5 SPF inflation forecasts vs TIPS-expected inflation



TOWARD A JURISPRUDENCE FOR BUSINESS ETHICS

Jeffrey Nesteruk, Franklin & Marshall College

ABSTRACT

Corporate executives confront an environment that is both legally complex and ethically challenging. It is legally complex because of the varied and often technical rules of law that govern areas ranging from sexual harassment to workplace privacy to environmental protection. Such legal rules are intertwined with a challenging set of ethical issues. Corporate executives regularly struggle with the contested nature of their roles, conflicts among their multiple constituencies, and divergent popular views regarding their actions.

But despite this complex mixture of legal and ethical issues in the corporate environment, business ethicists have devoted surprisingly little attention to examining the basic relationship of law and ethics. This is true even though the interplay between law and ethics is evident in some of business' most significant recent challenges, ranging from AIG's bonuses to BP's massive oil spill. This leaves corporate executives without a potentially rich source of guidance in understanding and grappling with their responsibilities.

INTRODUCTION

Corporate executives confront an environment that is both legally complex and ethically challenging. It is legally complex because of the varied and often technical rules of law that govern areas ranging from sexual harassment to workplace privacy to environmental protection. Such legal rules are intertwined with a challenging set of ethical issues. Corporate executives regularly struggle with the contested nature of their roles, conflicts among their multiple constituencies, and divergent popular views regarding their actions.

But despite this complex mixture of legal and ethical issues in the corporate environment, business ethicists have devoted surprisingly little attention to examining the basic relationship of law and ethics.[1] This is true even though the interplay between law and ethics is evident in some of business' most significant recent challenges, ranging from AIG's controversial bonuses to BP's massive oil spill.[2] This leaves corporate executives without a potentially rich source of guidance in understanding and grappling with their responsibilities.[3]

In sharp contrast to this scholarly gap in business ethics research is the considerable literature in the field of jurisprudence addressing the relationship of law and ethics. As an academic field, jurisprudence has a long history of probing the interplay between ethics and the law. Classic writers in this area include such luminaries as Aquinas, Austin, Hart, and Dworkin.[4]

But without significant development, this impressive scholarly discourse in jurisprudence will be of only limited help to corporate managers struggling to effectively discern and exercise their responsibilities. This is because in examining the relationship of law and morality, traditional jurisprudence has tended to focus more on the challenges of those in the roles of legislators and judges. We see this in the kind of issues that have traditionally come to the fore in jurisprudential debate. The question of whether legislators discover law in a natural moral order or create new law themselves is played out in the debate between natural law theory and legal positivism. The question of whether a judge's personal moral values

[1] For two business ethicists that have focused on the fundamental relationship of law and ethics, see Thomas W. Dunfee, On *the Synergistic, Interdependent Relationship of Law and Ethics,* 34 AM. BUS. L. J. 317 (1996); Lynn Sharp Paine, *Law, Ethics, and Managerial Judgment*, 12 J. LEGAL STUD. EDUC. 153 (1994).

[2] For a related analysis of what corporate executives can learn from the BP controversy, see *Learning from BP*, CEB VIEWS (September 9, 2010) *available at* http://cebviews.com/2010/09/learning-from-bp/.

[3] For a look at the ways in which legal scholarship can contribute to business ethics, see John Hasnas, Robert Prentice & Alan Strudler, *New Directions in Legal Scholarship: Implications for Business Ethics Research, Theory, and Practice*, 20 BUS. ETHICS Q. 503 (2010).

[4] For a broad overview and selection of classic writings on jurisprudence, see READINGS IN PHILOSOPHY OF LAW (John Arthur & William H. Shaw eds., 2nd ed. 1993).

should influence his legal rulings is developed in the debate between legal formalism and legal realism.

The involvement of corporate executives with the interplay of law and ethics, however, arises from a markedly different perspective. While the focus of legislators is on making the law and the focus of judges is on interpreting the law, corporate executives are primarily subject to the law.[5] The differing perspectives of these three groups mean that each must wrestle with a different set of questions in grappling with the relationship of law and ethics. Because traditional jurisprudence has dealt extensively with the questions facing legislators and judges, leaving the challenges faced by corporate executives largely underdeveloped, there is a need to delineate a jurisprudence that is oriented towards and mindful of the problems facing corporate executives. Like those who make and interpret the law, corporate executives struggle with the complex and often subtle relationship of law and ethics. They too deserve whatever insights scholars can provide.

In this brief commentary, my aim is a modest one. I simply wish to bring some connections into view and open up a new avenue for future inquiry. My hope is to illustrate how a jurisprudence for business ethics has the potential to illuminate the moral lives of corporate executives.

My analysis will proceed as follows. I begin by considering how the questions traditionally emphasized in jurisprudence are often rooted in the moral lives of legislators and judges. I then bring into view how the perspectives from which legislators and judges grapple with jurisprudential issues differ markedly from that of corporate executives. Building on my analysis of these differing perspectives, I highlight the distinctive needs of corporate executives in confronting the relationship of law and ethics. My claim is that the central jurisprudential issue for corporate leaders stems from the conflict between what I call the coercive and constructive conceptions of law. The coercive conception of law emphasizes the law's punitive role in enforcing penalties and focuses on the law's ability to control our actions. The constructive conception of the law emphasizes the law's expressive role in articulating our social values and focuses on the law's ability to help develop our personal moral norms. At the root of this conflict is the question of the kind of moral engagement corporate executives should have with the law that informs the business environment. The coercive conception of law envisions a minimal moral engagement. The constructive conception of law contemplates a much richer moral involvement.[6] How corporate executives address this question has the potential to affect significantly their approach to their jobs and the character of the contemporary business world. I conclude by using a prominent example from the Sarbanes Oxley Act to illustrate how understanding this conflict can provide insight into the moral possibilities of the law for corporate executives.

JURISPRUDENCE AND THE MORAL LIVES OF LEGISLATORS

Legislators do, of course, in a formal procedural sense create law. For example, bills receiving the majority vote of both houses of Congress and the signature of the President become law. But even in a purely procedural sense, the status of the new law is uncertain. It might, for example, at a later point be ruled unconstitutional. In such an event, what appeared to be law turns out not to be so, at least if we understand law as prescriptions that compel our obedience.

Further, even laws that pass constitutional muster have an uncertain status if they violate basic standards of fairness and morality. Thus, in the Nuremburg trials, we saw how Nazis were unable to escape prosecution and punishment even when their actions were technically legal under German law at the time they occurred. The question of whether an unjust law is in fact law is an enduring issue within traditional jurisprudence.

Thus, we see the classic natural law theorist, Thomas Aquinas, declaring, "[T]he force of a law depends on the extent of its justice." (Aquinas, 1945, p. 784) Aquinas goes on to say of a law that deviates from reason, "[I]t is called an unjust law, and has the nature, not of law, but of violence." (p. 766)

[5] One area of traditional jurisprudential writing that thus has potential relevance to corporate executives is that on the subject of civil disobedience. Daniel T. Ostas has explored civil disobedience within the business environment. *See* Daniel T. Ostas, *Civil Disobedience in a Business Context: Examining the Social Obligation to Obey Inane Laws*, 17 AM. BUS. L. J. 291 (2010).

[6] Sandra L. Christensen has argued for greater attention to the law in understanding ethical decision-making. "Ethical decision-making models clearly must take law more explicitly into account if there is to be an improvement in our understanding of how and why ethical decisions are made in business …." Sandra L. Christensen, *The Role of Law in Models of Ethical Behavior*, 77 J. BUS. ETHICS 451, 459 (2008).

Such a natural law view, however, is hardly the last word. For a legal positivist, such as Austin, Aquinas' position arises out a confused concept of law. "The existence of law is one thing; its merit or demerit another," writes Austin. "Whether it be or be not is one enquiry; whether it be or be not conformable to an assumed standard, is a different enquiry." (Austin, 1995, p. 157)

Such a philosophic debate as to whether law must be grounded in some more fundamental moral order is a question relevant to the more pragmatic moral lives of legislators. For instance, it is not uncommon for a legislator to face the dilemma of voting for a bill that reflects the popular will of his constituents, yet runs contrary to the legislator's own view of the morally optimal law. The view that legitimate law must reflect more basic moral standards creates a rationale for a legislator to vote for an unpopular bill. Voting your conscience only make sense if law is morally more than a function of popular preferences.

But the question of whether law arises from a more fundamental moral order or political pressures is not of immediate concern to corporate executives. This is because whether the law has a moral or political basis, the corporate executive is nonetheless subject to its prescriptions. The legal rules of the business environment represent a practical reality for corporate leaders. Whether or not an executive personally endorses, say, current workplace safety rules, the fine his company would have to pay for violating such rules remains the same.

JURISPRUDENCE AND THE MORAL LIVES OF JUDGES

Since judges interpret, rather than make, the law, they have a different relationship with the origins of the law than the legislator. To be sure, the line between making and interpreting the law is hardly always a clear one. But the roles of legislator and judge are nonetheless distinct. A judge is not free to enact new statutes in the way that legislators regularly do.

As interpreters of the law, judges commonly engage pre-existing legal rules, whether those rules take the form of statutes, precedents, or regulations. Such engagement with pre-existing legal rules raises the issue of the relationship of law and ethics from a distinct perspective. A central question for the moral lives of judges is the place of their personal moral values in understanding the meaning of the legal rules before them. Judges must struggle with their own ethical values in light of the logic of the legal rules they are interpreting.

This struggle with the role of their personal moral values is the issue that animates the traditional jurisprudential debate between legal formalism and legal realism. Legal formalism denies a role for judges' personal moral values and makes the claim that judicial reasoning should be a matter of logical deduction. Writing of this view of the law, Jerome Frank states, "They picture the judge applying rules and principles to the facts, that is, taking some rule or principle … as his major premise, employing the facts of the case as a minor premise, and then coming to his judgment by processes of pure reasoning." (Frank, 1970, p. 111)

But the uncertainty of a legal rule's meaning argues for a different understanding of judicial reasoning. Thus, even a legal positivist such as Hart asserts: "If a penumbra of uncertainty must surround all legal rules, then their application to specific cases in the penumbra area cannot be a matter of logical deduction, and so, deductive reasoning, which for generations has been cherished as the very perfection of human reasoning, cannot serve as a model for what judges, or indeed anyone, should do in bringing particular cases under general rules." (H.L.A. Hart, 1958, pp. 607-608)

Under the legal realist view of judges, the starting point is the result the judge wishes to reach, even if it is initially less than fully defined. Writes Frank: "Judging begins rather the other way around – with a conclusion more or less vaguely formed; a man ordinarily starts with such a conclusion and afterwards tries to find premises which will substantiate it." (Frank, 1970, p. 108) In the initially intuited conclusion from which judicial reasoning proceeds, the judge's personal moral values inevitably play a role.

But while this debate between legal formalism and legal realism clearly bears on the judge's practical work of interpreting the law, it too is far removed from the day-to-day decision-making of corporate executives. Such executives remain subject to the rulings of courts regardless of the philosophy of judicial decision-making that prevailed. Even if corporate executives find the moral values animating the judge's decision to be contrary to their own, court rulings become a necessary component in setting corporate policy and strategy. A corporate executive who believes he should be able to hire and fire at will ignores the way the courts in his state have qualified the employment-at-will doctrine at his own peril.

DIFFERING PERSPECTIVES ON THE RELATIONSHIP OF LAW AND ETHICS

Having sketched out the ways in which legislators and judges are primarily engaged in the issue of the relationship of law and ethics, I'd like to look a bit more deeply at their perspectives. Doing so can help to clarify the direction in which jurisprudence needs to develop to provide insight into the moral lives of corporate executives.

We have seen how as makers of law, legislators are necessarily focused on the origin of legal rules. This focus on the origin of legal rules brings to the fore the question of the law's basic status. In responsibly casting his vote, a legislator often implicitly adopts a position regarding the law's fundamental character. When a legislator sees his role, for instance, as simply reflecting the wishes of his constituency, he is implicitly claiming the law has a political character. In making claims about the law's basic character or status, the legislator is, philosophically speaking, concerned with the ontological nature of the law, its kind of being.

As interpreters of the law, judges are regularly working with legal rules that have their origins elsewhere. In the ordinary course of their professional duties, judges deal with legal rules that can range from legislative statutes to executive orders to administrative regulations. A judge's interpretation thus frequently entails harmonizing or accommodating various legal rules. He is therefore in his daily work necessarily involved with the coherent development of the law. Thus, it is the law's logical status, rather than its ontological character, that is his primary concern.

In this way, those who make the law must address its ontological nature, and those who interpret the law, its logical nature. These perspectives from which they engage the law give rise to the way the general issue of the relationship of law and ethics manifests itself to them. In addressing the ontological nature of the law, legislators face the question of the source of its moral status. In addressing the logical nature of the law, judges face the question of the role of their personal moral values in determining the law's meaning.

Seeing how the differing perspectives of legislators and judges give rise to the distinctive ways in which the issue of the relationship of law and ethics presents itself to them helps bring into view how this issue manifests itself in the moral lives of corporate executives. As corporate executives do not authoritatively make or interpret the law, they are not immediately concerned with the law's ontological status or its logical structure. Instead, corporate executives are individuals subject to the law. The question of the relationship of law and ethics thus presents itself to them from the perspective of those who must live under the law. In engaging the law as a set of rules whose existence and meaning is already a given, corporate executives must address the constitutive nature of the law, that is, the law's role in helping form the individuals that must live up to its prescriptions.

Looked at from the vantage point of the moral lives of legislators, judges, and corporate executives, the dynamic in play with executives is the reverse of that which occurs with legislators and judges. With legislators and judges, the question is one of how their moral understandings should enter into the formation of the law. But with corporate executives, the question is one of how existent law should enter into the development of their moral understandings.

This reversal of dynamic requires a refocusing of jurisprudence. For jurisprudential analysis, it brings a different kind of primary inquiry to the fore.

THE COERCIVE AND CONSTRUCTIVE CONCEPTIONS OF THE LAW

Refocusing jurisprudence so as to bring this different kind of primary inquiry to the fore requires gaining a deeper appreciation of the different conceptions of law at stake here. I shall refer to the first conception as the coercive conception of law and the second conception as the constructive conception of law. At the root of these differing conceptions of law are different expectations regarding the corporate executive's moral engagement with the law. The coercive conception of law envisions a minimal moral engagement. The constructive conception of law envisions a much richer moral involvement.

Whether consciously or not, corporate executives often view the law in a coercive fashion. On this view of law, legal rules simply employ the law's penalties to enforce the prevailing norms of society. Seeing the law in this way, corporate executives come to understand the law, in significant measure, as external to their moral lives. The law functions solely to insure under the threat of punishment the conformity of their actions to the prescriptions of the law. On this view of law, the business leader's role is one of behavioral compliance. The law thus has an essential but narrow role to play in business ethics.[7]

But corporate executives can also adopt a constructive view of the law. Under the constructive view, legal rules have a more complex set of moral possibilities. This more complex moral potential

[7] The law here thus plays a role analogous to a firm's compliance-based ethics program. For an analysis of compliance-based versus integrity-based ethics programs, see Lynn Sharp Paine, *Managing for Organizational Integrity*, HARV. BUS. REV., Mar.–April 1994, at 106.

stems from the law's capacity not only to promote the moral conduct of individuals, but also to help develop their moral understandings and expectations. Seeing law in this way, corporate executives can come to view law as a more integral part of their moral lives. In morally significant ways, the law can affect how executives see themselves, their relationships, and the larger meaning of their actions. On this view of law, the business leader's role is one of integration of the law with his moral life. The constructive view of law thus envisions for the law a richer role within business ethics.

If the executive's role is one of behavioral compliance then his focus will be on conforming his external conduct to the technical provisions of the legal code.[8] This "letter of the law" approach marginalizes whatever policy aims might inform the applicable legal principles.[9] It only requires that the executive's actions are -- as a matter of litigious strategy – sufficiently defensible if challenged through private lawsuit or government prosecution.

But if the executive's role is one of integration of the law with his moral life, a markedly different dynamic emerges. The larger policy aims of the law now become part of the executive's decision-making process. In making these larger policy aims part of his decision-making process, the executive's moral engagement with the law becomes more complex.[10] Not only will the law influence his behavior, it will contribute to the understandings and expectations he brings to his work and the larger business environment.[11] It will influence not only what he does, but also what he strives for.

Addressing this conflict is the central jurisprudential issue facing corporate leaders. This is because the conflict goes to the heart of what it means for business executives to be law-abiding.[12] Business leaders and their corporate mission statements regularly stress the importance of executives following the law. Yet such public declarations typically do so in ways that are unreflective or overly general. They rarely contain the kind of philosophic development and articulation necessary if a value as fundamental to the business environment as fidelity to the law is to contribute fully to the practices of contemporary business.

DEVELOPING THE CONSTRUCTIVE CONCEPTION OF THE LAW

Like natural law theory, which insists morality is integral to legislating, and like legal realism, which insists morality is integral to adjudicating, the constructive conception of law insists morality is integral to the corporate executive's obedience to the law.

In order to understand the way in which the constructive conception of law integrates morality with the corporate executive's legal obedience, it is necessary to gain a fuller appreciation of the constitutive nature of the law. Such a fuller appreciation involves drawing upon the law's expressive role in articulating our social values. Through the language the law uses to articulate society's values, it can influence the development of our personal moral norms. The law's constitutive nature in this regard has been insightfully illuminated by the work of James Boyd White.

White emphasizes how the law's language has a "rhetorical" function, involving us in "the art of making meaning in language with others." (White, 1985, at xii) The law's rhetorical function here has a particularly strong sense. As White puts it: "To

[8] "Complying with the law means operating at a minimum level of acceptable conduct." Archie B. Carroll, *The Four Faces of Corporate Citizenship,* 100 BUS. & SOC'Y REVIEW 1, 3-4 (1998).

[9] Joan T. A. Gabel, Nancy R. Mansfield, and Susan M. Houghton argue compliance law has moved beyond such a "letter of the law" approach. "That reconsideration is bolstered by an awareness that compliance law has evolved from pure letter-of-the-law rules to a spirit-of-the-law expectation that the corporation play a positive role in the community in which it functions." Joan T. A. Gabel, Nancy R. Mansfield & Susan M. Houghton, *Letter vs. Spirit: The Evolution of Compliance into Ethics*, 46 AM. BUS. L. J. 453, 485 (2009).

[10] Nim Razook sees the integration of law and ethics as occurring in the common law, but not in statutory regimes, thus giving the common law a particular value. *See* Nim Razook, *Common Law Obedience in a Regulatory State,* 17 AM. BUS. L. J. 75 (2010).

[11] Benjamin Cardozo speaks of "what fair and reasonable men, mindful of the habits of life of the community, and of the standards of justice and fair dealing prevalent among them, ought in such circumstances to do, with no rules except those of custom and conscience to regulate their conduct." BENJAMIN N. CARDOZO, THE NATURE OF THE JUDICIAL PROCESS 142-143 (1921).

[12] For an insightful analysis of the phenomenon of legal obedience, see TOM R. TYLER, WHY PEOPLE OBEY THE LAW (2006).

describe this activity as ‘rhetorical’, as I do, is to claim a somewhat richer meaning for that term than is common. By it I mean not merely the art of persuasion – of making the weaker case the stronger, as the Sophists were said to do – but that art by which culture and community and character are constituted and transformed.” (p. xi)

White thus sees three specific ways that the law in its rhetoric helps to constitute and transform our moral lives. The law works through its impact on our “character,” “community,” and “culture.” A person’s character, according to White, is the self or identity he acquires through the rhetoric of the law. As he puts it: [B]oth ‘we’ and our ‘wants’ are constantly remade in the rhetorical process.” (p. 35) In White’s understanding, community is “a set of relations among actual human beings,” (p. xi) relations to which the law’s rhetoric regularly gives form and content. And culture, for White, is “a set of ways of claiming meaning for experience,” (p. xi) something the law’s rhetorical power influences through its effect on our identity and relations.

Consider, for instance, how in the corporate context the law’s language operates when it characterizes corporate directors as “fiduciaries.”[13] If a corporate director conceives of himself as a fiduciary, this will affect the identity a corporate director brings to his job. He is not an actor free to pursue his own self-interest in an unfettered fashion, but is now someone who is necessarily oriented to a set of interests other than his own. This new character that the law fosters through the director’s duties of care and loyalty also gives a new form and content to his “set of relations among actual human beings,” that is, to his community in White’s sense. A business deal that might be entirely appropriate, for instance, outside his corporate director role might well now be a legally-prohibited form of self-dealing within his community as now constituted. Further, the corporate director’s legally engendered identity and community offer him a new “set of ways of claiming meaning” or culture. For now an added significance in his life comes from his serving the welfare of shareholders and the corporation.

All these changes in the director’s identity, community, and culture alter the character of his moral life. From his own self-understanding to the expectations others have of him, a new set of moral dynamics is in play. Actions formerly legitimate are now morally proscribed. Even the meaning he may claim for his actions has changed, with new possibilities both for moral failure and success.

THE EXAMPLE OF SARBANES-OXLEY

How business executives address the conflict between the coercive and constructive conceptions of law can impact how we ultimately assess the value of new business legislation. This is because the manner in which corporate leaders view their fidelity to the law affects in notable ways the moral significance of legislation in the business environment.

The Sarbanes-Oxley Act (SOX)[14] is one of the most far-reaching changes in corporate governance in recent times. SOX’s implications are still unfolding, marked by a recent Supreme Court ruling on its constitutionality[15] and continuing debate over SOX’s costs and benefits.

Unlike the evaluation of SOX’s financial costs, the evaluation of the moral significance of SOX is never simply an evaluation of an objective phenomenon. Such evaluation of SOX’s moral significance has a necessary subjective element as it depends upon the jurisprudential frame through which corporate executives come to view this legislation. This is because the effect of SOX on the individual moral lives of corporate executives and on the larger moral climate of business will vary markedly depending on whether business leaders view SOX through the lens of the coercive or constructive conception of law.

Certainly, executives whose understanding of the law draws upon a coercive conception of law will treat SOX’s prescriptions simply as legal technicalities to

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[13] Marleen A. O’ Connor has emphasized the constitutive power of the law’s fiduciary language. “A fiduciary struggling with her conscience to self-enforce moral norms will turn to fiduciary rhetoric for guidance about what is ‘right’. At this point, the ethical language affects value choices by removing a source of rationalization for questionable conduct and reinforcing habitual compliance with standards of business morality. Specifically, the cognitive aspect of fiduciary law operates through poetic language seeking to inspire us to rise above our own self-interests by captivating our moral consciousness. This type of language is crucial to the law of fiduciary obligation because the duty of loyalty must be heartfelt.” Maureen A. O’ Connor, *Promoting Economic Justice in Plant Closings: Exploring the Fiduciary/Contract Distinction to Enforce Implicit Employment Agreements, in* PROGRESSIVE CORPORATE LAW (Lawrence Mitchell ed., 1995).

[14] Pub. L. No. 107-204, 116 Stat. 745 (codified in scattered sections of 11,15,18,28 & 29 U.S.C. (Supp. 2006).

[15] Free Enterprise Fund v. Public Co. Oversight Bd., No. 08-861 (U.S. June 28, 2010).

be complied with if necessary, but avoided if possible. Given the coercive conception's emphasis on behavioral conformity and the avoidance of punitive sanctions, such executives will adopt what Cheryl L. Wade has called a "compliance-by-checklist" strategy,[16] designed mainly to avoid the legal exposure SOX potentially holds. Under such an approach, the moral significance of SOX remains limited to the consequences that flow from such a circumscribed change in executive behavior. It is noteworthy that such consequences have been frequently characterized as being outweighed by the financial costs of SOX.[17]

But a wider adoption of the constructive conception of law among executives opens up the potential of a different moral calculus in evaluating SOX, one that includes the potential effects of the legislation on the moral understandings and expectations of corporate leaders.[18] Beyond having this broader scope, such a moral calculus would also differ in its contemplation of a longer-term horizon for the evaluation of legislation in the business environment. This is because while the financial consequences of new legislation, such as SOX, are often immediate, the personal moral development and evolution of social norms contemplated by the constructive view of law are more of a longer-term process.[19]

Let me illustrate something of this broader and longer-term potential by turning to a prominent example from the Sarbanes-Oxley Act (SOX).[20] The example I have in mind is SOX's requirement that the CEO and the CFO certify the company's financial statements.[21] In considering how this particular requirement of Sarbanes-Oxley might affect the moral understandings and expectations an executive brings to his job, I'll focus on its potential to constitute and transform, as White puts it, such executive's "character," "community," and "culture."

Section 302 of the Sarbanes-Oxley Act requires the CEO and CFO to certify both the accuracy of their company's financial statements and the quality of their company's internal financial controls. The section is designed to obtain such executives' personal affirmation of the integrity of their company's financial reporting while also eliminating any plausible deniability due to ignorance. In a significant way, then, the law here thus mandates a new evaluative dimension to the executive role.

Seen from White's perspective of the law's ability through its rhetoric to help constitute and transform our moral lives, this additional evaluative dimension involves executives in more than a new description of a company's financial statements as thus "certified." A description of financial statements as personally certified by a company's top executives is not simply a factual matter. This is because the rhetoric of the certification language here has normative import. Something "certified" is more than something an individual has confirmed or approved. It is something to which others are now entitled to regard as having the integrity expected of it.

SOX's requirement of a new evaluative stance for corporate executives thus raises the bar of executive performance and opens up the possibility of an executive being "remade in the rhetorical process", changing the way the corporate executive sees himself, the self-understanding or "character" he adopts. Placed in this new evaluative role, he is no longer simply an agent of the shareholders, seeking to maximize their financial return. He now occupies a

[16] "Because most members of the business community question the efficacy and legitimacy of SOX, they seem to engage in 'compliance-by-checklist', checking off the details related to complying with SOX while ignoring the broad principles of ethical compliance and diligent monitoring." Cheryl L. Wade, *Sarbanes-Oxley Five Years Later: Will Criticism of SOX Undermine its Benefits,* 39 LOY. U. CHI. L. J. 595, 597 (2008).

[17] *See* Network World, *Execs Tell Regulators Sarbanes-Oxley Costs Exceed Benefits* (May 11, 2006) *available at* http://www.networkworld.com/news/2006/051106-sox-c0sts.html.

[18] This would include what Thomas W. Dunfee has called the "symbolic value" of SOX. "What's key is that Sarbanes-Oxley was a symbolic act and people are now watching." Thomas W. Dunfee *as quoted in* KNOWLEDGE@WHARTON, *Has Sarbanes-Oxley Made a Dent in Corporate America's Armor?* (October 20, 2004) *available at* http://knowledge.wharton.upenn.edu/article.cfm?articleid=823.

[19] For an excellent overview of the relationship between law and personal and social norms, see Richard H. McAdams, *The Origin, Development, and Regulation of Norms,* 96 *MICH. L. REV* 338 (1997).

[20] For an exploration of the larger meaning of SOX, see Donald C. Langevoort, *The Social Construction of Sarbanes-Oxley*, 105 MICH. L. REV. 1817 (2007).

[21] *See* Sarbanes-Oxley Act, Section 302.

new role, that of evaluator of the quality of the informational regime critical to that goal.[22]

Sarbanes-Oxley's restructuring of the executive's identity in this way in turn has the potential to affect the form and content of his relations. This is because such a new role also implicates a new "set of relations among actual human beings" for the corporate executive. Evaluation of the quality of a company's informational regime undergirds the integrity of the financial markets that ultimately evaluate the corporate executive's performance. The corporate executive thus adopts a relationship not simply to the shareholders, but to the free market system as a whole, with its multiple constituencies. His new role is in many ways analogous to the dual obligations of an attorney who should not only represent his client, but who should also work to insure justice as an officer of the court. Much as a lawyer in representing his client has an obligation to insure that justice occurs, the corporate executive in pursuing profits now has an obligation to insure that genuine market efficiency -- based on accurate information -- transpires.

If an executive embraces his new role and relationships, the legal requirement of certification also affects the larger significance of his actions. For the new requirement of SOX changes the number and character of relationships in which he is embedded and thus the kinds of moral claims upon him. If he fails to live up to expectations here, he has failed not simply as an officer of the corporation, but also as a custodian of the integrity of the broader financial markets. If embraced by those subject to it, SOX essentially transforms an executive's moral life from one based on a narrower injunction to one drawing upon a larger aspiration. It thus represents, in White's terms, a new way of the executive "claiming meaning for experience" in his work, a new set of moral possibilities.

CONCLUSION

Envisioning such a new set of moral possibilities brings into view the potential of a jurisprudence for business ethics to illuminate the moral lives of corporate executives. From their own distinctive perspective, corporate leaders confront the issue of the relationship of law and ethics. Just as jurisprudence has traditionally provided insights into the moral lives of legislators and judges, it can, if properly oriented and more fully developed, shed light on the moral possibilities that inhere in corporate executives' engagement with the law.

In order to open up a new avenue for future inquiry, I have suggested that the central jurisprudential issue for corporate leaders lies in the conflict between what I have called the coercive and constructive conceptions of law.[23] The conflict raises the question of the kind of moral engagement corporate executives should have with the law that informs the business environment. Should this engagement be one simply of behavioral compliance or should it entail a richer involvement with the executive's moral life? The choices corporate executives make in this regard have tremendous implications both for their individual moral lives and the larger moral environment of business. Such choices thus merit the sustained attention of business ethics scholars and the best research, scrutiny, and insights they can provide.

