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TICK SIZE REDUCTION AND INTRADAY PRICE CONTINUITY: EVIDENCE FROM THE TAIWAN STOCK EXCHANGE

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ABSTRACT

This paper examines the impact of tick size reduction on price continuity in the Taiwan stock market where employs call auction method throughout the entire trading day. Using the intraday data from September 1, 2004 to August 31, 2005, the results indicate that the price continuity of call stock market could be improved after tick size reduction. A smaller tick size is associated with a lower standard deviation of returns, a higher trade probability, a less negative return autocorrelation, and a larger variance ratio. Even controlling the bid-ask bounce errors, the effects of tick size reduction are still significant.

CAUSAL AND DYNAMIC LINKAGES AMONG EXCHANGE RATE, INFLATION, AND STOCK PRICES: EVIDENCE FROM EGYPT

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ABSTRACT

The main task in this study is to explore the long run and short run short run dynamic interrelations among stock prices, exchange rate, and inflation in the Egyptian stock market. The study uses monthly data over the 1997 to 2008 period and within sample and out-of-sample causality tests. Multivariate cointegration technique, error correction model, and variance decompositions are employed to detect causality and dynamic relationships among those variables. The empirical results show a long run equilibrium relation among those variables. However, in the short run, there is a strong dynamic relationship among stock prices, exchange rate and inflation. Specifically, there is unidirectional causal relationship between stock prices and exchange rate and inflation running from exchange rate to stock prices and from inflation to stock prices. The bi-directional causality between exchange rate and inflation aggravates the effects of inflation on stock prices. Our findings are in line with theoretical implications and empirical evidence for other countries. The findings have practical applications for both domestic and foreign investors in Egyptian Stock Exchange.

INTRODUCTION

Different schools of economic thought have postulated various relationships among stock prices, exchange rate, and inflation. These disagreements make the empirical econometric work worth. Stock prices are an important indicator for any vibrant economy. They are affected by many economic factors both at micro and macroeconomic levels. Many studies have examined the impact of the major macro-economic variables on stock prices including interest rate, inflation, and exchange rates. The conflict between theoretical studies and empirical findings regarding the relationship between inflation or exchange rate and stock prices makes empirical investigation of country by country case be a great importance either in developed or emerging markets. Egypt is no exception, by the early 1990s the Egypt had embarked economic reform and structural adjustment in order to move smoothly toward market economy. Strengthening and deepening financial system including stock market along with controlling inflation and floating exchange rate was one of the government's goals at increasing investment and economic growth. Inflation rate has decreased significantly until 2005 it was about 5.4%, however it bounced back again starting from late of 2005 reaching 16.5 in April 2008. Exchange rate had dramatically decreased

from 7.16 Egyptian pounds per dollar in 2001 to 5.40 in April 2008. The performance of the Egyptian stock Exchange (ESE) from 1997 to 2008 was questionable. This study is an attempt to look at the directional causality relationship and the impact of inflation and exchange rate on stock prices in ESE.

Previous studies have looked at the impact of either inflation or exchange rate, along with other variables, on stock prices in Egypt. But no study includes both inflation and exchange rate. Surprisingly, there is no empirical study examined the interaction relationship between stock prices and exchange rate in conjunction with inflation. Although it's early start, Egypt is one of the promising emerging markets in MENA region. Keep in mind the alternative and contradictory theories regarding such relationships, attributing the change in stock prices either inflation or exchange rate or both seems to be crucial for both domestic and foreign investors on one side.

This paper contributes to the debate on the causal linkages among exchange rate, inflation, and stock prices in Egypt. On the other side, uncovering the direction of the causality relationship between stock market and foreign exchange market is important also to global fund investors who are planning to invest in Egypt. In addition, the results will shed light on the price transmission in response to the current changes in the Egyptian and world economy and these would benefit most investor classes. The paper is organized as follows; next section reviews alternative and contradictory theories and empirical studies as well. Section 3 presents the data and methodology framework. Section 4 and 5 present empirical results and conclusion.

2. LITERATURE REVIEW

2.1 Stock Prices and Inflation

The relationship between inflation and stock prices is puzzling. The theory predicts a positive relationship while most of empirical studies find a negative relationship. Therefore we have to consider both theoretical and empirical developments in the literature. The positive relationship between inflation and stock prices is found in Fisher's Hypothesis which implies that nominal asset returns move one-for-one with the expected inflation. Therefore nominal stock prices should increase by the same percentage as a result of increase in expected inflation in order to keep the real return on assets. The common sense behind is that as general price level moves, stock prices are not exception, therefore they should move in the same direction as a hedge against inflation. Many studies, Pyndick (1984) and Boudoukh and Richardson (1993) have empirically tested Fisher hypothesis and the results did not confirm that hypothesis. However, Taufiq Choudhry (2000) examined the relationship between stock returns and inflation in four high inflation countries and found a significant positive relationship between current stock market returns and current inflation which implies that stock returns act as a hedge against inflation. The study also found evidence of an inverse relationship between current real returns and current and one-period lagged inflation.

Omran and Pointon (2001) examined the effects of the rate of inflation on various stock market performance variables in Egypt Stock Exchange using co-integration analysis. The results indicated that there is a negative relationship between inflation and market activity and liquidity.

Other studies focused on the inflation-real stock prices, as reflected in dividend-price ratio and price-earning ratio Ritter. For example, Warr (2002) and Campbell and Vuolteenaho (2004) confirmed the negative relation. As a result of such contradiction, alternative hypotheses have been advanced to explain the negative relation between inflation and stock prices.

Proxy-effect hypothesis developed by Fama (1981) is the second line of reasoning. Using inflation as a proxy for expected economic activity, the hypothesis states that the negative stock return- inflation relation is spurious and reflects the causal negative relation between inflation and real economic activity. Hu and Willett (2000) added inflation volatility to Fama's explanation and named it "variability hypothesis" as inflation uncertainty impedes future economic activity. Geske and Roll (1983), Benderly and Zwick (1985) proposed a reverse causality explanation and showed that a reduction in real activity leads to an increase in fiscal deficits which in turn increases inflation. Clark, (1993) shows that inflation reduces investments and, thus, economic growth and future earnings. Huizinga (1993) argued that inflation leads to lower stability of relative prices, resulting in higher uncertainty of investment and production which in turn, implies a negative association between inflation and stock prices

The empirical findings of proxy hypothesis are mixed and inconclusive. Caporale and Jung (1997) did not support it. Lee (1992) and Balduzzi (1995) found strong support for the proxy hypothesis. Sharpe (2002) found that the negative relation between inflation and P/Es is attributable partly to lower forecasted real earnings growth. Also, the reverse causality between inflation and real economic growth is not proved by Lee (1992) but supported by James, Koreisha, and Partch (1985).

Money or inflation illusion is the third line of explanation for the negative relation between inflation and stock prices provided by Modigliani and Cohn, 1979. Many investors can not properly differentiate between real interest rate and nominal interest rate which may include inflation premium. This illusion will let them use wrong discount rate in valuing stocks and be not able to recognize the capital gain from equity with fixed dollar liabilities. Then the conclusion of money illusion is hypothesis that inflation erodes the long run real value of stocks. Empirically, money illusion was supported by Ritter and Warr (2002).

Discount factor is another channel through which inflation negatively affects stock prices. If inflation leads to a higher discount rate, then the present value of future earnings decline and stock prices are expected to decline as well. Recently, Campbell and Vuolteenaho (2004) argued that changes in the expected return and risk aversion explain the negative relation between

inflation and stock prices. They empirically decompose the S&P 500's dividend yield into (1) a rational forecast of long-run real dividend growth, (2) the subjectively expected risk premium, and (3) residual mispricing attributed to the market's forecast of dividend growth deviating from the rational forecast. They used a VAR system to construct empirical estimates of these three components and found that high inflation is positively correlated with rationally expected long-run real dividend growth, uncorrelated with the subjective risk premium and highly correlated with mispricing. These findings support the Modigliani-Cohn (1979) hypothesis that investors use past nominal growth rates without adjusting for changes in inflation in building their subjective growth forecasts. Thus, the negative stock return-inflation relation can also reflect changes in the expected return and risk aversion. Finally, Feldstein (1980) Ritter and Warr (2002) attributed the negative impact of inflation on stock prices to the basic features of the current US tax laws, particularly historic cost depreciation, accelerated depreciation, and the taxation of nominal capital gains.

2.1 Exchange Rate and Stock Prices

Understanding the direction and the magnitude of the relationship between exchange rates and stock prices is important for many reasons. (I) it may help predict the course of the exchange rate and this would benefit investors stabilize their earnings when their portfolios include assets nominated in foreign currency. (II) It may provide a better forecast for currency crisis, so policy makers can be alerted and take preventive measures as Ito and Yuko (2004) indicated. (III) It affects the decisions of monetary and fiscal policy as Gavin (1989) and Hsing (2004) explained. In fact, there is an ample literature interested in finding the directional relationship between exchange rate and stock market prices. In the next section I review some literature related to this relation.

Ajayi and Mougoue (1996) investigated the short-and long- run relationship between stock prices and exchange rates in eight advanced economies. They found a positive relation between stock prices and exchange rates. They explain it as follows. A rising stock index is an indicator of a booming economy, which goes together with higher inflation expectations. Foreign investors react negatively to higher inflation, then their demand for the currency decreases and exchange rate depreciates. However, they found the relation running from exchange rate to stock prices negative. Muradoglu, Taskin and Bigan (2001) investigated the causality between stock returns and macroeconomic variables and reported that exchange rates Granger cause stock returns in Brazil, Colombia, Greece, Korea, Mexico, and Nigeria, while both variables cause each other in the case of Mexico. Hsing (2004) studied how fluctuations of macroeconomic indicators affect the output in Brazil in order to prescribe monetary and fiscal policy in a Mundell-Fleming framework using a structural VAR. In this model stock prices are included and they are expected to affect output through wealth and investment. He found a positive relationship between exchange rates and GDP and a negative relationship between stock prices and GDP in the short run. Therefore and indirectly the short-run relationship between stock prices and exchange rates is positive.

Granger, Huang and Yang (2000) investigated the causality relationship between exchange rate and stock prices during the Asian Crisis of 1997. They found a strong negative relationship between the two markets—causality was unidirectional in some cases and bi-directional in others. Aggarwal (1981) noted that the stock price of the firm that has foreign operations will be affected by changes in exchange rates as these changes will be reflected in its profit and loss statements. However, Granger et al (2000) show that the relationship between exchange rate and stock prices may not be predicted. Considering balance sheet channel, if exchange rate depreciates the value of importing and exporting companies will react differently making the net effect ambiguous. They also test the hypothesis of the negative relationship between stock prices and exchange rate in the long run. They showed that with high degree of capital mobility and when stock prices increase, exchange rate decreases because foreign investors will increase their demand and this in turn will increase the supply of foreign currency. The opposite relation is true also. A currency appreciation makes foreign investors to buy more assets nominated in respective currency, and then stock prices increase. The conclusion is that most empirical studies found that there is a negative relation between exchange rate and stock prices regardless which variable is the lead. Also the existence of joint determination between stock prices and exchange rates is, in general, supported by the literature. However, there is no universal support for a particular sign of the relationship, Zietz and Pemberton (1990)

3. DATA AND METHODOLOGY FRAMEWORK

3.1 Data Description and Variables

This study focuses on three variables; stock prices index (SP), exchange rate of Egyptian pound to US dollar (EX), and inflation (INF) to explore the causal and dynamic linkages among them. Inflation is calculated using the change in consumer price index (CPI). We use the Monthly data spanning from January 1997 to December 2008 is used as it is likely to lead to more robust estimates than using daily figures (Maysami and Koh 2000). The data has been gathered from international financial statistics (IFS) and the website of Egyptian Stock Exchange (ESE). The data used in the regression are expressed in logarithm form.

3.2 Methodology Framework

To explore the causal and dynamic linkages among exchange rate, inflation and stock prices, we first test for stationarity by running unit root tests in all series using the most common tests, Augmented Dickey Fuller (ADF), Dickey and Fuller (1979) and Phillip and Perron (1988), PP hereafter. After inducing stationarity (if not) we apply Granger's causality test. Since Granger's causality test in the case of a more than two variables may not give robust results, we might use vector autoregression (VAR) technique to detect causality. The VAR model has the advantage of not having an underlying theory and does not need any assumption about the values of the exogenous variables (Granger et al. 2000). Secondly, provided that we cannot reject the null hypothesis of unit root in each of the time series being studied we examine the possibility of existing long run relationship(s), if any, between integrated variables. There may be a number of cointegrating relations (r), so we test for the number of cointegrating vectors. Hence we estimate the cointegrated coefficients in cointegrating relations to capture the long run relations. If

variables are cointegrated an error correction model (ECM) exists. ECM combines both the short run dynamics and long run properties and at the same time eludes the 'spurious regression' problem. In addition, adding error correction term provides an additional channel through which Granger's causality can be detected.

Granger causality via error correction model, F-test, and t-test may be interpreted as within-sample causality tests. They indicate only the plausible Granger exogeneity or endogeneity of the dependent variable in the sample period and provide little evidence on the dynamic properties among variables in the system. Variance decompositions (VDs) tackle this issue. It measures the percentage of a variable's forecast error variance that occurs as the result of a shock from a variable in the system including its own. Sims (1982) notes that if a variable is truly exogenous with respect to the other variables in the system, own innovations will explain all of the variable's forecast error variance. VDs may be termed as out-of-sample causality test (Bessler and Kling 1985). Impulse response functions (IRFs) are the alternative way to represent information including in VDs. IRF is the dynamic response of each endogenous variable to a one-period standard deviation shock to the system.

4- EMPIRICAL RESULTS

4.1 Unit Root Tests

The results of ADF and PP tests are presented in Table 1 for both level and first differences of the logarithm of stock prices, exchange rate, and inflation respectively. Statistical results do not reject the null hypothesis of unit root for level series. However, the variables in their first difference become stationary. Therefore they are integrated of order one I(1). For the choice of the best ADF structure we used AIC and SIC while LM test is used to test for autocorrelation. Newey-West bandwidth is applied for PP test.
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Table 1: Unit Root Tests (ADF and Phillips Perron)

Variable	ADF statistics	LL	CV	PP statistic	BW	CV
lnS	-0.35032	0	-2.88867	0.712188	7	-1.94385
ΔlnS	-8.4275	0	-2.88893	-9.08623	7	-1.94388
lnX	-2.43254	0	-2.88867	1.300607	6	-2.58675
ΔlnX	-8.76888	0	-2.88893	-8.92216	6	-1.94388
lnP	4.050149	0	-2.88867	4.991682	7	-1.94385
ΔlnP	-4.3097	1	-2.8892	-7.26506	8	-1.94388

LL is lag length ; CV is the critical values at 5%; * CV at the 10% level; BW is the Bandwidth

The regression involved is:
$$\Delta Y_t = \alpha + \beta t + \delta Y_{t-1} + \sum_{i=1}^{m} \gamma_i \Delta Y_{t-i} + U_t$$

4.2 Trivariate Cointegration tests

Having known that all our data series are I(1), the next step is to define the number of cointegrating vectors (r) among variables using Johansen and Juselius (1990) multivariate cointegration tests. This technique produces two statistics (the trace and maximum eigenvalue statistics), which can conflict. We proceeded sequentially from r=0 to r= k-1 until we fail to reject .Where k is the number of endogenous variables. The results in table 2 show that both the trace and max-eigenvalue test statistics indicate one cointegrating equation at the one percent significance level. These findings of cointegration confirm a long-run, systemic relationship among stock prices, exchange rate, and inflation in Egypt. This means that it is possible to predict changes in stock market indices using information available from exchange rate and inflation. In other words, this is strong evidence that stock market in Egypt is not efficient.

Table 2: Johansen And Juselius Cointegration Test For Stock Prices, Exchange Rate, And Inflation Prices, 1997:01-2008:12

Null	Alternative	Statistic	Critical values	
			5%	1%
Variables: LnS, LnP, LnX				
Trace statistic				
$r = 0$	$r > 0$	37.08**	29.68	35.65
$r <= 1$	$r > 1$	9.61	15.41	20.04
$r <= 2$	$r = 3$	2.13	3.76	6.65
Maximum eigenvalues				
$r = 0$	$r > 0$	27.46**	20.97	25.52
$r <= 1$	$r > 1$	7.48	14.07	18.63
$r <= 2$	$r = 3$	2.13	3.76	6.65

Notes: r Indicates the number of cointegrating relationships. Trace test and maximum eigenvalue statistics are compared with the critical values from Johansen and Juselius*

$$\tau_{\max}(r, r+1) = -T \log(1 - \lambda_{r+1}) \qquad \tau_{trace}(r) = -T \sum_{i=1}^{m} \log[1 - \lambda_t]$$

Indicates rejection of the null hypothesis of no cointegration at the 5% level. The trace statistic for the null hypothesis of r cointegrating relations is computed as follows:
The maximum eigenvalue static tests the null hypothesis of r cointegrating relations against r +1 cointegrating relations and is computed as follows.

4.3 The VAR model with an Error correction Model

After identifying the number of cointegrating vectors amongst variables, we incorporate the error correction term (ECT) in that relation(s) and estimate a VAR model. The inclusion of ECT provides additional channel through which the Granger causality could be detected. Therefore, we construct standard Granger-type causality tests augmented with a lagged ECT derived from

the long-run cointegrating relationship. The statistical significance of the t-test of the lagged ECT indicates the long term causal relationships and shows how fast the system is in restoring equilibrium in each short period. On the other hand, the F-test to the joint significance of the sum of the lags of each explanatory variable indicates the short term causality effects or endogenity of dependant variable. Table 3 provides the estimation of error correction model for the all equations. The coefficient of ECT is statistically significant in stock prices equation and carries a negative sign which is expected.