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[22] It is an open question – both legally and ethically – how this new role should relate to corporate executives' traditional fiduciary role.

[23] Posing new questions is important. For, as John Coffee reminds us, "Better answers often await better questions." John Coffee, *Regulating the Market for Corporate Control: A Critical Assessment of the Tender Offer's Role in Corporate Governance,* 84 COLUM. L. REV. 1145, 1146 (1984).

USING CORPORATE CONCEPTIONS WELL

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ABSTRACT

The discourse of corporate legal theory has a rich history. But in recent years, the richness of this discourse has diminished considerably. This is because of two apparently unrelated developments. The first is the ascendency of a particular theory of the corporation, the nexus-of-contracts view. The second is a broader tendency among observers to disparage the value of corporate theory itself. Ironically, these two seemingly disparate developments have a common origin: a discomfort with the law's use for multiple, even conflicting, corporate conceptions to capture the complex and evolving reality of contemporary corporations. The ascendency of the nexus-of-contracts view attempts to address this discomfort by elevating a single corporation conception and marginalizing all others. The broader tendency to disparage the value of corporate theory itself is also rooted in this fundamental discomfort. It rejects the reductionistic approach of the nexus-of-contracts view, but then questions the value of multiple corporate conceptions by deeming any theorizing about them as inherently incapable of resolution.

In this article, I will argue that the path to revitalizing corporate legal theory involves a subtle shift in its discourse. This shift entails refocusing such discourse, from arguments about which corporate conception should generally prevail to explorations regarding how we can become more adept at using multiple, even conflicting, corporate conceptions well. Implicit is my argument is thus an aspiration that the law achieve a greater comfort with a manifold notion of the corporation.

INTRODUCTION

The discourse of corporate legal theory has a rich history.[1] But in recent years, the richness of this discourse has diminished considerably. This is because of two apparently unrelated developments. The first is the ascendency of a particular theory of the corporation, the nexus-of-contracts view.[2] The second is a broader tendency among observers to disparage the value of corporate theory itself.[3] Ironically, these two seemingly disparate developments have a common origin: a discomfort with the law's use for multiple, even conflicting, corporate conceptions to capture the complex and evolving reality of contemporary corporations. The ascendency of the nexus-of-contracts view attempts to address this discomfort by elevating a single corporation conception and marginalizing all others. The broader tendency to disparage the value of corporate theory itself is also rooted in this fundamental discomfort. It rejects the reductionistic approach of the nexus-of-contracts view, but then questions the value of multiple corporate conceptions by deeming any theorizing about them as inherently incapable of resolution.

In this article, I will argue for a path to revitalizing corporate legal theory that involves a subtle shift in its discourse. This shift entails refocusing such discourse, from arguments about which corporate conception should generally prevail to explorations regarding how we can become more adept at using multiple, even conflicting, corporate conceptions well. The key to using corporate conceptions well is focusing on the human good of avoiding or minimizing harm to others. Implicit in my argument is thus an aspiration that the law achieve a greater comfort with a manifold notion of the corporation.[4]

[1] For an examination of the challenges the law has faced in understanding the corporation, see Herbert Hovenkamp, *The Classical Corporation in American Legal Thought,* 76 GEO. L. J. 1593 (1988).

[2] For an excellent overview of the contractual conception of the corporation, see FRANK H. EASTERBROOK & DANIEL R. FISCHEL, THE ECONOMIC STRUCTURE OF CORPORATE LAW (1991). For a look at the nexus-of-contracts view from a historical perspective, see William W. Bratton, Jr., *The New Economic Theory of the Firm: Critical Perspectives from History,* 41 STAN. L. REV. 1471 (1989).

[3] The classic origins of the argument for this view come from John Dewey. *See* John Dewey, *The Historical Background of Corporate Legal Personality,* 35 YALE L. J. 655 (1926). For a contemporary criticism of the worth of corporate theory, see David Millon, *The Ambiguous Significance of Corporate Personhood,* 2 STAN. AGORA 39 (2001).

[4] For another work exploring a manifold view of the corporation, see Susanna Kim Ripken, *Corporations Are People Too: A Multi-Dimensional Approach to*

FOUR MODELS OF THE CORPORATION

Focusing on the human good of avoiding or minimizing harm to others can illuminate how to use corporate conceptions well because each corporate conception is a response to a particular kind of harm. Using each corporate conception well thus entails employing it when the harm it addresses becomes salient. We can bring into view the harm each corporate conception responds to by probing the normative import of its description of the corporation. Beginning in this way makes explicit what is often left tacit in the discourse of legal reasoning.

For purposes of illustration, I have chosen four prominent conceptions of the corporation. They are the corporation as property, corporation as person, corporation as nexus-of-contracts, and corporation as community (Nesteruk, 2002). Each of these descriptions is a meaningful way of describing the corporation and has played a role in the discourse of corporate legal theory. Let's look at each in turn to bring into view its normative import.

Property – Breach of Financial Duties to Shareholders – The kind of corporate harm the property conception highlights is irresponsible conduct regarding the financial welfare of shareholders. By emphasizing the corporation's character as property and thus the shareholder's status as property owner,[5] this corporate conception brings to the fore such traditional corporate concerns as usurping corporate opportunities, self-dealing, oppressing minority shareholders, and insider trading. This is because such traditional concerns are all forms of misappropriation of property. The harm of self-dealing, for instance, might involve the corporation making excessive payments for the services of a company owned by one of the corporation's directors, thus depleting the corporate treasury. Seeing shareholders as property owners brings into sharp relief such depletion as the theft of their property.

Person – Harm to External Constituencies – Seeing the corporation as a person, however, brings out the corporation's status as an independent actor, one that – at least in the fullest development of this view -- is capable of moral choices and thus a moral agent.[6] As a moral agent in its own right, the corporation has a responsibility to consider the impact of its actions on all those affected by its conduct. Because of this emphasis on the broad effects of the corporation's actions, the conception of the corporation as person is designed to address a different kind of potential corporate harm than that highlighted by the property conception. It is a response to the kind of corporate irresponsibility resulting in harms to the corporation's wider constituencies, including employees, consumers, local communities, and the larger public. The larger regulatory environment of the corporation focuses on such harms and includes laws ranging from employment discrimination to consumer safety to environmental protection.

Nexus of Contracts– Violation of Individual Moral Autonomy – Under the nexus-of-contracts view, the notion of the corporation as itself an actor, a moral agent, dissolves.[7] On the contractual model of the corporate entity, the corporation lacks an independent ontological status. It is a legal fiction referencing a collection of contracts among individuals. Implicit in this corporate conception is an atomistic notion of society – a vision of separate, independent individuals with autonomous preferences that may contract to advance their interests. On such a view, the obligations of individuals arise only from voluntary and mutual agreements. By limiting moral

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the Corporate Personhood Puzzle, 15 FORDHAM J. CORP. & FIN. L. 97 (2009).

[5] Milton Friedman has emphasized the shareholder's status as a property owner in articulating his objection to corporate charitable contributions. "The corporation is an instrument of the stockholders who own it. If the corporation makes a contribution, it prevents the individual stockholder from himself deciding how he should dispose of his funds. MILTON FRIEDMAN, CAPITALISM AND FREEDOM 135 (1962).

[6] Peter French has argued for the recognition of the corporation as a moral agent. He has advocated "a theory that allows treatment of corporations as full-fledged members of the moral community, of equal standing with the traditionally acknowledged residents: human beings." PETER A. FRENCH, COLLECTIVE AND CORPORATE RESPONSIBILITY 32 (1984).

[7] "Those who argue that corporations have a social responsibility … assume that corporations are capable of having social or moral obligations. This is a fundamental error. A corporation … is nothing more than a legal fiction that serves as a nexus for a mass of contracts which individuals have voluntarily entered into for their mutual benefit." Daniel R. Fischel, *The Corporate Governance Movement,* 35 VAND. L. REV. 1259, 1273 (1982).

obligation to that which has a consensual basis, the nexus-of-contracts view protects against all forms of corporate irresponsibility that threaten the fundamental moral autonomy of those who have contractually entered into the corporate enterprise. Thus, there is a need under this view for corporate directors to have a way of contractually opting out of mandatory fiduciary duties.

Community – Enervation of Human Relationships – The conception of the corporation as a community captures something missing from the nexus-of-contracts view.[8] Robert Solomon points out how being part of a genuine community involves, in a significant sense, becoming another person. "What it means to be part of a community," writes Solomon, "… is, among other things, to identify yourself and your interests in and with the community. It is, simply, to become a different person" (Solomon, 1994, p.281). The notion of the corporation as community thus captures the way in which preferences of individuals develop and evolve through their interactions and relationships with others.[9] It thus entails the possibility of there being a common good for this corporate community that transcends the initial preferences of those entering into the corporate enterprise. In doing so, the conception of the corporation as community protects against any kind of corporate irresponsibility that undermines the relationships of those involved in the corporate enterprise. Such a concern is evident in the law's prohibition of terminations that violate a duty of good faith and fair dealing or are against public policy.

CITIZENS UNITED V. FEDERAL ELECTION COMMISSION

Having sketched out the particular kind of harm each corporate conception is designed to address, we now are in a position to show the practical import of an analysis that allows for a manifold notion of the corporation. For purposes of illustration, I have chosen a recent Supreme Court case, *Citizens United v. Federal Election Commission* No. 08-205, slip op. (U.S. January 21, 2010).

Citizens United is a potentially far-reaching corporate law decision that has attracted tremendous attention because of its impact on the participation of business in political campaigns. It reveals, I will argue, the dangers of considering only a single corporate conception in legal analysis and thus the need for the law to use a variety of corporate conceptions well. The dangers of focusing only on a single corporate conception stem from the way that this can diminish the capacity of law to address effectively the complexities of potential harms in play with contemporary corporations. The particular corporate conception I will look at in examining the legal reasoning in *Citizens United* is the person conception of the corporation.[10] Probing the case's central arguments reveals the importance to corporate legal theory of limiting or modifying the use of corporate conceptions, such as the notion of corporate personhood, in light of the human good of avoiding or minimizing harm to others.

In *Citizens United*, the Supreme Court expanded corporate free speech rights. The case arose when a nonprofit corporation, Citizens United, sought to distribute a documentary sharply critical of then Senator Hillary Clinton who was at the time a candidate for the Democratic Party's presidential nomination. In its decision, the Court held a federal statute restricting corporate independent expenditures in political campaigns was unconstitutional and, therefore, could not be applied to Citizen United's documentary.

Central to the Supreme Court's reasoning in *Citizens United* is the rejection of three key arguments that had previously been used in support of restricting corporate funding of campaign advocacy. In the Court's rejection of these three key arguments, the assumptions underlying the person conception of the corporation repeatedly surface. This is because the expansion of corporate First Amendment rights here depends on the Court's willingness to see corporations as analogous to the entities to which by

[8] The notion of the corporation as a community has been philosophically developed by Robert Solomon. *See* ROBERT C. SOLOMON, ETHICS AND EXCELLENCE: COOPERATION AND INTEGRITY IN BUSINESS (1992).

[9] Timothy Fort has argued for a corporation's ability to foster the moral development of its members. *See* TIMOTHY L. FORT, ETHICS AND GOVERNANCE: BUSINESS AS MEDIATING INSTITUTION (2001).

[10] For a historical overview of the concept of the corporation as person within American law, see Gregory A. Mark, *The Personification of the Business Corporation in American Law*, 54 U. CHI. L. REV. 1441 (1987). For a critique of the law's attempts to put the corporation in a personhood framework, see Jess M. Krannich, *A New Analytical Approach to a Flawed Method of Constitutional Interpretation*, 37 LOY. U. CHI. L. J. 61 (2005).

deep consensus we regularly assign such personhood status, namely, individuals. By bringing the community, property, and nexus-of-contract conceptions of the corporation into the analysis, we can gain an appreciation of what the Court's reasoning misses or marginalizes and thus reveal the points at which the person conception of the corporation needs to be suspended or modified in some way. In doing so, we can bring into view the need in corporate law to draw upon multiple models of the corporation, if we wish the law to recognize and respond to the full range of potential corporate harms.

Let us turn then to consider each of these three arguments. The arguments are:

(1)The Antidistortion Argument – This argument is premised on a concern that given the financial resources of corporations, unfettered independent expenditures by corporations in political campaigns distort the democratic process. In *Citizens United*, the Court rejects this concern, asserting, "It is irrelevant for purposes of the First Amendment that corporate funds may 'have little or no correlation to the public's support for the corporation's political ideas'" (p. 35). It then continues: "All speakers, including individuals and the media, use money amassed from the economic marketplace to fund their speech. The First Amendment protects the resulting speech, even if it was enabled by economic transactions with persons or entities who disagree with the speaker's ideas" (p. 35).

In rejecting the antidistortion argument, the Court remains under the sway of the personhood model of the corporation, seeing the corporation as simply one of many "speakers" and placing it alongside "individuals" in this generic category. Just as the law's protection of the free speech rights of an individual should not depend on a broader public support for the ideas the individual is expressing, so the "correlation" between "the public's support" and "the corporation's political ideas" is "irrelevant." In viewing the corporation's financial support simply as funding by an individual person, the Court fails to bring into view more fully this source of funding's status as a genuine community. The Court's limited view of the corporation as a funding mechanism for a single speaker can only admit a limited set of relationships here, those stemming from the financial character of the corporation. It involves only "those who seek a financial return, the shareholders, and those whose expertise provides it, the directors and officers" (Nesteruk, 2002, p.447). What is missing is the "possibility of a greater sense of community – one that allows a broader understanding of these individuals involved in the corporate enterprise or that attends more fully to the welfare of other stakeholders …" (Nesteruk, 2002, p.447).

Once a corporation's status as a community is brought to the fore, it makes a tremendous difference that there is "little or no correlation" between the corporate funds and wider support for the ideas expressed, even though the Court declares this notion to be irrelevant. If the corporation is a community, then it should express the community's voice, one that incorporates all those involved in the corporate enterprise, not simply the privileged expression of corporate directors and officers in their managerial role regarding the shareholders' property.

Beyond attending to the welfare of other corporate stakeholders, this communal voice should reflect a "broader understanding of these individuals." As noted earlier, Robert Solomon (1994) points to how being part of a genuine community involves becoming another person. "What it means to be part of a community," writes Solomon, "… is, among other things, to identify yourself and your interests in and with the community. It is, simply, to become a different person" (p.281). Individuals change and are changed by their interaction with other members of the community. If a corporate voice is to be genuinely a communal voice, it must also capture this dynamism and synergy. The correlation must be not only with initial expressions of individuals, but the more communal view that evolves. Because of the way the personhood conception of the corporation exercises sway here, all of this is missing from the reasoning in *Citizens United*. It thus fails to recognize and respond to the kind of harm the community conception of the corporation is designed to address. Focusing on the aspects of the corporation that enable it to serve as a funding mechanism for a single speaker undermines the wider and richer set of relationships that emerges with the recognition of the corporation as a genuine community.

(2) The Anticorruption Argument – This argument is motivated by a fear that corporate money allows corporations to gain an inappropriate influence or access to public officials, thus enabling corruption of such officials or at least the appearance of corruption. Even the appearance of corruption can be a concern here because of the way such an appearance can diminish citizens' confidence in their government and their willingness to participate in the democratic process. The Court in *Citizens United* downplays this fear of a connection between corporate influence or

access to public officials and their corruption, asserting, "The fact that speakers may have influence or access to elected officials does not mean these officials are corrupt" (p. 43). The Court quotes approvingly in this regard from a previous decision: "Favoritism and influence are not … avoidable in representative politics. It is in the nature of an elected representative to favor certain policies, and, by necessary corollary, to favor voters and contributors who support those policies. It is well understood that a substantial and legitimate reason, if not the only reason to vote for, or make a contribution to, one candidate over another is that the candidate will respond by producing those political outcomes the supporter favors" (p. 43-44).

In rejecting the anticorruption argument, the Court here again reveals the influence of the notion of the corporation as person upon its reasoning. In denying the connection between speaker influence or access and official corruption, the Court is subtly reinforcing a person conception of the corporation, seeing the corporation simply as yet another individual actor petitioning its elected representative. In such a light, there is little or no possibility that the corporate voice could exercise an undue influence. In seeing the corporate entity as analogous to an individual person, the Court obscures the corporation's special property status here. This special property status is one the Court previously recognized in distinguishing corporations from wealthy individuals, noting "[s]tate law grants corporations special advantages – such as limited liability, perpetual life, and favorable tax treatment of the accumulation and distribution of assets" (p. 34-35). Such legally sanctioned advantages allow the accumulation of wealth in ways not available to individuals. In overlooking the potential of such "'immense aggregations of wealth'" (p. 35) to contribute to the corruption of public officials, the Court fails to give salience to the conceivable harms of unfettered corporate action here. If whatever influence or access the corporation may gain through independent expenditures favoring public officials cannot mark public officials as corrupt, this apriori relieves the corporation of any responsibility that it has acted as a corrupting influence. If corruption can't occur, then the corporation can't be doing it.

3) The Shareholder Interest Argument – This argument refers to the need to protect shareholders dissenting from the corporation's political advocacy from "being compelled to fund corporate political speech" (p. 46). This issue arises whenever corporations tap their general treasury funds to advocate political or social causes. The Court in *Citizens United* rejects this argument. Even if the government should wish to protect such dissenting shareholders, the Court declares, "The First Amendment does not allow that power," adding that there is "little evidence of abuse that cannot be corrected by shareholders 'through the procedures of corporate democracy'" (p. 46).

As it did with the two previous arguments, the Court in its reasoning in rejecting this shareholder interest argument exhibits the influence of the person conception of the corporation. In treating the corporation as a person whose speech must be protected, the Court characterizes the First amendment as not allowing the "power" to protect dissenting shareholders. In promoting the notion of the corporation as a person here, the Court does draw on the property conception in that it acknowledges the "interest in protecting dissenting shareholders from being compelled to fund corporate political speech" (p. 46). In this, it recognizes the status of the corporation as the property of the shareholders. But in this very acknowledgment, the Court marginalizes another conception of the corporation by framing the problem in primarily economic terms, characterizing the shareholders being "compelled to fund" as a misappropriation of property. There is more at stake here for shareholders than their obvious loss of money, significant though that may be.

The deeper harm here is the loss of the fundamental moral autonomy of the shareholder that the contract model of the corporation so strongly wishes to protect. The compulsion to fund involves not only a financial loss, but also a violation of conscience. Through the corporate funding mechanism, a shareholder is speaking in ways that may well compromise his values. His loss of moral autonomy here is not mitigated if the only remedy is the one offered by the Court in *Citizens United,* that of "the procedures of corporate democracy." Such a majoritarian process cannot legitimize the violation of an individual's basic constitutional rights, including that of freedom of speech. For such constitutional rights are applicable even when one is in a minority position.

Thus, through this look at *Citizens United*, we can see the need of the law to suspend or modify the use of a single corporate conception, such as the notion of corporation as person, in analyzing complicated corporate situations. Drawing on multiple, even conflicting, corporate conceptions is necessary to address effectively the variety of potential harms surrounding today's corporations.

CONCLUSION

Sustaining the richness of corporate legal theory is essential for promoting critical reflection about the complex and evolving reality of corporations in today's society. Corporate legal theory can help foster this richness by refocusing its discourse, from arguments about which corporate conception should generally prevail to explorations of how to use multiple, even conflicting, corporate conceptions well. The key to using corporate conceptions well is a focus on the human good of avoiding or minimizing harm to others.

The utility of this notion is evident in how it illuminates the recent landmark Supreme Court decision, *Citizens United v. Federal Election Commission.* Analysis of the case reveals how allowing a single corporate conception to predominant can result in the law failing to recognize and respond to the full range of potential harms at stake. Such an analysis thus can aid corporate legal theory in developing what the law requires, a manifold understanding of the corporation sufficient to address contemporary needs.

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AN OUNCE OF PREVENTION: THE ECONOMIC, LEGAL AND ETHICAL LESSONS FOR BUSINESS OF THE GULF OIL SPILL

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ABSTRACT

The paper explores the economic, ecological and legal costs and impacts of the Gulf oil spill for corporate stakeholders and their policy implications for corporate and public decision-makers. It will discuss the ethical, legal and practical dimensions of the Gulf Oil Spill and its aftermath through the lens of the principles of corporate social responsibility and the relative costs of ensuring good faith corporate compliance with applicable environmental and safety regulations in the first place in comparison to the costs of addressing the costs after an event. The logic of expending corporate resources on lobbying, regulatory capture or avoidance and public relations (greenwashing) rather than in compliance training and adoption of best practices will be examined in the light of Robert Audi's common sense ethical principles and constituencies of ethical business. Behavioral traps and blind spots that cause expensive missteps will be examined and steps to nudge the corporate culture and individuals in business in a more proactive and cost-effective strategy of cooperation and good-faith compliance will be addressed.

INTRODUCTION

On April 20, 2010, the *Deepwater Horizon* Oil Spill, also known as the Macondo Blowout or the BP or Gulf Oil Disaster, was triggered by an explosion at the rig that left 11 workers dead and 17 more injured. The resulting oil leak continued for three months until the well was capped on July 15, 2010, and then finally sealed permanently with the "bottom kill" on September 19, 2010 (BBC News, 2010b; Financial Times, 2010b; Freudenburg, W. R. and Gramling, 2010; Lehner and Deans, 2010 viii-x; Wikipedia, 2010). Government scientists that August stated that "The BP spill is by far the world's largest accidental release of oil into marine waters, according to the most precise estimates yet of the well's flow rate…" (Robertson & Kraus, 2010).

The Gulf Oil Spill was world news, as it raised issues about the ability of a major oil company to safely exploit off-shore oil at a time when energy costs and alternatives and their impact on global climate change and recovery from the economic crisis of 2007-2010 were on everyone's mind (Crooks, 2010a). It was followed by a spate of conferences, documentaries (PBS, 2010) and investigative reports. One commentator in a law school symposium remarked of the spill:

> Between April and July 2010, an estimated 4.4 million barrels of crude oil flowed into the Gulf at a rate of about five hundred thousand gallons per day, altering the Gulf's ecosystem and suffocating all forms of life in its path. Petroleum soon made its way to the southern coast of the United States, where it continued to wreak havoc on property, coastal species, and human life. Arriving first in Louisiana, massive oil pools, about a foot deep, engulfed wildlife on the shores, smothering birds at an ever-increasing rate. At present, the outlook for many of the affected species remains grim (Powers, 2011, p. 476).

BP, which had rebranded itself as "bp" in 2002 to make itself more consumer friendly (Purkayastha, 2007, 4) acknowledges on its web site that "The fire burned for 36 hours before the rig sank, and hydrocarbons leaked into the Gulf of Mexico for 87 days before the well was closed and sealed" (BP). Its internal report was published September 8, 2010. Seeking to spread responsibility for the accident as widely as possible (BBC News, 2010a), it stated in summary that:

> The team did not identify any single action or inaction that caused this accident. Rather, a complex and interlinked series of mechanical failures, human judgments, engineering design, operational implementations and team interfaces came together to allow the initiation and escalation of the accident. Multiple companies, work teams and circumstances were involved over time (BP, 2010, p. 11).

Many books on the spill were published (Cavar, 2010; Steffy, 2010; Magner, 2011; Reed &

Fitzgerald, 2011) and more are likely to continue. A search on Lexis/Nexis Law Review Index revealed 166 law review articles related to government investigations and official reports on the disaster quickly followed. In November of 2010, the chief legal counsel of the National Commission, Fred Bartlit, was quoted as saying “We have not seen a single instance where a human being made a conscious decision to favor dollars to safety" (McNulty & Pfeifer, 2010). This reflects the reality that proving intent in the actions and omissions of artificial corporate persons is always difficult, and does not mean that BP is released from legal and moral responsibility for negligence in the accident.

The report to the President by the National Commission was released in January 2011 (Crooks & Pfeifer, 2011a) and made the following critical points:

> • The explosive loss of the Macondo well could have been prevented.
>
> • The immediate causes of the Macondo well blowout can be traced to a series of identifiable mistakes made by BP, Halliburton, and Transocean that reveal such systematic failures in risk management that they place in doubt the safety culture of the entire industry.
>
> • Deepwater energy exploration and production, particularly at the frontiers of experience, involve risks for which neither industry nor government has been adequately prepared, but for which they can and must be prepared in the future.
>
> • To assure human safety and environmental protection, regulatory oversight of leasing, energy exploration, and production require reforms even beyond those significant reforms already initiated since the *Deepwater Horizon* disaster. Fundamental reform will be needed in both the structure of those in charge of regulatory oversight and their internal decision-making process to ensure their political autonomy, technical expertise, and their full consideration of environmental protection concerns.
>
> • Because regulatory oversight alone will not be sufficient to ensure adequate safety, the oil and gas industry will need to take its own, unilateral steps to increase dramatically safety throughout the industry, including self-policing mechanisms that supplement governmental enforcement.
>
> • The technology, laws and regulations, and practices for containing, responding to, and cleaning up spills lag behind the real risks associated with deepwater drilling into large, high-pressure reservoirs of oil and gas located far offshore and thousands of feet below the ocean’s surface. Government must close the existing gap and industry must support rather than resist that effort.
>
> • Scientific understanding of environmental conditions in sensitive environments in deep Gulf waters, along the region’s coastal habitats, and in areas proposed for more drilling, such as the Arctic, is inadequate. The same is true of the human and natural impacts of oil spills (Deep Water, 2011, p. vii).

In short, the report found that the accident was avoidable, and the result of a failure of management by BP, Halliburton, and Transocean (Deep Water, p, 89).

Eight months later the Bureau of Ocean Energy Management, Regulation and Enforcement issued its final recent report on September 14, 2011, which concluded:

> The central cause of the blowout that caused last year's massive Gulf of Mexico oil spill was the failure of a cement barrier casing . . . The report also blames the BP disaster on poor risk management, a last minute change of plan and the failure to respond to critical indicators. . . .[T]he report also

> questions the whole regulatory framework governing deep sea drilling off the US coast (BBC News, 2011; BOEM Report, 2011).

Clearly there was blame enough to go around. What are the costs of this incident for BP, the industry as a whole, and the human and natural environment? What ethical and legal issues should it put on the agenda for corporate decision-makers and investors? What practical steps can be taken to avoid future incidents of this nature and scope? That is what this paper will now turn to.

COSTS

The true costs of major industrial accidents of this nature cannot be completely quantified with even 90% accuracy since there are many unknowns: how much oil actually was leaked is based on corporate estimates and scientific assessments that vary widely, and are based on inconsistent information (Gillis, 2010; Rudolph, 2010a). The failure of the well means that source of valuable oil is now unavailable despite all the sunk costs invested in seeking to obtain it. The impact of the escaped oil and gas and the various chemical dispersants used on the ecology of the Gulf and Gulf Coast in the short and long term cannot be fully known. Claims made by small and large businesses, injured and laid-off workers and their families, and governments seeking reimbursement of clean-up and recovery costs can be totaled but will be incomplete. Lost tax revenues will impact state and local governments' ability to help the displaced. And the impact on the biosphere includes potential genetic impacts on ocean and coastal life that may not be revealed for a generation. These are just some of the externalities that BP, Halliburton Energy Services and Transocean have imposed on society.

Economic Costs

Despite the difficulty of quantification it is still necessary to attempt to measure the value of the externalities caused by the spill to determine what the polluters must pay to fully internalize them. "Markets are efficient only when the prices for goods accurately reflect their full environmental and social cost" (Salzman & Thompson, 2010, p. 51). so we need to try to find a price. It is not clear that all the compensation paid and clean-up costs incurred by these corporations will come close to fully compensating for the losses, or restoring the damage done. Certainly it will not bring any of the dead oil rig employees back to life. The EPA currently sets the value of a human life in calculating the costs of regulations at $9.1 million, up from $6.8 million during the George W. Bush administration (Appelbaum, 2011; McNulty, 2011).

There are a number of figures for the costs from the spill available. One estimate of the total "damages to BP, the environment, and the U.S. Gulf Coast economy [is] $36.9 billion" (Smith, Smith & Ashcroft). To get a further idea of the economic costs of this disaster, consider the following series of examples: (1.) As of August 9, 2010, BP had paid over $6 billion in spill-related costs, including $319 million in claims to the 145,000 applicants made through August 7th (Pfeifer 2010). (2.) BP established a $20 billion trust fund to compensate those harmed by the spill, money that otherwise could have been used to improve safety and engage in further exploration and production (Schwartz, 2010b**).** Those opportunity costs are permanent. The fund is administered by Kenneth Feinberg, who handled the compensation fund established by Congress after the 9/11 attacks and was then appointed by the Obama administration to handle claims from the BP spill. As of November 2010, he had paid $2 billion to 125,000 people but had approved “less than half” of claims made, and was "cautiously optimistic that $20bn is more than enough," while remaining unsure whether and how much to compensate for lost tourism in the region (Braithwaite, 2010). Not all those claims will be settled and some will go to lengthy litigation, incurring further transaction and liability costs for all parties.

(3.) On Friday, October 1, 2010, BP announced it had "pledged royalty revenues from several Gulf of Mexico assets to guarantee payment of claims from the disastrous blowout of its Macondo well" and that it had spent a total of $11.2 billion so far reacting to the spill (AP, "BP Says…," 2010). These are royalties that might have been invested in alternative energy in pursuit of its former "beyond petroleum" vision, or paid in dividends to its shareholders, many of them retirees in the UK who had valued BP as a reliable national corporate leader until the spill. (4.) Another example of expenses incurred by BP in response to the spill is a report that as of October 2010 "about 10 miles of berms had been built several miles from the gulf coastline at a cost of $220 million, with construction paid for entirely by BP" (Rudolph, 2010b).

Finally, (5.) in its wrap-up of the year in figures for 2010, the *Financial Times* noted the following contrasting figures for BP: $118,000 saved when the "Deepwater Horizon team did not carry out cement bond log test to check Macondo oil well was sealed. 4.9m barrels of oil spilled following explosion of well. $432m market value of oil spilled. $40bn Estimated cost to BP of spill" (Financial Times, 2010b). These are just a few examples of the estimated financial costs of the Macondo spill that are continuing to mount and impact BP shareholder value (Schipani, 2011).

Ecological Costs

Due to their nature as public goods whose value is often taken for granted but which provide valuable ecosystem services that are very expensive to replace through private or public investment (Salzman & Thompson, pp. 18-24), the resources of our oceans and coastal wetlands and the wildlife and plant life they support are often discounted by business and policy makers alike. But any attempt to count the cost of the BP oil spill must take into account the losses due to its impact on endangered species, the ocean food chain, and the long-term health of the planet. A commentator on the impact of the spill comments on this point:

> The term "ecosystem services" refers to the "wide range of conditions and processes through which natural ecosystems, and the species that are part of them, help sustain and fulfill human life." Water filtering in wetlands, wildlife nursery functions in habitats, and carbon sequestering in vegetation are examples. . .[It is] estimated that the annual value of selected ecosystem services throughout the world exceeded the global Gross National Product by 1.8 times, making it "clear ... that ecosystem services provide an important portion of the total contribution to human welfare on this planet." . . . This interdependence and tremendous scale of operation makes nature the best producer of these goods and services. It would be impractical and undesirable to . . . set up human institutions, markets and factories to provide for global climate regulation, oxygen production and provision of water. It is far better economics to avoid wrecking productive natural systems, or to restore them when damaged, than attempt to displace or do without them. (Hirokawa, pp. 543, 552)

These losses include harm to commercial interests in tourism (sports fishing) and commercial fisheries (shrimp and oyster harvests, etc.). The environmental harm done to humans and wildlife alike by the spill needs to be assessed if we are to judge the negligence of BP, Transocean and the other businesses implicated in the events leading up to the spill.[1]

Seafood safety was initially of great concern after the spill began. Experts from the National Oceanic and Atmospheric Administration (NOAA) have insisted that Gulf seafood is safe as "fish metabolize and excrete oil fairly rapidly" (Magner, p. 328). But, Gina Solomon of the University of California at San Francisco, "coauthored a paper in the *Journal of the American Medical Association* . . . arguing that shrimps, crabs and other invertebrates do absorb the polycyclic aromatic hydrocarbons . . . found in oil that are known to be harmful to human health" and that these toxic contaminants could be passed up through the food chain to larger fish such as tuna. The head of the Louisiana Department of Wildlife and Fisheries pointed out that the "seafood is safe to eat, but there's a difference between consumption and the future viability of the fishery" (Magner, p. 329).

This is not the place to exhaustively examine all of the ecological impacts of the oil spill. It is sufficient to take notice here that they exist, are continuing, and need to be fully considered in assessing the ethical and legal implications of the spill. A good database of these harms with links to other sources can be found at the University of South Florida's Gulf Oil Spill Information Center, http://guides.lib.usf.edu/content.php?pid=121415&sid=1044272 and the Oil Spill Academic Task Force of the State of Florida, http://oilspill.fsu.edu/ecologicalissues.php .

[1] Photos of the impact of the spill can be found at the Boston Globe web site, http://www.boston.com/bigpicture/2011/04/gulf_oil_spill_one_year_later.html

Legal Costs

Legal costs for BP and other corporate defendants as a result of the incident include transaction costs in preparing to defend against litigation, or in bringing lawsuits against other private parties in an attempt to share liability. They also include substantial civil and criminal financial penalties that may result from such litigation. It is likely mistakes made by other companies will not reduce BP's liability for gross negligence in the spill. Lawsuits could be based on common law negligence, as well as violations of civil and criminal statutes. Under the Clean Water Act, if BP is found liable for ordinary negligence, its penalty could be $1,100 per barrel of oil spilled. If it is found liable for gross negligence, the penalty is $4,300 a barrel (Foley, 2010-2011; Crooks & Pfeifer, 2011c). Penalties could also include loss of the ability to bid on government contracts or be eligible to bid on further off-shore oil leases. Unfortunately, because of their size and role as the Pentagon's "biggest supplier of fuel," BP and other large companies may be hard to debar "because government agencies are too dependent on them" (Nixon, 2010) .

BP, Halliburton and Transocean all face possible civil and even criminal liability (Crooks & Pfeifer, 2011b) as a result of their actions at both the Federal and State level, from private as well as public parties, and in class action as well as individual lawsuits. Statutes that could be invoked include the Clean Water Act, which has both civil and criminal penalties; the Oil Pollution Act of 1990; the Migratory Bird Treaty Act and Endangered Species Act, which provide penalties for causing injury or death to wildlife.[2] "Pavel Molchanov, an analyst at Raymond James, estimated the total legal cost, including criminal fines, at $62.9 billion, which would dwarf the $20 billion escrow account to be used to pay claims of economic loss" (Schwartz, 2010a).

BP had endeavored to present itself as an environmentally-friendly corporation under the former leadership of Lord John Browne, Group Chief Executive of the combined BP/Amoco from December 31, 1998, until May 1, 2007 (Cherry & Sneirson, 2011). But, it had a series of workplace safety and environmental disasters at Texas City (Mogford, 2005; Baker, 2007), Alaska and elsewhere prior to the Deepwater Horizon event (Purkayastha,

[2] "Pursuant to 33 U.S.C. § 2702, the [Oil Pollution Act of 1990] OPA provides the 'Elements of Liability' for oil pollution. The two principal categories are removal costs and economic damages. Removal costs include 'the costs to prevent, minimize, or mitigate oil pollution.' Economic damages include the following categories:

i. injury to natural resources;

ii. injury to real or personal property (including economic losses resulting from that injury, and loss of subsistence use of natural resources);

iii. loss of revenues on the use of natural resources or real or personal property; and

iv. loss of profits or impairment of earning capacity resulting from such pollution, and the costs of providing additional public services during or after removal activities.

An [Responsible Party as defined in the Act] RP has very limited defenses to liability, which are available only if the RP can establish, by a preponderance of the evidence, that the oil spill was caused solely by '(1) an act of God, (2) an act of war, or (3) an act or omission of a third party' (other than an employee, agent, or contracting party of the RP). The RP is not entitled to these defenses if it fails to report the incident, fails to provide all reasonable cooperation in response to the spill, or fails, without sufficient cause, to follow a governmental order. An RP may lose its OPA limits of liability under the following circumstances: '(A) gross negligence or willful misconduct; or (B) violation of applicable Federal safety, construction or operating regulations' by the RP, its agent or employee, or a person acting pursuant to a contractual relationship with the RP. This broadly-worded exception to the OPA's limitation protections has the potential to expose an RP to unlimited liability for violation of an applicable federal regulation. . . .In addition, the OPA specifically provides that state law may impose additional unlimited liability for oil discharge or removal activities. The OPA expressly preserved the rights of states to legislate beyond the federal limits set forth in the statute. . . . Several of the state oil spill laws contain provisions for unlimited strict liability for cleanup and removal costs; for example, Alaska, California, and Maine. Of the states potentially affected by the Gulf Coast disaster, Texas, Louisiana, and Florida have laws imposing strict, joint, and several liability, subject to applicable limitations. Conversely, Mississippi and Alabama do not impose limitations on liability, nor do they have oil pollution laws imposing strict liability." Foley, 2010, 523-225 (citations omitted).

2007; Magner, 2011). These could be presented as evidence of prior criminal acts "during a trial to support arguments that the Deepwater Horizon disaster is not a unique occurrence, but the result of a corporate culture that lets schedule and budget pressures lead to increases in risk" (Hamel, 2006; Baram, 2010; Schwartz, 2010a).

The language of the several investigative reports on the spill discussed previously might not be sufficient to persuade a jury that BP lacked responsibility in light of the parallels between these past events, subsequent reports and promises of a commitment to safety which were then followed by a repetition of the same cost-cutting and tone-deaf- to- safety corporate behavior that resulted in the disaster in the Gulf. Indeed, given that BP is a three-time offender within a ten year period (Texas City, Alaska, and now the Gulf), I would argue that a R.I.C.O. action might be brought against them as a racketeering enterprise.

The U.S. filed its first civil lawsuit against BP, Anadarko, Transocean and others on December 15, 2010 (U.S. v. BP, 2010). Attorney General Holder indicated at the time of filing that potential criminal charges remain under investigation. "The lawsuit seeks damages under the Clean Water Act and a declaration that four of the defendants are liable under the Oil Pollution Act for all removal costs and damages caused by the oil spill, including damages to the environment" (Blum & Fisk, 2010; Crooks & Pfeifer, 2010). Even if this case and others are ultimately settled, the process will still entail huge legal fees, continuing damage to the reputation of the corporation as well as the monetary damages imposed in the settlement (Crooks, 2010b).

Legal expenses are also incurred by the government, and by businesses and individuals harmed by the spill who will need representation to ensure recovery of their losses. The $20 billion trust fund created by BP in an agreement with President Obama (Calmes & Cooper, 2010) will reduce but not eliminate these costs. There will be other costs associated with (1.) lobbying Congress over proposed legislative reforms and (2.) appearing before regulatory agencies at the Federal and State level over proposed new regulations. Tighter regulations will impact costs and jobs in the industry (McNulty, 2010), but also avoid future incidents and save lives and ecosystems. One suggestion that might go a long way in improving the safety of off-shore drilling would be to restore funding that Congress cut in 1995 for "the Technology Assessment Act, but with major amendments to help Congress assess the technologies of the future." The author has "major reservations regarding any effective implementation [of this recommendation] in light of the political economy of our age" (Brooks, 2010-2011, pp. 490, 498). But, the conservative "law and economics" emphasis on cost-benefit analysis would reasonably seem to require the use of the best available technology, so that a restoration of the Office of Technology Assessment would be a net gain for all parties going forward.

In addressing these costs, corporations have the advantage of treating expenditures for lobbying and participation in the regulatory process as tax deductible business expenses, while individuals may not. This is one of the advantages our corporations law now gives to artificial "people" over real people that the legal system will need to address if we are to ensure future Deepwater Horizons do not recur (Greenfield, 2007). To increase their advantage, the oil and gas industry continues to lobby state legislatures to restrict the role of law school clinics in representing the poor in environmental disputes such as this one (Mangan, 2010).

Pressure to resume off-shore drilling and to permit BP access to oil leases will likely continue to mount as economic and political considerations overtake issues of legal accountability (Urbina, 2010; Crooks, 2011a; Crooks & McNulty, 2011; Krauss, 2011). The combined high risk of losing in court, coupled with the pressure on the government to settle these cases in order to protect jobs in a weak economy make a settlement the likely ultimate result. But that hardly makes the whole situation acceptable when simple good-faith compliance with applicable law and best practices in the industry as followed in the North Sea oil fields would have avoided the incident in the first place.

REFORMS, RESTORATION & ETHICS

Legislative & Regulatory Reforms

Outrage at the Deepwater Horizon spill has led to proposals in Congress to reform or repeal existing legal limits on liability for oil spills. One scholar argues that present law works effectively and the changes really necessary are those that involve improvement and enforcement of deep-water well operations and regulations to avoid future uncontrolled releases (Foley, 2010-2011, p. 530). These reforms would have to address the problem of regulatory capture, whereby there is a revolving door between industry and the agencies intended to enforce safety and environmental rules, or excessive influence of the industry regulated over the regulator.

For example, abuses noted in the Inspector General's report on the relationship between the petroleum industry and the now reorganized Minerals Management Agency may not have documented a "smoking gun" directly connecting them to the failure of the Macondo well, but they contributed to the culture of lax oversight that was part of the causal chain leading to the disaster. In the language of tort law, there may not be enough proximate cause to hold the agency liable, but there certainly was sufficient evidence to connect the dots to establish cause-in-fact, and the likelihood of an eventual environmental disaster was foreseeable to anyone who was not willfully blind. For example, inspectors let the industry officials fill in inspection reports in pencil, and then traced over them in ink. "The report, which describes inappropriate behavior by the staff at the Minerals Management Service from 2005 to 2007, also found that inspectors had accepted meals, tickets to sporting events and gifts from at least one oil company while they were overseeing the industry" (Urbina, 2010b). The agency for years thought only one of its three mandates (issuing leases, collecting royalties, and overseeing the dangerous work at sea) was important: issuing leases. As a result, the agency "shortened safety and environmental reviews; overlooked flaws in the spill response plan; and ignored warnings that crucial pieces of emergency equipment, blowout preventers, were prone to fail" (DeParle, 2010).

Thus, the same deregulation mantra that Alan Greenspan used to lead us over the cliff in the financial services industry in 2007 (Orr, 2009, p.77) was at play in the failure of regulation of oil and gas as well. "BP has had difficulty in maintaining its operations and had problems throughout the years before [President George W.] Bush came into office. However, those years were notorious for relaxed oversight of the oil and gas industry and a presumption that the most efficient form of regulation was to allow the industry, to allow BP to regulate itself" (Gross, 2010). As one well-known finance columnist noted: "The Gulf of Mexico spill, like the financial implosion, was largely the product of people taking risks and knowing they wouldn't be held accountable if things went wrong" (Cohan, 2010).

BP, as previously noted, had attempted to brand itself as environmentally friendly, even while continuing to ignore environmental risks at its many operations around the world. This has led some to accuse it of greenwashing its image, and it suggests a need to find regulatory means of "nudging" BP and other corporations to honor their public relations promises of corporate social responsibility (Thaler and Sunstein, 2009). This would not only benefit society, workers, and the environment, but it would benefit BP's shareholders as well (Heal, 2008). One way to do this would be to implement the securities laws and the Dodd-Frank law's consumer fraud provisions to discourage greenwashing and encourage genuine corporate environmental responsibility. By greenwashing, a corporation may increase "sales or boost its brand image through environmental rhetoric, but at the same time either pollute the environment or decline to spend money on the environment, employee welfare, or otherwise honor its commitments to other constituencies" (Cherry & Sneirson, 2011, p. 985). In response to the pressures created by the BP spill, these authors argue that it may be possible to establish "private standard-setting by independent organizations or other watchdogs; remedies under false advertising laws; claims under the securities fraud laws" (986) and the interpretation of Dodd-Frank to mean that providing "accurate CSR information could be one aspect of consumer fraud that might receive attention from the new" Bureau of Consumer Financial Protection created under the law (1034). Companies do not have to claim strong corporate social responsibility (CSR) credentials, but if they do, it would be fraud to not deliver on the promises, which could be verified by government agencies like the FTC, or by private certification groups. Cherry and Sneirson conclude: "And as the BP case study demonstrates, true change must coincide with some means of substantiating corporate claims of social responsibility" (1038).

Repairing the ecological damage caused by the spill is another area where action is necessary. Ray Mabus, the Secretary of the Navy, issued the report *Americas Gulf Coast: A Long Term Recovery Plan after the Deepwater Horizon Oil Spill* at the end of September, 2011, outlining the recommendations of a Federal-State working group for restoring the Gulf Coast. The report is preliminary, requires Congressional approval, and raises issues about (1.) what percent of the fines imposed on BP and others should be used for restoration; and (2.) whether restoration should focus on coastal and environmental objectives such as wetlands and habitat restoration, improving water quality and "countering the giant dead zone that develops in late spring in the Gulf of Mexico," or should also be used for economic projects like building a convention center. Disagreements over the value and wisdom of new levees off the coast of Louisiana remain, but the report is a first step in redressing the harm caused by the Deepwater Horizon event (Mabus, 2011; Roberston, 2011).

Corporate operational and governance reforms are also being proposed in response to the spill. Investors are seeking reassurance that the boards of BP and other companies engaged in risky ventures such as deep-water off-shore drilling are not taking "excessive risks" (Crooks, 2011b). The SEC could address this by providing greater opportunity for socially responsible investors to have a vote on corporate policy, or by requiring companies such as BP that announce safety or sustainability goals to document the steps they are taking to implement them in a detailed and uniform format.

After the spill, BP announced that it was creating a new safety division which "would be 'powerful' and 'designed to strengthen safety and risk management across the BP group,' the company said in a statement. 'It will be responsible for ensuring that all operations are carried out to common standards'" (Werdigier, 2010**)**. BP's new Chief Robert Dudley promised that BP was "committed to improving its safety culture" (Pfeifer, 2011). These claims are welcome and would be impressive if they were not exactly the same claims made by Lord John Browne in the aftermath of the Texas City disaster in 2005 (Magner, pp. 76-77, 118, 152) and ignored subsequently in Alaska and then at Macondo. Thus the need for detailed reporting and follow-up, which in turn requires Congress to increase rather than decrease funding of the SEC, and the Senate to confirm the head of the new Consumer Protection Agency. Regulation is not the problem for business; failure to implement and enforce regulation in a clear and timely manner is the problem. The literature growing out of the continuing financial crisis since 2007 clearly demonstrates this fact, and it is equally true of environmental and safety regulation.

Ethics

Failure of executives to behave ethically in both the utilitarian sense and the sense of natural rights was another factor in creating the BP Oil Spill. Investigative reporter Mike Magner (2010) writes: "What was troubling to investigators and overseers of the oil industry was that in virtually every instance where BP had a decision to make about the Macondo well, it chose the option that presented the lowest cost or saved the most time" (203). That is, lowest cost and most timed saved assuming nothing they ignored went wrong! This conduct is representative of the process of ethical fading, where when it comes time to make decisions, decision-makers treat them as technical or managerial decisions, and forget to even consider their ethical implications (Bazerman & Tenbrunsel, 2011, pp. 68-70). This is another instance where regulatory "nudges" could create incentives for BP, Transocean and other participants in the off-shore oil and gas industry to pay attention to the ethical implications of their cost-cutting decisions and efforts to evade rather than understand and comply with the regulations government, as an agent of the people, has adopted for them to follow as a condition of their being permitted to do business at all.

Robert Audi of Notre Dame has argued that there are six constituencies of ethical businesses: their shareholders, employees, customers, vendors, creditors, and the broader community (Audi, pp. 23-29). I would add a seventh: the global environment, whose resources business exploits without adequately considering the implications of their depletion. The BP oil spill demonstrates this problem quite clearly. David Orr suggests language for addressing this addition to the obligations of ethical business: "No generation and no nation has the right to alter the biogeochemical cycles of Earth or impair the stability, integrity, or beauty of natural systems, the consequences of which would fall as a form of intergenerational remote tyranny on all future generations" (Orr, 2009 , p. 76). It fits well with many of the rhetorical commitments found of corporate web sites, if not on their documented actions time and time again. People recognize this, which is why the occupy wall street movement has so much resonance today.

What then are we to do in order to avoid "The BP Oil Spill" becoming just another business case, to be added to the dusty files of prior cases and soon forgotten (who outside of business textbooks speaks of the collapse of the S&L Industry, the junk-bond frauds, or even Enron or WorldCom anymore?)? We can analyze the facts of the case, the actions of the parties, as examples of failures of judgment and execution due in part to a variety of identifiable behaviors. We can then seek to make our current and future business people sensitive to the risks associated with them, so that they can minimize them in their own careers. Perhaps it will help to include field work, or "restorative justice internships": have business executives or business students spend a semester not interning in an office, but learning how to clean petroleum from a pelican. Have them interview protestors at an "Occupy Everywhere" rally, and spend a night in the park with them.[3]

Many of the failings on the Macondo rig in the interactions among the contractors, various employees and the executives from BP in the U.S. and back in the U.K. were due to the behavioral traps outlined in Hoyk and Hershey's research (Hoyk & Hershey, 2008). They list 45 of them, and the implications of their names are obvious although the solutions are less so: obedience to authority; faceless victims; indirect responsibility; tyranny of goals; money; competition; time pressure; obligation; "we didn't hurt them that bad;" and conflicts of interest are just a few. Think of Lloyd Blankfein of Goldman Sachs explaining why his business model was inconsistent with a fiduciary duty to his customers (The Goldman Hearings, 2010).

But even when we point these traps out to people, they may still fall into them because of motivated blindness or indirect blindness that leads us to ignore unethical behavior in others, or in ourselves (Bazerman & Tenbrunsel, 2011, Chapter 5). The example Bazerman and Tenbrunsel give of the choice of requirements to ensure an ethical independent auditing system illustrates their point in another way. The SEC in 2000 declined to adopt their recommendation of strict separation of the auditing and consulting function, and prohibition of long-term relationships between auditors and their clients, or taking jobs with their clients, in the absence of proof of a "smoking gun" in the form of a specific audit that was clearly biased due to such a relationship. Of course, Enron and WorldCom fell apart in part because of such abuses shortly thereafter, and it should have been apparent to the SEC and to the accounting profession that this was a real risk to be avoided (148). But the SEC and Congress were both under the sway of the myth of self-regulation and the assurance of the accounting firms that they could be trusted because of their reputations and expertise. Just as the oil industry's capture and manipulation of the Minerals Management Service was always highly likely to lead to disaster. And just as failure to fund alternative energy and get the planet off fossil fuels quite soon will have the inevitable consequences of increasing storms, property losses and displacement of peoples that comes with the well-documented evidence for climate change that most politicians and many in business continue to ignore. Bazerman and Tenbrunsel address this case in their chapter on "Why We Fail to Fix our Institutions" at 140-144, and the case is thoroughly documented elsewhere (Oreskes & Conway, 2010).

So, unethical choices may in part be explained in terms of Hoyk & Hersey's behavioral traps that can cause people to act unethically. These can include power in the case of Lord John Browne, and obedience to authority in the case of his subordinates, for example. Unethical decisions may be due to blind spots that we can learn to recognize. Organizations need to be required by law to train their employees (including their top officials) in these risks. This is something the SEC or the Consumer Financial Protection Bureau created under Dodd-Frank (http://www.consumerfinance.gov/) could require. This way, corporations can be held accountable to the taxpayer when they fail to take these reasonable precautionary steps and the result is harm to the any of the seven constituencies of ethical business noted above (Audi's six plus my one). If you or your firm acts unethically, the analysis of Hoyk and Hersey may tell us why – not as an excuse, just as an explanation. Then, with luck, we can learn from events and change behavior for the better, alter the "default settings" in the incentives and rules governing business, and take advantage of the insights of Thaler and Sunstein and "nudge" people and firms to act more ethically and responsibly in their actions (Thaler & Sunstein, 2009; see also their web site: http://www.nudges.org; Cave, 2011). And, cross our fingers that it is not all too little, too late.

[3] See the Times Topic "Occupy Wall Street " at http://topics.nytimes.com/top/reference/timestopics/organizations/o/occupy_wall_street/index.html?scp=1-spot&sq=occupy%20wall%20street&st=cse for a history of this continuing movement.

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SHOULD SUB SAHARAN AFRICA OIL EXPORTER COUNTRIES BORROW MORE IN U.S. DOLLAR OR EURO TO STABILIZE THEIR BALANCE OF PAYMENTS? AN EMPIRICAL INVESTIGATION

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ABSTRACT

This paper investigates the vulnerability of oil exporter countries in Sub Saharan Africa (SSA) to commodity price, exchange rate, and interest rate uncertainty. Although there are considerable differences among Sub Saharan Africa, they do share a number of common characteristics: heavy dependence on primary commodity exports, heavy reliance on outside aid, large debt burdens, poor infrastructure, and low level of education (see further Husain and Underwood 1991, Claessens and Qian 1993). An alternative to macroeconomic policies is the use of financial hedging instruments to stabilize the balance of payments. The currency composition of a country's external debt can serve as a hedging instrument against changes in exchange rate, interest rate, and commodity price changes. Commodity price and exchange rate changes affect both exports and imports. Furthermore, if a country has debt obligations in currencies other than their own, then its debt servicing ability will be affected by changes in exchange rate and interest rate. This paper focuses on how a country can minimize its exposure to commodity price, exchange rate, and interest rate movements by structuring optimally the currency composition of its external debt relative to the costs of servicing the debt. The high historical volatility of currencies and export and import prices has had serious implications for the government budgets of Sub Saharan countries, their economic stability and social welfare. A recent survey by the World Bank revealed that 70 percent of foreign borrowers in developing countries do not hedge their interest rate or exchange rate exposures. SSA countries are particularly vulnerable because: (1) they have large international borrowing requirements and the resulting external debt is denominated in different currencies; (2) most of the external debt is in obligations with variable interest rates; and (3) their trade in primary commodities is significant. A country can improve the risk characteristics of their balance of payments by holding an adequate level of foreign exchange reserves and borrowing in appropriate currency denominations. The currency composition of its external debt is a policy tool (debt composition is endogenous). This empirical investigation has determined that the U.S. Dollar denominated debt is more attractive and desirable for these countries, given their risk profiles and the important component of oil export earnings.

INTRODUCTION

In the decades after World War II, developing economies borrowed from richer countries and built up a substantial amount of debt [more than $2 trillion, *Eutopia* (CUA), Vol.4, No1, p. 31, 1999]. Sub-Saharan African countries owe around ten percent of the total debt of all developing countries. This debt was at the center of the crisis in international lending that preoccupied economic policymakers throughout the world for a decade after 1982. Recently-developed financial products and techniques can be used as hedging tools for a country's asset and liability management, though effective risk management activities require a good knowledge of these instruments. Considerable expertise is required in understanding the risk structure of the economy, identifying which instruments are appropriate and making or supervising the transactions. Setting up an appropriate institutional structure to undertake these tasks also requires a thorough understanding of the nature of risks and risk management instruments. Unfortunately, many developing countries lack the expertise for these operations. Substantial investment in information systems and human resources are necessary to train the staff; to introduce adequate reporting, recording, monitoring and evaluating mechanisms and to establish internal control procedures. However, an alternative to these financing techniques and macroeconomic policies to minimize a country's exposure to exchange rates and commodity price movement is the use of foreign currency composition of the optimal debt portfolio as a hedging instrument first developed by Claessens (1988) then the operational framework was improved by Kroner and Claessens (1991). The principles that should govern these countries' debt management strategy should be the goals of improving their credit ratings, limiting the impact of volatility in global markets by maintaining an optimal currency composition of the debt. The currency composition of the external debt can be used to minimize exposure to external price risk and thus to diminish the exposure of their budget to external price shocks such as fluctuating exchange rates, interest rates and commodity prices. This paper develops a debt composition strategy that minimizes the effect of exchange rate, commodity price and interest rate fluctuations on the balance of payments of a sub Saharan Africa oil exporter country. The empirical work is based on historical data aimed at extracting useful relationships between the balance of payments and the relevant financial risks of Nigeria. This technique is also applicable to Angola, Cameroon, Chad, Republic of Congo, Equatorial Guinea, and Gabon since these countries share a number of common characteristics: heavy dependence on oil export earnings, significant reliance on outside aid, large debt burdens, poor infrastructure, and low level of education (See Figure 1 and Tables 1.1 – 1.5 in the appendix).

The structure of the paper is as follow: Section II presents a discussion of the model and framework of analysis. Section III describes the data and econometric technique used in this study, while Section IV includes the estimation results. Section V presents the calculation of the optimal debt composition. Section VI contains a discussion and an evaluation of the estimated portfolios. Section VII concludes and points out some policy implications for sub Sahara Africa oil exporters.

MODEL AND FRAMEWORK OF ANALYSIS

Assumptions

1. The government can borrow externally by taking out a conventional loan at a rate of interest i* and/or the government can borrow by issuing bonds at an interest rate r* that mature in one period t and require a payment at the beginning of the next period [t+1].

2. The country can improve the risk characteristics of its balance of payments by holding an adequate level of foreign exchange reserves and borrowing in appropriate currency denominations. The currency composition of its external debt is a policy tool (debt composition is endogenous, i.e. derived from the ad hoc model).

3. The agent's problem is to choose a portfolio of bonds b_t* and/or conventional debt d_t* in different currencies such that the balance of payment is stabilized, optimized (in equilibrium) in each period t, that is: BOP = [Current Account $_t$+ [Capital Account]$_t$+[Δ International Reserves]$_t$ = 0.

Furthermore, we assume that Nigeria is only limited to conventional debt therefore no bond financing will be carried out in the statistical implementation e.g. $b_t^*=0$. (See Figure 1 in the appendix.)

We also assume that Nigeria holds an adequate level of international reserves.

4. The regressions will be based on historical data (time series) aimed at extracting useful relationships between the balance of payments and risk factors (commodity price risk, exchange rate risk, interest rate risk). The shortcoming with this method is that it doesn't take into account future changes in the country's economic structure that may alter the country's risk exposure profile. The other method proposed in the finance literature is the measurement based on projections or simulation, (Masuoka, 1993).