Table 3: Estimation Of Error Correction Model Coefficients

Endogenous Variables	Estimation of EC Coefficients	t-Statistics	P-value
ΔLS(Stock prices)	-0.4256	-5.136	0.000
ΔLX(Exch. Rate)	-0.247	-1.345	0.237
ΔLP(Inflation)	0.702	1.135	0.382

4.4 Causality

The existence of a cointegrating relationship among variables suggests that there must be Granger causality in at least one direction, but it does not indicate the direction of causality between the variables. The dependent variable is regressed against past values of itself and other variables including the ECT. The optimal lag length is based on the Schwarz Bayesian Criterion. Table 4 shows that in the stock prices equation, the coefficient on the lagged ECT is significant with the expected sign at 1%. In the long run both inflation and exchange rate Granger cause stock prices and causality runs interactively through the error-correction term from inflation and exchange rate to stock prices. The coefficient on the lagged ECT is (-0.418) implying that a deviation from the equilibrium during the current period will be restored by 42 per cent in the next period.

In the short-run, and at 5% or better, there is a unidirectional causal relationship between stock prices and exchange rate running from exchange rate to stock prices. Also, a unidirectional causal relationship between stock prices and inflation exists running from inflation to stock prices. However, there is a bi-directional causal relationship between inflation and exchange rate which refers to a strong short run relationship between these two variables. We can infer that stock price changes are caused by exchange rate and inflation.

Table 4: Results Of Trivariate Granger Causality Tests

	F Statistics (P-Values)			
Dependent Variable	Δln(stock prices)	Δln(Exch. rate)	Δln(Inflation)	ECT_{t-1} (t-Stat.)
Δln(stock prices)	…….	1.816	1.285	-0.423

		(0.113)		(0.246)		(-2.01)
Δln(Exch. rate)	2.795**	……..		2.441**		…….
	(0.025)			(0.047)		
Δln(Inflation)	27.103***	14.752***		……..		…….
	(0.000)	(0.000)				

**(***) denotes significance at 5% and 1% levels respectively

4.5 Variance Decompositions

The results of variance decompositions (VDs) reported in table 5 confirm the conclusion obtained from within sample VEC model. In the case of stock prices, after 12 months 68.7% of the forecast error variance is explained by its own shocks, and in the case of exchange rate 83%. After one quarter exchange rate and inflation account for 9.3% and 11.8% of the variation in the forecast error of stock prices. However after 12 months the contribution increased to 10% and 21% respectively. After 12 months about 6.4% of inflation forecast error variance is explained by the innovation in exchange rate, while about 15.5% of exchange forecast error variance is explained by innovation in exchange rate.

Combining these results with Granger causality tests, it seems that there are strong relationships among stock prices, exchange rate, and inflation in the Egyptian market. However, the strongest effects run from inflation to the stock prices. The bi-direction causality between inflation and exchange rate exacerbates the effects of inflation on stock prices.

Table 5: Percentage Of Forecast Variance Explained By Innovations In:

Variance Decomposition of DEX:			
Period	DEX	DLP	DES
1	100	0	0
4	92.76977	5.380748	1.849479
8	92.33199	5.529306	2.138702
12	91.44501	6.400797	2.155188
Variance Decomposition of DLP:			
Period	DEX	DLP	DES
1	0.205603	99.7944	0
4	14.714184	84.09092	1.194894
8	14.900436	83.69881	1.400754
12	15.510837	83.07992	1.409241
Variance Decomposition of DES:			
Period	DEX	DLP	DES
1	0.000002	0	99.90056
4	9.368277	11.849479	78.78272
8	10.12525	18.138702	71.74130
12	10.13626	21.155188	68.70855

Cholesky Ordering: DEX DLP DES

5. CONCLUSIONS

This paper has explored the causal and dynamic linkages among stock prices, exchange rate, and inflation in Egypt. The importance of this study stemmed from the fact that different schools of economic thought have postulated varies relationships among those variables which make the empirical econometric work worth. The empirical results are very useful in helping to explain changes in stock prices and its relation to other macroeconomic variables such as inflation and exchange rate. Such results may help predict the course of the exchange rate and this would benefit investors stabilize their earnings when their portfolios include assets nominated in foreign currency. Also it provides policy makers with better forecast for the impact of inflation on investment which may affects the decisions of monetary and fiscal policy. Using monthly data for Egypt from 1997 t0 2008. The multivariate cointegration technique was employed and then we specified an error correction model to find out the within sample causality among variables. We also estimated VAR model to explore out-of-sample causality.

The empirical results show that, In the long run the multivariate cointegration technique indicates that there is a long run equilibrium relation among those variables. However, in the short run, there is a strong dynamic relationship among stock prices, exchange rate and inflation. There is unidirectional causal relationship between stock prices and exchange rate and inflation running from exchange rate to stock prices and from inflation to stock prices. The bi-directional causality between exchange rate and inflation aggravates the effects of inflation on stock prices. These results are confirmed by out-of-sample causality results using variance decomposition technique. Exchange rate and inflation lead stock prices. Our findings are in line with theoretical implications and empirical evidence for other countries.

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MACROECONOMIC INFLUENCES AND EQUITY MARKET RETURNS: A STUDY OF AN EMERGING EQUITY MARKET

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ABSTRACT

*This study examines the short run and long run causal relationships among macroeconomic variables and equity market returns in the emerging equity market for the period of 6/1998 to 6/2008 by employing the VAR framework on monthly data. Macroeconomic variables include industrial production index, consumer price index, money supply , exchange rate, foreign portfolio investment, Treasury bill rates and oil prices. Results support the finance theory and provide evidence that long term relationship exist among equity market and macroeconomic factors. Unidirectional causality has been observed flowing from consumer price index, exchange rates, money supply and interest rate to equity market. No granger causality is observed among industrial production, foreign portfolio investment and equity market returns. This insignificant relationship with industrial production, oil indicates that market movement is not based on fundamentals and real economic activity. The cointegration analysis only captures the long-run relationship among the variables, it does not provide
information on responsiveness of equity market returns to shocks in macroeconomic variables so impulse response function and Variance decomposition analysis based on VECM has also been performed . Variance decomposition analysis also confirms that monetary variables are a significant source of volatility in equity market.*

INTRODUCTION

During last decade phenomenal growth has been observed in emerging equity markets and Pakistan is no exception. The KSE- 100 index, which is the benchmark for the Pakistani equity market, has exhibited unparalleled growth and moved from 921 in 2002 to over 16000 points. This remarkable growth has been a subject of global interest. During said period significant changes has also been observed in macroeconomic factors. An unprecedented change has also been observed in Interest rates, inflation, exchange rates, capital flows and Oil prices in the country. So question arises whether there exists a relationship among equity markets and macroeconomic factors.

The link among macroeconomic variables and the equity market has always attracted the curiosity of academicians and practitioners as it has an innate appeal. Finance theory suggests that prices of financial instruments are based on expected cash flows and discount factor. Macroeconomic variables affect both expected cash flows as well as discount rates. Therefore macroeconomic changes should be priced by market. The traditional dividend discount model is also based on above theoretical framework.

Therefore it is a well established fact that equity prices are influenced by economic information but theory is silent about specific variables which may influence equity prices. The empirical work has attempted to establish the relationship but results are yet inconclusive

Chen, Roll, and Ross (1986) explore this new avenue by examining the link among equity prices and macroeconomic variables by employing a multifactor model which provides evidence that macroeconomic factors are priced. Pearce and Roley (1985), Hardouvelis (1987), McElroy and Burmeister(1988), Hamao (1988) and Cutler, Potterba and Summers (1989) also confirm that equity prices react to arrival of macroeconomic information. At the same time, Poon and Taylor(1991), Shanken(1992) contradict the results. Some studies are in partial agreement. Flannery and Protopapadakis (2002) are of opinion that macroeconomic variables can predict future equity market returns to some extent and exact relationship among is difficult to establish. Therefore empirical evidence on relationship among macroeconomic variables and equity market is mixed

Under this cloud of uncertainty, number of studies has been conducted in various parts of globe by using various methods of exploring long term relationship among time series data. Mukherjee and Naka (1995), Cheung and Ng (1998), Nasseh and Strauss (2000), McMillan (2001) and Chaudhuri and Smiles (2004) employs cointegration analysis and granger causality test to explore long run relationship among equity prices and macroeconomic variables.

According to Humpe and Macmillan(2007) significant research has been done to investigate the relationship between equity market returns and a broad range of macroeconomic factors , across a number of equity markets and over a range of different time horizon. But this research is generally focused on developed markets or emerging markets of Asia Pacific Rim. Only few studies are available with reference to Pakistan which is one of the major countries of south Asia and lies on cross roads of Central Asia, Middle East. And these studies only explore few variables.

The objective of this paper is to analyze the long-term relationship between the KSE and a broad set of macroeconomic factors for a longer time period by employing conitegration approach proposed by Johnson and Jusilius. Direction of causal flow has been captured by using Granger causality test. Other dynamic of time series data have also been explored by using impulse response analysis and variance decomposition analysis. The broad set of macroeconomic variable include industrial production index , consumer price index, money supply , exchange rate, foreign portfolio investment, Treasury bill rates and oil prices. This set of data has been used first time in Pakistan. Karachi stock exchange index return has been used as proxy for equity market returns. The study's main contribution is to examine the short run and long run relationships between Karachi stock market and macroeconomic variables , which have been relatively neglected by previous researchers

Rest of the paper is organized as follows:

Section II incorporates a brief over view of recent empirical work. Section III describes the macro economic variables and Methodology used in the study. Empirical results are reported in Section IV and finally Section V concludes the results.

LITERATURE REVIEW

The relationship between equity market returns and economic fundamentals has been extensively researched in developed markets e.g.Chen et al. (1986), Fama(1990), Chen(1991), Cheung and Ng (1998) , Choi et al.(1999), Dickinson (2000), Nasseh and Strauss(2000). However the literature with reference to transition economies is limited and that too is focused on Asia pacific rim.

Chen, Roll and Ross (1986) investigate the existence of long run relationship among equity prices and industrial production, inflation, risk premium, market return, oil prices, term structure and consumption for US. Study assumes that the variables are uncorrelated and changes in variables are unexpected. . Results provide evidence about the existence of long run relationship between the macroeconomic variables and the expected equity returns. It has been observed that industrial production, risk premium, yield curve, and unanticipated inflation can explain expected returns during periods of high volatility. However, oil prices, market index, and consumption are not priced in the market. CRR also investigate the sensitivity of US stock returns to the unanticipated news and conclude that equity returns responds to arrival of macroeconomic news and this responsiveness is priced by the market.

Beenstock and Chan (1988) investigate the presence of long term relationship among export volume, fuel and material cost, relative export prices, money supply, inflation, and interests rates and equity markets by employing IN UK equity market and find that unanticipated increase in fuel and material costs and interest rate leads to reduction in equity returns. Study also provides evidence about existence of positive relationship among equity returns and money supply and inflation. However export prices and export volume are not priced by equity market.

Hamao (1988) uses the methodology proposed by Chen, Roll and Ross (1986) for Japanese economy and reveals that variations in expected inflation and unexpected variations in risk premium and term structure of interest rates influence equity returns significantly. However, variations in macroeconomic activities are found weakly priced in Japanese economy in comparison to variations priced in U.S.A.

Mukherjee and Naka(1995) examine the relationship between exchange rate, inflation , long term government bond rate, money supply, real economic activity and call money rate in the Japanese stock market and find that cointegration is present among macroeconomic variables and positive relationship exist between the industrial production and equity market return.

Habbibullah *et al* (1996) explores the long run relationship among Malaysian equity market and money supply(M1 and M2) and output(GDP) by using monthly data and finds equity market of Malaysia is informationally efficient with respect to money supply as well as output

Cheung and Ng (1998) provides evidence about long term interlinkages among equity market indices and real oil price, real consumption, real money, and real output by employing Johansen cointegration framework. Equity market returns are found related to transitory deviations from the long run relationship

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and to changes in the macroeconomic variables. Cointegration analysis under constrained environment provide insight about equity market return variation that is not already captured through dividend yields, interest rate spreads, and GNP growth rates.

Fazal and Mahmood (2001) explore causal relationship between equity prices and economic activity, investment spending, and consumption expenditure for the period 7/1959 to 6/99 by employing cointegration analysis and VECM and provide evidence about existence of long run relationship among above stated variables. Unidirectional causality has also been found flowing from macro variables to equity prices. However it is observed Pakistani equity in unable to influence aggregate demand. Fazal(2006) again examines relationship to investigate the stochastic properties of the variables by considering the shifts as a result of economic liberalization and finds unidirectional causality between the real sector and equity prices. No significant change in patterns is observed.

Ibrahim and Yusoff (2001) examine dynamic relationship among macroeconomic variables and equity prices for Malaysian capital market for the period 1/1977 to 7/1998 by employing VAR framework. Macro economic variable include industrial production, consumer price index , money supply, exchange rate, and equity prices. Results indicate that equity prices are being influenced by money supply. Money supply is found positively associated with equity prices in short run and negatively associated with equity prices in the long run. A negative impact of depreciation shocks has also been observed on equity prices. Maysami *et al* (2004) examines the long run relationship among macroeconomic variables and STI and sectoral indices like the property index, finance index and the hotel index and finds STI and the property index have long term relationship with industrial production, inflation , exchange rate , changes in the short and long-term interest rates and money supply.

Al-Sharkas(2004) investigates the relationship among equity market and real economic activity, money supply, inflation, and interest rate for Jordanian equity market by using Johansen Approach and provides evidence about presence of long run relationship among equity market and macroeconomic variables. Gay(2008)investigates the relationship among Indian equity market and exchange rate and oil price for Brazil, Russia, India, and China (BRIC) by employing ARIMA model and finds no evidence about existence of significant relationship among variables. It is further observed that equity markets of Brazil, Russia, India, and China are weak form efficient

Shahid (2008) explores causal relationships among equity prices and industrial production, money supply , exports, exchange rate , foreign direct investment and interest rates for the period 3/95 to 3/2007 by employing cointegration analysis and Toda and Yamamoto Granger causality test on quarterly data. Short run relationships among variables have also been investigated by using Bivariate Vector Autoregressive Model for variance decomposition and impulse response functions. The study concludes that equity prices in India lead economic activity in general. However, Interest rate is found to lead the equity prices.

DATA DESCRIPTION AND METHODOLOGY

This study explores the long term causal relationship among macro economic variables and Pakistani capital market for the period 6/1998 to 6/2008 by using monthly data. The macroeconomic variables

include Industrial Production Index, Broad Money, Oil Prices, Foreign Exchange Rate, Inflation and Interest Rate. Monthly time series has been chosen as it is consistent with earlier work done by Chan and Faff (1998) to explore the long run relation ship between macroeconomic variables and equity markets. Variables have been constructed and measured by using following proxies

Data Description

Equity Market Returns

Equity market returns has been calculated by using following equation

$$R_t = \ln (P_t / P_{t-1})$$

Where: R_t is Return for month 't';and P_t and P_{t-1} are closing values of KSE- 100 Index for month 't' and 't-1' respectively.

Industrial Growth rate

Industrial production index has been used as proxy to measure the growth rate in real sector and it has been calculated by using log difference of industrial production index.

$$\text{Growth Rate} = \ln (IIP_t / IIP_{t-1})$$

Studies that explore the relationship among industrial production and equity market returns include Chan, Chen and Hsieh (1985), Chen, Roll and Ross (1986), Burnmeister and Wall (1986), Beenstock and Chan (1988), Chang and Pinegar (1990), Kryzanowski and Zhang (1992), Chen and Jordan (1993), Sauer (1994), Rahman, Coggin and Lee (1998).

It is hypothesized that an increase in growth rate is positively related to equity market returns.

Money Supply

Broad Money (M_1) is used as a proxy of money supply. Money growth rate has been calculated by using log difference of broad money (M_2)

$$\text{Money growth rate} = \ln (M_t / M_{t-1})$$

Studies that explore the relationship among money supply and equity market returns include Beenstock and Chan (1988), Sauer (1994)

It is hypothesized that an increase in money supply is positively related to equity market returns

Inflation Rate

Consumer Price Index is used as a proxy of inflation rate. CPI is chosen as it is a broad base measure to calculate average change in prices of goods and services during a specific period.

$$\text{Inflation Rate} = \ln (CPI_t / CPI_{t-1})$$

Studies that explore the relationship among inflation and equity market returns include Chan, Chen and Hsieh (1985), Chen, Roll and Ross (1986), Burnmeister and Wall (1986), Burmeister and MacElroy (1988), Chang and Pinegar (1990), Defina (1991) Kryzanowski and Zhang (1992), Chen and Jordan (1993), Sauer(1994), Rahman, Coggin and Lee (1998).

It is hypothesized that an increase in inflation is negatively related to equity market returns.

Change in oil prices

Brent oil prices has been used as proxy for oil prices and change in oil prices has been measured by using log difference i.e

$$\text{Change in oil prices} = \ln (Brent_t / Brent_{t-1})$$

Chan, Chen and Hsieh (1985), Chen and Jordan (1993) investigate the relationship among oil prices and equity markets for US market.

It is hypothesized that an increase in oil rates is negatively related to equity market returns

Change in Foreign Exchange Rate

Change in Foreign exchange rate is measured by employing end of month US$/Rs exchange rate and change in value is worked out through log difference i.e

$$\text{Change in foreign Exchange Rate} = \ln (FER_t / FER_{t-1})$$

Where FER is foreign exchange rate US $/Rs
Kryzanowski and Zhang (1992), Sauer (1994) also explore the relationship between foreign exchange rate and equity market returns.

It is hypothesized that depreciation in home currency is negatively related to equity market returns

Change in Interest Rate

Treasury bill rates have been used as proxy of Interest rate. Change in interest rate has been measured by using log difference to T bill rates.

$$\text{Change in Interest Rate} = \ln (TB_t / TB_{t-1})$$

Burmeister and MacElroy (1988) study the relationship between short term interest rates and equity market return.