Calculating the Optimal Composition of Debt

The model used in this study to estimate the optimal composition of debt for Nigeria is based on the work of Powell (1993), Kroner and Claessens (1991), and Claessens (1988). One main difference that has to be taken into account is the presence of the three risk characteristics in our model: commodity price, exchange rate risk, and interest rate risk. Furthermore, we allow all the interest rates to be variable over time. The general framework for defining the optimal composition of debt is to use the trade balance or resource balance. The framework allows for different variables to be considered as exogenous or endogenous. [See Claessens (1988)]

In this study, commodity sensitivities are exogenous and debt composition is endogenous. [Similar to Powell (1993)]

Consider the trade balance as related to a set of commodity prices and interest rates as follows:

$$TB = \lambda_0 + \Sigma^{r}_{i=1} \lambda_i P_i + \Sigma^{s}_{j=r+1} \lambda_j P_j \qquad (1)$$

In natural log:

In equation (1) TB is the trade balance, P_i represents the set of commodity prices (P_{oil}, P_{cocoa}) in the case of Nigeria and, P_j represents the set of interest rates or exchange rates. The sensitivities of the trade balance to these prices are thus represented by λ_s. Although a number of these sensitivities may be exogenous, a number are endogenous. Claessens (1988) considers the case in which commodity quantities (and thus sensitivities) are exogenous, whereas the amount of debt denominated in a particular currency (and hence the sensitivity of the resource to that currency interest rate is endogenous.

This approach can be generalized as follows: Allow the sensitivity of the trade balance or resource balance to p parameters (for example, a set of interest rates or exchange rates) can be thought of as endogenous. Let $\mathbf{P}_n$ be the $(1 \times p)$ vector of such parameters and let $\mathbf{n}$ be the $(1 \times p)$ vector of endogenous sensitivities. Further, let there be q parameters (for example, a set of commodity prices) that can be thought of as exogenous, and let $\mathbf{P}_x$ be the $(1 \times q)$ vector of such parameters and let $\mathbf{x}$ be the $(1 \times q)$ vector of exogenous sensitivities. Then the trade balance or resource balance may be reformulated as follows:

$$TB = \mathbf{P}_n\mathbf{n'} + \mathbf{P}_x\mathbf{x'}. \qquad (2)$$

The optimal value for $\mathbf{n}$ can be obtained by differentiating the expression for the variance of the trade balance or resource balance with respect to the p endogenous variables. This results in p equations in p unknowns, which may be written in matrix form as $\mathbf{Bn = Ax'}$, where $\mathbf{B}$ is the $(p \times p)$ variance-covariance matrix of the endogenous variables [that is, $\mathbf{B}$ = var ($\mathbf{n}$)] and $\mathbf{A}$ is the $(p \times q)$ matrix of covariances between $\mathbf{n}$ and $\mathbf{x}$ [that is, $\mathbf{A}$ = cov ($\mathbf{n}$, $\mathbf{x}$)]. We can then solve for the optimal set of variables $\mathbf{n}$ (e.g. portfolio weight of each currency) as follows:

$$\mathbf{n} = \mathbf{B}^{-1}\mathbf{Ax}. \qquad (3)$$

In the model, commodity sensitivities are exogenous and debt composition is endogenous. Hence, the first problem is to put values on the exogenous sensitivities (λ). The estimates in equation (1), λ_i (for Nigeria, they are λ_{oil} λ_{cocoa}) will become natural candidates for the commodity sensitivities in equation (2) since the oil and the cocoa are the main determinants of Nigeria's external account.

The ad hoc model of this study consists of two equations given below:

Equation (1): $\log (TB)_t = \lambda_0 + \lambda_{oil} \log P_{oil} + \lambda_{cocoa} \log P_{cocoa} + \Sigma^{s}_{j=r+1} \lambda_j P_j$

Equation (2): $\mathbf{n} = \mathbf{B}^{-1}\mathbf{Ax}$ (Calculation of the optimal portfolio weights)

DATA AND ESTIMATION TECHNIQUE

The relevant data used in this investigation are primarily from the IMF database (International Financial Statistics, Balance of Payments Statistics), World Bank publication (World Debt Tables), Bank of America (World Information Services Country Risk Monitor). All the variables were transformed in natural log or first difference before the estimations were carried out in log form. The data are collected in US dollar or in Nigeria naira. Data from Nigeria main trading partners, when needed, were converted into US dollar or Nigeria naira at the prevailing nominal exchange rates. Quarterly data are used for the countries considered covering the period from the first quarter of 1976 to the last quarter of 2001. The choice of the period of the study from1976 to 2001 could be explained by two main reasons. Firstly, some of the series in the study were not available before 1976. The second reason is that Nigeria's main European trading partners dissolved their domestic currency systems in 2000 for the common euro. The last four observations of the European exchange rates in 2001 represent an interpolation against the dollar. The trade balance variable is the difference between the exports and imports series. To avoid the negative sign in the log transformation of the trade balance, the export series is divided by the import series (terms of trade) before taking the natural log. Two dummies were created to capture unusual periods in the sample. The dummy variable D1 is used to capture economic, political, and institutional factors that shape Nigeria's trade balance function after 1980. The dummy variable D2 is used to capture any shift in Nigeria's trade balance function due to the reform of the exchange rate system and the elimination of prices control as part of the structural adjustment program (SAP) supported by the IMF and the World Bank in 1986. The models were estimated by way of three methods: (1) Ordinary Least Squares (OLS), (2) Generalized Least-Squares Estimation (GLS), and (3) Autoregression (AR). See Tables 2.1 through 2.3 for the statistics test performed on the data.

ESTIMATION RESULTS

The estimates are reported in Table 3 in the appendix.

CALCULATION OF THE OPTIMAL DEBT COMPOSITION

Determination of Exogenous and Endogenous' Sensitivities

We consider the trade balance also known as resource balance as related to a set of commodity prices, exchange rates, and interest rates as follows (for more details on the framework of analysis, see section II):

$$TB = \lambda_0 + \Sigma^{r}_{i=1} \lambda_i P_i + \Sigma^{s}_{j=r+1} \lambda_j P_j \qquad (4)$$

In equation (1), TB is the trade balance, P_i represents the set of commodity prices (P_{oil}, P_{cocoa}) and, P_j represents the set of interest rates ($i_{\$}$, $i_{£}$, $i_{¥}$, i_{Ff}, $i_{DM,}$ i_{Sf}). The sensitivities of the trade balance to these prices are thus represented by λ_i, where i = 1… s. Although a number of these sensitivities may be exogenous, a number are endogenous. Claessens (1988) considers the case in which commodity quantities (and thus sensitivities) are exogenous, whereas the amount of debt denominated in a particular currency (and hence the sensitivity of the resource to that currency interest rate; $i_{\$}$, $i_{£}$, $i_{¥}$, i_{ff}, i_{DM}, i_{Sf}) is endogenous.

This approach can be generalized as follows: Say the sensitivity of the trade balance to p parameters (for example, a set of interest rates) can be thought of as endogenous. Let $\mathbf{P}_n$ be the $(1 \times p)$ vector of such parameters and let $\mathbf{n}$ be the $(1 \times p)$ vector of endogenous sensitivities. Say there are q parameters (for example, a set of commodity prices) that can be thought of as exogenous, and let $\mathbf{P}_x$ be the $(1 \times q)$ vector of such parameters and let $\mathbf{x}$ be the $(1 \times q)$ vector of exogenous sensitivities. Then the trade balance may be reformulated as follows:

$$\text{TB} = \mathbf{P}_n\mathbf{n'} + \mathbf{P}_x\mathbf{x'}. \qquad (5)$$

The values for $\mathbf{n}$ can be obtained by differentiating the expression for the variance of the trade balance with respect to the p endogenous variables (values of $\mathbf{n}$ that minimize the variance of the trade balance). This results in p equations in p unknowns, which may be written in matrix form as $\mathbf{Bn} = \mathbf{Ax'}$, where $\mathbf{B}$ is the $(p \times p)$ variance-covariance matrix of the endogenous variables [that is, $\mathbf{B}$ = var ($\mathbf{n}$)] and $\mathbf{A}$ is the $(p \times q)$ matrix of covariances between $\mathbf{n}$ and $\mathbf{x}$ [that is, $\mathbf{A}$ = cov ($\mathbf{n}$, $\mathbf{x}$)]. We can then solve for the (minimum variance) set of variables $\mathbf{n}$ (e.g.λi_{FF}, $\lambda i_{\$}$, $\lambda i_{£,}$ $\lambda i_{¥\,,}$ $\lambda i_{FF\,,}$ λi_{DM}, λi_{Sf}) portfolio weight of each currency) as follows:

$$\mathbf{n} = \mathbf{B}^{-1}\,\mathbf{Ax}. \qquad (6)$$

In our model, commodity sensitivities are exogenous and debt composition is endogenous. Hence, the first problem is to obtain values for the sensitivities labeled λ_i (that is, those that are exogenous, λ_{oil}, λ_{cocoa}). These values are collected from the original trade balance model corrected for multicollinearity (see Section 4.3) and given in table 4.3.

The estimates for λ^*_{oil} = 1.597 and λ^*_{cocoa} = -0.062 are used as the exogenous sensitivities in the portfolio calculations in equation (3) along with the calculated covariance matrix reported in sections 5.2 and 5.3. After obtaining the weights, a rescaling is also performed to make the portfolio weights equal to 1, that is, $\omega_{iff} + \omega_{i\$} + \omega_{i£} + \omega_{i¥} + \omega_{idm} + \omega_{isf} = 1$.

Debt Portfolio Weights Calculation

In this section, we compute three types of Debt Portfolio weights, and then we recommend the one that is the most appropriate one for Nigeria given its balance of payments' risks structure.

Interest Rate Debt Portfolio Calculation (located in the appendix)

Tables 4.3, 4.10, and 4.11 (located in the appendix) show the feasible sets of calculated portfolios.

The feasible portfolios in Tables 4.3, 4.10, and 4.11 are compared with the actual currency composition in Table 5.1, 5.2, 5.3 and 5.4. We refer to the actual portfolio of Nigeria as the benchmark portfolio. There are several key factors, which define the composition of the portfolio: cost of borrowing and its variance, the correlation between asset and liability, and correlation among liabilities. The hedging portfolios are sensitive to the assumption of the stability of the covariance. Consequently, the estimates of optimal portfolio shares may change from period to period; if covariance changes over time.

DISCUSSION AND EVALUATION OF THE PORTFOLIOS

Referring to Table 5.1, where the hedging interest rate debt portfolio is determined by the covariance matrix of interest rates (endogenous) and prices of oil and cocoa (exogenous) multiplied by the inverse of the covariance matrix among interest rates (endogenous) then multiplied by the vector of elasticities (sensitivities) of prices of oil and cocoa with respect to the trade balance. For Nigeria, the interest rate portfolio consists of 12.4% French franc, 14.4% pound sterling, 11.8% Swiss franc, 27.0% deutsche mark, 4.4% Japanese yen, and 30.0% US dollar as compared to the benchmark portfolio (5.5% French franc, 22.0% pound, 0.0% Swiss franc, 21.5% mark, 6.0% yen, and 45.0% dollar). Interestingly, for Nigeria, dollar denominated debt is more desirable compare to non-dollar liabilities. The actual debt portfolio contains an excess of liabilities denominated in US dollar, pound sterling, and Japanese yen. French francs, Deutsche mark, and Swiss franc, by contrast, are substantially underrepresented in the benchmark portfolio.

Referring to Table 5.2, where the hedging exchange rate debt portfolio is determined by the covariance matrix of exchange rates (endogenous) and prices of oil and cocoa (exogenous) multiplied by the inverse of the covariance matrix among exchange rates (endogenous) then multiplied by the vector of prices elasticities (sensitivities) of oil and cocoa with respect to the trade balance. For Nigeria, the exchange rate portfolio consists of -6.9% French franc (asset share), 21.8% pound sterling, 31.8.% Swiss franc, -9.9% deutsche mark (asset share), 30.2% Japanese yen, and 33.4.0% US dollar as compared to the benchmark portfolio (5.5% French franc, 22.0% pound, 0.0% Swiss franc, 21.5% mark, 6.0% yen, and 45.0% dollar). The actual debt portfolio contains an excess of liabilities denominated in US dollar, Japanese yen and pound sterling (almost close to optimal). The Swiss franc, by contrast, is substantially underrepresented or non existent in the benchmark portfolio. On the contrary, the French franc and the Deutsche mark emerge asset shares for Nigeria in the exchange rate portfolio. It is, however, unlikely that a small country like Nigeria will be a lender in financial markets, given its recurrent foreign exchange shortages. The dollar debt is fairly the same in both types of calculated portfolios (interest rate portfolio and exchange rate portfolio). As Table 4.7 shows, the total proportion of European currencies (French franc and mark) decreases as we move from interest rate debt portfolio to exchange rate debt portfolio. The decrease can largely be explained by the fact that an appreciation of the French franc and German mark against the Nigerian naira implies a higher servicing cost, thus reducing the demand to borrow in Euro (French franc and German mark) and lowering the amount of the Euro loans.

Referring to Table 5.3, where the average hedging of interest rate and exchange rate debt portfolio is determined by the average of the weights of each currency in both the interest rate portfolio and the exchange rate portfolio. The empirical results established that Nigeria faces large exposures to oil price and exchange rate uncertainty and, to a lesser extent, to interest rate movement. Since the hedging portfolio is based on risk minimization, it makes sense to have a balanced debt portfolio that takes into account both the exchange rate risk and interest rate risk. In this regard, the average optimal interest rate and interest rate portfolio is more appropriate in designing a risk hedging portfolio. For Nigeria, the average hedging of interest rate and exchange rate portfolio consists of 11.2% in Euro (sum of 2.7% French franc and 8.5% deutsche mark), 8.1% pound sterling, 21.8% Swiss franc, 17.2% Japanese yen, 31.7% US dollar as compared to the benchmark portfolio of 27% in Euro (5.5% French franc and 21.5% deutsche mark), 22.0% pound sterling, 0.0% Swiss franc, 6.0% yen, and 45.0% US dollar, respectively. The most striking feature of this portfolio is the heavy weight in the US dollar. This is not surprising because Nigeria's exports are largely made up of crude oil and primary commodities whose prices are closely related to the US dollar. Therefore, borrowing a large fraction in US dollars should provide a hedge for changes in terms of trade against currency fluctuations. The actual debt portfolio contains an excess of liabilities denominated in US dollar, pound sterling, French francs, Deutsch mark. Swiss franc and Japanese yen by contrast, are substantially underrepresented in the benchmark portfolio.

Referring to Table 5.4, last column, where the average debt portfolio of public and publicly guaranteed debt portfolio for each currency is determined by the actual weight average for each currency over the period of the study from 1976 to 2001. The data is obtained from the World Bank World Debt Table. As the table shows, the actual debt composition of Nigeria is heavily skewed toward the dollar. The share of the dollar debt has averaged 45.0 percent over the period of the study. The dollar debts have come to be more attractive as oil became a more important component of Nigeria's export earnings. The sums of the shares of the European currencies (DM, SWF, and FF) for the same period are 27.0 percent. Nigeria began to borrow heavily in European commercial markets, with its total Eurocurrency commitments approaching $3 billion during 1978 and 1979. The share of the pound sterling has averaged 22.0 percent. Traditionally, the UK was the main financial provider for Nigeria. In 1970, Britain was Nigeria's biggest creditor with 61.0 percent of its external debt portfolio. Evidently, the movement in Nigeria's borrowing portfolio away from British pound to US dollar results in the increased macroeconomic links between Nigeria and the US. Over the same period, only 6.0 percent of Nigeria's external debt was contracted in Japanese yen. It is worth noting that, after the dollar, the DM and the yen play the most important roles in the foreign exchange market. For instance, in1992, 38.0% of all foreign exchange transactions involved the DM. The pound sterling, once second only to the dollar as a key international vehicle currency, has declined in importance. Over the same period, its share in world foreign exchange trading was just 14.0%.

CONCLUSION AND POLICY IMPLICATIONS

The empirical results establish that Nigeria faces large exposures to oil price and exchange rate uncertainty and, to a lesser extent, to interest rate movement. Since the hedging portfolio is based on risk minimization, it makes sense to have a balanced debt portfolio that takes into account of both the exchange rate risk and interest rate risk. In this regard, the hedging based on average interest rate and interest rate portfolio (Table 5.3) is more appropriate for Nigeria in designing a risk hedging portfolio. Nigeria's optimal average interest rate and exchange rate portfolio consists of 2.7% French franc and 8.5% deutsche mark (or 11.2% in Euro), 18.1% pound sterling, 21.8% Swiss franc, 17.2% Japanese yen, and 31.7% US dollar as compared to the actual benchmark portfolio (5.5% French franc, 22.0% pound, 0.0% Swiss franc, 21.50% mark, 6.0% yen, and 45.0% dollar). The most striking feature of this portfolio is the heavy weight in the US dollar. This is not surprising because Nigeria's exports are largely made up of crude oil and primary commodities whose prices are closely related to the US dollar. Therefore, borrowing a large fraction in US dollars should provide a hedge for changes in terms of trade against currency fluctuations.

Given the substantial difference between the hedging portfolio (calculated in Table 5.3) and the actual (benchmark) portfolio (Table 5.4), it would seem that the actual portfolio should result in a dramatic improvement in Nigeria's ability to hedge themselves against price risks. The analysis indicates that Nigeria's external debt composition is far from efficient or optimal. The model (Table 5.3) shows that Nigeria's external debt structure is not well balanced to hedge the foreign exchange and interest rate risks effectively. The actual debt portfolio (Table 5.4) contains an excess of liabilities denominated in US dollar, British pound, German mark and French franc. The Japanese yen, by contrast, is substantially underrepresented in the portfolio. In addition, Nigeria needs to significantly improve the weight of the Swiss franc in its debt composition for effective hedging. The actual pound sterling share does not differ much from the optimal composition. The Euro liabilities could now replace the German mark and French franc denominated debt; thus lowering the expected cost of borrowing.

In the case of Nigeria and other sub Saharan Africa oil producers, a risk adverse economic agent, dollar liabilities do appear to have good risk-sharing characteristics. Dollar denominated debts become more attractive and desirable only as petroleum becomes a more important component of export earnings. However, all these results should be treated with caution. In particular, the covariances that are estimated may be unstable over time. Also, conducting the analysis over different time period might give different results. In addition, the costs of rebalancing and the stability of the portfolio will determine an optimal "average" portfolio. The initial level of total external debt is not derived from the model. The model determines only the amounts or share of currencies to be borrowed in each period. Similar analyses can be conducted to find portfolios that hedge against changes in export prices, export values, import prices, and import values covering the period after the introduction of the euro. The strong policy implication of this finding is that Nigeria and other sub Saharan Africa oil producers should attempt to link their debt-servicing payments to the outcome of oil prices in order to stabilize their balances of payments.

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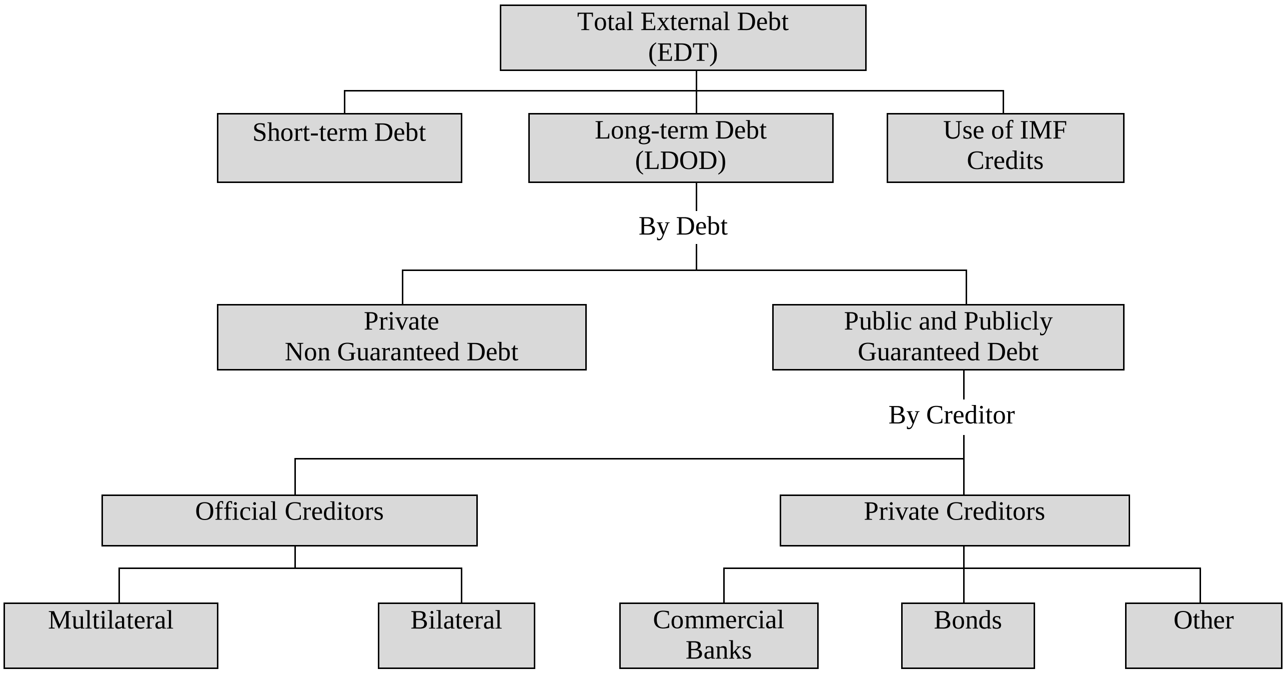
Figure 1

Debt stock and its components



Source: World Debt Table (The World Bank)

Table 1.1

Sub-Saharan Africa (SSA) Oil Exporters: Income Growth and Demographic Characteristics, 1995–2007

	Real per Capita GDP Growth	Real GDP Growth	Real GDP per Capita;2000$ 2007	GDP ($ million) 2007	Population Growth	Population (Millions)
Angola	6.9	10.7	5,026	61,356	3.00	16.3
Cameroon	0.2	3.0	679	12,912	2.80	18.8
Chad	3.9	6.9	1,401	7,095	3.10	9.5
Congo, Rep. of	1.4	4.3	1,170	9,977	2.60	3.8
Equatorial Guinea	26.6	36.1	13,412	10,485	5.40	1.2
Gabon	0.4	2.7	4,070	11,578	2.10	1.45
Nigeria	4.0	6.4	1,766	166,778	2.80	143.9

Source: IMF

Table 1.2

Sub-Saharan Africa (SSA): Selected Indicators, 2006-2007		
	2006	2007
	Percent Change	
Real GDP	6.3	6.7
Of which: Oil exporters	7.5	8.9
Of which: Oil importers	5.8	5.7
Real non-oil GDP	7.8	7.7
Consumer prices (average)	7.3	7.1
Of which: Oil exporters	8.2	5.7
Of which: Oil importers	6.9	7.8
	4.3	4.6
	Percent of GDP	
Exports of goods and services	38.0	38.2
Imports of goods and services	34.7	36.4
Gross domestic saving	24.6	24.1
Gross domestic investment	21.6	22.2
Fiscal balance (including grants)	5.0	1.6
Of which: Oil exporters	11.7	5.0
Of which: Oil importers	1.5	-0.2
Current account (including grants)	0.5	-2.4
Of which: Oil exporters	10.9	3.8
Of which: Oil importers	-5.0	-5.8
Terms of trade (percent change)	9.8	6.0
Of which: Oil exporters	16.6	8.0
Of which Oil importers	6.3	4.9
Reserves (months of imports)	5.6	5.8
Memorandum items:		
Oil price (US$ a barrel)	64.3	71.1
GDP growth in SSA trade partners (in percent)	4.1	3.9

Source: IMF

Table 1.3
Table for Nigeria Debt-Service Ratios, 1999-2002

	1999	2000	2001	2002
Debt Service to Export Ratio	30	15	17	18
External Debt to Export Ratio	226	189	158	155
External Debt to GDP Ratio	87	72	70	71
External Debt to Government Revenue	299	160	149	177
Debt Service to GDP Ratio	11	4	6	7
Debt Service to Government Revenue	38	18	13	17
Months of Imports covered by existing International Reserve assets (with gold)	2.9	3.4	3.9	3.4
Current Account Balance to GDP Ratio	-16.5	-9.4	-2.4	-11.7

Sources of Data: Ministry of Finance; Debt Management Office (Nigeria)

Table 1.4
Exports and Imports of Major Trading Partners of Nigeria (in millions of US $)

Exports							
	1995	1996	1997	1998	1999	2000	2001
Destination							
United States	4,595	5,610	6,107	4,135	4,220	9,409	8,345
Spain	1,036	1,509	1,416	876	876	2,189	1,747
India	572	1,248	1,086	1,014	1,005	1,246	1,345
France	734	1,260	653	673	684	1,055	1,073
Germany	626	643	786	289	189	463	627
Portugal	418	531	466	250	292	727	657
Ghana	352	388	430	443	439	545	588
Cote d'Ivoire	338	484	390	290	359	601	435
Subtotal	8,671(71)	11,673(72)	11,334(69)	7,970(70)	8,064(67)	16,235(75)	14,817(72)
World Total	12,253(100)	16,151(100)	16,540(100)	11,369(100)	12,000(100)	21,685(100)	20,604(100)
Imports							
Origin							
United States	662	898	896	902	709	789	1,053
United Kingdom	749	752	771	854	821	881	1,082
Germany	631	721	801	714	740	635	971
France	461	556	500	624	631	746	832
China: Mainland+Taiwan	303	289	576	695	687	1,000	1,411
Japan	193	341	235	252	271	318	487
Subtotal	2,999(52)	3,557(53)	3,779(54)	4,041(53)	3,859(51)	4,369(49)	5,836(51)
World Total	5,816(100)	6,774(100)	7,017(100)	7,574(100)	7,609(100)	8,842(100)	11,484(100)

Data Source: IMF, Direction of Trade Statistics-Share of total exports and imports, in percent, in parentheses

Table 1.5
Sub-Saharan Africa (SSA): Country Groupings

Resource-Rich		Non-Resource-Rich	
Oil	Non-Oil	Coastal	Landlocked
Angola	Botswana	Benin	Burkina Faso
Cameroon	Côte d'Ivoire	Cape Verde	Burundi
Chad	Guinea	Comoros	Central African Republic
Congo, Rep. of	Namibia	Gambia, The	Congo, Dem. Rep. of
Equatorial Guinea	São Tomé and Príncipe	Ghana	Ethiopia
Gabon	Sierra Leone	Guinea-Bissau	Lesotho
Nigeria	Zambia	Kenya	Malawi
		Madagascar	Mali
		Mauritius	Niger
		Mozambique	Rwanda
		Senegal	Swaziland
		Seychelles	Uganda
		South Africa	Zimbabwe
		Tanzania	
		Togo	

Source: IMF

Table 2.1

Augmented Dicker-Fuller (ADF) Unit Root Test for Ln data for Nigeria Trade Balance Function Variables (quarterly) at Level and First Difference

Variables	Level	Unit Root I(1)	First Difference	Unit Root I(0)
Trade Balance: **lnTB**	-3.913*	NO		
Price of Cocoa: **lncocoa**	-1.8851	YES	-5.196*	NO
Price of Crude Oil: **lnpoil**	-3.156**	NO	-7.604*	NO
US Lending Rate: **lniUS**	-2.089	YES	-2.593***	NO
UK Lending Rate: **lniUK**	-0.031	YES	-4.841*	NO
German Lending Rate: **lniGer**	-1.563	YES	-4.845*	NO
France Lending Rate: **lniFranc**	-0.743	YES	-4.406*	NO
Japan Lending Rate: **lniJapan**	-0.741	YES	-3.156**	NO
Japan Lending Rate: **lniSwissf**	-0.694	YES	-3.765*	NO
Naira per French Franc: **lnenaira_franc**	-0.563	YES	-7.083*	NO
Naira per Pound: **lnenaira_pound**	-0.348	YES	-8.898*	NO
Naira per Deutschmark: **lnenaira_mark**	-0.753	YES	-7.571*	NO
Naira per Yen: **lnenaira_yen**	-0.192	YES	-7.083*	NO
Naira per Dollar: **lnenaira_dollar**	-0.402	YES	-9.982*	NO
Naira per Dollar: **lnenaira_swissf**	-0.802	YES	-6.837*	NO
Trade Balance Residuals	7.319*	NO		
Critical values: *significant at the 1% level =-3.497, ** at the 5% level = -2.891, ***at the 10% level = -2.582				
lncocoa (Natural log of cocoa price), **lnpoil** (Natural log of oil price), **lniUS** (Natural log of US interest rate), **lniUK** (Natural log of UK interest rate), **lniGer** (Natural log of German interest rate), **lniFfranc** (Natural log of French interest rate), **lniJapan** (Natural log of Japan interest rate), **lniSwisfr** (Natural log of Swiss interest rate), **lnXFfranc** (Natural log of French franc exchange rate), **lnXpound** (Natural log of pound exchange rate),), **lnXmark** (Natural log of mark exchange rate), **lnXyen** (Natural log of yen exchange rate), **lnXdollar** (Natural log of dollar exchange rate),), **lnXSwisfr** (Natural log of Swiss franc exchange rate)				