It is hypothesized that an increase in interest rate is negatively related to equity market returns

Change in Foreign Portfolio Investment

Foreign portfolio Investment has been used as proxy of Investor confidence. Change in Foreign portfolio Investment has been measured by using log difference to Foreign portfolio Investment.

$$\text{Change in Interest Rate} = \ln (FPI_t / FPI_{t-1})$$

It is hypothesized that an increase in foreign portfolio investment is positively related to equity market returns

Methodology

There are several techniques for testing the long term causal and dynamic relationship among equity prices and macro economic variables. In this study the emphasis is given to test the relationship among macro economic variables and Karachi stock exchange by employing via;(i) Descriptive Statistics ,(ii) Correlation Matrix,(iii) JJ cointegration Tests,(iv) Granger Causality Test,(v) Impulse Response Analysis and (vi) Variance Decomposition Analysis

Stationarity of data is tested by using unit root tests. Null hypothesis of a unit root is tested by using Augmented Dickey-Fuller Test and Phillips-Perron Test. The ADF test examines the presence of unit root in an autoregressive model. A basic autoregressive model is $Zt = \alpha Z_{t-1} + u_t$, where Z_t is the variable studied, t is the time period, α is a coefficient, and u_t is the disturbance term. The regression model can be written as $\Delta Z_t = (\alpha - 1)Z_{t-1} + u_t = \delta Z_{t-1} + u_t$, where Δ is the first difference operator. Here testing for a unit root is equivalent to testing. $\delta = 0$.

The Dickey-Fuller tests assume that the error terms are statistically independent and have a constant variance. This assumption may not be true in some of the data used so Phillip Perron test is also used that relaxes above assumptions and   permits the error disturbances to be heterogeneously distributed and it can be represented mathematically by
$Z_t = \alpha_o + \alpha_1 Z_{t-1} + \alpha_t \{t- T/2\} + u_t$
Test statistics for the regression coefficients under the null hypothesis that the data are generated by $Z_t = Z_{t-1} + u_t$, where $E(u_t) = 0$.

If a time series is nonstationary but it becomes stationary after differencing then said time series is said to be integrated of order one i.e. I (1). If two series are integrated of order one, there may exist a linear combination that is stationary without differencing. If such linear combination exists then such streams of variables are called cointegrated.

Cointegration tests are divided into two broader categories ;(i). Residual based test ;(ii). Maximum likelihood based tests. Residual based test include the Engle-Granger (1987) test whereas Maximum likelihood based tests include Johansen (1988; 1991) and Johansen-Juselius (1990) tests. During this

study we apply Johansen and Juselius test to determine the presence of cointegrating vectors in a set of non stationary time series. The null hypothesis is that there is no cointegration among the series. Vector Autoregressive (VAR) approach is employed to test multivariate cointegration. This assumes all the variables in the model are endogenous. The Johansen and Juselius procedure is employed to test for a long run relationship between the variables. Johansen and Juselius suggest two likelihood ratio tests for the determination of the number of cointegrated vectors. Maximal eigenvalue test evaluates the null hypothesis that there are at most r cointegrating vectors against the alternative of r + 1 cointegrating vectors. The maximum eigen value statistic is given by,

$$\lambda max = - T \ln (1 - \lambda r+1)$$

where $\lambda r+1,\ldots,\lambda n$ are the n-r smallest squared canonical correlations and T = the number of observations.

Trace statistic tests the null hypothesis of r cointegrating vectors against the alternative of r or more cointegrating vectors. This statistic is given by

$$\lambda \ trace = -T \Sigma \ln (1 - \lambda i)$$

In order to apply the Johansen procedure, Lag length is selected on the basis of the Akaike Information Criterion (AIC).

If co-integration in the long run is present then the system of equations is restructured by inserting an Error Correction Term to capture the short-run deviation of variables from their relevant equilibrium values. This investigation is necessary as impact of financial development is generally more apparent in the short-run and disappears in the long run as economy expands and matures. According to Granger (1988) presence of cointegrating vectors indicates that granger causality must exist in at least one direction. A variable granger causes the other variable if it helps forecast its future values. In cointegrated series, as variables may possibly share common stochastic trends so dependent variables in the VECM must be Granger-caused by lagged values of the error-correction terms. This is possible because error-correction terms are functions of the lagged values of the level variables. Thus an evidence of cointegration between variables itself provides the basis for construction of error correction model. ECM permits the introduction of past disequilibrium as explanatory variables in the dynamic behavior of existing variables thus facilitates in capturing both the short-run dynamics and long-run relationships between the variable. The chronological granger causality between the variables can be explored by using a joint F-test to the coefficients of each explanatory variable in the VECM. The variance decomposition of the equity returns is based on the analysis of responses of the variables to shocks. When there is a shock through the error term we study the influence of this shock to the other variables of the system and thus get information about the time horizon and percentage of the error variance F test is in fact a within-sample causality tests and does not allow us to gauge the relative strength of the of causality among variables beyond the sample period.

In order to examine the out of sample causality we use variance decomposition analysis which partitions the variance of the forecast error of a certain variable into proportions attributable to shocks in each variable in the system. Variance decomposition analysis present a factual breakup of the change in the value of the variable in a particular period resulting from changes in the same variable in addition to other variables in preceding periods. The impulse response analysis investigates the influence of random shock in a variable on other variables of interest. Impulse responses of returns in various markets to a

shock in oil innovations are also examined. Impulse responses show the effect of shocks for different days separately whereas variance decomposition analysis exhibits the cumulative effect of shocks.

EMPIRICAL RESULTS

Table 1 displays the descriptive statistics regarding changes in macroeconomic variables and equity market returns. The average monthly returns earned at Karachi stock exchange during last ten years is 2.2 % which is equivalent to an annualized return of 29.28%. This is one of the highest returns offered by emerging equity markets. The highest returns achieved during one month are 24.11% and maximum loss incurred in one month is 27.8%.

Table 1   **Descriptive Statistics**

	ΔKse100	Δ IPI	Δ Oil	ΔX Rate	ΔT Bill	ΔCPI	ΔFPI	ΔM1
Mean	0.0220	0.0022	0.0209	-0.0035	-0.0025	0.0056	0.0055	0.0167
Median	0.0219	0.0016	0.0310	-0.0006	0.0000	0.0047	0.0018	0.0091
Std Dev	0.0912	0.1121	0.0788	0.0121	0.0985	0.0070	0.0238	0.0422
Skewness	-0.3055	-0.4653	-0.6324	-2.4291	-0.6279	0.9219	3.5235	4.2966
Min	-0.2780	-0.4857	-0.2161	-0.0762	-0.4242	-0.0088	-0.0605	-0.0646
Max	0.2411	0.3533	0.2241	0.0307	0.3200	0.0303	0.1651	0.3481

Average monthly industrial growth rate is 0.22% which is not appreciating at all. Oil prices increased at an average monthly rate of 2.09%. Narrow money growth rate is 1.67% per month which is significantly high. Average change in consumer price index is 0.56% per month whereas T bill rates appear to change at a rate of 0.25% per month. Average decrease in value of Pakistani currency is 0.35%. Percentage changes in exchange rates ranges from a minimum of -7.62% to a maximum value of 3.07% percent. Foreign portfolio investment is on average increased by 0.55% per month. Average change in Treasury bill is 1.81%. However, significantly high volatility is observed in equity returns, industrial production, oil prices and t bill rates. Unstable macroeconomic variables lead to high risk and affect over all quality of decisions.

Table 2 shows the correlation among equity returns and macroeconomic variables. Weak correlation is generally observed between the equity return and monetary variables.

Table 2   **Correlation Matrix**

	ΔKse100	Δ IPI	Δ Oil	ΔX Rate	ΔT Bill	ΔCPI	ΔFPI	ΔM1
ΔKse100	1							
Δ IPI	-0.0257	1						
Δ Oil	-0.0391	-0.1321	1					
ΔX Rate	0.1219	0.0579	-0.0943	1				
ΔT Bill	-0.1429	-0.1637	0.0325	-0.1974	1			
ΔCPI	-0.1698	-0.0169	0.1892	-0.2029	0.2557	1		
ΔFPI	0.1490	-0.0146	-0.0655	0.0956	0.0221	-0.0172	1	
ΔM1	0.0241	0.1560	-0.0183	0.1455	-0.0198	-0.0145	0.0498	1

Interest rates are negatively correlated with equity returns which are logical as increase in interest rates leads to increase in discount rate and it ultimately results in decrease in present value of future cash flows which represent fair intrinsic value of shares. However this relationship is found insignificant. The relationship between inflation and equity returns can also be viewed on the basis of above analogy. This relationship is also found insignificant. Foreign portfolio investment increases liquidity in market and higher demand leads to increase in market prices of shares so relationship should be positive. But this relation ship is found insignificant. Increase in oil prices increase the cost of production and decrease the earning of the corporate sector due to decrease in profit margins or decrease in demand of product. So negative relation ship is in line with economic ration but it is again insignificant. Money growth rate is positively correlated with returns that are in line with results drawn by Maysami and Koh (2000). The possible reason is that increase in money supply leads to increase in liquidity that ultimately results in upward movement of nominal equity prices. However relationship is insignificant and weak. Similarly interest rate parity theory is also confirmed from results as interest rate is negatively correlated with exchange rates.

Correlation analysis is relatively weaker technique. Therefore causal nexus among the monetary variables has been investigated by employing multivariate cointegration analysis. Cointegration analysis tells us about the long term relationship among equity returns and set of monetary variables. Cointegration tests involve two steps. In first step, each time series is scrutinized to determine its order of integration. For this purpose ADF test and Phillips-Perron test for unit has been used at level and first difference. Results of unit root test under assumption of constant and trend have been summarized in Tables 3.

Table 3   **Unit Root Analysis**

	ADF- Level	ADF- Ist Diff	PP- Level	PP- Ist Diff
Ln Kse100	-2.1686	-12.015	-2.0872	-12.2821
Ln IPI	-3.1322	-8.9420	-2.8182	-8.7609
Ln Oil	-2.3550	-8.3208	-2.0543	-8.2033
Ln X Rate	-2.3659	-6.6074	-3.1003	-6.4168
Ln T Bill	-1.6981	-3.6063	-1.3595	-7.8162
Ln CPI	2.9023	-8.6160	2.6215	-8.6190
Ln FPI	0.4762	-3.6651	-0.4640	-10.8700
Ln M1	-1.8832	-10.245	-1.9545	-10.2284
1% Critic. Value	-4.0363	-4.0370	-4.0363	-4.0370
5% Critic. Value	-3.4477	-3.4480	-3.4477	-3.4480
10%Critic Value	-3.1489	-3.1491	-3.1489	-3.1491

Results clearly indicate that the index series are not stationary at level but the first differences of the logarithmic transformations of the series are stationary. Therefore, it can safely said that series are integrated of order one I (1).It is worth mentioning that results are robust under assumption of constant trend as well as no trend.

Fig 1   **Trend of Logarithmic Series**
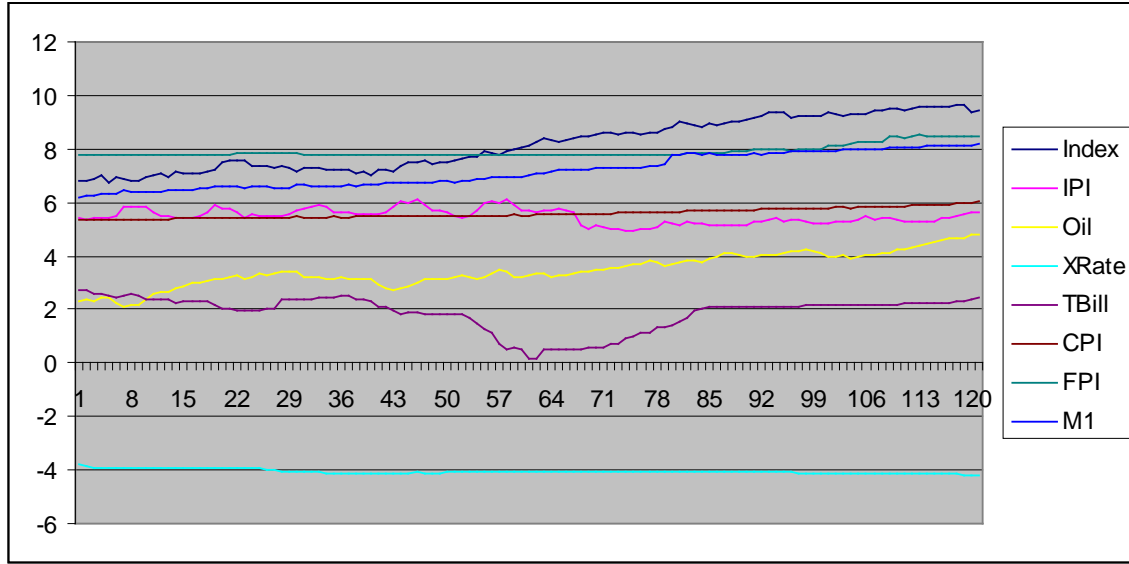
In second step, time series is analyzed for Cointegration by using likelihood ratio test which include (i) trace statistics and (ii) maximum Eigen value statistics.

Table 4 exhibits the results of trace statistics at a lag length of three months. On the basis of above results null hypothesis of no cointegration between the equity indices and macroeconomic variables for the period 6/1998 to 3/2008 can not be rejected in Pakistani equity market. Trace test indicates the presence of 4 cointegrating vectors among variables at the $\alpha = 0.05$. In order to confirm the results Maximum Eigen value test has also been employed and Max Eigen value test also confirms the presence of cointegration at the $\alpha = 0.05$. Therefore, study provides evidence about existence of long term relationship among macroeconomic variables and equity returns.

Table 4   **Multivariate Cointegration Analysis**
                              Trace Statistic

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	Critical Value0.05	Prob.
None *	0.3923	193.3427	159.5297	0.0002
At most 1 *	0.2630	135.0690	125.6154	0.0117
At most 2 *	0.2087	99.3636	95.7537	0.0276
At most 3 *	0.1958	71.9817	69.8189	0.0333
At most 4	0.1507	46.4931	47.8561	0.0668
At most 5	0.1259	27.3791	29.7971	0.0927
At most 6	0.0667	11.6342	15.4947	0.1753
At most 7	0.0300	3.5632	3.8415	0.0591

It is worth mentioning that Johansen and Jusilius cointegration tests do not account for structural breaks in the data.

As variables are cointegrated so Granger Causality must exist among the variables. This requirement of granger representation theorem is helps us to identify the direction of causality flow. Table 5 reports the results Granger causality.

Table 5   **Granger Causality Test**

Null Hypothesis:	Obs	F-Statistic	Probability
IPI does not Granger Cause INDEX	117	0.5518	0.648
INDEX does not Granger Cause IPI		0.6710	0.5716
OIL does not Granger Cause INDEX	117	0.6649	0.5753
INDEX does not Granger Cause OIL		3.3713	0.0211
XRATE does not Granger Cause INDEX	117	6.1909	0.0006
INDEX does not Granger Cause XRATE		0.0989	0.9604
TBILL does not Granger Cause INDEX	117	3.5113	0.0177
INDEX does not Granger Cause TBILL		0.9056	0.4409
CPI does not Granger Cause INDEX	117	2.9798	0.0345
INDEX does not Granger Cause CPI		0.3946	0.7571
FPI does not Granger Cause INDEX	117	0.3015	0.8242
INDEX does not Granger Cause FPI		0.3832	0.7653
M1 does not Granger Cause INDEX	117	2.8654	0.0399
INDEX does not Granger Cause M1		0.5660	0.6385

Above table provides evidence about existence of unidirectional causality from X Rate , T Bill , Money Supply and CPI to equity market returns at $\alpha= 0.05$. However no granger causality is observed in industrial production and equity market returns. Results can be summarized as that unidirectional causality flowing from monetary variables to equity market and this lead- lag relationship makes it imperative for financial and economic mangers of country to be more careful and vigilant in decision making as these decisions are priced in equity market and sets the trends in capital market which is considered as barometer of economy. However insignificant relationship with industrial production, oil indicates that market movement is not based on fundamentals and real economic activity.

Impulse response analysis provides information about the response of equity market returns to one standard deviation change in industrial production, oil, money growth rate, foreign portfolio investment, inflation, T bill and exchange rate. Fig 2 is graphical presentation of relationship between innovations in macroeconomic variables and equity market returns in the VAR system. Statistical significance of the impulse response functions has been examined at 95% confidence bounds.

Results confirm that one standard deviation change in money supply leads to increase in equity prices due to increase in liquidity and this result is consistent with results of Maysami and Koh(2000). Similarly one standard deviation change in Treasury bill rate leads to reduction in prices of equity due to increased

discount rates. No statistically significant impact has been observed with reference to variation in exchange rates. It is acceptable because in Pakistan a managed floating rate system has been observed and during last five years exchange rates has been managed within a small range by state bank of Pakistan through open market operation. These results are in conformity with earlier work.

Fig.2   **Impulse Response Analysis**

Response to Cholesky One S.D. Innovations
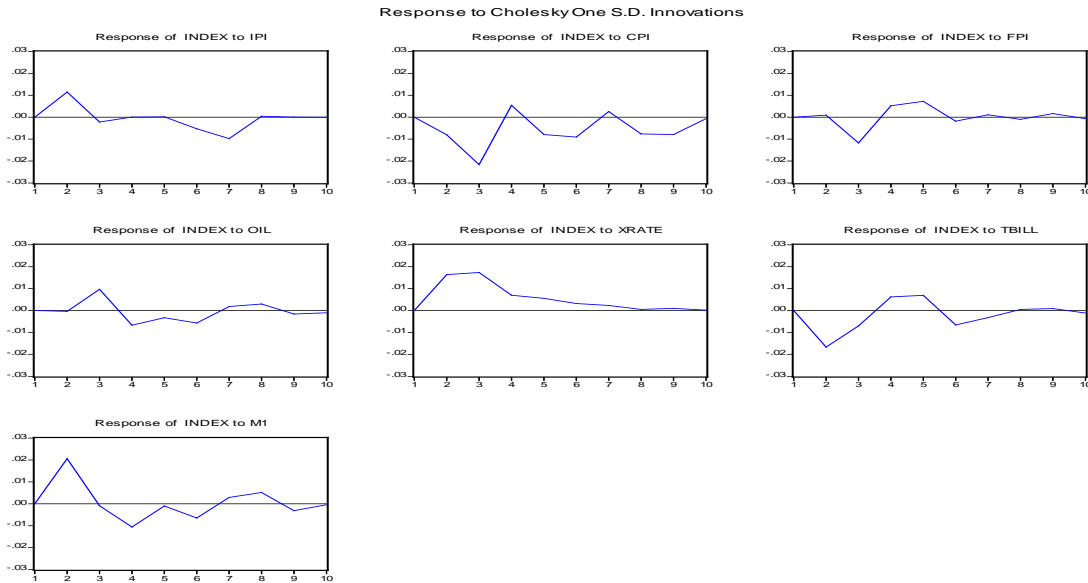
Impulse response function captures the response of an endogenous variable over time to a given innovation whereas variance decomposition analysis expresses the contributions of each source of innovation to the forecast error variance for each variable. Moreover, it helps to identify the pattern of responses transmission over time. Therefore variance decomposition analysis is natural choice to examine the reaction of equity markets to system vide shocks arising from changes in industrial production, inflation, oil, money supply, Treasury bill rates, foreign portfolio investment and exchange rates. Table 7 exhibits the results of VDC Analysis..

Table 7   **Variance Decomposition Analysis**

Period	S.E.	INDEX	IPI	CPI	FPI	OIL	XRATE	TBILL	M1
1	0.08	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.09	86.18	1.56	0.77	0.01	0.00	3.17	3.29	5.02
3	0.10	76.68	1.44	5.58	1.45	0.98	5.97	3.43	4.46
4	0.10	74.47	1.39	5.68	1.67	1.40	6.25	3.70	5.44
5	0.10	72.98	1.36	6.18	2.16	1.47	6.42	4.09	5.33
6	0.10	71.32	1.59	6.82	2.14	1.75	6.36	4.41	5.60
7	0.10	70.50	2.48	6.78	2.12	1.76	6.31	4.44	5.60
8	0.10	69.88	2.46	7.27	2.11	1.83	6.26	4.41	5.80
9	0.10	69.37	2.44	7.80	2.12	1.84	6.22	4.38	5.84
10	0.10	69.36	2.44	7.80	2.12	1.84	6.21	4.39	5.84

Results confirm that monetary variables are a significant source of the volatility of equity market The contribution of an inflation shock to the equity returns ranges from 0.77 % to 7.8%. Similarly the contribution of T bill rates ranges from 3.29% to 4.39% and contribution of X rate ranges from 3.17% to 6.42% which is also significant. Money supply is also one of major contributor of volatility. Role of IPI and Oil in equity market volatility also increase gradually. The pattern of transmission of shocks is also apparent and indicates an increasing trend. This may be helpful to stake holders in their decision making process

CONCLUSION

This paper examines the long run relationship among equity market returns and seven important macroeconomic variables which include industrial production, Money Supply, , foreign portfolio investment, Treasury Bill Rates, oil prices, foreign Exchange Rates and consumer price index for the period 6/1998 to 6 /2008 by using Multivariate Cointegration Analysis and Granger Causality Test. Result provide evidence about existence of long run relationship among equity market and macroeconomic variables and explains the impact of changes at macroeconomic front on the stock market. Multivariate regression analysis provides evidence about the presence of four cointegrating vectors among variables at the $\alpha = 0.05$. Maximum Eigen value test also confirms the results.

Granger causality test indicates that T bill rates, exchange rates, inflation and money growth rate granger causes returns. This relationship has economic rational as increase interest rates , inflation leads to increase in discount rates and it ultimately results in reduction of prices. Impulse response analysis exhibits that one standard deviation change in money supply leads to increase in equity prices due to increase in liquidity and this result is consistent with results of Maysami and Koh(2000). No statistically significant impact has been observed among equity market and industrial production, oil prices and portfolio investment. Results can be summarized as that unidirectional causality flowing from monetary variables to equity market and this lead- lag relationship makes it imperative for financial and economic mangers of country to be more careful and vigilant in decision making as these decisions are priced in equity market and sets the trends in capital market which is considered as barometer of economy. However insignificant relationship with industrial production, oil indicates that market movement is not based on fundamentals and real economic activity.

Variance decomposition analysis is also performed that reveals that confirm that monetary variables are a significant source of the volatility of equity market The contribution of an inflation shock to the equity returns ranges from 0.77 % to 7.8%. Similarly the contribution of T bill rates ranges from 3.29% to 4.39% and contribution of X rate ranges from 3.17% to 6.42% which is also significant. Money supply is also one of major contributor of volatility.
These results reveal that identification of direction of relationship between the macroeconomic variables and capital market behavior facilitates the investors in taking effective investment decisions as by estimating the expected trends in exchange rates and interest they can estimate the future direction of equity prices and can allocate their resources more efficiently. Similarly, architects of monetary policy should be careful in revision of interest rates as capital market responds to such decisions in the form of reduction of prices. Similarly, Central bank should also consider the impact of money supply on capital markets as has significant relationship with dynamic of equity returns. As under efficient market hypothesis capital markets respond to arrival of new information so macroeconomic policies should be designed to provide stability to the capital market.

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THE IMPACT OF INFORMATION DISCLOSURE ON STOCK PRICE BEHAVIOR: EVIDENCE FROM THE TAIWAN STOCK EXCHANGE

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ABSTRACT

This study examines the impact of information disclosure on stock price behavior for stocks listed on the Taiwan stock market in the pre- and post-period of January 1, 2003. Unexecuted orders are disclosed up to five ticks away from the best bid and ask price in both directions following the increased information disclosure. Our finding shows that a significant improvement in market quality following the enhanced information disclosure. Both bid-ask spreads and price volatility reduce significantly in the post-period. Moreover, market depth increases significantly in the post-period. Finally, the results are robust when market quality of different volume groups is examined.

TESTING THE MONTHLY EFFECT WITH STOCHASTIC DOMINANCE THEORY

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ABSTRACT

This study uses stochastic dominance theory to examine whether the monthly effect exists in the Chinese stock markets. Our main results show that "March size effect" exists in the Chinese stock markets; i.e., not only are March returns in all size-directed portfolios superior to their corresponding non-March returns but the March returns in the smallest firm size portfolio also dominate the March returns for all other larger size-directed portfolios. As the Chinese year-end is often in February, our results indicate that February plays the same role as the December for the U.S. and European markets. Investors have to allocate their asset between risk asset and risk-free asset for distinguishing the performance among the various month-size portfolios in this study, which implies that stochastic dominance theory can help investors design their optimal ratio between risk asset and risk-free asset.

RISK MANAGEMENT FOR COMMUNITY BANKS: THE CREDIT CRISIS OF 2008

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ABSTRACT

Risk management came to the forefront in the banking industry during the credit crisis of 2008. Many community banks had to make changes in their policies and structures to assure that they managed their risk properly. Many had never gone through downturns in the economy like the 2008-2009 recession. This paper presents the different aspects of risk management in community banking, and how these aspects change with the economic climate. The paper focuses on federal regulatory influence, technology, stress testing and asset valuation, risk management policies & procedures, and management structure.

INTRODUCTION

Most banking risk management literature summarizes ways that banks should be monitoring themselves through internal controls. Federal guidance, technology, and all the risk management tools in the world are no good if banks do not decide to utilize them in order to protect themselves from losses. Guidelines for managing internal credit review, small business loan risk, and care in paying checks are among the topics of numerous articles about internal policies.

Management structure is changing due to the credit crisis. Community banks are hiring Chief Credit Officers to oversee their credit review functions. Chief Credit Officers typically have veto power over new loans presented if they feel the loans are not creditworthy. Many larger banks are shifting their top personnel from production duties to credit officer positions. There is an industry wide trend of cracking down on credit quality. (Cain, 2008; Farrell, 2008; Naber, 2008; Stoneman, 2008; Schlich, 2008)

STRESS TESTING & ASSET VALUATION

Drehmann, Hudson, Sawers, and Neckopulos (2008) discuss the topics of stress testing and asset valuation ,both of which involve examining the current portfolio of the bank to see how risk may change with different market events. Stress testing, in its simplest form, is gauging how a loan will perform if interest rates increase, or if a borrower's cash flow decreases. Stress testing can also be done on a larger, portfolio-wide scale, giving a banking institution a good idea of how its customers might make it through a downturn in the economy. Some banks are performing stress testing, but lack either the expertise or experience to interpret the results and take their risk management to the next step. Asset Valuation, which should be done periodically on existing loans, pertains to the valuing of collateral in a bank's loan portfolio. Shifts in the market can have a negative (or positive) effect on a firm's asset value. A major issue is the change in valuations of real estate. In prosperous markets, real estate seems to be an almost riskless form of collateral. During the current credit crisis of 2008, however, real estate values decreased, sometimes to an extreme degree. This caused bank's loan-to-value (LTV) ratios to increase beyond regulatory guidelines, and put banks in riskier positions.

FEDERAL REGULATOR INFLUENCE

Federal regulation plays a large part in banking risk management. Some regulatory agency functions serve as a guide for banks, while others can influence a bank's actions on a more direct course. The FDIC sends out FIC's, or Financial Institution Letters, advising banks on different items within its organization. One of these letters advised banks to take precautions when contracting certain aspects of their business out to third parties. Basically, the FDIC warns that the bank is ultimately liable for any mistakes that their contractors may make.

Other regulatory agencies occasionally publish best practices that serve as guidelines for banks. There are also published lists that guide start-up, community type banks on measures that need to be taken in order to manage their risk effectively as they grow. (Griffin, 2008; Rehm, 2008; Hopkins, 2008)

PERSPECTIVE ON RISK

The credit crisis of 2008 had many of the most well known banks in the nation clamping down on lending qualifications, as well as struggling to convince their customers that their cash was safe, trying to discourage "runs on the bank." The big bank perspective of the crisis was quite different than that of smaller, community banks. Community banks are generally not as heavily affected due to their closer relationship with their customers. Community banks are more inclined to know about circumstances that may be negatively affecting a customer's ability to pay, and thus are more willing to work with the customer, avoiding defaulted loans.

Spending money on risk management is another aspect of the crisis where big

banks and small banks differed. The reason behind this is that the bigger banks typically already have all of the technological infrastructure in place to prepare them for market events. Where the big banks falter, though, is by not having the personnel, or objectives in place to correctly monitor the symptoms of the market events. (Crum, 2008)

TECHNOLOGY

Technology is changing constantly, so it is only natural to think that the banking industry would have options when contemplating risk management functions. Several recent articles discuss the role technology plays in the risk management of banking institutions of all sizes. Banks should always have technology in use that makes them operationally more efficient, but they should also have technology that assists them in making more sound risk management decisions. The literature that focusses on technology gives many examples of available technology that assists in risk management.
There are several types of software, both web-based and pc-based, that help manage information critical to managing risk. Commercial Real Estate (CRE), flood regulations, and stress testing are just a few of the aspects that the current software will assist. (Lindroff, 2008; Blanchard, 2008; Montini, 2008; Guarrera, 2008; Schlich, 2008; Neckopulos, 2008)

PERSPECTIVE ON CRISIS

The credit crisis of 2008 was perceived differently by large banks and community banks. Many of the larger banks were the most negatively affected. Greater proportions of loans defaulted at larger banks than at smaller ones. The community banks were thus not as worried about the crisis. Community banks took steps to better prepare themselves for changes in the economy, but their concern was different than that of larger banks. Crum (2008) presents the results of a survey performed by *American Banker* magazine. The main focus of the survey was the difference in perspective on the crisis between large banks and small banks. In Figure 1, three loan categories are shown; commercial loan risk, real estate risk, and retail risk. The percentage of large banks and small banks that saw these categories as highly risky in during the current crisis is indicated. As shown, the smaller banks felt much more secure with regard to their loan risk. The article states that the reasoning behind the difference in opinion is heavily based on the customer relationship factor. Smaller banks tend to know each customer personally. If a borrower from a small bank starts to show signs of trouble on a loan, they see their banker in their community (at church or the grocery store). This works to the bank's advantage in a couple of ways. First, the borrower feels a deeper obligation to repay their debt, no matter how bad things may get. Second, the banker is more apt to work with the customer rather than calling the note. Their personal relationship enables them to have a more open dialogue about the situation, rather than just demanding payment. Banks are in the business of making loans, not calling them.

Figure 1 (available from authors)

MANAGEMENT STRUCTURE

Community banks are starting to change their management structure due to the crisis. In the past, community banks were mainly focused on producing loans. That is, in fact, how smaller banks grow. But now, with more focus on risk management, community banks are putting more emphasis in their credit monitoring.

Stoneman (2008) discusses the growing trend of hiring Chief Credit Officers. These officers are in charge of overseeing the credit quality of all existing and proposed loans. They typically do not have any voting authority on approving loans; however, they usually have an ultimate veto power. Figure 2 shows a typical organization chart of the lending division of a community bank prior to the crisis. Figure 3 shows the same organizational chart, with the addition of the Chief Credit Officer. As shown, the credit analysts now work under the direction of the Chief Credit Officer, practicing more sound credit underwriting, as well as monitoring the credits of the current loan portfolio.

Changes are also occurring at the director level of community banks. In the past, the board of directors consisted mostly of local business owners or key customers. It is now the trend for banks to require more experience and background in the financial industry. The new responsibilities of the board include: financial accuracy, assessment of control environment, external auditor oversight, effective use of internal auditing, and risk management (Naber, 2008). It takes more financial background in order to properly oversee the direction community banks must take during the current crisis.

Figures 2 and 3 (available from authors)

FEDERAL REGULATOR INFLUENCE

The federal government plays an ever-changing role in the risk management of community banks. Different government agencies have influences on the practices of community banks. For a premium, the FDIC provides insurance on bank deposits. This gives banking customers reassurance that their money will be available when they need it. They also send out occasional letters to their covered banks, called FIL's, or Financial Institution Letters. Lucy Griffin (Griffin, 2008), President of Compliance Resources, Inc., provides an overview of FIL-44-2008. The FIL presents a series of risk management procedures the FDIC recommends banks use when dealing with 3rd party vendors. Other federal agencies provide periodical checklists or recommendations that provide banks with guidelines to managing risk.

The Federal Reserve is another agency that plays a big role in banks' risk management. Many community banks lend money on floating interest rates. These rates are typically based on the

prime rate, reported by the Federal Reserve. Banks take risk when using floating rates due to the negative affect any drop in rates will have on the their cash flow.

TECHNOLOGY

Technology plays a vital role in risk management. Today, there are various types of software that enable banks to better manage risk. Montini (2008) discusses pc-based software versus web-based software. The focus of the software in the article is minimizing CRE risk. She discusses the pros and cons for each option and describes how each bank should assess their individual needs before making a decision. Web-based software is more cost effective and can be accessed from anywhere (and by anyone) that has internet access. This provides the bank with the choice of having builders, or inspectors, upload status updates on CRE projects as they happen. It helps ease the strain of keeping up to date status files on all CRE loans, which is necessary for not only managing risk but for staying within regulatory guidelines.

Blanchard (2008) discusses how technology can help keep flood insurance compliance records clean. Websites are available for pulling the most current flood
determinations. This is an easy and cost effective way to know whether or not a piece of collateral is in a flood plain, as well as whether flood insurance is available. There is also file management software available that tracks and organizes important documentation on each loan.

Keeping track of important documentation can be very tedious. That is why many banks have moved to tracking software. Neckopulos (2008) mentions a type of software that keeps the loan officer up to speed on anything they may need to get from the borrowers in order to keep the files up to date. At the inception of the loan, all documentation is loaded into the system and given corresponding expiration dates. Financial statements, tax returns, and insurance are usually monitored on an annual basis, while things like accounts receivable aging, inventory listings, etc. are monitored on a quarterly basis. Whenever a document is approaching expiration, an alert is sent to the loan officer automatically. This helps the loan officer keep track of what is needed to keep loans in compliance, without having to constantly sort through files to see what needs to be updated.

Schlich (2008) discusses how new technology can assist risk managers in assessing new products with a holistic view, rather than just the opportunity set in front of them. Technology is available than can collect and measure data across all business lines of the bank. This provides a clearer picture of what the outcome of certain opportunities may be, and thus enables the managers to make a more sound decision.

STRESS TESTING & ASSET VALUATION

Most all banks have always used some form of stress testing in their risk management practices. Where the current change comes in, is in the depth at which the banks analyze the numbers.

Before, a bank might just look at how a debt service ratio may change with an increase in a floating interest rate. But what does that change tell us? Nothing, unless we dig deeper.

Hudson (2008) reports how many banks are using stress testing to judge how they will behave during certain changes in the market environment. These banks, however, should be going a step further. A series of scenario analyses is recommended. This will give the bank a better understanding of how certain loans may act if a string of events becomes reality. Examples include: interest rate increases and decreases, cash flow reductions, changes in competition for certain borrowers, changes in collateral value, and even world-wide recession. Different scenarios should be entertained, from mild changes, to extreme. If a bank knows ahead of time how loans will react to market events, it can better prepare itself for when these events come to fruition.

Asset Valuation pertains to the value of the assets held as collateral on loans. One of the main reasons for the sub-prime crisis was the depreciation in home values on mortgages. When the security on the loan is worth less than the loan balance, the borrower is more likely to renege on the loan. The same thing can happen with loans in the community banking world. Neckopulos (2008) states that periodic asset valuation needs to take place. He refers mainly to the fact that most secondary sources of repayment tend to be real estate, and in today's market real estate is not a very secure source of cash flow. This can also apply to accounts receivable, inventory, stock, or
anything else securing a loan. If the value of the collateral falls below the balance of the loan, the bank should demand a principal reduction or additional collateral. If not, the borrower is more likely to walk away, knowing they were in an upside-down position.

RISK MANAGEMENT POLICIES & PROCEDURES

When it comes down to it, the bank's risk management responsibility is internal. Until board and management decide to put policies and procedures in effect that will play an active role in managing risk, all the tools and technology do no good. Many checklists are available that assist banks in making sure they are taking the necessary steps to effectively manage risk, such as the one provided by Farrell and Spark. Community banks need to make sure they have the proper policies in place, checks and balances for both the lending and operations divisions, and procedures to lead employees down the correct road to proper risk management. The details and extent of each individual bank's internal risk management measures will vary depending on their stage of expansion, customer base, and budget. (Farrell, 2008).

SUMMARY

Changes are occurring in all aspects of the banking industry. Community banks are no different, perhaps even more affected. Smaller, start-up, community banks are having to navigate through rough terrain they rarely experienced. Banks need to make the necessary changes in management structure, technology, and risk management policies & procedures in order to make it through

credit crises. This will also better prepare these banks for the future events we all know are inevitable.