$Y_t = \beta Y_{t-1}$; Ho: $\beta = 1$ or Ha: $\beta \neq 1$

I(1) → integrated One ; I(0) → integrated Zero

If T-test statistic < Critical value → accept Ho ($\beta = 1$) → Unit Roots; I (1) → there is a trend

If T-test statistic > Critical value → reject Ho ($\beta \neq 1$) → No Unit Root; I (0) → no trend

Table 2.2 Autocorrelation diagnostics for the Trade Balance Function:

$$\mathbf{ln\ TB_t = \lambda_0 + \lambda_1\ ln\ cocoa_t + \lambda_2\ lnpoil_t + \lambda_3\ ln\ iUS + \lambda_4\ ln\ iUK + \lambda_5\ ln\ iGer + \lambda_6\ ln\ iFranc + \lambda_7\ ln\ iJapan + \lambda_8\ ln\ Xfranc_t + \lambda_9\ ln\ Xpound + \lambda_{10}\ ln\ Xmark_t + \lambda_{11}\ ln\ Xyen + \lambda_{12}\ ln\ Xdollar + \lambda_{13}\ D1 + \lambda_{14}\ D2 + \varepsilon_t}$$

(Quarterly data from 1976 to 2001)

OLS			
Variables	B	SE	t
(Constant)	13.337**	6.621	2.014
lncocoa	-0.717***	0.536	-1.337
lnpoil	1.938*	0.392	4.943
lniUS	-0.134	0.627	-0.213
lniUK	0.907	1.113	0.814
lniGer	-1.08	1.172	-0.921
lniFfranc	-2.308**	1.247	-1.850
lniJapan	-0.386	0.912	-0.423
lniSwisfr	1.909***	1.313	1.453
lnXFfranc	-0.545	1.299	-0.419
lnXpound	-1.334	1.088	-1.226
lnXmark	-0.162	1.314	-0.123
lnXyen	0.879	0.976	0.900
lnXdollar	-0.0512	1.853	-0.027
lnXSwisfr	0.692	1.165	0.593
d80	-0.825***	0.544	-1.516
D86	0.476	0.583	0.816
# observations	104		
R Square	0.460		
SE estimate	0.654		
Durb-Watson	1.986		
F-statistic (df1=16; df88)	4.634		

Critical Values: (1.282 at 10%); (1.645 at 5%); and (2.326 at 1%)
Significance: ***Significant at the 10% level, **significant at the 5% level , *significant at the 1% level

lncocoa (Natural log of cocoa price)**, lnpoil** (Natural log of oil price), **lniUS** (Natural log of US interest rate)**, lniUK** (Natural log of UK interest rate)**, lniGer** (Natural log of German interest rate)**, lniFfranc** (Natural log of French interest rate)**, lniJapan** (Natural log of Japan interest rate)**, lniSwisfr** (Natural log of Swiss interest rate), **lnXFfranc** (Natural log of French franc exchange rate)**, lnXpound** (Natural log of pound exchange rate)**, lnXmark** (Natural log of mark exchange rate)**, lnXyen** (Natural log of yen exchange rate)**, lnXdollar** (Natural log of dollar exchange rate),)**, lnXSwisfr** (Natural log of Swiss franc exchange rate**, d80** (Break 1980)**, d86** (Break 1986)

Table 2.3

Multicollinearity diagnostics for the variables in the Trade Balance Function

$$\ln TB_t = \lambda_0 + \lambda_1 \ln cocoa_t + \lambda_2 \ln poil_t + \lambda_3 \ln iUS + \lambda_4 \ln iUK + \lambda_5 \ln iGer + \lambda_6 \ln iFranc + \lambda_7 \ln iJapan + \lambda_8 \ln Xfranc_t + \lambda_9 \ln Xpound + \lambda_{10} \ln Xmark_t + \lambda_{11} \ln Xyen + \lambda_{12} \ln Xdollar + \lambda_{13} D1 + \lambda_{14} D2 + \varepsilon_t$$

(Quarterly data from 1976 to 2001)

OLS						
	B	Std. Error	t	Tolerance	VIF	Condition Index
(Constant)	13.337**	6.621	2.014			1.000
lncocoa	-0.717***	0.536	-1.337	0.096	10.459	1.665
lnpoil	1.938*	0.392	4.943	0.230	4.341	10.347
lnius	-0.134	0.627	-0.213	0.128	7.809	11.249
lniuk	0.907	1.113	0.814	0.029	34.093	21.377
lniger	-1.08	1.172	-0.921	0.054	18.458	23.417
lnifranc	-2.308***	1.247	-1.850	0.048	20.872	34.789
lnijapan	-0.386	0.912	-0.423	0.022	45.580	63.143
lniswisfr	1.909	1.313	1.453	0.048	20.667	68.212
lnxfranc	-0.545	1.299	-0.419	0.001	1065.996	96.375
lnxpound	-1.334	1.088	-1.226	0.001	999.289	114.520
lnxmark	-0.162	1.314	-0.123	0.001	1247.728	118.179
lnxyen	0.879	0.976	0.900	0.001	1047.647	151.059
lnxdollar	-0.0512	1.853	-0.027	0.001	2735.517	165.485
lnxswisfr	0.692	1.165	0.593	0.001	1268.309	269.668
D80	-0.825***	0.544	-1.516	0.107	9.379	282.281

Critical Values: (1.282 at 10%); (1.645 at 5%); and (2.326 at 1%)

Significance: ***Significant at the 10% level, **significant at the 5% level , *significant at the 1% level

lncocoa (Natural log of cocoa price)**, lnpoil** (Natural log of oil price), **lniUS** (Natural log of US interest rate)**, lniUK** (Natural log of UK interest rate)**, lniGer** (Natural log of German interest rate)**, lniFfranc** (Natural log of French interest rate)**, lniJapan** (Natural log of Japan interest rate)**, lniSwisfr** (Natural log of Swiss interest rate), **lnXFfranc** (Natural log of French franc exchange rate)**, lnXpound** (Natural log of pound exchange rate),)**, lnXmark** (Natural log of mark exchange rate)**, lnXyen** (Natural log of yen exchange rate)**, lnXdollar** (Natural log of dollar exchange rate)**,**), **lnXSwisfr** (Natural log of Swiss franc exchange rate**, d80** (Break 1980)

Table 3

Estimates of the Trade Balance Original Model Corrected for Multicollinearity

$$\textbf{ln TB}_t = \lambda_0 + \lambda_1 \textbf{ ln cocoa}_t + \lambda_2 \textbf{ ln poil}_t + \lambda_3 \textbf{ ln iUS} + \lambda_4 \textbf{ ln iGer} + \lambda_5 \textbf{ ln XXbasket} + \lambda_6 \textbf{ ln MXbasket} + \lambda_7 \textbf{ D1} + \varepsilon_t$$

(Quarterly data from 1976 to 2001)

Independent Variables	Dependent Variable: **lnTradebalance**: lnexport- lnimport
	GLS (Prais –Winsten estimation)
Constant	7.216** (1.864)
Price of Crude Oil: **ln poil**	1.597* (4.524)
Price of Cocoa: **ln cocoa**	-0.062*** (-1.389)
Exchange Rate: **ln XXbasket**	0.056 (0.861)
Exchange Rate: **ln MXbasket**	0.109 (0.937)
US Lending Rate: **ln iUS**	0.102 (0.254)
German Lending Rate: **ln iGer**	-0.343 (-0.604)
D1-Break-80	-0.739* (-2.391)
Number of observations	104
Adjusted R-squared	0.575
Std. Error of the Estimate	0.066
Durbin-Watson (DW)	1.970
F-statistic (Df1=7; df2=96)	7.644*

t-statistics are in parentheses

Critical Values: (1.282 at 10%); (1.645 at 5%); and (2.326 at 1%)

Significance: ***Significant at the 10% level, **significant at the 5% level , *significant at the 1% level

lncocoa (Natural log of cocoa price), **lnpoil** (Natural log of oil price), **lniUS** (Natural log of US interest rate), **lniGer** (Natural log of German interest rate), **lnXXbasket** (Natural log of export exchange rate composite), **lnXXbasket** (Natural log of export exchange rate composite, **D1** (=1 for period > 1980; otherwise, 0)

Table 4.1: covariance matrix among endogenous variables (interest rates)

covariance matrix among endogenous variables (interest rates)							
B		lniswf	lnius	lnifranc	lniuk	lniger	lnijapan
	lniswf	1.078	0.084	0.323	-0.242	-0.798	-0.319
	lnius	0.084	0.377	-0.254	-0.013	-0.346	0.33
	lnifranc	0.323	-0.254	1.781	-0.144	-0.272	-0.776
	lniuk	-0.242	-0.013	-0.144	1.244	-0.445	0.01
	lniger	-0.798	-0.346	-0.272	-0.445	1.888	-0.212
	lnijapan	-0.319	0.33	-0.776	0.01	-0.212	0.813

Table 4.2: covariance between endogenous (interest rates) & exogenous (prices of oil and cocoa)

covariance between endogenous (interest rates) & exogenous (prices of oil and cocoa)			
A		lncocoa	lnpoil
	lniswf	0.061	0.09
	lnius	0.01	-0.013
	lnifranc	-0.004	-0.066
	lniuk	-0.098	-0.015
	lniger	0.138	-0.244
	lnijapan	0.036	0.068

Table 4.3: Elasticity of cocoa and oil

Elasticities, $\lambda^*_{cocoa,}$ and λ^*_{oil}		
x	lncocoa	-0.062
	lnpoil	1.597

Table 4.4: Un-scaled portfolio weights

n = **B**$^{-1}$***A*****x** = un-scaled portfolio weights	
λiswf	-0.22984
λius	-0.58525
λifranc	-0.24108
λiuk	-0.2805
λiger	-0.52578
λijapan	-0.08556
Total	-1.94801

Table 4.5: Un-scaled portfolio weights

ω = scaled portfolio weights, where $\omega_{iff},+ \omega_{i\$}+\omega_{i£}+ \omega_{i¥}+ \omega_{idm}+ \omega_{isf} =1$	
ωiswf	11.8%
ωius	30.0%
ωifranc	12.4%
ωiuk	14.4%
ωiger	27.0%
ωijapan	4.4%
Total	100%

Table 4.6: covariance matrix among endogenous variables (exchange rates)

covariance matrix among endogenous variables (exchange rates)							
B		lnXFfr	lnXuk	lnXsf	lnXgm	lnXye	lnXus
	lnXFfr	1.926	1.097	0.544	-1.868	0.193	-2.012
	lnXuk	1.097	1.421	0.792	-1.105	-0.144	-2.097
	lnXsf	0.544	0.792	1.131	-0.679	-0.483	-1.372
	lnXgm	-1.868	-1.105	-0.679	1.937	-0.213	2.091
	lnXye	0.193	-0.144	-0.483	-0.213	0.777	-0.24
	lnXus	-2.012	-2.097	-1.372	2.091	-0.24	3.909

Table 4.7: covariance between endogenous (exchange rates) & exogenous (prices of oil and cocoa)

covariance between endogenous (exchange rates) & exogenous (prices of oil and cocoa)			
A		cocoa	oil
	lnXFfr	0.076	0.135
	lnXuk	0.028	0.134
	lnXsf	-0.005	0.04
	lnXgm	-0.097	-0.105
	lnXye	-0.002	0.018
	lnXus	0.034	-0.241

Table 4.8: Elasticity of cocoa and oil

Elasticities, λ^*_{cocoa}, and λ^*_{oil}		
x	lncocoa	-0.062
	lnpoil	1.597

Table 4.9: Un-scaled Portfolio Weights

n = $\mathbf{B}^{-1}$***A*****x** = un-scaled portfolio weights	
λXFfr	0.096844
λXuk	-0.30858
λXsf	-0.44582
λXgm	0.140968
λXye	-0.42864
λXus	-0.47289
Total	-1.41812

Table 4.10: Scaled Portfolio Weights

$\boldsymbol{\omega}$ = scaled portfolio weights, where $\omega_{iff},+ \omega_{i\$}+\omega_{i£}+ \omega_{i¥}+ \omega_{idm}+ \omega_{isf} =1$	
ωxffr	-6.9%
ωxuk	21.8%
ωxsf	31.4%
ωxgm	-9.9%
ωxye	30.2%
ωxus	33.4%
Total	100.0%

Table 4.11: Average Optimal Interest rate and Exchange Rate Debt Portfolio (%)

Average Optimal Interest rate and Exchange Rate Debt Portfolio (%)

French Franc	2.7
Pound Sterling	18.1
Swiss Franc	21.8
Deutsche Mark	8.5
Japanese Yen	17.2
U.S. Dollars	31.7
Total	100.0

Table 5.1: Optimal Interest Rate Debt Portfolio (%)

Optimal Interest Rate Debt Portfolio (%)

French Franc	12.4
Pound Sterling	14.4
Swiss Franc	11.8
Deutsche Mark	27.0
Japanese Yen	4.4
U.S. Dollars	30.0
Total	100.0

Table 5.2: Optimal Exchange Rate Debt Portfolio (%)

Optimal Exchange Rate Debt Portfolio (%)

French Franc	-6.9
Pound Sterling	21.8
Swiss Franc	31.8
Deutsche Mark	-9.9
Japanese Yen	30.2
U.S. Dollars	33.4
Total	100.0

Table 5.3: Average Optimal Interest rate and Exchange Rate Debt Portfolio (%)

Average Optimal Interest rate and Exchange Rate Debt Portfolio (%)

French Franc	2.7
Pound Sterling	18.1
Swiss Franc	21.8
Deutsche Mark	8.5
Japanese Yen	17.2
U.S. Dollars	31.7
Total	100.0

Table 5.4: Actual Currency Composition of Long-Term Debt of Nigeria (%)

The actual currency composition is calculated from the World Debt Data Publication

Actual Currency Composition of Long-Term Debt of Nigeria (%)

The actual currency composition is calculated from the World Debt Data Publication

	1970	1980	1990	1995	2000	Average 1976-2001
French Franc	0.0	1.0	11.0	14.0	1.0	5.5
Pound Sterling	61.0	3.5	14.0	13.0	1.5	22.0
Swiss Franc	0.0	0.0	0.0	1.0	0.0	0.0
Deutsche Mark	18.0	28.0	18.0	18.0	1.0	21.5
Japanese Yen	1.0	2.5	10.0	16.0	2.0	6.0
U.S. Dollars	20.0	65.0	47.0	38.0	94.5	45.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

FUNDING CUT IMPACT ON GREAT VALLEY TECHNOLOGY ALLIANCE: A CASE STUDY OF WHAT WORKS AND A MODEL FOR THE FUTURE

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ABSTRACT

Created in March 2000, the Great Valley Technology Alliance (GVTA) is a regional public-private partnership designed to facilitate the development of a knowledge-based, technology-focused economy for Northeastern Pennsylvania. GVTA is an outgrowth of a 1998 study, commissioned by various economic development organizations of Wilkes-Barre, Hazleton, and Scranton, and funded by the Economic Development Administration, as well as the Pennsylvania Department of Community and Economic Development. Its purpose was to better understand and address the structural obstacles that must be overcome in order for the region to make the transition to a knowledge-based economy. This report led to the creation of the GVTA identified several critical weaknesses that if left unaddressed would continue to hamper the region's ability to attract and retain talented people and technology-focused investment. These weaknesses include a non-entrepreneurial business climate; lack of local financial support for entrepreneurs; the lack of a major research-driven educational institution in the region; the lack of networking between the region's existing technology-based businesses and its colleges and universities; and, the failure to address quality of life issues for attracting the entrepreneurial sector.

Severe funding cuts on the Federal level and by the Commonwealth of Pennsylvania have greatly impacted the budget of the GVTA. The question facing it academic patrons along with potential private funding sources, is what goals has the GVTA been successful in addressing and how should they dictate the future path of the mission and its programs? In this case study we look at what programs have worked, which have not and should be cut, and what the new model of the GVTA should be.

INTRODUCTION

Over the past decade many communities have supported activities meant to develop business enterprises. In North East Pennsylvania (NEPA) a partnership between several public and private groups formed the Great Valley Technology Alliance (GVTA). In general, the purpose of the alliance was to better understand and address the structural obstacles in order to help the region transition to what some saw as the 21st century economy.

This well-intentioned activity has not lived up to the expectations of its founders and most observers believe the money earmarked to the alliance could be better spent. In the near future much of the public funding for the activity will be reduced or eliminated; at the same time private donors are questioning the efficacy of the alliance.

Presumably, the rationale for establishing the GVTA was sound when established and reasonable ten years later. A study commissioned in the latter part of the 20th century to provide insight into what was considered a regional jobs crisis. According to the research, the area suffered from several job and business inhibiting forces. In fact, a Battelle Memorial Institute (BMI) study (1999), identified five major issues including: a non-entrepreneurial business climate, lack of financial support for local entrepreneurs, no research driven educational institutions in the region, no network for existing technology-based businesses and local colleges and universities, and quality of work-life issues related to attracting and retaining knowledge workers. As a reaction to the report and presumably because of the positive hype business incubators receive, the GVTA was born.

This paper seeks to present the GVTA as a case study of a public/private alliance meant to support local business development. Specifically this paper will reveal what aspects of the alliance worked and which did not. A brief history of the alliance is presented, followed by a description and assessment of programs offered and a discussion of what might be done to streamline future activities and maximize the effect of future expenditures.

A BRIEF HISTORY OF THE GVTA

The GVTA was established in 2000 and is located in downtown Scranton, PA. A regional body funded in part by local colleges and universities including Penn State (Worthington), University of Scranton, Marywood University Lackawanna Community College and Keystone College. In addition, funding came from a number of government agencies including the federal Department of Labor, the Commonwealth of Pennsylvania and the Ben Franklin Partnership**.**

The mission of the GVTA is to "facilitate the development of a knowledge-based technology-focused economy in North Eastern Pennsylvania" (Battelle Study, 1999). BMI presented a strategy for developing a knowledge-based economy centered on the communities of Scranton and Wilkes-Barre, Pennsylvania. Their findings: six strategic areas on which to focus: 1) Technology Growth, 2) Technology Infrastructure Investment, 3) Innovation and Entrepreneurship, 4) Knowledge Worker Retention and Attraction, 5) Enhancement of Quality of Life, and 6) Industry Assistance and Networking. To facilitate development of these areas a number of programs were initiated.

GVTA PROGRAMS

GVTA offers six major programs, including:

- an entrepreneurship institute;
- activities to support the region as a great place to work ;
- a business plan competition;
- a computer contest aimed at high school aged kids;
- an angel network; and
- the Keystone Innovation Zone Coordination.

In total these program would addressed the major shortcoming to the business climate in the region. Each is discussed in brief with a focus on the return on investment and the desired outcome.

The Entrepreneur Institute (EI) is housed in the Scranton Enterprise Center. Its mission is to stimulate growth and development of new business ventures in NEPA. Like many other incubators in the county it does so by nurturing young firms. The EI helps them to survive and grow during the start-up by providing services to their enhance development. Entrepreneur institute provides tenants with access to: shared office services, equipment, and conference rooms. The ***Entrepreneurship Institute*** offers a three day program where potential entrepreneurial learn how to think innovatively through quality brainstorming, and how to turn an idea into a viable project. By incorporating local entrepreneurs participants can gain access to local, entrepreneurial success stories with extensive business experience. These entrepreneurs know what it's like to start up a company and what it takes to be successful in life. On the final day of the Institute, teams present business plan concepts to a panel of judges simulating the GVTA Business Plan Competition.

This activity is at the heart of the mission of the GVTA. Regretfully, this is a program in dire need of improvement. At the time of writing only one company encouraged by the EI has lived up to its promise. Initial findings suggest more emphasis on coaching (including learning opportunities related to basic business management) and less on the hard resources (like space and equipment) would increase the chance for success in the short and medium term. As indicated, the EI is essential to the mission of the GVTA, but need to change to be successful.

A second program offered by the GVTA is POWER! (an acronym for professionals, organized, working to enrich the region). POWER! is an informal group of professionals whose mission is to promote the region as a vital and pleasurable place to live, work and play. The initiative has created a forum for professionals in NEPA to meet, socialize, and network with peers, and to also become involved in shaping their community. Some perceive this as a monthly beer and wine party; on the contrary, Professionals Organized and Working to Enrich the Region is an inexpensive initiative that has spawned several quality of work life activities in the area. POWER! has a positively impacted peoples perceptions of the region.

A third GVTA program is the business plan competition. This competition has proved to provide skills for entrepreneurs to initiate a business. This is done through guidance in creating an effective business plan. Additionally this is an opportunity to network and interact with the area's business leaders in a positive business environment.

The business plan competition is open to students from the area's fifteen colleges and universities as well as non-collegiate teams including technology businesses based in NEPA

Business plans are judged based upon focus, uniqueness, economic feasibility, evidence of customer acceptance and potential growth related to job, revenues and profitability. This competition is the major source of potential new businesses to be included in the EI. The budget for this program is small and the reach is significant.

A fourth program is the Great Valley Angel Network. This activity facilitates angel education and enables the sharing of best practices amongst angels and others potential investors. The Great Valley Angle Network encourages collaboration and communication between angels and develops other sources of capital and provides resources to improve due diligence.

The GVTA also provides access to the Pennsylvania Angel Network (PAN). This includes resources and support for the angel community throughout Pennsylvania. PAN's mission is to improve the overall investment environment for investors, increase the number of investors and increase investment dollars in Pennsylvania and surrounding areas.

PAN fosters an open eco-system for the angel community through best practices, collaboration, due diligence support, networking, deal flow, etc. which therefore enriches the ability to fund seed & early stage companies. By linking state and regional networks together it allows for better coordination and cooperation between the groups, as well as economic development organizations, technology transfer, venture firms and strategic sponsors. For more information about PAN and its 15 angel group members representing over 450 individual angels

The Great Valley Angel Network is a highly leveraged program. Many of the benefits of the network come at little cost to the GVTA. It is an activity that has developed beyond the expectations of the founders.

The GVTA high school computer contest introduces area high school students to information technology application in a business environment. Students create a business including related research that leads to the design and develop a web site. Publication to the WWW is encouraged while they are judged based on business goals and objective, project management, presentation and technical quality.

Reaching out to young people with an interest in business is an important initiative, but adequate resources for this program are not the strength of the GVTA or the host colleges and universities. The payback for the computer contest seems insufficient to counter the costs.

A fifth program administered through the GVTA is the coordination of the regional Pennsylvania Keystone Innovation Zones (KIZ). The KIZs are a part of the Commonwealth of Pennsylvania's economic stimulus package. They were established in communities that host institutions of higher education and are designed to foster innovation and create entrepreneurial opportunities. They do so by using the combined resources of educational institutions and businesses to engage business support organizations, commercial lending institutions, venture capital networks and foundations.

KIZ benefits to the region include transferable tax credits, preferential consideration for DCED programs, stipends for internships and innovation grants. GVTA in conjunction with NPTI coordinates the Lackawanna and Luzerne County KIZs. Companies located within the geographic designations less than eight years old and within one of the designated sectors may take advantage of tax credits, utilize the services of our local college students as interns, and benefit from innovation grants.

In addition to the aforementioned programs, GVTA was a principle coordinator for Wall Street West. (WSW) The WSW initiative looked to develop a back-up solution for companies in financial services in New York City. It encouraged NYC-based companies to establish operations in the PA. The region covered by the Wall Street West program offer significant business and quality-of-life advantages for firms in the financial services industry.

WSW was a federal and state funded initiative to develop a total back-up solution for companies in financial services, information technology and related industries through advancements in economic and workforce development.

In February 2006, the initiative secured a $15 million Workforce Innovation in Regional Economic Development (WIRED) grant from the U.S.

Department of Labor for projects and programs associated with training the current and future workforce in the region in order to further encourage New York City-based companies to establish their back-up and back-office operations in the ten-county area (Berks, Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill and Wayne).

Following the attach on the World Trade Center on September 11, 2001, the Securities and Exchange Commission, Federal Reserve and Office of the Comptroller called on the major financial firms to create backup operations outside of New York City's power and water infrastructure. With much of the ten-county region of Northeastern Pennsylvania just a 90-minute drive from Manhattan, the Scranton area in particular offered an ideal combination of safety and accessibility.

The region covered by the Wall Street West program offers significant business and quality-of-life advantages. Northeastern Pennsylvania boasts a highly educated, efficient workforce and low operating costs. More than 49,000 students are matriculating at dozens of local colleges and universities in the area, and many of these emerging professionals are eager to remain in northeastern Pennsylvania.

SUMMARY PROGRAM ASSESSMENT

The GVTA and its funding sources have dramatically cut back the money available for entrepreneurial development programs. For example, the Ben Franklin Partnership, a direct funding sources for the GVTA, had its funding cut by a third in 2011. The looming expiration of a key grant portends an even deeper cut next year.

While the GVTA also gets support from the federal government and the private sector grants and loans, it is state money that pays for most day-to-day operations.

To make ends meet, Ben Franklin has reduced its headcount making it possible to help fewer clients. To put this in perspective: in a typical year Ben Franklin works with about 15 new startups, according to President and CEO R. Chadwick Paul, that number will be more like 10 in 2012. "The budget cuts that we have suffered … have been nothing short of Draconian," Paul said. "That caused us to cut every line item in the budget, including what we had available to invest in companies." (Kennedy, 2011)

What this means to the GVTA is that less firms will be serviced, funded, advised and successfully put on the tax roles in years to come. That tax impact is felt by local communities who gain tax revenues across the board from increased business development and employment. According to the Pennsylvania Economy League, for every tax dollar invested in Ben Franklin, the state sees a return of $3.50 in tax revenue. The question facing the GVTA is has their efforts achieved the same returns as are being witnesses across Pennsylvania. (This is the subject of a case study currently being assessed.)

The GVTA must first determine which of its efforts are most likely to succeed in the future. The challenges it will face in the near term due to funding cuts will mean that it must select the programs with the highest expected return.

CONCLUSIONS

The authors of this study firmly believe that the GVTA is essential to the future nurturing and development of an entrepreneurial class in NEPA. The question of course is what to cut and what to focus on towards that goal. We believe the efforts of the Business Plan Competition should be paramount in their efforts. Although we advocate a different approach to recruiting participants, assistance with the development of their business plans, and more importantly, a much more hands on relationship with the all of the sponsors of the GVTA, from faculty at local universities, members of the business community, funding sources and the existing entrepreneur community.

We advocate the development of small "sand boxes" at local university participants to encourage constant contact with potential entrepreneurs who need a connection between concept development and business start-up and operations.

Additionally, the further development and improvement of an active angel network in NEPA, that not only looks at technology ventures, but also considers "dirty" development should be fostered. These less glamorous firms create the vast majority of jobs in NEPA and should be encouraged to participate in all GVTA efforts. The recent development of the Marcellus Shale related activity is an example of where job growth will be generated in the future of NEPA.

POWER! Should remain and but be more professional in its approach to business mixers.

Lastly, the success of the KIZ's in NEPA has been limited. We firmly see the connection between future business development and continued funding by the Commonwealth. GVTA, like in most funding matters, will have to take a wait and see approach to this valuable program.

The refocusing of the GVTA on the above programs will allow this valuable asset to become more streamlined from a financial perspective, more dedicated to its mission, and more successful in its future.

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JOHNSON & JOHNSON: AN ETHICAL ANALYSIS OF BROKEN TRUST

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ABSTRACT

For several decades, Johnson & Johnson has been the exemplar of superb ethical behavior in light of the prompt actions it undertook during the 1982 Tylenol cyanide poisoning incident. Now several decades later, J&J's Consumer Product Division has put the company and its reputation in jeopardy by its slow and ineffective response to a series of ongoing problems. This article provides an ethical analysis of those events and addresses the negative impact on Johnson and Johnson's once sterling reputation. Business, ethics, recalls, Johnson & Johnson, reputation, FDA

INTRODUCTION

For several decades, Johnson & Johnson has been the exemplar of superb ethical behavior in light of the prompt actions it undertook during the 1982 Tylenol cyanide poisoning incident that left seven dead in the Chicago area. After the 1982 incident, Tylenol quickly returned to category dominance. A few years later when yet another cyanide-laced Tylenol capsule resulted in the death of a New York woman, Johnson & Johnson and its McNeil subsidiary once again took quick action by only making a compressed and easier-to-detect-tampering version of a Tylenol pill available in the marketplace. The 1986 incident had little impact on sales or J&J's corporate reputation (Davidson & Samghabadi, 1986). Consumer safety and trust were of paramount importance to J&J. The firm validated the utility of their Our Credo philosophy in managerial decision-making during these crisis situations. For several decades thereafter, Johnson & Johnson has consistently and publicly expressed their continuing commitment to this credo.

Now several decades later, J&J's Consumer Product Division has put the company and its reputation in jeopardy by its slow and ineffective response to a series of ongoing problems that center on inadequate quality control inside some of the manufacturing plants and slow, reluctant, and ineffective corrective action in response to consumer complaints and growing FDA concerns. The end result is broken trust with consumers and growing damage to J&J's once pristine reputation.