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Bridging the Knowledge Gaps to Enhancing Hemispheric Competitiveness: A Call to Reach Out

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ABSTRACT

This paper discusses the need for US institutions of higher learning to focus more attention toward recruiting students from Latin America. We argue that as the world continues to develop into three regional trading blocs, it is in the interest of the United States and Canada to increase participation in developing the Latin American human resource. We suggest degree completion programs using transfer credit from Latin American universities and online learning to reduce the cost of studying in the United States.

INTRODUCTION

The world is divining into three hemispheric trading blocs. For the American Hemisphere to remain competitive the United States and Canada must do more to decrease the knowledge gaps that exist in its low wage neighbors to the south. We argue that institutions can do this by accepting transfer credit, using already existing online course delivery, and marketing to Latin American. This provides institutions, particularly Hispanic serving institutions, with an opportunity to further internationalize their programs and increase their enrollment.

GLOBAL TRADING BLOCS AND HEMISPHERIC BRIDGES

Because of preferential trade agreements (PTA) the world is dividing into three global trading blocs: Asia, the European Union (EU), and the Americas (Frankel, Stein & Wei, 1995; Krueger, 1999). Like the United States, Japan and EU countries also saw manufacturing jobs outsourced to lower wage countries. The US, Central American countries, and the Dominican Republic have ratified the Central American Free Trade Agreement (CAFTA), which essentially provides parity with NAFTA. There are other free trade agreements between the US and South American countries and the Free Trade Area of the Americas (FTAA), although delayed, is still in discussion. Likewise, the Association of Southeast Asian Nations (ASEAN) and the EU are also expanding to include other countries. These events present both opportunities and challenges for all countries in the American Hemisphere.

Although the Americas contain a diverse population living on resource rich lands, the education level of most of the hemisphere's population is substandard and they live in countries classified as developing or

under-developed nations. In fact, the developing world contains approximately half of all higher education students (Maldonado-Maldonado, 2002). While Mexico, Brazil Chile and Argentina have more developed higher education systems (Maldonado-Maldonado, 2002), the other smaller and lesser-developed countries in the region are struggling to educate their citizens so that they can become active participants in the global economy. As Bamrud (1998) states, Latin America must improve its education system before the region can become competitive in world trade. Jamil Salmi (2003), coordinator of the World Bank's Tertiary Education Thematic Group, states, "the tertiary education systems of most developing and transitional countries are not adequately prepared to play this role, which places these countries at risk of being further marginalized in a highly competitive economy" (pg. 8). Furthermore, Latin America has an extreme shortage of doctoral faculty. (Tiffin & Kune, 2008)

The U.S. provides scholarships to foreign students to study in the U.S. and allows those who can afford it to enter and study on their own account. However, these numbers are a minuscule percentage of the need in the region as it confronts increasing global competition. Additionally, in 2000-2001 over 55 percent of these foreign students came from Asia while only 12 percent came from Latin America (Koh, 2003). Considering that Latin America competes with Asia for industrial assembly jobs and the lack of jobs is a major driver of northern migration, Latin America is in great need of assistance. Clearly, it would be financially impossible to bring all of those students to the U.S. to study. It is also unlikely that significant numbers of U.S. faculty would move to Central or South America. Fortunately, technology provides a solution.

The distance education issue is drawing global attention (Altbach, 2003; Knight, 2003). Advancements in information and communications technology provide the opportunity for many of those students to enhance their education, no longer is a foreign education just for the wealthy or those fortunate enough to get a scholarship (Epstein, 2002). Gladieux (2000) proposes, "Recent developments in information technology and distance learning have combined with economic forces to fuel a global market for postsecondary (tertiary) education. The quest for new, better, and more cost-effective means of delivering education and training is intensifying worldwide" (pg. 351). The Puebla –Panama Plan created a corridor of development from southern Mexico to Panama by connecting all the universities in the region with a fiber optic backbone and Internet 2 (Hahn, 2002, p. 38). Other private and public sector initiatives delivered fiber-optic networks from Panama south. Connecting the higher education institutions of the Americas brings new opportunities for both faculty collaboration and the delivery of education. Since a majority of US higher education institutions offer online education courses (Watts, T., Lewis, L. & Greene, B., 2003), the only component lacking is the initiative and the marketing.

Language is an issue; however, it may be less of a concern than many perceive. The middle and upper classes in Latin America are quickly becoming bilingual, particularly among the youth. In a 1994 to 1998 comprehensive pan-regional study of telecommunications in Latin America, Smela, Soong, and Becke (1999) found that of the socio-economic class A, 15 percent read English and understood spoken English; class A's annual household incomes starts at approximately $24,000. Surveying internet users in Venezuela, Web Media found that over half were bilingual (Internet Users, 2000). Arguably, the percentage has increased since these studies. The people in these groups would most likely constitute a large percentage of the population seeking a foreign university education.

THE PROBLEM WITH INTERNATIONAL JOINT DEGREE PROGRAMS

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At first glance, forming joint degree programs with Latin American universities appears to be a logical solution. Unfortunately, the authors' experience with such a program provides evidence that this works better in theory than in function. With the understanding that each Latin American country is unique and our research is certainly not comprehensive, we will briefly discuss a few of the significant barriers we identified.

The higher education accreditation system in many countries is extremely bureaucratic and inflexible. In many countries, a bachelor level degree (called a licenciatura) requires 150 to 160 or more semester credit hours. That is approximately equivalent to a bachelors and masters degree in the US. To address this, the *joint-degree* program we participated in required that students study 3 full length semesters, spring, summer, and fall for 3 years at the partner university in their home country before moving to the US. The plan was for graduates to receive a degree from each institution and the selling point was the cost savings of studying the first years in their home country, close to their parents, and at a reduced cost. In our situation, those 3 years included business courses taught by or designed for acceptance by the US institution.

The reality was that several students discovered that most US universities would readily accept those classes and they left the program and transferred to a US university not bound by the agreement that required them to complete the 150 to 160 requirements for a degree at both institutions. As a result, the US institution ended up not benefiting much despite the considerable effort put forth to establish the program. What the students and their parents desired was the career enhancing value, especially with multinational companies, of a US degree and they gave very little value to the local degree. This situation created financial issues for both institutions and lead to friction that resulted in the program's termination before a single student enrolled in residence on the US campus of the partner university.

SUGGESTIONS

A degree from the US carries significant prestige and value in Latin America and the Caribbean. While there are clearly wealthy families that can send their children to study in the US for 4 or more years, there are many more families that can afford to send their children to a local university to take transferable general education courses while they also take online courses from the US to obtain the US degree. This essentially takes the online degree completion programs that some states are promoting to community college students and extends it internationally. For those students desiring the experience of living and studying in the US, the ability to do it for only their senior year reduces the cost while still providing the opportunity to obtain a work visa that allows them to do a one-year internship after graduation. For parents, there is the benefit of keeping the child under supervision close to home and sending them to the US as a junior or senior who has matured and developed their academic skills.

It would seem that the appropriate way to develop such a program would be through communication with universities in the region. However, one may find that the initial interest of the foreign institution diminishes quickly once they understand that it means a loss of 3 or 4 years of tuition income for them. This was our experience when trying to find other universities in the same county as the failed joint-degree program to participate in a degree completion program. Therefore, a successful initiative would require that students and their parents inform themselves about the ability to transfer certain general education courses and to study online at US institutions while living in their home country. We believe

that a marketing program consisting of a combination of print media directing interested parties to an Internet site would be most successful. By advertising their Spanish and English websites in national newspapers, regional business magazines, and possibly regional airline magazines, institutions could inform potential students and their parents about the ability to use transfer credit and online education to reduce the cost of a US degree.

Undoubtedly, there will be challenges to overcome. The language issue for marketing and administrative purposes would arguably be less for institutions located in areas of large Hispanic populations because of the readily available bilingual staff to respond to inquiries. While the young student maybe bilingual, the inquisitive parents and grandparents who will be paying it may only speak Spanish. One will find that many Latin American degree programs have fewer general education requirements and that with the exception of the Bahamas, Belize, Guyana, Jamaica, Cayman and Virgin Islands, the English classes will be English as a second language so students will need to take English grammar and literature classes. Students can rectify this by taking online courses at US institutions. While it would be beneficial to offer them at the institution that desires to attract the student, there are several accredited public institutions offering general education courses online at in-state tuition rates to all students. At the time of this paper, Darton College, Morehead State University, and Indiana State University were doing this and we are sure there are others.

CONCLUSION

There are over 500 million people living south of the US border. Unfortunately, they make up only a small percentage of the persons in the US holding student visas. There are wealthy families that can and do send their children to the US to study; however, there are also middle class families that can do so if efforts are made to make it more affordable. The Organization of American states also has scholarships and the Rowe Fund student loans to study in the US. The US interest is twofold. Poverty and underdevelopment go hand-in-hand and drives the flow of immigrants northward. Development requires closing the knowledge gaps (Stigliz, 2002, 2003) and low wages are no longer sufficient by themselves to provide sustainable competitive advantage (Drucker, 2000). As globalization continues to advance, the US, Canada, and Latin America will increasingly compete as a trading bloc against Asia and Europe so it is in the hemisphere's mutual benefit to improve education in Latin America. US higher education has an important role to play in enhancing the future competitiveness of the American Hemisphere. The technology exists. What is lacking is an organized effort to reach out to our neighbors to the South.

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FDI IN NORWAY: STRATEGIC AND PERFORMANCE ISSUES

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ABSTRACT

This study will examine the indicators used to assess the financial performance of the three main entry modes of FDI within oil and gas, manufacture and the financial services sectors in Norway. It will also focus on the motivational factors for FDI through cross border mergers and acquisitions, international joint ventures and foreign wholly owned subsidiaries in Norway. A mail questionnaire as well as an online questionnaire survey will be employed to facilitate the primary data collection within a wide geographical area. To illustrate the industries and to enrich the quantitative data, this study will include an indebt case study and interview of a company from each of the sectors.

INTRODUCTION

One of the most important characteristics of globalisation during the last two decades has been the increase of fragmented production and the growth of foreign direct investment (FDI). Since the early 1980's the growth of FDI by multinational companies (MNC) has been almost twice as much as trade flows (UNCTAD, 2004). Consequently, MNCs have become one of the major players in the global economy and generated large amounts of research interest. Many countries have even put favourable policies in place to attract inward FDI. In the same way, FDI activity in Norway has witnessed an ample increase over the last few years. The Norwegian Bureau of Statistics (2006) reported an increase of 264892 million NOK in inward FDI from 1998 to 2004. Norway also provides a relatively hospitable climate to foreign investors, as foreign investment is critical for the Norwegian economy (Balsvik, 2006). This is evidenced in the recent enhancement of investment policies to encourage foreign investment by offering national treatments to foreign investors and liberal investment legislations. The multiple benefits of FDI have shown a dramatic increase of multinational activity in the world economy. However, going abroad as a foreign direct investor can happen through various entry strategies (also known as entry modes). The main entry strategies in international business include cross border mergers and acquisitions (CB M&As), international joint ventures (IJVs) and foreign wholly owned subsidiaries (F WOSs). Whether a firm should use one of them instead of the other is a debatable issue (see Harzing, 2002). However, the choice of one particular entry strategy is influenced by numerous factors. When a foreign business develops, the initial choice of entry strategy becomes more vital and probably plays a significant role when the MNE is evaluating its own or its subsidiary's performance. Hence, an analysis of the relationship between the choice of entry strategy and its subsequent performance should be of major importance for both, the research and business communities.

ENTRY STRATEGIES OF FDI AND THEIR PERFORMANCE

Foreign market entry strategies, which are also known as foreign market entry modes in the literature are explained as institutional arrangements that allow firms to use their service in a country exchange and makes it possible for firms to enter production, management, human skills, and technology to another country (Calof 1993 and Root 1987). Hence, entry strategies are institutional arrangements for organising and conducting international business transactions (Anderson, 1997). While cross border mergers and acquisitions involve the purchase or combination of an existing company, a foreign wholly owned subsidiary represents investments in new facilities in a foreign country. An international joint venture on the other hand, involves shared control, with assets pooled in a common and separate organisation (Kogut and Singh 1988). The choice of different entry strategies have been an extensively studied phenomenon in the international business and strategic management research literature. Furthermore, entry mode choice has also been viewed as a "very important, if not the most critical, strategic decision" (Agarwal and Ramaswami 1992). Indeed, as Werner (2002) reports that entry mode decisions have been the topic of over 30 articles in top management journals in the five-year period 1996-2000. A number of factors have been identified as important determinants for entry mode choice, these factors include: the level of control (Root,1994), bear of risk (Kotabe and Helsen, 2000), cultural difference (Chen and Hu, 2002), market size (Buckley and Casson, 1996) and ownership, location, and internalisation specific factors (Dunning`s (1980, 1981, 1988, 1993a, 1993b). However, Penrose (1995) come with different reasons for forming international joint ventures, cross border mergers and acquisitions or foreign wholly owned subsidiaries abroad. Penrose (1995) points out that, firms are always willing to expand when there are profitable opportunities available. In a joint venture a firm's resource commitment is minimal compared to a wholly owned entry mode, as the resource commitment is shared (Anderson and Gatingnon, 1986). Firms who enter a market through international joint ventures and foreign wholly owned entry modes obtain a new set of resources, while firms who enter through acquisitions are more or less relying on their previously developed resources (Woodcock et al., 1994). Resource commitment has been used widely to contingently differentiate between joint ventures, and wholly owned modes. Some studies have used the level of ownership control as an alternate for resource commitment. The greater the degree of ownership in the entry mode is, the larger is the resource commitment. However, the choice of entry modes does affect their performance. To better understand the relationship between entry modes and performance, two important issues have to be placed: a) the link between the choice of entry mode and the subsequent performance, and b) the understanding of MNE-performance and its antecedents has to be developed. Many of the classical MNE studies (see Buckley and Casson (1976), Caves (1982), Dunning (1988), Hennart (1982), Hymer (1960) and Vernon (1966)) as well as the most recognised entry mode studies (see for instance, Anderson and Gatignon (1986), Benito and Gripsrud (1992), Erramilli and Rao (1993), and Hill, Hwang and Kim (1990)), may help us a bit towards a more profound understanding of the factors that have an effect on MNE performance. However, a conception of subsidiary performance based on these works will be rather superficial since the majority of the studies do not explicitly examine the performance of these entry modes. In fact, performance issues within international business research rarely enter into the core of a study, theoretically or empirically, they remain implicit or as part of the general backdrop. Thus, there is no proper understanding of MNE performance in the existing literature and various definitions exist. What is performance? How and why does it vary? What are the main drivers of performance? The knowledge and understanding of this issue remains sketchy and unsystematic. Theoretical frameworks in international business research typically relate performance with an organisation's *ex ante* choices regarding for example location, scope, and organisation of foreign activities with its *ex post* performance levels (see, for example Anderson and Gatignon, (1986)). Researchers such as Barney (2002) relate performance with the value an organisation creates using its productive assets compared to the value that owners of these assets expect to obtain. While Neely (1994) defines performance as a process of quantifying the efficiency and effectiveness of an action, Benito and Tomassen (2003), relate performance with the OLI

framework. Generally, the literature relates the performance of entry strategies with performance-measures and the factors affecting performance.

Furthermore, the definition of measurement of organisational performance has also been controversial topic for researches. There have been many attempts to define and measure the performance of organisations, due to lack of consensus on the appropriate definition and measurement of this concept, the existing empirical research has not contributed to the development of a theory of organisational performance which is commonly applicable for organisations. Both academicians and managers tend to mix performance indicators and determinants according to their own viewpoints of what works. To exemplify this situation, Anderson (1997) gives an example of employee satisfaction which is often used as an indicator of a high performing organisation. For example in their summary of prior empirical research, Geringer and Hebert (1991) categorised existing studies into three groups depending on a variety of criteria used to assess performance of international joint ventures: a) early studies relying on a variety of traditional financial indicators such as profitability, growth and cost position (Tomlinson 1970, Dang 1977, Lecraw 1983), b) other studies using objective measures of performance such as the survival of the JV (Franko, 1971; Killing, 1983; Stopford and Wells, 1972), its duration (Harrigan, 1986; Kogut & Singh, 1988), instability of its ownership (Franko, 1971; Gomes-Casseres, 1987) and renegotiation of the JV contract (Blodgett 1992) and dissolution (Park and Ungson, 1997), c) subjective assessment of a parents satisfaction with JV performance (Killing 1983, Schaan 1983 Beamish 1984). In this situation as in others the difficulty is the functioning in performance, with the effect that definition and measurement of the concept of performance is still a debatable issue (Geringer and Hebert, 1989). Multinational companies exist for different circumstances and are established for various reasons. Thus, the measure of a company`s performance should be done with regard to its objectives, because use of a particular measure may not be the most appropriate measure for the company. For example, if the reasons behind a FDI are transfer of knowledge, a measure like survival may not be the most appropriate measure because of its dissolution.

The many different approaches to performance and performance measurements imply that a study about firm performance most ideally needs a multidimensional approach to the measurement of performance. Using both financial and non financial measures, as well as objective and subjective measures strengthens the falsification criterion in the study. In addition several studies have been using transaction costs as measurement of performance implying that there is an equity between transaction cost and performance, but according to the literature review, performance could be both " a lot of things and different things to different actors" (Benito and Tomassen, 2003).

Despite the significant contribution of the literature reviewed above, it is necessary to pint out some of its limitations. It should be stressed that few studies have looked at the comparison of CB M&As, IJVs and F WOSs in the context of performance. Furthermore, there is no study done on the topic in the context of inward FDI to Norway, which is the main focus of this research.

THE CHOICE OF NORWAY

Norway is a well developed Northern European country with increasing trends of FDI and multinational activity. Historically, the Norwegian market has been a net recipient of FDI with oil and gas as the main sectors. FDI and multinational activity is critical for the Norwegian economy (Balsvik, 2006), hence it is part of the Norwegian government's policy to welcome FDI. As an EEA signatory, Norway continues to liberalise its foreign investment legislation to conform more closely to the EU standards. While several studies have examined the relationship between entry modes and performance (Beamish and Delios, 1997; Chen and Hu, 2002; Frydman, Hessel, and Rapaczynski, 1998; Hu and Chen, 1996; Mohr and Puck, 2005; Tihanyi, Griffith, and Russel, 2005; Woodcock et al., 1994), there is no study done on the topic in context of Norway. Neither is there any study on the factors influencing performance of CB M&As, IJVs and F WOSs in Norway. In spite of Norway being a well developed Northern European country with increasing trends of FDI, studies done on the FDI and market entry strategies, tends to focus more on US and the UK (Boateng and Bjortuft, 2003). Research in Norway has mainly been done on motives for entry strategies (see Boateng and Bjorntuft, 2003), internationalisation (see Grisprud and Benito, 2005), choice of entry strategies (see Benito 1996), export, and marketing (see Solberg 2002, 1991), and leaving entry mode choice and the subsequent performance as an untouched area. It is also important to note that much focus has been on outward FDI from Norway (see for example: Randoy and Dibrell (2002)) and not on inward FDI into Norway, which is the focus of this study. Norway is different from most of the other European countries in terms of the climate, wealth in natural resources such as oil and fish, and being a non EU country in Europe. The knowledge and understanding of other countries will therefore be irrelevant for situation faced up in Norway. Addressing this research in the context of Norway has multiple advantages. First, the author has good knowledge about the country. Second, given the small size of the Norwegian economy, it should be possible to analyse as much of the population of foreign investments in Norway as possible. Randoy and Dibrel (2002) did a study on Norwegian companies overseas, where they received a high response rate (approximately 50%). Third, this study will attempt to provide host country effects on the performance of CB M&As, IJVs and F WOSs in Norway, as Norway is a small country with a fairly homogenous population.

Given the importance FDI has for the Norwegian economy, the domination of CB M&A in Norway, the international growth of IJVs and the control and profit advantages F WOSs (Chan, 1995) and their competitive position with strategic alliances, this study will focus on the performance of these entry modes in the Norwegian market. It will examine the relationship between each entry mode and performance, and investigate whether one particular entry mode provides better performance than the other, based on an in depth analysis of the Norwegian environment. It will also determine how managers in Norway assess their ex-post performance and which measures they are using for the assessment. The Norwegian government welcomes FDI as a matter of policy and generally grants national treatment to foreign investors; therefore multinational activity and investigation related to this issue is necessary for Norway, which strengthens the basis for choosing Norway as the target country for this study. Furthermore, this study will also indentify the motivational factors for investments in Norway through the three mentioned entry modes.

METHODOLOGY

This study involves research which needs to be completed over a limited period of time. The research's overall objective is to investigate the relation between entry mode choice and the subsequent performance in Norway and to identify the factors influencing the performance as well as the motives for investments in Norway through CB M&As, IJVs, and F WOSs. Furthermore it involves measurable and quantifiable factors such as how performance is measured by managers in Norway. Given the nature of this study, a quantitative research methodology militates strongly in favour for this research. Further, this study is going to focus on the oil and gas, manufacturing and financial services sectors in Norway, because these sectors are in the main interest of the Norwegian government in terms of investment opportunities. To illustrate these sectors, this study will include a case study of a company from each of these sectors. Based on this consideration, this study will adopt a mixed method approach, which will include a quantitative survey method which is a self administrated mail questionnaire and an online survey to MNEs in Norway and qualitative case studies with interviews of company managers. Secondary data will be collected through publications of international organisations, studies of institutions in Norway, the World Investment Report published by UNCTAD, Economic and social data service, Oslo Bors (Oslo stock market), Bronnoysund Registerene (The central source of information in Norway) , and Statistisk Sentral Byra, SSB (The Statistical central bureau of Norway, also known as Statistics Norway). Statistics Norway is the central Norwegian office for official government statistics; it provides the government with extensive research and analytical activities. It is administratively placed under the Ministry of Finance and has a board appointed by the government. It relies extensively on data from the various cities and municipalities. All foreign MNEs operating in Norway until 2006 are recorded by SSB. However, the study will also collect and examine as much data as possible to successfully address the research questions. The secondary data will be used to identify FDI patterns and trends, government policy, multinational activity, ownership type, formation type of company and all other information needed, while the primary data will be the foundation of this study.

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PROFIT SHARING AND INCENTIVES BETWEEN MANAGEMENT AND INVESTORS

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ABSTRACT

In recent months, it has become apparent that some managers, whether corporate executives or hedge fund managers, assign themselves bonuses that are significant proportion of company resources. This is inconsistent with the traditional view of the firm, where managers are thought of as mere agents of the shareholders. Accordingly, in our paradigm, the manager has a role in determining his own compensation. In our paradigm when managers compensate themselves inappropriately, investors' only course of action is to shun the company's shares—a model we argue corresponds more closely to reality than the traditional paradigm.

We report a series of experiments that vary the two elements discussed above—managers' ability to determine their own compensation and investors' ability to punish inappropriate behavior. The experiment includes a pair of subjects consisting of an investor and a manager. The investor includes funds which are necessary for production. The manager provides management which is likewise necessary. The manager and investors have asymmetric decision making power in determining how the surplus generated for the company is to be divided. We focus on treatments where the manager determines his own share of the profits. The investor's only decision in these cases is whether to buy shares and for what price.

The experiment investigates to what extent this structure affects surplus division among managers and investors and the strategies used in these decisions. We find that managers share profits even when investors cannot withhold investment and investors fairly compensate managers as well. The pattern explains both the functioning of markets despite the inherent moral hazard, as well as occasional managerial misbehavior.

THE STATE OF INVESTING FOR 2009

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ABSTRACT

Research evaluates and analyzes the current recession and compares with historical data. An evaluation of regulations, new and old, studies the validity or futility of governmental intervention. Confidence in the marketplace and public's philosophies regarding accounting methods and the methods' abilities to pinpoint financial well being are also scrutinized.

THE ECONOMIC DOWNTURN AND ITS IMPACT ON BANKING

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ABSTRACT:

This paper examines the current economic environment and tracks the impact of the economic downturn on the banking industry by examining five of the major elements that determine the success or failure of banks. Those elements are return on average assets, allowance for loan losses, tier one risk-based capital, actual loan charge-offs, and non-performing loans. The paper evaluates banking conditions in each region by the above five elements. While identifying the exact time line for the economic downturn is subject to debate, the data is examined to determine if the major impact on the banking industry occurs prior to the end of the third quarter of 2008 or some prior period. Trends are then examined to determine the ability of banks to survive until the economy rebounds from the recession.

INTRODUCTION

It would be prudent to determine how the industry was so severely impacted before evaluating the impact of the downturn and its ability to survive the severe downturn. There are a number of factors that have played a substantial role in this economic crisis; however, four factors seem to have had a major impact. A general lack of regulation of investment banks caused a severe "meltdown" in the investment banking industry. Subprime loans originated without proper credit underwriting and documentation tended to put banks and consumers in a downward spiral. Greed and excessive risk-taking brought about by an overheated economy and high loan demand

impacted credit quality throughout the financial industry. The so called final straw was the global meltdown of the world financial markets. Some contributing factors include an overall negative market feeding frenzy by the media in general. Additionally, the public relied on information from the media, and when they heard the bad news, they tended to adjust their spending habits.

ECONOMIC DOWNTURN

No Early Warning

Some critics have raised a valid question, "Why were we surprised by this economic downturn?" An economist at The Federal Reserve Bank of Dallas noted in *The Economic Outlook* (2009) that there were a number of positive signs up to mid-2008 that gave cause for a belief that there would be a continuation of a strong economy. The nation had twenty-five consecutive quarters of economic growth. The stock market closed at an all-time high on October 9, 2007, and unemployment was at a very low 4.4 percent. In fact, there was concern that inflation might be indicated by the overheated economy.

It was not until mid-2008 that the major signs of an economic downturn manifest itself through sub-prime loan problems, overvalued real estate, higher fuel prices, and retail sales plummeting. The situation was further exacerbated by gross domestic product declining three-quarters of one percent, unemployment reaching 6.7 percent, and a stock market that became totally unstable. Since the U. S. is a consumer driven economy it is interesting to note that consumer consumption grew from 62.4 percent of gross domestic product in 1966 to 71.6 percent in 2007 which indicates spending beyond financial means.

Current State of the Economy

It is difficult to see any real positive signs in the current economic environment, given the state of the key economic indicators. For example, about the only positive sign is that the value of the dollar is improving! Imports and exports are down substantially both in the United States and globally, with global growth down from an average annual growth of 3.9 percent to an estimated 0.2 percent in January 2009. New orders for durable goods are down. Household net worth dropped ten trillion dollars in 2008 and consumer confidence is at an all-time low. The current housing bust is the deepest on record, and home sales and housing starts are down double digits. Unemployment is at 6.7 percent and is likely to be at the worst level in the post war era, settling somewhere between 8 and 10 percent. At year-end 2008, the Federal Open Market Committee reduced the target fed funds rate to a range of 0 to 0.25 percent, which effectively reduces the tools that the Federal Reserve can use to impact monetary policy. It is obvious that the Federal Reserve is committed to do what it takes to alleviate the financial crisis, and to that end you can look at their balance sheet at December 12, 2007 which showed assets of 864 billion dollars compared to December 24, 2008 which stood at 2,392 billion dollars and is rising. This means that they are putting a substantially amount of liquidity into the economy.

No question that 2009 will be a difficult year, but it is possible to see start of improvement in third quarter. Consumption will take the biggest loss. In fact, it is possible that we may see mild deflation similar to the 1950s.

Possible Scenarios For Economic Recovery

In the process of evaluating major measures impacting bank performance, it is important to access their ability to withstand a period of economic instability. Therefore, it is important to examine the probability of various economic recovery scenarios. Set forth below are three scenarios suggested by economists at The Federal Reserve Bank of Dallas in *Economic Outlook* (2009):

      Most Likely Scenario (40 percent probability)
- Recession through most of 2009
- Little if any inflation
- Financial markets loosen slowly
- Housing market slow through 2010

      Second Scenario (30 percent probability)
- Recession ends in Spring 2009
- Credit flows resume
- Year of weak growth
- Unemployment peaks near 8 percent

      Third Scenario (30 percent probability)
- Recession runs until Spring 2010
- Issues continue in financial arena
- Stimulus takes too long to have an impact
- Global economy is in distress

DEFINING THE ELEMENTS IMPACTING BANK PERFORMANCE

While it could be argued that there are many elements impacting a bank's performance, it appears from past experience that the five most important elements are return on average assets, allowance for loan losses, tier one risk-based capital, actual loan charge-offs, and non-performing loans.

A basis for selecting these five elements is Section 3.1 of the Federal Deposit Insurance Corporation's *Risk Management Manual of Examination Policies:*

Evaluation of Asset Quality

The asset quality rating reflects the quantity of existing and potential credit risk associated with the loan and investment portfolios, other real estate owned, and other assets, as well as off-balance sheet transactions…..The evaluation of asset quality should consider the adequacy of the Allowance for Loan and Lease Losses (ALLL) and weigh the exposure to counter-party, issuer,

or borrower default under actual or implied contractual agreements. All other risks that may affect the value or marketability of an institution's assets…all assessments should include…The adequacy of underwriting standards, soundness of credit administration practices, and appropriateness of risk identification practices. The level, distribution, severity, and trend of problem, classified, nonaccrual, restructured, delinquent, and nonperforming assets for both on- and off-balance sheet transactions.   The adequacy of the allowance for loan and lease losses and other asset valuation reserves….”

Defining Return of Average Assets Element

According to Hempel and Simonson (1999), return of average assets measures how efficiently capital is employed. They also noted that it was a better measuring device to determine operating performance that return on equity because leverage is less of a factor. The formula for return on average assets is net income divided by total assets. An average measure of good performance is one percent or higher.

Defining Allowance for Loan and Lease Losses

The Financial Accounting Standards Board has established two standards that govern the manner in which a bank may calculate it allowance for loan and lease loss. FAS 114 entitled, *Accounting by Creditors for Impairment of a Loan* and FAS 5 entitled, *Accounting for Contingencies*. These two standards require a bank to establish a reserve based upon anticipated impairments to the loan portfolio as well as historic factors based upon the economy and past losses. While no specific number is set by the standards, state and federal regulatory authorities vary in what is expected based upon market conditions.

Defining Tier-1 Risk Based Capital

The tier-1 risk based capital ratio in a well capitalized bank should be a minimum of 6.0 percent according the Federal Financial Institutions Examination Council (FFIEC) and further set out in the U. S. Code of Federal Regulations as 12 CFR Part 6.4 which states, “…a well capitalized bank will have 6.0 percent tier one risk based capital…”

Defining Loan Charge-offs

Charge-offs are loans that are determined to be uncollectable and are charged against the allowance for loan and lease losses. Charge-off data represents loans charged-off net of any collections from past losses. Section 3.2 of the Federal Deposit Insurance Corporation’s *Risk Management Manual of Examination Policies* states a loss or charge off are,”Advances in excess of calculated current fair value which are considered uncollectible and do not warrant continuance as bankable assets. There is little or no prospect for near term improvement and no realistic strengthening action of significance pending.”

Defining Non-Performing Loans

Generally, non-performing loans are those loans that are delinquent ninety or more days in principal or interest. By regulation, these loans must be placed in a category where no interest is being accrued. Ernst & Young (2004) noted in general terms that non-performing loans can be defined as defaulted loans, which banks are unable to profit from.

ANALYSIS OF BANK PERFORMANCE

The following analysis of the data will show an overall downturn in bank performance from the end of 2007 to the third quarter-end of 2008. The data will be analyzed on a national basis

TABLE 1--ALL U. S. COMMERCIAL BANKS PERFORMANCE

Period	Return on Assets	Loan Allowance	Capital	Loan Charge-Offs	Non-Performing Loans
12/31/2005	1.30%	1.20%	7.91%	0.56%	0.48%
12/31/2006	1.33%	1.17%	7.86%	0.41%	0.52%
12/31/2007	0.93%	1.12%	7.63%	0.62%	0.85%
Sep-08	0.44%	1.13%	7.73%	1.20%	1.45%

Source: Stratus Technologies Banking Data Base. 9.30.08

As evidenced by examining Table 1, three of the five categories have deteriorated from year-end 2007 to the third quarter of 2008. Return on assets (ROA) performed at a high performance level in both 2005 and 2006 at 1.30% and 1.33% respectively. The ROA for 2007 showed some downturn to 0.93%, but it was obvious the first nine months of 2008 fell to 0.44% which was less than half the profit for 2007. Additionally, one must realize that the ROA for the three quarters of 2008 was only a fourth of 2005 and 2006, which is a weak performance. The recent announce by the Federal Deposit Insurance Corporation of an increase of deposit insurance premiums will impact the average bank by upwards of $150,000 per year, which will severely impact ROA.

The allowance for loan and lease losses (ALLL) as reflected in Table 1 showed a very small movement over the period from 2005 to the third quarter of 2008.. For the year 2005, ALLL was 1.20% with 2006 standing at 1.17%, 2007 being 1.12%, and the third quarter of 2008 slightly up at 1.13%. The bad news is regulators will required an increase in the ALLL of approximately 0.25% due to the economic downturn's impact on loan quality. This increase will have to come from bank earnings which will further erode return of average assets.

Tier-one risk-based capital was one of the encouraging signs as evidenced by Table 1 data. Perhaps, bankers realized that they needed to build the risk-based capital as they saw deterioration in their loan portfolio. For example, the minimum tier-one risk-based capital to be

a well capitalized bank is 6.0%. In each of the three and three-quarter years the level was above the minimum and at the end of the third quarter of 2008 stood at 7.73%.

The higher the percentage of loan charge-offs the greater the deterioration in the quality of the loan portfolio. Referring to Table 1, it should be noted that years 2005, 2006, and 2007 were reasonably consistent at 0,56%, 0.41%, and 0.62% respectively. The 1.20% for the third quarter of 2008 was almost double the number of loans charged-off in the previous year. The question that cannot be answered at this point with certainty is, "Have most of the losses been recognized or will the non-performing loans find their way into the charged-off loan category?"

An alarming trend emerges as you view Table 1, in 2005 non-performing loans stood at 0.48%. During 2006 there was a slight rise to 0.52% and in 2007 the trend was steeper and rose to 0.85%. The number of non-performing loans in the third quarter of 2008 tripled to 0.45%.

Important to the viability of the banking system is strengthening the return on assets to a level of near 1.0%, keep the allowance for loan and lease losses at a minimum of 1.25%, maintain tier-one risk based capital above 6.0%, reduce loan charge-offs to a range of 0.25% to 0.40%, and seek to reduce non-performing loans in the 0.30% to 0.50% range.

CONCLUSIONS

With three of the five primary indicators of bank strength impacted, it is obvious that the banking industry will be severely impacted by the economic downturn. However, the impact is severely skewed by the largest twenty-fivebanks in the nation having approximately 70 percent of the banking assets according to the Federal Deposit Insurance Corporation. When you strip the top twenty-five banks out of the totals, the numbers improve substantially for the 7,300 plus remaining banks.

However, we must look at the total picture. Return on Assets dropped by 50 percent from year-end 2007 to the end of the third quarter of 2008. This is a weak performance for ROA. The allowance for loan and lease losses increased by a hundredth of a percent, which is positive. However, with substantial increases in loan charge-offs, there will be a major impact on the allowance. Loan charge-offs in the third quarter of 2008 were almost double that of year-end 2007. It is highly likely that charge-offs will increase, especially with the mortgage and real estate issues yet to be resolved. The number of non-performing loans tripled from year-end 2007 to third quarter 2008.

The only bright spot in the five indicators was the tier-one risk capital. It should be noted that it also could be impacted as more problems are identified. Therefore, we must conclude that banking taken as a whole is in for major problem issues over the next nine months to one year.

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MANAGERIAL COMMUNICATION: THE LINK BETWEEN FRONTLINE LEADERSHIP AND ORGANIZATIONAL PERFORMANCE

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ABSTRACT

Frontline managers (FMs) are able to establish a positive rapport with their staff through the use of effective communication. Managerial communication (MC) is one mechanism that can assist FMs with cultivating an environment of mutual respect and high productivity, thus, achieving organizational goals and objectives. In this study, the related literature is reviewed. The emergent theme throughout the research conducted is that, managerial communication (MC) is one of the most important tools that FMs can utilize to influence goodwill among employees. MC assists in crafting healthier relations between FMs and their employees and the entire organization ultimately benefits from this relationship. We make a series of recommendations for FMs, who seek to establish and retain good relations with their staff.