The issues arising from recent multiple J&J recalls of Tylenol and other McNeil consumer products are fairly clear (Kimes, 2010, September 6 & 7; Singer & Abelson, 2011, January 15). Here the famous Our Credo oriented corporate culture significantly failed to protect consumers and other stakeholders from both defective products and questionable marketing. Moreover, the more recent problems with Tylenol have raised the broader issue of whether the McNeil problems are, as J&J maintains, unique to that division or are symptomatic of a broader breakdown in J&J's ethical culture. This article will examine what occurred in terms of modern ethical business theory using a framework outlined by Trevino and Nelson (2011) in the 5th edition of Managing Business Ethics (Straight Talk About How to do it Right). Their work is a major resource for organizational analysis of ethical and unethical corporate behavior.

STEP ONE: GATHER THE FACTS

On December 17, 2010 a Verified Amended Shareholder Derivative Complaint against nominal defendant Johnson and Johnson was filed at the United States District Court of New Jersey (Civil Action No. 10-2033). This complaint was filed on behalf of individuals, relief associations and pension fund common stock shareholders who originate from several U.S. states and believe that the corporation and its culture had been harmed by mismanagement at J&J's consumer division, and in particular, by operations affiliated with J&J's subsidiary, McNeil Laboratories' Consumer Healthcare unit. Legal issues, per se, will not be addressed since the case is still pending. It is useful to note that this type of suit, unlike most shareholder actions, is not for recovery of lost income but rather an attempt to force the Board of Directors to change the course of the Corporation in order to protect future income. Instead the focus herein will be on the series of events that led to the filing of this case and a corresponding ethical analysis. However, this case raises the very basic question of whether the Our Credo based corporate culture of J&J has changed throughout the corporation or only at the McNeil subsidiary.

A New York Times article (Singer & Abelson, 2011) reported that in 2010 the McNeil Consumer Healthcare unit of J&J recalled about 288 million items including adult and children's pill medications and around 136 million bottles of liquid Tylenol, Motrin, Zyrtec and Benadryl for infants and children. The FDA stated that some of the products included in the recalls may contain a higher concentration of active ingredients, others may contain inactive ingredients that may not meet internal testing requirements, and others may be contaminated with bacteria or contain tiny particles of wood, glass, or metal. (Civil Action No. 10-2033). As recently as mid-February 2011 J&J recalled 70,000 syringes preloaded with its injectable anti-psychotic drug, Invega, due to cracked syringes and possible infection risk (Loftus, 2011). It also recalled its Securestrap Hernia product due to non-sterile packaging, and 395 injection pens in the U.S. and Germany which were pre-loaded with the rheumatoid arthritis drug, Simponi, due to possible dosage problems.

Specific recalls during 2010 alone as delineated in the shareholders case (Civil Action No. 10-2033) are as follows:

- Tylenol 8 Hour Caplet (50 count); about 128,000 bottles; October 18, 2010; due to musty or moldy smell emanating from the pills
- Benadryl Fastmelt tablets; 4,000,000 packages; Motrin caplets (800,000 packages); Extra Strength Rolaids and Mylanta products (71,000 caplets); November 15, 2010; due to manufacturing insufficiencies (outside of specifications)
- Tylenol Cold Multi-Symptom liquid medication (9,000,000 bottles); November 24, 2010; due to the presence of alcohol from flavoring agents noted as an inactive ingredient on the package but not on the front panel
- Mylanta (12,000,000 bottles) and AlternaGel liquid antacid (about 85,000 bottles; November 29, 2010 in order to update the labeling to note the presence of small amounts of alcohol (less than 1%))
- Acuvue TruEye contact lenses (about 492,000 boxes); December 1, 2010; due to irritation and pain among users as a result of higher-than-expected levels of a type of acid used in the manufacturing process and not fully removed in the rinsing process
- Rolaids (over 13,000,000 packages); December 9, 2010; due to metal and wood particles in the products

An online search will reveal that there were earlier recalls including one in April 2007 when bacteriological contamination led to a recall of all previously produced lots of the newly released children's Listerine Cool Blue mouthwash. The bacteria involved were highly antibiotic resistant and potentially deadly to children with impaired immune systems. In November 2008 there was a recall of Infants' Mylicon Gas Relief Dye Free Drops (a Merck/J&J joint venture at their Lancaster, PA plant) due to possible contamination by metal fragments (2008, Reuters, November 10). The various recalls cited above are described to illustrate that there have been ongoing problems connected to the production of J&J's consumer products. Those problems potentially impact on the potency, purity, consistency and safety of a wide variety of over-the-counter drugs for adults and children. What makes these recalls particularly puzzling is the effort J&J has made to position itself as the leading supplier of medications to infants and children. Marketing ethicists have noted that companies have particular responsibilities in protecting such vulnerable segments in the marketplace (Brenkert, 2008; Murphy, Laczniak & Klein, 2005).

It seems that J&J has had ongoing manufacturing and related quality control problems at most of its McNeil manufacturing plants, including the Fort Washington, Pennsylvania facility and the Las Piedras, Puerto Rico facilities in particular (Sharfstein, 2010). Moreover, it appears that J&J was not in compliance with current Good Manufacturing Practices (cGMP). As alleged in the legal case that was filed in New Jersey, "…the J&J board of directors (the "Board") was warned, specifically and repeatedly over a number of years, that J&J's drug and medical device manufacturing and marketing practices represented systemic and widespread violations of the law." (Civil Action No. 10-2033, p.2) The legal case further states there were, "six FDA warning letters and additional violation notices specifically identifying unlawful marketing practices or public health and safety violations and demanding that J&J cease the identified practices and all similar misconduct." (Civil Action No. 10-2033, p. 2) J&J closed the Fort Washington plant in April 2010 for a $100 million overhaul (Singer & Abelson, 2011). These types of breaches are not trivial because they violate the core of the voluntary FDA surveillance system which is intended to protect public health and well-being.

Another concern relates to an earlier problem—the so-called "phantom" recall of Motrin from retail stores that occurred around June 2008. J&J's McNeil subsidiary hired a contractor to remove approximately 88,104 packages of that medication from stores due to a concern with how the pills dissolved (U.S. Food & Drug Administration, 2010). Members at a Congressional hearing were informed the subcontractor had been instructed by J&J to tell employees that there was to be no mention of a recall. Instead the subcontractors' employees were to "simply act" like regular customers and buy the medication (CSCS, 2010). Needless to say, concerns have been raised about the surreptitious nature of this approach to a medication concern. The FDA did contact McNeil and asked it to remove the remaining product from store shelves. The firm did so in July 2009, eight months after learning of the problem with Motrin (Hensley, 2010). The basic problem here is that the FDA has no statutory authority to force recalls and relies on companies like J&J voluntarily informing the agency of such actions. That system cannot operate effectively to protect public health if companies conduct "phantom" recalls.

Defects and recalls is one of 16 possible crisis management categories and accounted for 6% of news reports in 2010 (Institute for Crisis Management, 2011). In that report they also conclude that, since 2001, the majority of crises were caused by managers. Moreover, the ICM reported that pharmaceuticals were the most crisis prone industry in 2004 (Institute for Crisis Management, 2005). A review of their annual reports since that time finds that industry continues to be listed in the top ten in subsequent years. In the 2011 report, pharmaceuticals were number six on the list and, across all industries J&J was listed as drawing the most headlines for defects and recalls.

As previously noted, the FDA essentially operates a cooperative system since they lack the statutory authority to demand recalls or removals from the marketplace. This voluntary system depends on companies discharging their ethical obligation to protect public health. J&J's problems, particularly their "phantom" recall, have led to proposed legislation, and a recent survey from within the industry found that 86% of the respondents indicated that the FDA should have the power to force drug recalls just as it does for defective food products (Pellek, 2011). Although this legislation is undesirable to companies given the cost involved with recalls and their loss of control over the process, the vote may reflect a perception within the industry that highly publicized recalls potentially damage the reputation of the industry as a whole.

Other problems in various divisions of J&J have also surfaced in recent years. On August 24, 2010 the FDA ordered J&J to stop sales of an orthopedic device (Corail Hip System) because the firm was marketing it for an unapproved use (Civil Action No. 10-2033). A much larger problem here is the recall of over 90,000 possibly defective hip replacements which represents a potential liability to J&J of over $1 billion (Litigation and Settlement News, 2011, February 3). Also, Risperdal, approved by the FDA for treating psychotic disorders in adults, was being illegally marketed and promoted for off-label uses. It is also alleged that Topamax, an anti-epileptic drug, which showed evidence of serious side effects in clinical trials was being marketed for a host of ailments and diseases for which FDA approval had not been granted (Civil Action No. 10-2033). While off label use of pharmaceuticals is a fairly common practice in the "art of medicine," drug manufacturers are not permitted to directly promote to physicians off-label uses (Johns Hopkins, 2011 June).

Furthermore, Natrecor, which was approved by the FDA to treat patients with congestive heart failure and related breathing problems was being infused into patients in outpatient settings and J&J allegedly encouraged the growth of these types of facilities for administering the infusions despite risks to patients and a lack of scientific evidence that regularly scheduled infusions was safe or effective (Civil Action No. 10-2033). A New York Times article (2005, August 9), indicated that J&J was asked to begin warning doctors against the drug's use in outpatients, a treatment that was not approved by the FDA; however, that use was known to be a big money maker for the firm. Another concern revolved around the sale and marketing of biliary stents. Biliary stents were designed for cancer patients. The purpose of the stent is to aid drainage in the bile duct. J&J has been accused of funding studies for off-label use (e.g., peripheral vascular disease) and providing unsolicited marketing and promotional literature to doctors for unapproved use of those stents. It is further alleged that sales representatives were given mandatory quotas and bonuses for selling certain numbers of stents for off-label use and that sales representatives provided physicians with manuals that showed them how to falsely file for reimbursement for off-label use of the device (Civil Action No. 10-2033).

What can be gleaned from these facts is that J&J's actions (or lack thereof) have directly resulted in a series of problems that have negatively impacted the reputation of the firm. Unlike the Tylenol situation in 1982, these issues were internal and caused by management lapses at J&J. Moreover, it appears that J&J has been slow to respond to a myriad of problems: that their responses have been largely guided by considerations of legal vulnerability, and that these developments may represent a major change from what consumers have come to know and expect from a company that has been held in high regard by the buying public for decades. Those expectations reflect over 30 years of successful public relations structured around J&J's continuing commitment to their famous Our Credo. On their Web site they clearly state, "The values that guide our decision making are spelled out in Our Credo. Put simply, Our Credo challenges us to put the needs and well-being of the people we serve first." (http://www.jnj.com/connect/about-jnj/jnj-credo/?flash=true, paragraph 1).

STEP TWO: IDENTIFY THE PERTINENT ETHICAL ISSUES/POINTS OF ETHICAL CONFLICT

The primary ethical problem that surfaces is that J&J faces major challenges within all three of its business groups (pharmaceuticals, medical devices and consumer products). Many of these problems represent significant potential or actual harm to consumers. In particular the firm has been accused of not addressing the quality control concerns in a timely fashion, and of inadequate responsiveness to consumer and patient complaints arising from product problems. Also, it has been alleged that the firm has continued to engage in aggressive (and at times, illegal) marketing efforts to sell those medications and devices in order to keep their sales and profits high with little regard for the well-being of consumers and patients. A recent analysis found over 60 ethical issues raised by recent J&J actions (2011, Paine).

STEP THREE: IDENTIFY THE RELEVANT AFFECTED PARTIES

One relevant element relates to stakeholder theory. Stakeholders are individuals and entities that have a vested interest in the firm. It is important to identify who will be harmed by actions undertaken by the firm and to what extent. In this case, key stakeholders would include consumers, the medical community, the FDA, shareholders, J&J employees, and J&J management and its Board of Directors. The situation at J&J is relatively unique since in 1982 they were lauded for appropriately representing the interest of all relevant stakeholders and in 2010 were excoriated for the opposite. Customers, medical personnel, J&J employees and executives, regulators and legislators all have expressed a deep disappointment at recent company actions. Even business professors and ethicists no longer have J&J as an immediate answer to the question, "Can you name one ethical company?" The only happy group of stakeholders appears to be the lawyers.

More specifically J&J has long had a credo in place that identifies and prioritizes their primary stakeholders. In part it states the following key principles:

We believe our first responsibility is to the doctors, nurses, and patients, to mothers and all others who use our products and services. In meeting their needs, everything must be of high quality…We are responsible to our employees, the men and women who work with us throughout the world…We are responsible to the communities in which we live and work…Our final responsibility is to our stockholders. Businesses must make a sound profit. We must experiment with new ideas. Research must be carried on, innovative programs developed and mistakes paid for. New equipment must be purchased, new facilities provided, and new products launched. Reserves must be created to provide for adverse times. When we operate according to these principles, the stockholders should realize a fair return." (as cited in Hartley, 2005, p. 311)

In a New York Times article Meier (2010, December 17, p. B1) quoted Dr. Stephen Graves, the Director of Australia's orthopedic database as stating, "When it is clear to the orthopedic community that a company has not been honest, that is a problem. I think J&J has a major issue." The company initially exacerbated this concern by claiming that the problem was not with the product, but rather with how it was inserted by surgeons. A confidential witness in the New Jersey shareholders case (Civil Action No. 10-2033) indicated that there was a clear direction to sell Risperdal (approved by the FDA to treat psychotic disorders in adults) to elderly patients for treatment of dementia and Alzheimer's disease, both unapproved uses of the drug. Another complaint in that legal document is that Topamax (an anti-epileptic drug) was being aggressively marketed as a potential treatment for a number of conditions for which there was not any valid scientific evidence supporting its safe use. It is further alleged that J&J trained its sales force to mislead physicians into believing that such evidence existed (Civil Action

No. 10-2033). Another concern revolved around J&J supposedly encouraging the establishment of infusion clinics that would provide outpatient infusions of Natrecor. According to an article published in The New York Times (2005, August 9) this drug was not approved by the FDA to be used in outpatient settings and should have been strictly limited to the treatment of acutely ill patients in hospitals. However, use of this drug in outpatient facilities had turned into a big money maker for J&J. Another money-related issue concerns the equipment that was being used at the Fort Washington plant. A confidential witness stated that he had learned that certain equipment needed to be replaced but upper management refused to do so due to cost-saving measures (Civil Action No. 10-2033). It should also be noted that the "ORA FOAI Electronic Reading Room> McNeil Healthcare" section of the FDA website documents multiple cGMP violations at the main McNeil production facilities dating back over ten years.

Although there have been no reported deaths from the various OTC situations cited above, J&J has engaged in activities that represent a serious breach of trust with its stakeholders. It appears that J&J was attempting to put its stockholders first by engaging in activities that were designed to fatten the bottom line but in an ironic twist, it is stockholders who are becoming vocal about short-sighted practices and the apparent lack of appropriate action that have seriously damaged the company name and reputation. Also, it appears that J&J, particularly at its McNeil subsidiary and probably at Dupuy and several other operating units as well, may have lost sight of long-held and cherished corporate values.

Key stakeholders were clearly let down by J&J. Physicians and others in the medical community were misled by some of the information that was provided and/or told to them. Parents, who are responsible for making decisions in the best interests of their children, found themselves administering medication to them that did not comport with current Good Manufacturing Practices. Pharmacists and other suppliers lacked desired products as did brand loyalists. Adults (particularly the elderly), suffering from various maladies, must rely on the wisdom and guidance of members of the medical community and companies like J&J. Shareholders, in turn, suffered from short-sighted decisions made by managers and the Board of Directors. Employees' livelihoods were put at risk by the temporary closing of the Fort Washington plant and subsequent remuneration restrictions throughout J&J because of the reduced sales of the consumer operating units. Plus, the overall profitability and reputation of a once stellar company was damaged. In 2010 alone consumer product sales were $1.2 billion under the 2009 sales figure. That represents an abrupt reversal of the past pattern of increases as documented in multiple J&J annual reports. It is said that companies are able to build up trust accounts (Trevino & Nelson, 2011). Much like a bank account where deposits can be made and withdrawn, J&J made a substantial deposit to its trust account through the proper handling of the 1982 Tylenol poisoning incident. However, recent actions (or lack thereof), have contributed to withdrawals from J&J's trust account. As Trevino and Nelson (2011) note, trust has both economic and moral value.

STEP FOUR: IDENTIFY THE POSSIBLE CONSEQUENCES OF ALTERNATIVE COURSES OF ACTION

Traditional utilitarian theory suggests that decision-making ought to be conducted in such a way that total benefits exceed total costs by the maximum amount possible (e.g., the greatest good for the greatest number of stakeholders). This approach to decision-making is often used in situations involving eminent domain (e.g., the "cost" of displacing homeowners as compared to the "benefit" to society of highway construction proceeding in a given area). However, as noted by Trevino and Nelson (2011, p. 41), "…it is often difficult to obtain the information required to evaluate all of the consequences for all stakeholders who may be directly or indirectly affected by an action or decision." Moreover, it can be difficult to quantify the extent of the "benefits" and "costs." Pharmaceutical recalls can have multiple causes (Priporas & Vangelinos, 2008) and much of the relevant information is proprietary and unavailable. What is clear is that both the immediate and the longer term costs to almost all stakeholders of recent J&J actions far outweigh the relatively limited cost benefits gained by not taking needed corrective action in a timely and effective manner. For example, the complete renovation of the Fort Washington production facility will cost over $100 million. The 2011 J&J Annual Report (released in 2011) indicated that J&J consumer sales dropped over $1 billion from 2009-2010. Major additional costs were incurred in the various recalls. A real issue here is whether or not J&J's reservoir of goodwill will be drained to the point where there are continuing profit reductions associated with further reduced sales. There will be a variety of outlays associated with plant renovations, use of outside consultants mandated by the FDA under the Consent Decree, marketing expenditures as brands return to crowded shelves, and a growing number of legal proceedings.

The foregoing information clearly indicates that a host of individuals were affected by inaction and slowness to respond by company officials. Vulnerable groups such as children, senior citizens, and others experiencing health problems were put at risk. Fortunately, however, there were no deaths clearly linked to cGMP violations but that is not true for pharmaceuticals and medical appliances. Consequently, J&J had an ethical responsibility to respond more quickly with respect to ensuring its facilities were adhering to accepted quality control standards, equipment should have been replaced and/or monitored more regularly, and recalls should have been implemented much sooner than they were. Moreover, problems with over-the-counter medications would not have occurred had the firm worked more closely with the FDA to resolve the issues documented during recent site visits.

STEP FIVE: IDENTIFY RELEVANT OBLIGATIONS

Relevant obligations center on duties. The question becomes one of asking to what extent the firm had a duty to investigate and correct problems (1) that were occurring inside its plants and (2) with the marketing efforts of the operating units of a highly decentralized corporation. Did J&J have an obligation to inform doctors, nurses, and others in the medical community sooner than they did and more fully? To what extent did the firm have an obligation to notify the media and consuming public about the problems? Did J&J have a moral as well as a legal duty to respond appropriately to FDA warning letters and to voluntarily recall affected products or remove them entirely from the market? Did J&J have a responsibility to train its salespeople to adhere to ethical marketing practices? Did J&J have an obligation to ensure that its marketing materials did not mislead? An analysis of Johnson and Johnson's own public statements and documents used to train and direct personnel indicates that they were committed to discharge all of these duties in an exemplary fashion. However, they apparently did not do so in accordance with their stated values.

STEP SIX: IDENTIFY YOUR RELEVANT COMMUNITY STANDARDS THAT SHOULD GUIDE YOU AS A PERSON OF INTEGRITY

The relevant community includes the various stakeholders mentioned in J&J’s credo plus the pharmaceutical industry in general and the FDA in particular. It should be noted that while other pharmaceutical firms have faced similar problems in the same timeframe, the situation at McNeil and Johnson & Johnson stands out in terms of the number and variety of problems. Big Pharma in general would likely not be pleased with additional scrutiny (and possibly more government regulation) of its operations as a result of J&J’s missteps. Patients and the medical community at large would expect a firm such as J&J, that has made its name and reputation on caring for the vulnerable (babies and children in particular), to consistently and reliably produce high quality products and remove defective products rapidly from the marketplace. They would also expect a quick and thorough investigation when problems arose and fast and effective corrective action. They would expect the firm to engage in whatever activities need to be undertaken, despite attendant costs, to ensure that their well being is being protected. Trust was earned and enhanced during the 1980s when J&J and its McNeil subsidiary were so quick to recall Tylenol due to cyanide poisoning incidents that resulted in multiple deaths. In the aftermath of those events, J&J was instrumental in developing tamper-resistant packaging that is now the industry standard. One has to wonder what has changed inside some operating units and possibly throughout this company since those days. A major limitation here is that Johnson & Johnson has imposed very strict limitations on the amount of information available from within the firm during recent years. This makes any analysis of the company situation preliminary until more information from various lawsuits and company documents pertinent to discovery become available.

STEP SEVEN: CHECK YOUR GUT

A “gut” decision should have been an easy call. When OTC products have a moldy smell, when wood, metal, and other particles are turning up in medications that are designed to be ingested, when individuals have to undergo a repeat of surgical procedures to replace defective medical devices, there is no need for second guessing whether something needs to be done to address those situations. At the very least, inspections and corrective action needed to be carried out in the problem facilities. Products, particularly surgical devices should not be released into the market based on faulty or inadequate scientific testing. Under circumstances when medical devices are released in good faith but problems arise, at the very least, the medical community ought to be informed so they and their patients can make appropriate decisions. When the FDA issues warning letters, appropriate responses are expected. Most employees want to feel good about themselves and the firms they work for. Good, responsible ethical training should be provided and employees should be rewarded (or punished) based on adherence to (or disregard of) the code of conduct that is in place. The Our Credo and J&J's own policies and procedures and training activities all could be rapidly mobilized to support the above mentioned actions.

STEP EIGHT: WHAT WILL YOU DECIDE?

It is clear that J&J has made withdrawals from its "trust" bank in recent years. The decision should have been made to take corrective action much sooner than what occurred. However, the series of problems that have plagued J&J in recent years do not rise to the level of concern that was raised during the Tylenol poisonings so full-blown media attention by top officials at J&J, and the media, was not warranted or expected. However, it is difficult to understand why this once stellar firm allowed so many problems to continue and for so long. It is also unclear why J&J was so unresponsive to warning letters issued by the FDA. Most marketing professionals know that it can take decades to establish a name and reputation of trust but only one or a few brief lapses to destroy a company image. There already are some preliminary indications from different surveys that have been undertaken that indicate J&J's good corporate reputation is beginning to wane. For example, J&J ranked #4 in the *Fortune Magazine's* 2009 list of the World's Most Admired Companies (http://money.cnn.com/magazines/fortune/mostadmired/2010/). However, in the 2010 ratings J&J had dropped to #17 (http://money.cnn.com/magazines/fortune/mostadmired/2011/index.html). The continuing negative publicity associated with the events described herein is likely to have a cumulative negative impact on Johnson and Johnson's once sterling reputation. In turn there are likely to be negative impacts on sales and profitability.

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MANAGING COMPLEXITY: BEGINNINGS OF A RESEARCH MODEL FOR BUSINESS EDUCATORS TO UPDATE SIMULATION PEDAGOGY FOR 21^{ST}-CENTURY BUSINESS ENVIRONMENTS

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ABSTRACT

At the 2010 NABET conference, the presenters argued that the call by Taylor (2001) to use complexity theory as a foundation for 21^{st}-century pedagogy is "uniquely compatible with both the goals of entrepreneurship and with current scholarship regarding best practices in teaching." Using a four-point framework grounded in teaching and learning literature, the presenters integrate an online simulation into a capstone business course and solicit student perceptions of learning. While descriptive statistics indicate that students believe the four-point framework components promote learning, correlations and regression analyses do not provide much insight. After running correlations for each survey question and the outcomes data, no significant correlations either positively or negatively existed between variables. Moreover, multiple regression analysis did not reveal that any particular learning activity significantly influenced student perception or the learning outcomes. The results suggest that presenters pursue other means of assessing learning in this regard.

INTRODUCTION

At the 2010 NABET conference, the presenters argued that the call by Taylor (2001) to use complexity theory as a foundation for 21^{st}-century pedagogy is "uniquely compatible with both the goals of entrepreneurship and with current scholarship regarding best practices in teaching." If our radically hyperlinked environments lead to changes in business conditions at the speed of wireless communications, then, as Taylor suggests, students must be prepared to respond to conditions that are continuously in re-formation. As a result, a traditional, closed pedagogical system that seeks pre-determined answers could never, by itself, be sufficient to handle the complexities of 21^{st}-century business environments.

In response, the presenters continue to see an opportunity to link complexity theory to current scholarship involving best practices in teaching. We reason that if complexity is rooted in the speed of digital communications among shifting networks of interdependent organizations, then greater student adaptability to changing conditions would emerge out of simulations that feature use of the best practices in teaching with such foundational elements as connection, communication, interaction, and reflection.

REVIEW THE FOUNDATION

As noted in previous work (Myers & Van Dyke, 2010), an effective learning environment for business students integrates a four-point framework for effective teaching with points of complexity, ambiguity, and dynamic change. The four-point framework features the following key concepts:

- **Connection** (Whetten, 2007; Kolb, 2005; Proserpio & Gioia, 2007; Bell, Kanar, & Kozlowski; Boyce, 2008) includes a systematic learning approach that connects the learner with content through various visual aids (e.g., graphics, video, sound); an environment steeped in realism and authenticity; the incorporation of students' technological skills; and learning activities that evoke critical thinking (e.g., writing, problem,-solving, reflection).
- **Communication** (Chickering & Gamson, 1987; Green) between instructors and students should establish expectations, discuss performance, and remain open and ongoing throughout the learning process.
- **Interaction** (Chickering & Gamson, 1987; Xu &Yang, 2010) between students creates a social and collaborative environment where students develop relationships, share ideas, solve problems, and more deeply understand industry's environmental influences on competition.
- **Reflection** (Chickering & Gamson, 1987; Wills & Clerkin, 2009; Lainema & Lainema, 2007) on both individual and group performance offers various learning outcomes including connecting theory to practice and improving self-awareness.

Through connection, communication, interaction, and reflection, students can be guided through complex simulations, discover new interdependencies, and reflect on their decision-making processes in order to raise awareness and improve competency with finding innovative solutions at the point that is "just short of chaos."

COURSE DESIGN

To emulate workplace complexity and follow the four-point framework for effective teaching, an online, group-based simulation was implemented in a capstone business course. This course focuses on strategy development and decision making within businesses' functional areas and uses the Business Strategy Game (BSG) simulation (GLO-BUS Software, 2011).

Before students begin the BSG, the instructor discusses performance expectations and explains the simulation's underlying concepts and functionalities. The instructor/student dialogue continues throughout the course via email and more importantly, face-to-face conversations both in the classroom and computer labs. Alongside the simulation, the instructor requires such reflective activities as five journal entries, a larger case study, a narrative peer evaluation (which includes a self-evaluation), and a final presentation on the group's competitive simulation effort. While the simulation is conducted in groups (two to three students), the reflective assignments include mostly individual deliberation that later informs group discussion and decision making.

The visual, technologically-based, learning simulation connects students with the course material and highlights the inevitable complexity and ambiguity that exists in the business environment. While group members' discussion and decision-making creates excellent opportunities for enhanced communication and interaction, the written component offers specific points for students to connect with and reflect individually and uniquely upon the material. As such, the course design deliberately addresses each element of the four-point framework for effective teaching and integrates the notion of complexity and chaos that exist in the midst of making business decisions.

DATA COLLECTION AND ANALYSIS

The instructor of record collected data in several forms to assess student learning outcomes and student perceptions of learning. At the end of the course, students (n=45) completed a brief, 10-question survey about the effectiveness of such course components as the simulation, journals, case study, instructor/student communication, and group work (see Appendix A). The questions were intended to link to the four-point framework and discern student perception about how these methods facilitated learning course material, dealing with complexity, and developing relationships for productive work.

In addition, learning outcomes data were collected from assessing journals, case studies, and participation scores (based on in-class writing assignments) as well as from group simulation scores and course point total (total points earned in the course). Grade point averages (overall and in major) were also included. Descriptive statistics were used to determine student perceptions of the learning activities. Correlations and multiple regression analyses were used to analyze the relationships between the survey data and outcomes data and to determine if any particular learning activity significantly influenced of the final course point total or performance on the final case study.

RESULTS

From survey responses, descriptive statistics suggest that students perceive they gained a deeper understanding of the complexities of decision making from the simulation itself. On a scale of 1 to 5, students gave the simulation the highest average rating (4.51) for helping to gain a deeper understanding of the complexities of decision making. When asked how much they learned from the simulation as compared to other learning activities during their undergraduate education, students' average rating (4.22) indicates that they perceive the simulation promotes learning more effectively (see Appendix B).

Students also were asked about the effectiveness of writing assignments, group work, and instructor's communication with them for understanding complexities of decision-making and course material in general. Average ratings (3.69 to 4.11) indicated that students' perceive all activities and interactions useful; however, they gave the highest ratings to instructor's communication (e.g., describing expectations, giving feedback, answering questions) (4.11) and to the larger case study (3.96).

While these descriptive statistics indicate that students believe the four-point framework components promote learning, correlations and regression analyses do not provide much insight. After running correlations for each survey question and the outcomes data, no significant correlations either positively or negatively existed between variables. Moreover, multiple regression analysis did not reveal that any particular learning activity significantly influenced student perception or the learning outcomes. While the theoretical foundation and student perceptions of this four-point approach suggest that students should learn, the data (likely as it relates to this study's design) does not provide evidence to confirm the assertion.