INTRODUCTION

Employees make significant contributions to the overall success of an organization, and their contributions are valuable in both public and private entities. Research shows that organizational performance markedly improves when communication is permitted to flow uninterrupted and employees are empowered, provided incentives, and given the necessary resources to perform at an optimal level. Managers at the technical core of an organization are obligated to develop good working relations with their staff by providing them with a comfortable work environment and swiftly resolving issues that could possible hinder performance. In addition, FMs play a pivotal role in inspiring their subordinates to

maximize efficiency and enhance productivity. The spirit of teamwork among employees correlates with the inspirational leadership role of management. FMs should lead and motivate their staff to perform at a level that inspires them to achieve the goals and objectives set forth by the organization. A general definition of leadership is the ability to motivate subordinates to do their jobs willingly, without coercion or harm to themselves or to others. The practice of effective communication is a leadership attribute that facilitates FMs in becoming the prospective leaders of their organizations. In this paper, we view communication from a transmission perspective—meaning, communication can be seen as a linear relationship between a source and a receiver.

Bell and Martin (2008, p. 130) define managerial communication as "the downward, horizontal, or upward exchange of information and transmission of meaning through informal or formal channels that enables managers to achieve their goals." The performance of visionary organizations is linked to their FMs' efficient and effective use of communication, which inculcates confidence in employees. It is imperative that FMs in organizations, both large and small, understand the significance of establishing meaningful relationships with their employees. Moreover, beneficial relationships can be established through achieving organizational goals, providing performance feedback, and engaging in formal and informal communication networks. Non-supervisory employees are the face of modern organizations; therefore, involving them in the decision making process is one form of empowerment that is both motivating and inclusive. Offering incentives and adhering to a fair reward system positively contribute to an increase in employee morale and to the organization's bottom line. Our research is focused on the role of communication as an energetic process used to motivate and engage employees in the workplace environment. We explore frontline leadership through the communication process.

FMs (persons of influential status operating at the technical core of organizational subsystems) seek this type of knowledge. FMs, both in the public and private sectors, will find this essay beneficial if their goal is to establish for a culture conducive to achieving both long-term as well as short-term objectives. The importance of the FM's role has to be valued by top management in order for organizations to create and maintain a competitive advantage in this global business landscape. They play a pivotal role in motivating employees through the effective use of leadership and managerial communication. The top echelons of any organization should bestow confidence in their FMs by clearly communicating the vision, core ideology, and giving them leeway to affect change. The challenge in many companies is that top management often fail to provide FMs with advanced training needed to perfect their leadership and interpersonal skills. The consequence of failing to do so is that the cycle inadequate leadership and ineffective communication is repeated when FMs are given the opportunity to lead their organizations.

PROBLEMS IN PRACTICE

Leading and motivating employees to perform at a level that achieves organizational objectives is primarily tied to MC. Many leaders/managers are not successful due to their authoritative leadership styles, resulting in increased communication gap with their employees. Such leaders are unable to earn the respect and loyalty of their employees, who simply follow their orders because of their authority. Accordingly, there is a greater possibility of turnover and absenteeism by the valuable workforce.

Barnard (1968) explained that the decision as to whether an order has authority or not lies with the person to whom it is addressed, and does not reside in the persons of authority. In order to arrest this trend, managers should change their authoritative mindsets and make a commitment to build strong working relationships with employees by bridging the communication gap and building an environment of trust.

This is accomplished by devising clear and concise communication policies, strategies, and processes, as evident in the literature.

RELATED LITERATURE

The effective use of MC within organizational subsystems is a fundamental component that must be present in order for an organization to create and sustain a competitive advantage. Success, irrespective of an organization's size or the products/ services it provides, is intangible when FMs and employees fail to work collaboratively. Not for profit organizations are just as, if not more committed than for profit organizations, to ensuring that the mission and objectives set forth are carried out. Brewer's (2005) research proves that in federal agencies FMs' supervisors are more optimistic and positive than non-supervisors. A lack of optimism amongst employees in non-supervisory positions can have detrimental effects on an organization's performance, and can ultimately lead to its demise. Although managers significantly influence organizational performance, Bal (2008) believes that performance improvements are accomplished by the efforts of the team itself and have very little to do with the management team's efforts. In other words, employees are the major players in many facets of organizational success; therefore, the solicitation of their knowledge and feedback is essential when evaluating the successes, failures, and future aspirations of the organization.

The flow of smooth information without barriers is a critical element of effective MC. High-performing, well-respected organizations are built on the principle of sharing information freely and timely. Beslin and Reddin (2004) shared some of the best practices from CEOs and senior HR executives, which included building trust among employees and managers within all tiers of the organizational structure. Trust can only be established and sustained if information is permitted to flow uninterrupted, regardless of the chosen channel. Employees that have a positive relationship with their supervisors feel obligated to reciprocate hard work and dedication to their respective organizations. As a result, employees have a high regard for the organization and its stakeholders, which is evident in the quality of their work and their overall commitment.

THE KEY ROLES OF LEADERSHIP

Leadership quality is one of the greatest virtues of management. Managers create the vision for their organizations and are responsible for implementing strategies to ensure that targets and objectives are met. A successful organization values the affirmative roles of its leaders and provides a work environment, where leaders can perfect their leadership skills. Leadership demands a lot of hard work, effort, training, education, willpower, integrity, persistence, responsibility, decisiveness, and above all, effective communication skills. When you lead a corporation, you accept all the implications of that trust (Hindery, 2005); therefore, the organizations should focus on leadership development through such techniques as on the job training, mentoring, teaching, and so forth.

Education, offered by colleges and universities, provide students with the knowledge and skills needed to succeed in their careers. Such formal education, in its current form, is not enough to provide the skills, attitudes, and behaviors considered to be essential for the leaders of the twenty-first century. The organization needs to devise a unique and focused training program for employees, keeping in view its current and future requirements (Mathews & Edwards, 2005). Such endeavors facilitate in developing visionary leaders.

Leaders have distinct visions, values, and standards, which allow them to manage their organization with a great level of comfort and confidence. It is not only obligatory for an organization to have a realistic vision, but it must be communicated effectively to all employees for purposes of achieving growth and profitability. A clear and well-defined vision gives employees confidence, by improving their perceptions of the organization. Cornelius (2004) described that vision as one that could help employees to feel better and stay well informed by keeping their eyes on bigger picture. Vividness and clarity of vision help leaders to modify the behaviors of their staff. One purpose of leadership is to influence the attitudes of employees by setting good examples demonstrated by their own actions. Most leaders are high achievers and they invariably set their targets high, and optimistically expect the best from themselves and their subordinates. In addition, leaders empower others to achieve their desired expectation levels by inculcating trust while simultaneously exuding firmness when enforcing rules and regulations.

Leaders are required to ensure that proper protocols are followed and they must evaluate the performance of employees against clearly defined expectations. In addition, leaders must provide their employees with immediate assistance when requested. Therefore, communication must be permitted to flow freely, absent of interruption. The success or failure of transforming the attitudes of employees is determined to be a byproduct of the leadership's style to gain support of the change from their employees (Appelbaum, Berke, Taylor, & Vazquez, 2008). Leadership style is the way to coach or work with the employees. Leaders employ various leadership styles such as directing, coaching, supporting, and delegating. The directing style of leadership provides specific direction with a close monitoring of the task accomplishment. Whereas, coaching continues to direct, closely monitor task accomplishments, and also explain decisions. Similarly, the supporting leadership style facilitates and supports people's efforts toward task accomplishment and shares responsibility for decision-making. Finally, the delegating style delegates responsibility for decision-making and problem solving to the employees. The leadership styles appropriate for various development levels (an adaptation of the Blanchard, Zigarmi, and Zigarmi model, 1985) are shown in Table 1 below:

TABLE 1
LEADERSHIP STYLES APPROPRIATE FOR VARIOUS DEVELOPMENT LEVELS

DEVELOPMENT LEVEL	APPROPRIATE LEADERSHIP STYLE
DIRECTOR Some too Low Competence and High Commitment	**DIRECTING** High Directive and Low Supportive Behavior Structure, organize, teach, and supervise
COACH Some too Low Competence and Low Commitment	**COACHING** High Directive and High Supportive Behavior Direct and support

SUPPORTOR	SUPPORTING
Moderate to High Competence and Variable Commitment	High Supportive and Low Directive Behavior Praise, listen, and ask
DELEGATOR	DELEGATING
High Competence and High Commitment	Low Supportive and Low Directive Behavior, Turn over responsibility for day-to-day operation

These four styles consist of different combinations of two basic leadership behaviors that a manager could use while influencing others, that is, directive and supportive behavior. Blanchard, Zigarmi, and Zigarmi (1985) mentioned words like structure, organize, teach, and supervise to define directive behavior and praise, listen, ask, explain, and facilitate for supportive behavior, as mentioned in Table 1.

DISCUSSION ON COMMUNICATION IN PRACTICE

Communication from a managerial perspective can be defined as the downward (top management to bottom workforce), horizontal (among peers/ colleagues), or upward (bottom to top echelons of management) exchange of information and perception of the meaning through informal and formal modes/ channels that enable the FMs to accomplish the organizational objectives. FMs should deliver clear, concise, and brief instructions to their subordinates in order for the accomplishment of tasks to the expected level of performance. Successful delivery of the manager's message is determined by the perception and interpretation by the employee (Hynes, 2008). Messages should be decoded by the FMs and encoded by the employees in a context of shared experiences without any interference. It is the recipient, who accepts the message as communication and not the sender. Therefore, FMs should provide employees with succinct and precise information to avoid noise and any distractions that could potentially hinder the communication process.

Information and communication are two distinct but interdependent entities. The selective and apposite flow of information is desirable for an effective communiqué. The overflow of information results in an increased communication gap between the management and employees (Katz & Kahn, 1966). This in turn enhances the autistic hostility leading to the distortion of the communication process (Newcomb, 1947). FMs can bridge the gap by polishing communication skills and adopting better techniques. There should be greater focus on the objectivity, content, and brevity of messages, which assists in the building of trust and respect between FMs and their employees.

Communication is an effective weapon in building trust and confidence between FMs and their staff. Leaders can develop good relations with the employees by creating an environment of free, fair, and informal communication networks. These networks encourage and motivate employees to speak out and adopt a participative approach, which helps to develop a profitable organization. Beslin and Reddin (2004) conducted a study of best practices used by executives in order to establish trust with employees and stakeholders. It may be mentioned that trust needs to be earned and sustained, which is reflected in the systems of developed and respected entrepreneurs. The mutual dialogues within an organization facilitate in building the edifice of shared values and trust. FMs should employ interactive communication channels with employees. These channels consist of both formal and informal meetings, such as group discussions in boardrooms, meetings over coffee, or huddle room gatherings, and the like. FMs should

engage their employees in an effective dialogue process to resolve their issues by selecting the most appropriate communicative channels.

There are four communication methods, that is, oral methods (the spoken word), written methods, visual methods, and audio or sound methods (Smithson, 1984). Messages can be passed through a variety of media, for example, circulars, memoranda, policy letters, notices, forms, reports, emails, telephone, fax, paging, face-to-face interaction, interviews, power point presentation, pictures, and more; each one of these has merits and demerits. FMs should identify and select the most appropriate channel to communicate with their employees, taking into consideration both social and cultural barriers that may exist. Alleviating these barriers, improves the flow of communication, which in turn has a positive impact on the growth and profitability of an organization.

Communication should be used as a strategy to achieve organizational goals. FMs ought to be the strategic communicators to influence the employees. The plethora of communication does not give any guarantee to meet target FMs' accomplishments relative to the proper translation of messages, implementation of strategies, and provoking dialogues with the employees to attain the corporate objectives. FMs should understand the cultural contexts and field of experiences of their employees in order to craft a comprehensive strategy for organizational growth. They are required to prioritize various actions systematically and use relevant information to influence their employees. Through eloquence and articulacy, FMs are able to identify key persons among employees who act as opinion makers. They arrange meetings with such opinion makers and hold discussions on their thoughts terminating clichés and subtly modify their visions for the betterment of the organization. So, they need to analyze the context, visualize a strategy, act like an elite commando to implement strategy, and agitate like a talk-show host to provoke dialogue (Clampitt, Brek, & Williams, 2002). FMs, in their supervisory positions, have a pivotal role in their respective organizations to ponder the concerns and issues of the staff and offer mutually acceptable solutions.

IMPORTANCE OF FRONTLINE MANAGEMENT IN THE PUBLIC SECTOR

FMs significantly contribute to the growth and development of public sector organizations. They are required to bridge the disconnect between the top management and frontline employees. FMs send messages and receive feedback regarding the organizational performance. They are responsible for the growth of federal agencies by ensuring that clients of these agencies receive satisfactory services. There is no doubt that FMs are important assets in public offices. The organizations, which fail to appreciate their vital roles, face threatening consequences in the form of poor performance and high turnover of talented public servants. Brewer (2005) opined that FMs play a key role in organizational performance and effectiveness, and supervisory management was an important determinant of high performance in federal agencies. These organizations cannot afford to surrender their precious workforce, so they tend to have skillful FMs, who empower the employees by enabling them to realize their important contributions.

It is difficult to terminate poor performing employees. There are certain procedures and protocols that must be followed before proceeding with termination. In the private sector, the hiring and firing of staff is based on the draconian management philosophy; good workers are rewarded, but insubordinate workers are released. Motivation is directly linked to better communication networks with the employees, professional training, good salary, incentives, and a pleasant work environment. Riccucci (2005) mentioned that good policy and law would certainly incentivize workers to achieve the desired goals and objectives of any organization. Further, the optimistic approach of supervising helps in energizing

employees by following an open communication policy and being abreast of laws that affect the way in which leaders supervise their staff.

The introduction of the 'Personal Responsibility and Work Opportunity Reconciliation Act' has changed the attitudes of welfare personnel in such a way that they not only perform their jobs diligently, but also go a step further in solving problems for their clients. Good public management policy, in conjunction with open communication, motivates employees to do their best to achieve the goals of the organization. Management should subsume the FMs' role in influencing workers' attitudes and behaviors to encourage exemplary performance for the benefit and satisfaction of customers.

Government organizations have to rely on experienced FMs to be the prospective executives due to a rapidly aging population. Emphasis should be placed on the significance of MC as an important tool to establish upward, downward, and horizontal linkages with top managements, peers, and operational level workers respectively. FMs of public sectors should be entrusted with necessary authority, responsibility, and proper training due to their optimistic and constructive roles to monitor the non-supervisors in federal agencies. Moreover, they are required to develop a willingness among the employees to work for the organizational growth of the company.

FMs should appreciate the fact that the matter of authority is indirectly rested with the perception of the employees (Drucker, 1974). They hold de facto power but the employees have de jure power. The sagacious use of authority is required to win the confidence of the employees instead of pressurizing them. It is desirable that employees should be delegated necessary power and authority to get prepared for their potential roles in higher management. In this way, employees contribute to enhancing the performance of their respective organizations.

ORGANIZATIONAL PERFORMANCE

The 21st century business landscape can be characterized as complex, dynamic, and rapidly changing. Successful companies, in their respective industries, are able to adapt internally to their external environment with the assistance of effective MC. The use of MC is a tangible tool organizations can use in order to gain a competitive advantage in this new age of innovation. Arguably, frontline organizational subsystems benefit significantly from the utilization of effective MC.

Katz and Kahn (1966) viewed communication as a social process of the broadest relevance in the functioning of any group, organization, or society. Simply interpreted, without effective MC, an organization can neither function nor attempt to create and maintain a competitive advantage. FMs and their subordinates play an essential role in the success of an organization; therefore, the way in which they interact with one another is a key determinant of organizational success. Establishing trust between employees and FMs is one of the first steps towards improving organizational performance.

Employees must have confidence in their managers in order to achieve organizational success. Trust is established when employees feel that their managers are both considerate and competent. Consideration includes understanding an individual's competency level and his/her ability to perceive the communication. A person's ability to perceive and understand a message is based on experience; and communication without perception is just noise (Drucker, 1974). Employees consider their managers as

competent if the communicated message can be understood without any aberration. In the grand scheme of organizational performance, managers on the frontlines are just figureheads, tasked with encoding and decoding messages within the frontline organizational subsystem. Whether or not a task gets accomplished, is determined by employees' trust in their managers, and a manager's ability to convince their subordinates to accept communication as authority.

Authority is the character of a communication (order) in a formal organization by virtue of which it is accepted by a contributor to, or member of, the organization as governing the action he contributes (Barnard, 1968). Simply stated, authority lies with the individual in which the communication is directed. It is important for managers operating within all tiers of an organization to understand Barnard's definition of authority, because clearly defined roles within the frontlines of an organization is an essential element in accepting communication as authority. For frontline individuals, changes can occur day-to-day, or hour-to-hour, depending on the operating environment. Organizations, despite their size, must be well equipped internally to handle these changes as ambiguity gives rise to confusion and chaos. As an example, let us imagine an officer of a platoon not having a clear understanding of his role in the heat of battle. The outcome could possibly be the loss of many lives due to his inability to effectively communicate and failure to gain authority. Similarly, disjointed organizations would lose valuable customers. Not accepting communication as authority can be a major obstacle to the improvement of organizational performance, innovation, and change efforts (Longenecker & Fink, 2001). In addition to establishing authority amongst employees and manager, managers on the frontlines can seek the assistance of other organizational subsystems in order to improve organizational performance.

A manager working with human resource professionals to create ways to boost morale is an example of how employees can benefit from relationships across organizational subsystems. Human resource professionals are equipped with the training materials and other tools that can assist managers with improving organizational performance through the use of communication. In addition to the obvious benefits a human resource department can provide, such as benefit explanation and verification, they can also serve as a mediator between FMs and employees. Although authority ultimately rests with an employee perceiving and accepting communication, there are times when an employee feels uncomfortable with expressing his/her feelings to a manager. A third party entity, such as a human resource associate, can be enormously effective in serving as a mediator and taking into consideration the best interest of the manager, employee, and organization. The ability to listen is an essential attribute a manager must possess and human resource professionals can assist managers with developing this essential skill.