DISCUSSION

Disconnection between student perception of effective learning and lack of statistical correlation to confirm it may point to two fundamental flaws in the study, one based in the initial research design and the other based in a conceptual mismatch between a complex performance that comes out of a networked, co-emergent environment and use of a rigid, linear, scientific assessment regime to measure it.

Research Design Flaw: Lack of a Control Group. This study presented a logistical difficulty from the outset. Conceived only after the business curriculum had reorganized according to the framework for effective teaching and the implementation of the BSG, the decision to highlight and measure impacts of simulated complexity on student learning was not made with direct access to a control group to measure gains in performance. As a result, the researchers faced an ethical dilemma of potentially sacrificing student learning in the short term or attempting to gain insight through use of statistical regressions and correlations paired with a survey of student perceptions.

Conceptual Mismatch: Networked Performance-Linear Measure. This conceptual problem is perhaps best framed in terms of a continuous, process-based performance measured only after the fact with a product-based assessment program. While speaking specifically about problem-solving in networked environments, Andriani & Passiante (2004) claim that "multiple, nested networks" require a conceptual shift from simple Newtonian causality (A yields B) to a more flexible realization that A could yield B, C, or D, depending on what happens to E, F, and G and that the terms of success may change depending on real-time response to shifting conditions. In their words, complex decision making is "highly reflexive, context-dependent, [and] circular" (8).

Unfortunately, traditional scientific assessment and measurement, dependent as they are on completed projects and their conformity with pre-determined, measurable outcomes, may very well be inadequate, by itself, to measure the larger opportunities offered by a complexity-based pedagogy, namely the following process-dependent outcomes: 1.) comfort with discontinuous systems; 2.) ability to manage shifting, distributed networks; and 3.) relevant application of divergent, entrepreneurial thinking. Traditional measures would still have a limited application but only after a reductionist move to isolate a specific condition of emergence from the larger context of a far more complex network of co-emergencies.

CONCLUSION

Despite the inherent research design flaws and the resulting non-indicative data, the study confirms that students view complex simulations as stimulating greater interest and profound learning. Given this student perspective, the researchers suggest that effective simulations

- Align with the 4-point framework for effective teaching
- Apply complex systems to stir innovative thinking
- Demand a process-based assessment of effectiveness

While this process-based assessment will require a paradigm change, the effort may very well be worth it, given the alignment of student perceptions of learning, established frameworks of effective teaching, and the need to prepare students to confront the emergence of networked, digital business cultures. The new assessment paradigm would take shape around two essential principles:

- Effective operations in complex environments encourage innovation and divergent thinking;
- Quantifiable performance must be measured not exclusively in terms of pre-established learning outcomes but also account for the moment of complexity, just short of chaos, when decisions are made according to shifting conditions.

Curlee & Gordon (2010) offer a glimpse into how we might begin to reconsider how and what to assess when they choose to ask of employees not whether they are comfortable with complexity, as if it is a reproducible, stable work environment, but more specifically about whether the working conditions enable flexibility and encourage innovation.

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APPENDIX A: SIMULATION SURVEY

1. Please rate the effectiveness of using the BSG simulation as a learning tool?

Very Good	Good	Fair	Poor	Very Poor
5	4	3	2	1

2. Did the BSG simulation help you gain a deeper understanding of the complexities of decision making?

Greatly	Moderately	Somewhat	Slightly	Not at all
5	4	3	2	1

3. Did the journals make you think critically about the simulation?

Greatly	Moderately	Somewhat	Slightly	Not at all
5	4	3	2	1

4. Did the journals help you gain a deeper understanding of the complexities of decision making?

Greatly	Moderately	Somewhat	Slightly	Not at all
5	4	3	2	1

5. Did the BSG Case Study (Case Study #2) help you gain a deeper understanding of the complexities of decision making?

Greatly	Moderately	Somewhat	Slightly	Not at all
5	4	3	2	1

6. Did the instructor's communication (e.g., describing expectations, giving feedback, answering questions) with you help you understand the course material and learn?

Greatly	Moderately	Somewhat	Slightly	Not at all
5	4	3	2	1

7. The instructor's amount of communication with you was…

Way too much	Too Much	Just right	Too little	Way too little
5	4	3	2	1

8. Did the group work help prepare you to navigate the relationships that exist among key stakeholders in the real world?

Greatly	Moderately	Somewhat	Slightly	Not at all
5	4	3	2	1

9. Did the group work (e.g., discussing ideas, completing projects, group writing assignments) help you understand the course material?

Greatly	Moderately	Somewhat	Slightly	Not at all
5	4	3	2	1

10. As compared to other learning activities that you experienced in undergraduate education, please rate how much you learned from the use of the simulation.

Much more	A little more	About the same	A little less	Much less
5	4	3	2	1

COMMENTS: Use back side.

APPENDIX B: MEAN SCORES

SURVEY QUESTIONS	Mean
Please rate the effectiveness of using the BSG simulation as a learning tool?	3.80
Did the BSG simulation help you gain a deeper understanding of the complexities of decision making?	4.51
Did the journals make you think critically about the simulation?	3.69
Did the journals help you gain a deeper understanding of the complexities of decision making?	3.76
Did the BSG Case Study (Case Study #2) help you gain a deeper understanding of the complexities of decision making?	3.96
Did the instructor's communication (e.g., describing expectations, giving feedback, answering questions) with you help you understand the course material and learn?	4.11
The instructor's amount of communication with you was…	3.18
Did the group work help prepare you to navigate the relationships that exist among key stakeholders in the real world?	3.87
Did the group work (e.g., discussing ideas, completing projects, group writing assignments) help you understand the course material?	3.87
As compared to other learning activities that you experienced in undergraduate education, please rate how much you learned from the use of the simulation.	4.22

MARSHALL MCLUHAN, VIDEO GAMES AND THE SECRET LIFE OF WALTER MITTY

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ABSTRACT

This paper offers a conceptualization on the nature of games as a customer offering through classical media considerations. That is, in his seminal treatise on the media, Marshall McLuhan asserted that "The medium is the message." We have at hand new technology and a new medium – video games. To get some feeling of how gamers extend themselves, we turn to two classics, James Thurber's Secret Life of Walter Mitty and Neal Stephenson's Snow Crash for some insight. There is an indication that life may indeed be imitating art. In other words, video games provide a significant advancement from a pre-existing situation in a manner analogous to the way Gutenberg's printing press changed lives through books. Literature has long presented possibilities in which one can be immersed. Through video games, and virtual worlds, this potential has been taken to new heights. According to McLuhan's treatise they may be providing even greater advances in the way we adapt in the future.

INTRODUCTION

Over the past decade, we have been fascinated with video games and the video game industry. Consequently, we have pondered the entrepreneurial nature of developers (Zackariasson et al, 2006a), creativity in development (Zackariasson et al, 2006b), some promotional opportunities within games (Zackariasson et al, 2010) and the competitive paradigm within the industry (Zackariasson and Wilson, 2010). For all its success, however, the industry's approach to marketing has been pretty basic. Part of this situation may be associated with difficulty in understanding what is encompassed in a video game offering. Put simply, the offerings have traditionally been conceptualized as products to be offered to customers in one-time sales or through subscriptions. Unfortunately, this approach has been made with an imagination hardly surpassing that of a used car dealer.

In a previous paper we argued that this might not be the best way to view these transactions – an argument we think is valid for all genres of games, but most obvious in Massively Multiplayer Online Games (Zackariasson and Wilson, 2004); this argument paralleled observations made by both Mulligan and Patrovsky (2003) and Bartle (2003), that the offerings were something more than products – products with significant augmented services on the one hand and an environment on the other. Our suggestion initially was, with the development of games being played over the Internet, these offerings would especially appear to be conceptualized as "pure" services with regard to Shostack's (1977) classical model of products and services. This argument was carried further, i.e., not only have video games been categorized as services, but in a metaphorical sense, they have been compared with, for example, tourism (Zackariasson and Wilson, 2005; Book 2003). Just as we travel in the physical sense have experiences, one could argue that video games lets us travel in digital space for other types of experiences.

This approach left us with a rather blunt instrument to envision these transactions. We thus further reflected upon the nature of video games. Do we really live in an either-or world of goods and services? Clearly Shostack (1977) did not think so; she, in fact, developed the diagram that has become standard in marketing texts, which showed offerings as a combination of physical goods and intangible services. After reflection, we came down on the side of "experiences" (Zackariasson and Wilson, 2006) from Kotler's (2000, 3-6) list of 10 options. Nevertheless, with respect to Maslow's (1943) classical hierarchy, it was argued that there might even be another level that has not been conceptualized yet. For example, Norwood (2003) argues that a spiritual level should be considered. Despite the apparent religious connotation, the idea of a higher level of need is an interesting one.

In this paper we take another approach. In his seminal treatise on the media, Marshall McLuhan (1964, 23) asserted that "The medium is the message." That is to say, "the personal and social consequences of any medium – that is, of any extension of ourselves – result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology." We have at hand new technology and a new medium – video games and so the initial portion of this paper will involve seeing where McLuhan's thoughts take us. The real purpose of the paper, however, is to reflect again on the nature of video game offerings. We approach this task by comparing some classic fiction with video game observations. That is, developments seem to be moving in the direction that the offering made to a customer is continuous access to a virtual world, which enables different out-of-this-physical-world possibilities. This approach not only permits us to better understand the nature of the offering, i.e., the need being met, but also to take our shot at some forecasting of future developments in a Jules Verne approach, i.e., his ability to project the future in "From the Earth to the Moon" (1865) and "Twenty Thousand Leagues under the Sea" (1870), i.e., space travel when the state of the art in air transportation was hot air balloons and the submarine had first been used in the civil war.[1]

BACKGROUND

Virtual Worlds

This paper reflects upon virtual worlds. There are, in general, two types of virtual worlds (Zackariasson, 2007, 163-166): *detention* worlds and *extension* worlds. This categorization is derived from developers' perspectives, i.e., when developing a virtual world the possibility exists to create one that belongs to either of these categories. The driving factor here is how much of the physical world a developer would like to include in the virtual world, i.e., how much of the unavoidable leakage from the physical world will be built into the virtual world. From a gamer's perspective, however, this categorization might make be moot because the immersion and participation might be the same in either case. Nevertheless, depending on virtual world type, different possibilities are created for participants. *Detention worlds* are produced to enclose the participant in a virtual world that is separated from the physical world. The idea is that the virtual world where the game takes place is unique. It is a world of make believe where the gamer participates and escapes from the physical world and its limitations. Intrusion of the physical world here tends to detract from player immersion into these virtual worlds, which is unwanted in as much as it destroys the temporary suspense of fantasy. *Extension worlds*, on the other hand, are developed to extend the physical world into virtual worlds, just as a prosthesis device is an extension of a physical body and enables what the physical body fails to do. The connections made in these types of games are mostly made by using known physical symbols, items, or ads (*cf.* Alter, 2008; Rymaszewski, et al., 2008). But there are also virtual worlds where trade has been established between the virtual and physical world. This trade is enabled by using virtual currencies in the game that have an exchange rate with physical currencies in the physical world. Thus, it has created a new workforce in creating and selling virtual currencies. Nevertheless, this trade has had consequences as it is difficult to tax, and it has created physical conflicts where people have been injured. (Zackariasson, 2009, 2007)

Marshall McLuhan – Understanding Media

In his monograph, McLuhan uses as his example the shift from a mechanically dominated world to an electrical one. Consequently there is a shift in not only speed, but extent of interactions and life chang. In discussing these changes, he makes certain observations that we extend to the situation of analyzing our new medium, the virtual world. From his text, we have selected 10 of his observations that we think most salient observations with regard to games. (See Table 1 in the appendix.) They are not structured by any priority here, but instead as they occur in the monograph. Further, the list is not exclusive, and other readers may select other items, but this list serves the present purpose. Before proceeding to these observations we would also like to point out that video games are, in a manner similar to literature, a cultural product. This cultural reflection means that they produce symbolic reflections of the world and actions they contain. Just as a novel contains statements about masculinity, power, or marriage, video games also communicate similar attributes. In most cases games are about power and/or relations among humans. One major difference between video games and most other media, however, is that when one is playing a game, one gets to interact with the symbols within that environment. Gaume (2006) drew an analogy with a sand pit in which players are provided a spade, a bucket, figures and scenery with which he/she gets to create their own experience based on these elements. In other words, one gets to change the path or the narrative, instead of being constrained to a pre-destined route to the end.

In reading McLuhan, it sounds as if he may have been anticipating the higher levels of video games that we now see. For instance, he wrote (p. 19), "Rapidly, we approach the final phase of man – the technological simulation of consciousness" and continues, "when the creative process of knowing will be collectively and corporately extended to the whole of human society, much as we have already extended our senses and our nerves by the various media." In developing this thought he suggests that the content of any medium is always another medium (p. 23). McLuhan argues, for instance, that the content of writing is speech. In this regard, video

[1] Both books are available from Amazon.com – downloaded free on a Kindle.

games take us from entertainment to interactions. As he reflected upon technology (p. 33) he asserted that it alters sense ratios or patterns of perception steadily and without any resistance. In that regard, one goal of developers is immersion, which tends to be case in popular games (*cf*. Zackariasson et al, 2006a) and development tends to still target the "hard core" gamer (*cf*. Dymek, 2011). In assessing the situation as he saw it developing, McLuhan distinguished between hot and cold media – the difference being the amount of information provided (p. 36). We note that feedback in games tends to make them hot, and they are getting hotter as developers do their utmost to create communities.

We have asserted that the virtual world of games is but another form of perceived reality among participants (Zackariasson et al, 2010). In a way, this assertion is consistent with McLuhan (p. 46). In general he observed, all things appear under forms opposite to those that they finally present, and his quote directly, "The visible world is no longer a reality and the unseen no longer a dream." In an unanticipated manner consistent with the need fulfillment of gamers, he wrote (p. 51) "Individuals become fascinated by any extension of themselves." This phenomenon seems to be especially evident in hard core gamers, and we note the rapid growth of the industry. The same movement is also happening in extension worlds where casual gamers are given possibilities to use the virtual to extend their physical presence. One purpose of this paper is to identify the nature of games insofar as there is still not an agreement on what games are. This lack of agreement is understandable not only in terms of present observations on games, but noted in McLuhan; he noted (p. 58) media are put out long before they are thought out. He also noted that the meeting of two media is a revelation from which a new form is born (p. 63). Recently, Gaume (2006) noted, "People still do not know exactly what is a video game and it is difficult to come up with a single definition." We would agree totally and add our observation that games became more popular as they became more realistic in display and also interactive. Further, there is a need to recognize not only how games will change, but how they will change other media. For instance, cartoons have changed from the hand drawn cell approach introduced as in Disney to a computerized approach as in Shrek.

Finally, McLuhan has a few things to say about technology (p. 70 – it is ahead of time if we recognize it for what it is). Today, one of the major drivers is technological development (CPU speed, graphics, artificial intelligence, user-interaction etc.) in video games. Breakthroughs in games were associated with participation, reality of display and communication. The development of technologies for games has been done in close cooperation with technologies for national defense (Halter, 2006; Huntemann and Payne, 2010) – Odyssey, for example, was a product of a defense contractor and there remains a large segment of active military participants in the industry (*cf*. Readman and Grantham, 2006). Then there is his startling statement that led us to the approach to this study (p. 70), "The artist is always engaged in writing a detailed history of the future because he is only person aware of the nature of the present." This observation suggests *Snow Crash*, for instance, might be a predictor of future. One should not worry too much that the book is 10 years old. In fact, if we had something older, it might be better – note that Jules Verne was writing about things approximately 100 years ahead of his time. One important aspect should be pointed out here: with the homogeny of game developers and their preferences for science fiction this observation further might be a self-fulfilling prophecy. Unfortunately the persons responsible for developing video games are today very similar, from many different aspects. This is problematic as games, just as any other cultural product conveys symbols of the society we live in. Those who get to decide the symbols we interact with through video games are in no way representative of the wide span of gamers; still these persons dictate what we interact with, why, and how.

OBSERVATIONS

It is this last observation of McLuhan "The artist is always engaged in writing a detailed history of the future because he is the only person aware of the present" that leads us to pieces of fiction to appreciate the nature of video games. In this respect, we have made two selections Thurber's short story concerning Walter Mitty (1933) and Stephenson's Snow Crash (1992). It may be surprising that we go back to Mitty, but it is a classic in describing one's daydreams. The date does not concern us too much – Verne's writing around the time of the U.S. civil war forecast things to develop a century later. Stephenson's novel, of course, is a recent classic.

Thurber – The Secret Life of Walter Mitty

In this short story, Thurber describes a few hours in the life of Walter Mitty. Walter is married to a domineering wife and apparently copes with this situation by daydreaming. On a trip to town for her beautician appointment, we get insight into the nature of his daydreams. The story is woven around five of them (see Table 2 in the appendix). In them, we see how Walter sees himself in his imaginary world. Four of them revolve around a theme of personal courage, achievement and then adulation. In the first he is the captain of a ship that he guides through a flow of icebergs; in the second a surgeon who repairs a machine with a fountain pen and subsequently saves the life of a millionaire banker; the third revolves around an expert witness and accomplished marksman and in the fourth he is an ace military pilot. Only in the fifth, does Thurber deviate from the courage, accomplishment, adulation theme. This one is highly internalized. In this episode, he took one last drag on a cigarette and faced the firing squad sans blindfold. Thurber characterizes Mitty afterward, "undefeated, inscrutable to the last."

And what does all this have to do with video games? First, in all games imagination plays a role. In fact, immersion is one of the goals in the development of virtually every video game (*cf.* Zackariasson et al., 2006a, 2006b); perhaps one way of describing video games is they are a better approach to daydreaming. Some of Mitty's themes are also covered – action games, for instance, revolve around themes associated with guiding an icon through a maze or onslaught of dangerous elements. Similarly, expert marksmanship is an element of expertise in shooter games. Adventure games that lead the gamer through a story are common in conventional games. Finally, we are not sure that adulation is built into the simpler games yet, but posting of scores provides a sense of accomplishment for others to see. In MMOGs, of course, one shares accomplishments with partners in successful quests.

Stephenson – Snow Crash

Snow Crash is a science fiction novel first published in 1992 and anticipates the successor to the internet, which at that time was still young (recall at this time commercial transactions were just coming into vogue). There is a dual locus of activity – the physical U.S. (primarily L.A. and Alaska), which has fallen into dire straits – the only activities in which it has a competitive advantage are music, movies, software and high-speed pizza delivery (p. 3) and inflation has increased disastrously; people are tempted to use billion dollar bills as toilet tissue (p. 267). Fortuitously, a virtual development has occurred (the Metaverse[2]) where people can access and spend time – in a manner in which multiplayer online games can be considered present, primitive models.

Into this dual setting a super virus is introduced. The impact upon computers is to produce a system crash, i.e., snow crash, which is the derivation of the title (p. 39). At the same time, users, upon viewing the crash, become comatose. The villain behind this development is L. Bob Rife, an individual who became filthy rich as a consequence of the transition in U.S. fortunes. The hero is Hiro Protagonist, a one-time software developer and co-developer of Metaverse. He is assisted by Y.T., a streetwise, teenage courier, and Juanita Marquez, also a developer of Metaverse – onetime girlfriend and apparently still a romantic interest. They receive assistance from Ng, a mechanically assisted individual, and Uncle Enzio, head of the local Mafia. Raven, an early bad ass, has an epiphany of sorts and plays a critical role as a decently good guy in the final resolution of the problem.

The novel plays a role in not only anticipating where the virtual world of video games may be headed, but also suggests technological developments in the physical world. These items are collected in Table 3 in the appendix and are divided into two sections – video games first and the physical world second. First, there is a description of Metaverse, the parallel virtual world that plays a critical role in developing the novel. It consists primarily of a crowded street of length longer than earth's circumference. Access is limited only by purchasing power – the novel indicates 60 million individuals had the proper computer to access the virtual world, but another 60 million can get in with public access capabilities. At publication (1992) that size made it much larger than MMOGs of the time, but it was and is a general description of virtual worlds with access limitations.[3] Secondly, the term avatar is frequently considered to come from this novel; in MMOGs, this term is now base level stuff, but recall that the publication occurred in 1992. An anticipated advance over present capabilities is facial expressions on the avatars. This ability permits a form of non-verbal communication; the description on page 393 indicates the expression may be non-voluntary, but comes even on off-the-shelf models (p. 35). Moving along, there is the suggestion that life in the virtual world is a pleasant escape. Hiro shares a rental storage bin in the physical world, but can escape to his luxury abode in the Metaverse. Certainly, escape

[2] We are on record with the opinion that Metaverse is an extension world (Zackariasson, 2007, 165).

[3] Zynga is now reaching 150 million unique monthly users (Wingfield, 2011), so perhaps the number is conservative.

is not new – Mitty, in fact, escapes from his life. In terms of MMOGs, however, escapism may be a motivating factor in the extension of use in developing markets. Finally, research in the virtual world, as described by Stephenson, represents an incremental step from present technology. Naturally, research is now common on the internet, but we have not yet advanced to the state where we have our own daemon. The parallelism of the two worlds and extensive usage permits meetings to occur even before individuals meet in the physical world – although one never can be sure how true to life the avatars may be.

Of course there are some futuristic items described in the novel. The special goggles provide a transition between the virtual world definitions and anticipated technological developments. Naturally, they are high definition, laser driven and a few other things that are hard to understand or appreciate. There are some interesting comments made of smart wheels and ultravehicles, but things get really wild with the rat things, a type of cyborg – heavily armored, built on the bodies of dogs and capable of speeds up to 700 miles per hour; they are pictured as mean motorcycles when it comes to destroying bad guys. Finally, Y. T. carries some interesting things in her purse – liquid knuckles, high voltage cuffs and a bundy stunner. She is pretty nasty herself when she goes into action as she did at the fed building (p. 291).

DISCUSSION

As sometimes happens in writing papers, surprising things happen. In this instance, the Wall Street Journal (Winfield, 2011) published on page 1 a story of Zynga, Inc. It was surprising for two reasons. First, Zynga is an on line video game producer (the Journal's terms – we might prefer to call the company a virtual world producer). Who would have guessed that a video game developer would capture above the fold, first page interest of the Journal? Secondly, it indicated that players were laying down significant money to purchase items to use in the game. Shades of Hiro and his office in Metaverse!

In his treatise on video games, Gaume (2006) suggested that "A video game is an imaginary, perception-linked product." He noted there were two types of games: "toboggan games and sandpit games. In toboggan games the player is completely guided along several predetermined paths. … In these games, (one attempts) to get to the end and then moves along. In sandpit games, the game never ends." We like the "imaginary, perception linked" aspect of that definition, but bulk at product and would prefer service or something else (preferably experience from Kotler's 2000 list). Nevertheless, the business model of video game has changed from being a one-off sales approach to a relationship where the customer instead acquires virtual goods in game worlds, virtual worlds, in order to complete missions and objectives in the game. The game per se has in that sense stopped being the object purchased, but instead an environment, perhaps marketplace, where people can travel and have different experiences. In that sense we seem to be moving toward games being extension worlds that spread out from our physical world as different possible extensions of our selves. Who do we want to be today? The hero in a shiny armor storming the countryside on his horse, the khaki dressed heroine shooting the villains with her guns, or the latex dressed sex slave in a dungeon obeying the words of a dominatrix? A cynic might say there are no games any more, but only possible marketplaces.

It is also true as there are different opinions on how they should be understood, and analyzed. There is a continuous discussion among ludologists and narratologists (Frasca, 2003). Ludologists are of the opinion that games are but rules and interactions and that they should be analyzed as such; narratologists think games can be analyzed just as texts are and using the same methods. Of course we come down on the side of narratolgists and have attempted to relate video games and virtual worlds to literature observations. Our first point would be that conventional games could have been anticipated by Thurber's Walter Mitty – essentially imagination run wild. We would also note they are not a thing of the past, but will maintain some stature in the industry as intermittent recreational vehicles. The most recent example of which we have read has a liberal segment in U.S. politics bashing the "rotten brains to bits" of conservative tea party conservatives (Garvin, 2011). Perhaps in McLuhan's terms, this is the way individuals will work out frustrations in the future.

The extension worlds such as suggested in Snow Crash are different situation. Imagination still plays a role and a significant one. It suggests the possibility of living a parallel life, and an ongoing 24/7 type of thing. Certainly the idea of parallel worlds has existed for as long as the early Greek civilization, but primarily in a religious context (*cf*. Moreford, 2006) That is how the media becomes the message insofar as the parallel world in this case is real and it could be a very nice one – one has a choice. Perhaps it will be this appeal that introduces virtual possibilities to present underdeveloped segments, which is the next big step in the industry.

CONCLUSIONS

In this paper a stab has been taken on understanding video games in the broader context of a media with a message. In terms of conventional games, there appears to be a distinct parallel with an exercise of imagination as suggested by Thurber's Walter Mitty. In extension worlds, as suggested by Stephenson's Snow Crash, the possibility exists to lead an ongoing, 24/7, parallel life. It is not clear where this possibility might lead, but surely it is the message in the media and will have on ongoing effect on our culture.

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APPENDIX

Table 1 – From McLuhan: Some Things to Check

	Item	Page	With respect to the virtual	Comments
1.	"we approach the final phase of man – the technological simulation of consciousness"	19	"creative process of knowing will be … extended to the whole of human society, much as we have already extended our senses … by the various media."	Sounds as if he may have been anticipating the higher levels of video games.
2.	Content of any medium is always another medium.	23	McLuhan argues, for instance, that the content of writing is speech.	Consequently, video games take us from entertainment to interactions.
3.	Technology alters sense ratios or patterns of perception steadily and without any resistance.	33	One goal of developers is immersion, which tends to be case in popular games.	Development tends to still target the "hard core" gamer.
4.	Difference between "hot" and "cool" media is the amount of information provided.	36	Feedback in games tends to make them hot.	And they are getting hotter as developers do their utmost to facilitate fan communities that bring the games out of the game media and into other media.
5.	All things appear under forms opposite to those that they finally present.	46	The visible world is no longer a reality and the unseen no longer a dream.	The virtual world of games is but another form of perceived reality among participants.
6.	Individuals become fascinated by any extension of themselves.	51	This phenomenon seems to be especially evident in hard core gamers.	Note the rapid growth of the industry.
7.	Media are put out long before they are thought out.	58	There is still not an agreement on what games are.	One purpose of this paper is to identify the nature of games.
8.	Meeting of two media is a revelation from which a new form is born.	63	Games became more popular as they became more realistic in display and also interactive.	Need to recognize not only how games will change, but how they will change other media.
9.	Technology is ahead of time if we recognize it for what it is.	70	Breakthroughs in games were associated with participation, reality of display and communication.	The development of technologies for games has been done in close cooperation with technologies for national defense.
10.	Artist is engaged in writing detailed history of future because he is only one aware of present.	70	Suggests *Snow Crash*, for instance, might be predictor of future. With the homogeny of game developers and their preferences for science fiction this might be a self-fulfilling prophecy.	Might note that Jules Verne was writing about things ~100 years ahead of time.

Table 2 – Daydreams in a Virtual World

Item	From the virtual world	Comments
Hurtling through the ice flows.	Action games.	Although not specific, games tend to show an escape from a dangerous type of plot.
The medical expert and on the spot inventor.	Different simulation games	Although not specific, games tend to show an expertise type of plot.
The expert witness and marksman at trial.	Adventure games that lead the gamer through a story.	Although not specific, games tend to show, or a need to develop expertise in an area, type of plot.
Into the air with Captain Mitty.	Flight simulator games.	Specifically, these games are used as an element of expertise or even capability.
Bravery before the firing squad.	Honor of warriors, part of most war games.	Can one imagine a game in which courage is not an element?

Table 3 – Visions from Snow Crash

Item	Page	From the virtual world	Comments
1.1 Description	23-25	Crowded street of length longer than earth's circumference. Access limited only by purchasing power – 60 mm with proper computer, another 60 million with public access.	Larger in scale than present games, but general description of virtual words and access limitations.
1.2 Appearances	33	"He is not seeing real people, of course. … The people are pieces of software called avatars. They are the audiovisual bodies people use to communicate with each other …"	Popularity of term "avatar" stems from Snow Crash.
1.3 Facial expressions	35&53	(an off the shelf avatar) "has a limited repertoire of facial expressions:" & "She (Juanita Marquez) *was* the face department, because nobody thought them important"	Stephenson is anticipating that facial expressions will be developed and they will be an extension of actual feelings.
1.4 Living in the Metaverse	58	"when you live in a shithole, there's always the Metaverse and in the Metaverse, Hiro Protagonist is a warrior prince."	Economically and physically, life can be so much better in the virtual world.
1.5 Research in the Metaverse	99	"The Librarian daemon looks like a pleasant, fiftyish, silver-haired, bearded man … "	Research is (will be) individualistic and provided by an avatar.
1.6 Meetings in the Metaverse	207-209	Y.T. met Ng on Metaverse as she was waiting to meet him in person in physical world.	In virtual world one could be much different than in physical.
2.1 Special goggles	22	Special apparatus to present 3-D and stereo sound.	Anticipating some developments yet to come in viewing.
2.2 Smart wheels	26 & 251	Advanced development in wheels that produce instantaneous control in vehicles as difference as skate boards (26) to motorcycles (251).	Might note that some luxury cars now have the capability to sense barriers for emergency stops.
2.3 Ultravehicle	210	Automotive adaption of motorized wheel chair.	Technology probably exists today.
2.4 Rat things	228-231	"a line of dark angular things silhouetted above the maze … Rat things. … mechanically assisted organisms"	Introducing idea of superior organisms built from living things, mechanically enhanced.
2.5 Advanced security items.	244	"… liquid knuckles, high voltage cuffs and bundy stunner … "	What's the use of science fiction if the imagination doesn't run wild?

A REVISED COLLABORATION LEARNING SCALE: A PILOT STUDY IN AN MIS COURSE

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ABSTRACT

Our previous research has shown that the cognitive psychology based scale known as the Motivated Strategies for Learning Questionnaire (MSLQ) by Pintrich (1993) did not properly address the impact of a collaboration experience on student learning outcomes (Strouse and Eddins 2010). To address this shortcoming, we revised a learning and collaboration scale found in the medical research literature known as the Readiness for Interpersonal Learning Scale (RIPLS) (Parsell and Bligh 1999). Our aim was to revise the scale for a business context and begin the process to test the validity of the revised scale in a Management Information Systems (MIS) course. Our previous work has shown us that a great deal of effort is involved in applying, revising and testing valid cognitive scales, thus we also intended to prototype an outcomes assessment system in producing this paper. Thus, this paper also reports on a pilot study to employ the revised RIPLS and to explore the requirements of a computerized outcomes assessment system which might reduce labor to do outcomes assessments. The experimental design employs a collaboration experience using a social media-style of web-based platform known as SharePoint. Our experimental findings indicate that the RIPLS can be readily used for business contexts with modifications as discussed here. Since the number of students was low, no conclusions should be made regarding significant differences in the RIPLS at this time. However, we feel that the basic requirements for an outcomes assessment system are described here. It is our hope that busy faculty, researchers, and administrators might use the tool to measure the impact of engaging non-routine cognitive processes such as critical thinking and collaboration.

INTRODUCTION

Currently overall course assessment of learning is accomplished via student grades or standardized exams designed for specific majors or areas of study. Many academic courses contain learning modules intended to improve higher level cognitive abilities such as critical thinking and collaboration. These skills may not be directly measured by the grade or standardized test. When these modules are added to a course it is hoped that a validation or outcome assessment activity is conducted to measure the effectiveness of 1) adding the module to the pedagogy of the course, and 2) assessing the continued effectiveness of the module for future offerings of the course. We feel that a computerized tool or system should be available to busy faculty, researchers, and administrators to assess the impact of higher level cognitive modules and to contribute to the development of an accepted process that can be used to assess the impact of such a module on learning. See Figure 1. Notice in this figure that a community in involved including researchers, administrators, faculty members, and students.

In order to improve the acceptance of the process or methodology to assess the impact of a learning module, we contend that a cognitive science approach can be used that approaches the problem from multiple directions and that attempts to validate the items in the scale. We propose a multi-directional approach to test a measurement for validation. It consists of three phases: construct validation, criterion validation, and content validation. Construct validation refers to an evaluation of the theoretical foundation or framework which in a sense floats above the selection of specifics measurements. Criterion validation refers to the accuracy with which a target variable or measurement achieves acceptance for hitting the target or criterion, much as a grade may be accepted to predict performance as a manager. Finally, content validation refers to the agreement of the community that some variable can substitute for a criterion that is not readily measured, such as recognizing whether a student demonstrates a higher level cognitive skill. See Figure 2 below. It is important that the reader understands that validation is a process whereby a community is convinced that a scale or measurement does what the authors say it is supposed to do (Rupp and Anand, 2006).

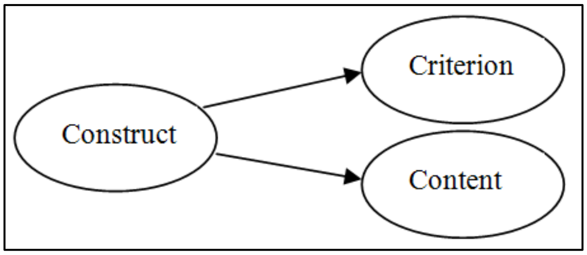

Figure 2 - Our Approach to Validation

BACKGROUND

Increasingly learning activities are being enhanced in business technology courses by adding modules to emphasize critical thinking, collaboration, and social networking skills. A cause celeb of this movement is Robert Reich, former Secretary of the Department of Labor, who predicted that economic trends would cause the demand for routine work to plummet and the demand for those who can perform non-routine work to continue to grow in the US (Reich 1991). He believed that higher level cognitive skills will be required of all business professionals performing non-routine work such as abstract reasoning, systems thinking, experimenting with technology, and the ability to collaborate. This belief in the necessity of higher-level cognitive skills has been supported by a recent RAND Corporation study which published a description of skills that workers would need in the future. They also include in their list abstract reasoning, problem-solving, communication, and collaboration (Kaoly and Panis 2005).

For this reason, we added the following objectives to our syllabus for IFS305-Management Information Systems.

- Apply application software to enhance critical thinking skills and to analyze and solve complex business problems and situations through a series of written case applications and papers.
- Discuss the application and use of collaboration techniques and collaboration tools that support innovation, decision making, and learning.

Our previous research had primarily focused on the critical thinking skills (Strouse and Eddins, 2010). One of our findings in that research shows that the MSLQ does not properly address the intent of students to engage in collaboration activities. As a result, we reviewed the research literature in the field of business information systems to ascertain whether such a validated scale existed. Our search was fruitless.

However, an examination of the research literature in the field of medicine was more promising. The Readiness for Interpersonal Learning Scale (RIPLS) was developed and validated by Parsell and Bligh (1999) to determine whether medical students were prepared to contribute to solving medical problems in a team setting. Interestingly, they state that the most difficult aspect to implement in a shared learning experience is the attitude of the team members to adopt shared learning. In their paper, they provide a theoretical foundation that emphasizes collaboration in a team setting, professional identity, and roles and responsibilities (Parsell and Bligh 1999). Thus, they provide us the initial theoretical foundation to support our contention that this approach has construct validity. However, their scale had to be revised for the current context which in business and outside of the field of medicine.

Since the current context is business students engaging in a shared learning experience using an online social networking tool, SharePoint, we revised the RIPLS for business students to begin the process to achieve content validity. See Figure 3.

This study has as its primary purpose to illustrate the process of revising a known cognitive scale that assesses the willingness or intention of a student to engage in a higher level cognitive activity. This process will hopefully achieve acknowledgement from the community implied in Figure 1 that our students have demonstrated a higher-level cognitive skill through collaborative exercises such as case studies.

Finally, to complete the multi-directional approach mentioned in the introduction above, we included in our analysis the various grades students made on quizzes, case study projects, tests, and final grades. Our intention in including grades in the analysis was to allow us to support the concept that our students have achieved the prerequisite knowledge to engage in various tasks related to managing an information system. Predicting the student's ability to manage an information system is the target or criterion aspect of our research and the student grades are the variables that approximate their achievement of that skill. Although further discussion of content validation is of interest to faculty who wish to use our proposed tool, we will not discuss this topic further in this paper since applicability to other disciplines would be better addressed after conducting additional research.

EXPERIMENTAL DESIGN

During the summer of 2011, we conducted a pre-post quasi-experimental design of the revised RIPLS collaboration scale using a section of IFS305-Management Information Systems. The revised RIPLS scale was administered at the beginning of the course and once again at the end of the course. During the first half of the course students were assigned case problems which they were required to complete individually. The experimental treatment involved assigning students to teams and giving them teamwork oriented problems to solve using SharePoint as a collaboration tool. The experimental treatment began halfway through the course.

The initial number of students in the course was 10, however, one student never participated, and therefore, that student's data was excluded from the analysis. In addition to the analysis of the RIPLS collaboration survey, we also collected data on quizzes for each chapter in the textbook (14), case projects (4) and tests (3). Quizzes, case projects and the three tests were administered as before and after treatment levels.

FINDINGS

As in any pilot study consisting of a low number of subjects, findings related to statistical analysis lack strength and should only be considered as a point of reference indicating how more in-depth research should be directed.

Using SPSS, paired-samples (repeated measures) t-tests were run against quiz grades, and test grades with no significance found in either case. This might be attributed to the fact that students took the quizzes and tests individually and subsequently, the experimental treatment of adding collaborative teamwork had minimal impact. However, a similar paired-samples (repeated measures) t-test run on student grades for case projects before and after treatment was significant assuming assuming a 2-tailed distribution (pre-mean was 87.1, post-mean was 93.8, and significance was 0.049), a little over six points improvement. This increase in case project grades can likely be attributed to teamwork or collaboration since the first two case projects were completed individually and the last two projects were completed in a collaborative team setting.

Finally, paired-samples t-tests with repeated measures were run on all of the responses to the revised RIPLS survey questions assuming a 2-tailed distribution. This test found a significant difference in the pre/post survey responses. This significance is likely due to the small sample size and variance on question responses. However, paired-samples t-tests with repeated measures run on individual survey questions found no difference except for one question. Due to the low number of subjects and the fact that no pre/post difference was found on individual questions, we feel that our finding of significance for the overall comparison of RIPLS test question responses would not likely be supported in a sample with a larger number of subjects.

One point should be made regarding the question found to be significant when comparing pre and post-treatment responses. The question follows.

> "For small-group learning to work, business students need to trust and respect each other."

This might indicate that at least for this small sample, the importance of trust and respect in collaboration and teamwork that was learned by our students.

CONCLUSIONS

Again, prefacing our conclusions with the acknowledgement that the small number of subjects in this study limits the application of our findings solely to how we might adjust the direction of our research, we apply a few findings. As in our earlier research the findings from this pilot study indicate that criterion validation is attained by adding collaboration as evidenced by improved performance (in the form of higher grades) in the areas where collaborative teamwork was used--specifically in team oriented case projects versus individual case work. Further, this pilot study indicates that content and construct validation may also be possible using the revised RIPLS to measure student improvement as a result of changes in course pedagogy that focus on improving higher level cognitive abilities. Although to verify this assumption the number of subjects will have to be increased and the study rerun. Finally, not all of the questions used in the revised RIPLS appear applicable to the areas of critical thinking and collaboration in the business context that we are studying.

In closing, our research convinces us of the need for computerized support in constructing, revising, and applying validated measures that assess whether courses produce a desired outcome. Often faculty members construct ad hoc, non-validated instruments in an attempt to show that their courses result in the attainment of a higher level cognitive skill without knowing that their instrument does indeed test for the cognitive skill. We feel that Figure 1 is a good starting point for a discussion of the requirements for an outcomes assessment system. Such a system might be constructed from open-source and/or free software keeping the expense low.

REFERENCES

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Dr. G. E. "George" Strouse is a tenured Professor at York College of Pennsylvania. He teaches information systems, statistics, business analytics, data mining, and informatics in the undergraduate, MBA, and nursing Ph.D. programs. Professor Strouse has extensive consulting experience in healthcare mergers, management and information systems.

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 system.

NABET CONFERENCE PROGRAM

Northeastern

Association

of

Business,

Economics

and

Technology

(NABET)

34th Annual Meeting

October 18th & 19th, 2011

Days Inn

240 South Pugh St.

State College, PA 16801

(814) 238 - 8454

NABET

Northeastern Association of Business, Economics and Technology (NABET – a regional organization)

Welcome Engage Learn

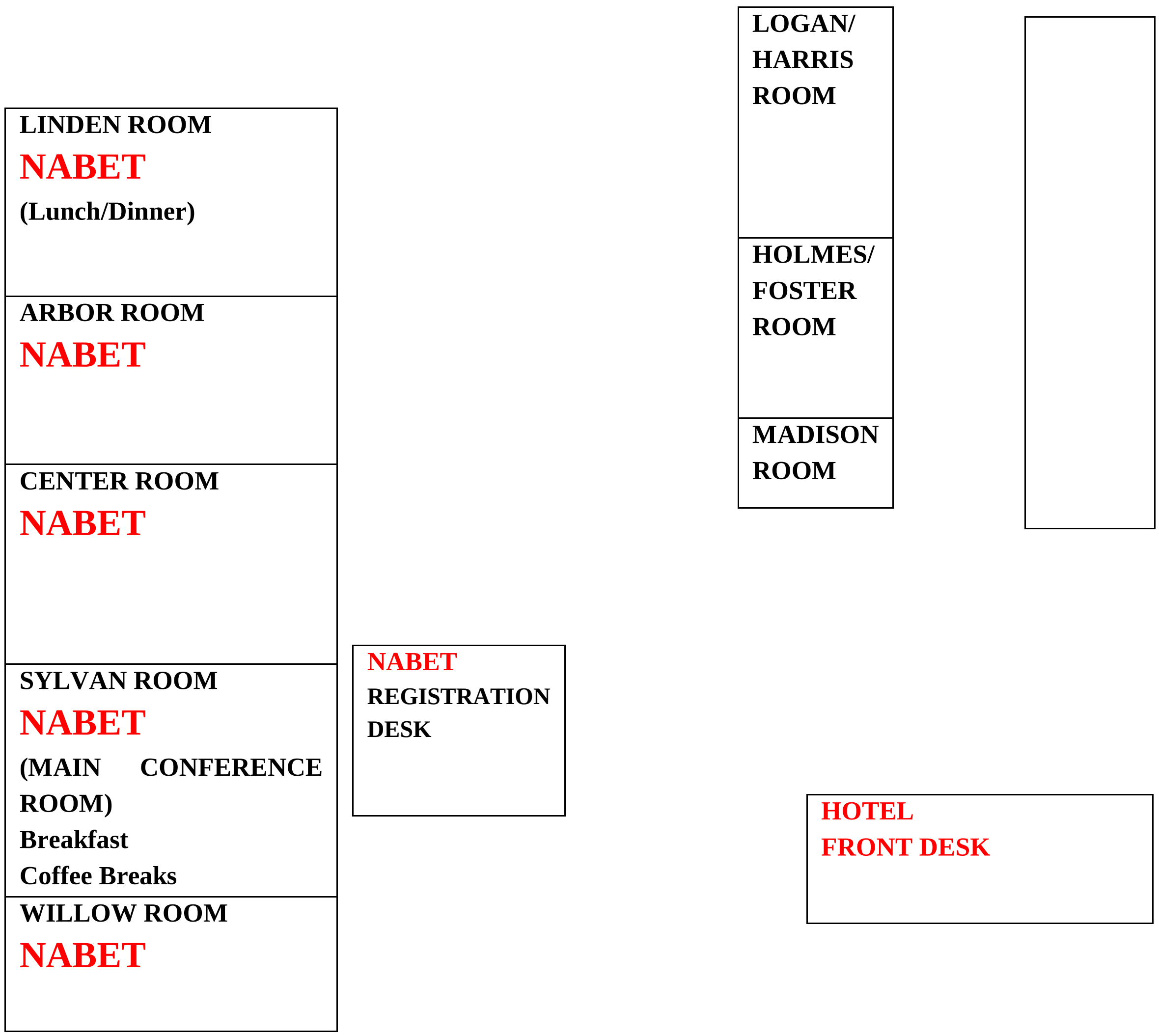
NABET is in its thirty-fourth year as a forum for academic expression for faculty within the business disciplines, technology and economics. Originally the organization was founded by a small group of Economics professors from the fourteen state universities comprising the Pennsylvania System of Higher Education. The 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 and the efforts of those who have followed, the organization has sponsored an academic conference each year for the past 33 years.

Over the years, the fundamental goal has been to invite the faculty of the small business colleges in Pennsylvania, and surrounding states. The organization has been successful in achieving this goal for several years. In 2006 the Executive Board determined that the organization should be renamed as NABET and become regional in scope.

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.

The Executive Board intends to continue and expand on the organization's accomplishments of the past. These days a large variety of Universities are represented at each conference. All scholars are welcomed with the same collegiality that is expected of them during the conference.

Conference Map



TUESDAY OCTOBER 18, 2011

Registration Days Inn Atrium **7:30 am - 5:00 pm**

Breakfast Sylvan Room **7:30 am - 9:00 am**

Welcome - Norman Sigmond, Board Chair and
Dean Frear, President **8:00 am - 8:15 am**

Session 1: Sylvan Room 8:15 am – 9:15 am

Session Chair: Jerry Belloit

A Case Study of Organizational Assessment for a Non-Profit Organization for the Disabled
Margaretha Hsu Shippensburg University
Suparna Gope Shippensburg University

Building Accounting Students Written Communication Skills One Assignment at a Time
Melanie Anderson Slippery Rock University

Gender Differences in Public Accountant Job Burnout
Cindy Guthrie Bucknell University
Ambrose Jones University of North Carolina

Session 2: Sylvan Room 9:20 am – 10:20 am

Session Chair: Melanie Anderson
Recent Graduates: Expectations of the Job Market
Michael Bruder Rutgers School of Business

Discriminatory Practices Using Independent Contractor Status: Has the Election of a Minority President Made a Difference?
Jerry Belloit ClarionUniversity

Independent Contractor Vs. Employee
Mary Ann Recor College of Staten Island - CUNY

Session 3: Willow Room 9:20 am – 10:20 am

Session Chair: Randy Rosenberger

Cross-cultural Adaptability Skills and Emotional Intelligence: Their Impact on the performance of International Managers
Gita Maharaja Duquesne University

Global Leadership and College Decisions Effected by Culture regarding Alcohol and Drugs-Experiential Learning on a Global Scale
Arlene Peltola Cedar Crest College

Equipping Managers and Leaders to Serve in the Permanent White Water Conditions of 21st Century Marketplaces
Sharon Norris Spring Arbor University

Session 4: Logan/Harris Room 9:20 am – 10:20 am

Session Chair: Patricia Galletta

Presentation

Fiscal Policy Response to the Great Recession of 2008-2010
Farhad Saboori Albright College

Workshop 30 minutes

Financial Illiteracy in America: Can Business School Faculty Make a Difference ?
Frank Lordi Widener University

Coffee Break– Sylvan Room 10:20 am – 10:45 am

Session 5: Sylvan Room 10:45 am – 11:45 am

Session Chair: Frank Lordi

Television in the Management Classroom: Seeking the Gold

Randy Rosenberger Juniata College

The Evolution to the Cloud: Are Process Theory Approaches for ERP Implementation Lifecycles Still Valid

Robert Kachur Richard Stockton College of NJ
Warren Kleinsmith Richard Stockton College of NJ

Evaluating Cooperative Education: Some Recent Research

Hideki Takei Central Washington University
Lori Braunstein Central Washington University
Fen Wang Central Washington University
Mark Loken Vancouver Island University
Brad Andrew Juniata College

Session 6: Willow Room 10:45 am – 11:45 am

Session Chair Farhad Saboori

The Impact of Mindful Consumer Behavior on Satisfaction with Life

Nada Nasr Bechwati Bentley University

Creating Something From Nothing: How to Design a Course in Accounting Research

Patricia Galletta College of Staten Island

Social Media and Emergency Preparedness: Friend or Foe

Robert Fleming Rowan University

Session 7: Logan/Harris Room 10:45 am – 11:45 am

Session Chair: Cindy Guthrie

A Collaboration Learning Scale: A Pilot Study in an MIS Course

William Eddins York College of PA
George Strouse York College of PA

Marshall McLuhan, Video Games and the Secret Life of Walter Mitty

Timothy Wilson Umeå School of Business

Lunch – Linden Room 12:00 pm – 1:00 pm

Session 8: Sylvan Room 1:15 pm – 2:15 pm

Session Chair: Robert Fleming

Challenges and Opportunities of An Aging Workforce

Anthony Liuzzo Wilkes University
Donna Evans Penn Foster College

Using Corporate Conceptions Well

Jeffrey Nesteruk Franklin and Marshall College

Spirituality in the Workplace: A Conceptual Approach toward Integration

Tracey Porter Cleveland State University
Sharon Norris Spring Arbor University

Session 9: Willow Room 1:15 pm – 2:15 pm

Session Chair: Robert Kachur

The Impact of Funding Cuts on the Great Valley Technology Alliance: Determining What has Worked and Developing a Model for the Future. A Case Study

Christopher Speicher Marywood University
Murry Pyle Marywood University

Expected Inflation in an Era of Large Budget Deficits

Paul Sanjay Elizabethtown College
Kevin Miller M & T Bank

Balance of Payments Constrained Growth Model: An Application to Cameroon

Yaya Sissoko Indiana University of PA

Session 10: Logan/Harris Room 1:15 pm – 2:15 pm

Session Chair: William Eddins

iPads in the Classroom, Online, and in Blended Learning: There's an App for That
John Wright Juniata College
Workshop 30 Minutes

Instructional strategies for the Net Generation
Kurt Komaromi Ithaca College

Session 11: Sylvan Room 2:15 pm – 3:15 pm

Session Chair: Johnnie Linn
Accounting Ethics: Post-Conventional Moral Development and Non-mandatory Virtues
Warren Kleinsmith Richard Stockton College of NJ
Robert Kachur Richard Stockton College of NJ

A Comparison of Learning Outcomes Between Traditional and Accelerated Business Programs - A Case Study
Corina Slaff Misericordia University
John Kachurick Misericordia University

Towards Alignment and Shared Understanding in Teams
Uldarico Rex Dumdum Marywood University
Christopher J. Speicher Marywood University

Session 12: Willow Room 2:15 pm – 3:15 pm

Session Chair: Sharon Norris

How Ethical Leadership Made Disney Pixar into a Sustainable Learning Organization
Mohammed Sidky Point Park University

An Ounce of Prevention: The Gulf Oil Spill & Corporate Social Responsibility
Moved to Wednesday
Bruce Rockwood Bloomsburg University

Toward a Jurisprudence for Business Ethics
Jeffrey Nesteruk Franklin and Marshall College

Session 13: Logan/Harris Room 2:15 pm – 3:15 pm

Session Chair: Paul Sanjay

Rethinking Fire Department Organizational Design: Establishing Operational and Administrative Divisions

Robert Fleming Rowan University

An Overview of the Culture of Capitalism and Need for the Conscious Capitalism

Minoo Ghoreishi Millersville University

Renato Goreshi Oregon Health & Science University

Coffee Break– Sylvan Room 3:15 pm – 3:30 pm

Session 14: Sylvan Room 3:30 pm – 4:30 pm

Session Chair: Donna Evans

Presentation

Developing Student Leaders Using a Hybrid Model

Julia LaRosa Drexel University

Workshop 30 Minutes

The Challenges of Teaching Leadership Ethics

Mohammed Sidky Point Park University

Session 15: Willow Room 3:30 pm – 4:30 pm

Session Chair: Jeffrey Nesteruk

A Fractal Model of Creative Destruction

Johnnie Linn Concord University

Multi-Objective Particle Swarm Optimization of a Supply Chain Considering Information Quality Level and Initial Inventory

Kyoung Jong Park Penn State University

Sung Hee Choi Penn State University

Supply chain management: Applications are broader than you think

Gabriel Jaskolka Tiffin University

Session 16: Logan/Harris Room 3:30 pm – 4:30 pm

Session Chair: Warren Kleinsmith

Ethanol Subsidies, Food Prices and the Doha Round
Sanjay Paul Elizabethtown College
Ryan Mulcahey Elizabethtown College

Should Sub Saharan Africa Oil Exporter Countries Borrow More in U.S. Dollar or Euro to Stabilize Their Balance of Payments? An Empirical Investigation
Yaya Sissoko Indiana University of PA

Environmental Economics and Marcellus Shale: A Primer
Will Delavan Lebanon Valley College

Executive Board Meeting **4:45 – 6:00 pm**

NABET Social Hour I – Windsor Suite/Room X **6:00 – 7:00 pm**

Dinner – Linden Room **7:00 – 8:00 pm**

NABET Social Hour II – Windsor Suite/Room X **8:00 pm**

WEDNESDAY, OCTOBER 19, 2011

Registration – Days Inn Atrium **7:30 am - 1:00 pm**

Breakfast - Sylvan Room **7:30 am - 9:00**

Welcome - Norman Sigmond, Board Chair 7:45am - 8:15am
Dean Frear President

NABET Annual Fall Business Meeting
All conference participants may attend
Norman Sigmond and Dean Frear

Special Session 8:15 am – 8:25 am

Sylvan Room

***Journal of the Northeastern Association of Business, Economics and Technology* (*JNABET*)**

Norman Sigmond
Jerry Belloit

Session 18: Sylvan Room 8:30 am – 9:30 am

Session Chair: Kathleen Hartzel

One Stop Access to Web Courseware: STEME Education

Marlene Burkhardt	Juniata College
Stephanie Varner	Juniata College
Matthew Tundel	Juniata College
Kevin Campbell	Juniata College
David Thorpe	Juniata College
Douglas Jackson	Juniata College
Dominic Bornman	Juniata College

Session 19: Willow Room 8:30 am – 9:30 am

Session Chair: Yaya Sissoko

Johnson & Johnson: A Preliminary Ethical analysis of Broken Trust

Lynn Stewart	Richard Stockton College
Whiton Paine	Richard Stockton College

Ethical Challenges in e-Healthcare

Archish Maharaja	Point Park University

An Overview of Issues in Ethics and Technology

Minoo Goreishi	Millersville University
Dariush Rezaei	Millersville University

Session 20: Centre Room 8:30 am – 9:30 am

Session Chair: Alan Brumagim

Teaching Fraud Prevention and Detection to the Non-accounting Major

Becky Smith	York College of PA
Sean Andre	York College of PA
Aaron Pennington	York College of PA

So What Do Your Students Really Know About Themselves?

David Rudd	Lebanon Valley College

Professional Development in Education: Introduction to Business Course

Loreen Powell	Bloomsburg University
John Olivo	Bloomsburg University
Carolyn Lamacchia	Bloomsburg University
Al Fundaburk	Bloomsburg University
Marietta Kotch	Bloomsburg University
Brenda Brewer	Bloomsburg University

Session 21: Sylvan Room 9:30 am – 10:30 am

Session Chair: David Rudd

Architecture and Strategy in Higher Education

Kathleen Houlihan Wilkes University

Starting Entrepreneurship Initiatives in a Business School: The Quest for Synergies

Alan Brumagim University of Scranton

Managing Complexity: Beginnings of a Research Model for Business Educators to Update Simulation Pedagogy for 21st-Century Business Environments

Cori Myers Lock Haven University

Rick Van Dyke Lock Haven University

Session 22: Willow Room 9:30 am – 10:30 am

Session Chair: Aaron Pennington

Inflation Persistence and Growth in Middle Eastern Economies

Bradley Barnhorst DeSales University

Islamic Market Optimal Portfolio Selection: A Note on the Use of Multidimensional Scaling and Data Reduction

Mohamed Albohali Indiana University of PA

Ibrahim Affaneh Indiana University of PA

Robert Boldin Indiana University of PA

The Current Liquidity Trap: Policy Mistakes of 1936, a Repeat?

Conway Lackman Duquesne University

William Carlson Duquesne University

Session 23: Centre Room 9:30 am – 10:30 am

Session Chair: Lynn Stewart

Data Sharing Dangers

Carolyn Lamacchia Bloomsburg University
Carl Chimi Bloomsburg University

The Utility of Certification Credentials in the Employment and Promotion of Information Systems Professionals

Kathleen Hartzel Duquesne University

Propensity for Leader Self-Development in Community College Students

Kelly Gillerlain Tidewater Community College

Coffee Break– Linden Room 10:30 am – 10:45 am

Session 24: Sylvan Room 10:45 am – 11:45 am

Session Chair: Cori Myers

Passwords, Policies, and Problems for Female Bloggers Within an E-Commerce Community Site

Loreen Powell Bloomsburg University
Magaret O'Connor Bloomsburg University
Dennis Gehris Bloomsburg University

How to Safeguard Your Personal Information on Online Dating Websites

Kustim Wibowo Indiana University of PA
Azad Ali Indiana University of PA

Par for the Course: Retief Goosen v. Comm'r hits at Foreign Source vs. U.S.-Source and Personal Service vs. Royalty Income

Gary Robson Bloomsburg University
Blair Staley Bloomsburg University

Session 25: Willow Room 10:45 am – 11:45 am

Session Chair: Dean Frear

A Principaled Rebalancing of Regulation
David Vance Rutgers University

The Inventory of Leadership Courage
David Hartley Clarion University

Leadership Style and Quality
Michael Kosicek Indiana University of PA
Richard Sandbothe Indiana University of PA

Session 26: Centre Room 10:45 am – 11:45 am

Session Chair: Bradley Barnhorst

Presentation
A Tough Lesson for Students: Living and Learning Real Life Crisis Management
Audrey Guskey Duquesne University

PANEL 30 MINUTES
Integrating Special Topics in Business into the Freshmen Curriculum
Jodi Cataline Drexel University
Susan Epstein Drexel University
Beth Buckman Drexel University

An Overview of the culture of Capitalism and Need for Conscious Capitalism
Minoo Ghoreishi Millersville University of PA
Renato Goreshi Oregon Health & Science University

Lunch – Linden Room **12:15 pm – 1:30 pm**