One of the most important determinants of organizational performance is a manager's ability to listen and respond to feedback. Top management, including the board of directors of a company, should implement a forum in which the solicitation of feedback from employees is both warranted and encouraged. Organizational strategy is only successful if feedback is actively encouraged from those who are directly responsible for implementing the strategy.

INSPIRATIONAL LEADERSHIP
One of the most important measures of a leader's success is determined by their employees' commitment to the organization. Successful leaders focus on managing in a way that builds employee trust, loyalty, and commitment. Worker commitment reaps benefits far beyond improved organizational performance. In addition, high levels of employee loyalty have been linked to an estimated 11% boost in productivity

(Mayfield, 2002). Employees that are happy and satisfied with their jobs and leadership team, tend to put forth extra effort to achieve goals and meet expectations. Trust and loyalty come as a result of managers treating employees as people rather than working machines only onboard to get a job done. Teams respond and perform much better for leaders who take interest in getting to know them and understand what motivates them. The valuable benefits of employee loyalty and commitment can only be achieved through high levels of effective MC (Mayfield, 2002).

Employees behave according to what they see and hear from their leaders. Performance problems normally arise when mixed messages are prevalent in the communication channel leaders saying one thing and doing another. In order to earn the trust of employees, it is important that leaders walk the talk and instill confidence in their employees. Leaders must stay true to their words and do what they say they will do. Trust is something that must be earned and leaders should not take for granted the trust of their employees. The corporate function for building trust in organizations is communication. Companies can build a culture of trust by sharing information quickly and freely, and building relationships with employees and their stakeholders that enable their organizations to succeed (Beslin & Reddin, 2004). Employees are more motivated to perform for an organization when they are familiar with and understand the strategic direction of the company and how their contributions impact the organization's bottom line. It is important to develop the trust of the workers as people have a propensity not to follow leaders they don't trust; hence, productivity starts to decline. Trust is essential in building loyalty and credibility.

Measuring progress and seeking feedback on how well organizations have done at building trust are key to understanding what works. Formal measurements tend to require more planning and execution, but are well worth the effort of obtaining the opinions of the staff. Interviews, focus groups, and employee surveys are used as formal means of measurement to determine how satisfied employees are with the communication efforts of their leaders. It is believed, however, that informal ways of seeking feedback provide more specific and more frequent assessments in order for leadership to respond and make any necessary adjustments to the way in which the organization is functioning. Allowing employees to provide input gives them the impression that their opinions matter, giving an unquestioned belief that the leadership of the company actually has their best interests at heart. This contributes to the building of trust, and creates strong working relationships between the leaders and the employees, resulting in improved employee satisfaction.

To build strong relationships with employees and stakeholders, good leaders demonstrate the soft skills or social intelligence to engage with the employees on a personal level, showing genuine concern for them as humans rather than working machines only important for getting the job done. Social intelligence is a set of interpersonal competencies that inspire people to be effective (Goleman & Boyatzis, 2008). Many smart, knowledgeable, and experienced leaders have not been successful, not because they were not smart in the field they were responsible for leading, but because of their inability to get along socially on the job. Goleman and Boyatzis (2008, p. 138) provide six social qualities that exist in some of the top performing leaders of corporations which include:

Table 2
THE GOLEMAN AND BOYATZIS SOCIAL QUALITIES IMPERATIVES WITH BEST COMMUNICATION CHANNEL

1. Empathy: Knowing what motivates other people, even those from different

	backgrounds and having sensitivity to other's needs—**Use a Face-to-Face Channel.**
2.	Attunement: Listening attentively, thinking about how others might feel, and being attuned with the moods of others—**Use a Face-to-Face Channel.**
3.	Organizational Awareness: Appreciating the culture and values of the group or organization and understanding the social networks—**Use newsletters, flyers, and emails.**
4.	Influence: Having the ability to persuade others by engaging them in discussions and appealing to their self-interests or gaining the support of key people—**Use Small Groups, Meetings, and the Telephone.**
5.	Developing Others: Investing time and energy in coaching, mentoring, and developing the skills of others and providing feedback that is helpful to their professional development—**Use a Face-to-Face Channel.**
6.	Inspiration: Articulating a compelling vision to build group pride, foster a positive emotional tone, bringing out the best in people, soliciting input from everyone on the team, supporting all team members, and encouraging cooperation—**Use all channels.**

Managers must have a mind-set to think beyond their job titles and focus more on developing and inspiring employees to accomplish organizational goals. In the future, managers will understand that performance improvements have little to do with them and everything to do with their team and how well they can get them to work at full power. Bal (2008, p. 250) lists seven important points on how not to manage a team:

TABLE 3
THE BAL IMPERATIVES ON MISMANAGED COMMUNICATION CORRECTIVE COMMUNICATION CHANNELS

1.	Managers should stop being too busy to spend time motivating and energizing the people that work for them.
2.	Managers should stop trying to have all of the answers and allow employees to think for themselves. The beauty of diverse views is the opportunity to allow creativity. Be aware that people will make mistakes but be willing to coach them to improving in areas needing development.
3.	Managers should think beyond their job title and start actively developing their people.
4.	Eliminate poor communication so the team does not have to survive on rumors
5.	Don't make targets the only priority of performance as it initiates a competitive environment among the team.
6.	Don't allow performance to be driven solely from instructions because it causes the team to stop thinking.
7.	Don't set unrealistic goals that will bring about disengagement among the employees.

All of these points are important for managers to consider when inspiring a team to perform. Particular ways in which managers can inspire are by delegating more, trusting more, and giving their subordinates more responsibility. If managers relinquish some responsibility, stop trying to do everything themselves, and empower their employees to make decisions, the expectation is that employees will be more motivated to perform at an optimal level.

RECOMMENDATIONS

To assist FMs in crafting healthier relationships and improving organizational performance, we make the following recommendations:

- To be a great leader, one must have the ability to motivate. FMs should work diligently to keep their employees motivated and focused on achieving the goals and objectives of the organization.
- Frontline Managers should to work craft good relations with their employees by establishing an environment of trust through fair, free, and informal communication networks. In addition, FMs should act as strategic communicators to provide relevant and valuable information to the employees for an objective communiqué.
- Empowerment involves inculcating confidence in and recognizing the contributions of employees. FM in both public and private organizations should seek the assistance of other organizational subsystems in order to gain access to the tools needed to empower employees and to enhance managerial communication on the frontlines.
- Lastly, FMs should establish both formal and informal communication channels in order to solicit feedback from their employees. We recommend that formal employee satisfaction surveys be conducted every 2 years to solicit feedback from employees about the workplace environment. Survey findings should be shared with the entire staff. Similarly, interactive employee meetings with management should be arranged to compare business results and the performance of the organization against company goals and objectives.

CONCLUSION

The goal of this research is to outline how effective methods/approaches of managerial communication can assist with cultivating an environment of high productivity. Ineffective communication or a breakdown in the delivery of information often translates into a negative relationship between the supervisor and employee, which in turn, leads to a possible loss of profits and/or the stagnation of growth. What we have found is that through the use of effective communication, particularly, imparting the use of interpersonal skills and in understanding social networks, FMs have the ability to successfully influence their employees and provide better service to their customers. The exchange of information and selection of communication channels should be a priority of FMs, which according to Beslin & Reddin (2004) will ultimately strengthen their leadership role within the organization. The ultimate goal of an organization is to maximize shareholders' value and profitability, which is accomplished by integrating strong leadership with formal and informal communication networks. Moreover, frontline managers that stay abreast of and utilize the most effective forms of communication will find their employees responding positively to direction and performing in a way that is most beneficial for their customers/clients, for themselves, and for the organization.

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THE ASSESSMENT PLAN IN ACTION: BUSINESS COMMUNICATION, A CORE COURSE

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ABSTRACT

Accrediting agencies and state legislatures frequently require universities to provide methods of assessing student performance. Continuous improvement for accreditation drives the assessment movement. This paper describes a six-semester study conducted at a regional university accredited by the Southern Association of Colleges and Schools (SACS) and the Association to Advance Collegiate Schools of Business (AACSB). The study conducted from Fall 2006 to Spring 2009 encompassed six objectives related to communication mandated by the Texas Higher Education Coordinating Board. The study involved 2,562 students in 87 sections of the business communication course. Embedded questions and assignment review were the methods of assessment used. The findings showed clear improvement in some areas and additional improvement needed in others.

INTRODUCTION

Assessment at every level of education has become ubiquitous. Increasingly, educational institutions from grades K-12 in public schools , community colleges, and universities are required by federal mandate, state law, or an accreditation entity to develop methods of assessment not only to gain or maintain accreditation but to also receive needed funding. Historically, assessment and accountability has been relegated to K-12 education, but now the requirement for accountability has been extended to higher education as well. As a result, administrators are confronted with developing effective assessment programs. To illustrate this point, according to a Google search conducted during spring 2009, about 24,300,000 sites exist that pertain to assessment in higher education.

As a result of the call for greater accountability in higher education, in 1997, the 75th Texas Legislature enacted Senate Bill (SB) 148 that "requires the Texas Higher Education Coordinating Board to adopt rules that include 'a statement of the content, component areas, and objectives of the core curriculum,' which each institution is to fulfill by its own selection of specific courses" (Core curriculum: Assumptions and defining characteristics, 1999, para. 1). As a result of this legislation, the Texas Higher Education Coordinating Board developed rules to implement the statute. To help institutions comply with the statute, assistance was provided to refine core curricula. The resulting work of the Advisory

Committee on Core Curriculum (1997-98) was based on the 1989 Report of the Subcommittee on Core Curriculum convened as a result of House Bill 2187 of the 70th Legislature. House Bill 2187 "required all institutions to adopt, evaluate, and report on an undergraduate core curriculum" (Core curriculum: Assumptions and defining characteristics, 1999, para. 1).

At the regional state university in this study, one of the core courses, Business Communication (BCM 247), was designated to assess communication, one of the core components and related exemplary educational objectives outlined in the Core curriculum: Assumptions and defining characteristics (1999, para. 19) document. The exemplary educational objectives related to the communication component of a core curriculum were:

1. To understand and demonstrate writing and speaking processes through invention, organization, drafting, revision, editing, and presentation.

2. To understand the importance of specifying audience and purpose and to select appropriate communication choices.

3. To understand and appropriately apply modes of expression, i.e., descriptive, expositive, narrative, scientific, and self-expressive, in written, visual, and oral communication.

4. To participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding.

5. To understand and apply basic principles of critical thinking, problem solving, and technical proficiency in the development of exposition and argument.

6. To develop the ability to research and write a documented paper and/or to give an oral presentation.

These objectives were used to develop an assessment schedule to comply with the state mandate.

REVIEW OF LITERATURE

Accreditation

The regional state university in this study is accredited by the Southern Association of Colleges and Schools (SACS) and the Association to Advance Collegiate Schools of Business (AACSB). According to the SACS "Principles of Accreditation: Foundations for Quality Enhancement" (Principles of ..., 2008, p. 1):

> Accreditation by the Commission on Colleges signifies that the institution (1) has a mission appropriate to higher education, (2) has resources, programs, and services sufficient to accomplish and sustain that mission, and (3)maintains clearly specified educational objectives that are consistent with its mission and appropriate to the degrees it offers, and that indicate whether it is successful in achieving its stated objectives.

In examining the criteria cited for AACSB, the following similar description is used:

Accreditation focuses on the quality of education. Standards set demanding but realistic thresholds, challenge educators to pursue continuous improvement, and guide improvement in educational programs. It is important to note that accreditation does not create quality learning experiences. Academic quality is created by the educational standards implemented by individual faculty members in interactions with students. A high quality degree program is created when students interact with a cadre of faculty in a systematic program supported by an institution. Accreditation observes, recognizes, and sometimes motivates educational quality created within the institution. (Eligibility procedures…, 2008, p. 1).

Institutions of higher learning are continually striving to maintain and increase enrollment as well as to retain and produce graduates who will become productive citizens and successful leaders. By gaining and maintaining accreditation, institutions assure prospective students that they meet exacting standards. Therefore, it is imperative that educational institutions develop and administer assessment programs to ensure accreditation requirements are met.

Like most accreditation agencies, both SACS and AACSB, require that universities identify competencies within the general education core and then provide evidence that graduates have attained those competencies or have achieved specified learning goals. Through assessment, accomplishment of the intended goals may more easily be quantified for review, validation, and reporting.

Assessment

Assessing students' ability to communicate is an area of interest to researchers. The Core Curriculum: Assumptions and Defining Characteristics (1999) communication objective is to enable the student to communicate effectively in clear and correct prose in a style appropriate to the subject, occasion, and audience. Different assessment modalities are required to assess the understanding and demonstration of writing and speaking processes, of specifying audience and purpose, of selecting appropriate mode of expression, of effectively participating in groups, of applying basic principles of critical thinking, and to research and write a documented paper.

The National Center for Education Statistics affirms that: "an effective and meaningful evaluation of postsecondary writing assessments is predicated upon a comprehensive understanding of the definition of writing competency" (NPEC sourcebook…, 2000, p. 45). Therefore, in order to appropriately assess students' writing samples, the definition of the competencies to be assessed must be clearly outlined. At a minimum, all students should receive adequate instruction to produce a writing sample with acceptable results in content, mechanics, and format. When learning goals and outcomes have been determined, then the learning environment can be structured to ensure student learning and sufficient practice of the objectives. "Just by defining their learning objectives and deciding where and when these will be covered, faculty improves their curriculum delivery because they will ensure that essential skills are introduced and practiced in a variety of settings" (Banta, 2005, p. 36).

Fraser, Harich, Norby, Brzovic, Rizkallah, & Loewy (2005) list multiple resources of how researchers define effective assessment in business writing and business communication in the context of institutional standards. Other standards borrowed from management strategies of resource-based review (RBV) and knowledge management may be applied to further quantify the importance that communication plays not only in the success of the educational institution, but also in success for employers as well as their employees to help produce competitive advantage (Barth, 2002; New paradigm…, n.d.).

Assessment Methods

Writing Assessment

Writing assessors may employ many varying assessment methods. Some methods may work better than others depending on the intended result gained from the assessment. Some types of methods include formative assessment, essay evaluation, and portfolio production to meet assessment mandates.

Formative assessment.

Formative assessment is continuous assessment using software to assess students' understanding of key concepts where teachers have an opportunity to adjust their instruction or to prescribe additional learning opportunities for students who need it (Pierce, 2005). This instructional management option does not lend itself to assessing writing skills but rather is effective for periodic, standards-based assessment of state standards.

Essay evaluation.

In this method students write essays that are then evaluated according to a set of criteria. This method is less objective than some other forms of assessment in that graders examine the writing through the window of their own expectations which leads to a more subjective process of evaluation.

Portfolio production.

The portfolio approach opens up a host of constraining factors such as who will decide what is included, who will be responsible for collecting and verifying the materials, what kind of scoring is practically available, how upper-level assessment can be made fair to students coming from majors requiring varying amounts of writing, whether the original instructor's grades and comments should remain on the submissions, and what are the most appropriate methods are for demonstrating reliability and validity (NPEC sourcebook…, 2000).

The most objective of these methods is the formative assessment. Although harder to grade because of subjectivity, essays and portfolios may be evaluated more objectively by using rubrics designed to quantify various writing aspects.

Scoring methods include holistic, analytic, and computerized writing assessments. Holistic scoring scales are believed by proponents of a global definition of writing ability to capture the overall essence or quality of the writing (NPEC sourcebook…, 2000). Holistic scores produce one general numerical rating of the overall quality of a writing product. Analytic scoring looks at the writing sample broken down into components to be scored separately. This includes a rater's judgment of categories such as content, mechanics, and format. Computerized writing assessments are not used extensively but several testing companies such as ACT provide viable choices to objectively score a student's writing ability. Of all the methods available, however, analytical scoring can help to focus on specific aspects related to the quality of the students' writing (Huot, 1990; Roid, 1994).

Critical Thinking Assessment

According to Cummings, Maddux, and Richmond (2008), assessment should be integrated with instruction to measure students' higher level thinking and problem-solving abilities. This curriculum-embedded performance assessment has the advantage of actively involving students in the assessment process as part of the regular course requirements thereby relieving faculty from additional data collection time.

Embedded questions to assess objectives can be developed by the faculty involved and implemented in quizzes or exams that are part of the course. Faculty should be able to extract the specific questions as well as the individual student performance from the exams they administer.

PURPOSE

The purpose of the study was to use the six objectives created for a core communication course by the Texas Higher Education Coordinating Board to assess student performance in the business communication course.

PROCEDURES

Business Communication (BCM 247) is a sophomore level course. The course is a required part of the business core, an option for the university general education core, and an option for General Business minors. Some of the non-business majors such as Nursing majors are required to take the course. Other students choose the course as an elective. Students in the business communication course are involved in writing reports, memos, good news messages, bad news messages, and persuasive messages. The last writing assignment of the semester is usually the persuasive message.

The business communication faculty wrote an assessment plan for 2006-2009 which involved six semesters of evaluation. Each of the six objectives created by the Texas Higher Education Coordinating Board for communication was evaluated twice with two objectives evaluated for each semester (see Appendix).

While the university suggested three types of measures for evaluation, the faculty chose two of those measures: embedded test questions and assignment review. The faculty of each core course was encouraged to establish an assessment criteria based on estimated success rate. As this was a new venture, it was realized that the assessment criteria would be arbitrary and might have to be adjusted to a higher or lower rate in future semesters as data was collected. A passing grade of 60% for the course was required for students to count the course for graduation. The Business Communication faculty felt that 60% was too low for an assessment target and opted for higher targets for this assessment cycle with the understanding that the assessment criteria might be adjusted in the future.

Embedded Test Questions

The faculty decided to use embedded questions to measure Objective 2 (to understand the importance of specifying audience and purpose and to select appropriate communication choices) and Objective 4 (to participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding). Five questions were written to measure each objective. All faculty agreed upon the questions chosen. Each faculty member embedded the questions in an exam format which was distributed to all students who took the exam. The assessment criteria for these objectives was set at 70%.

Assignment Review

The faculty decided to evaluate two different assignments in order to meet the goals of the remaining four objectives. For Objective 3 (to understand and appropriately apply modes of expression, i.e. descriptive, expositive, narrative, scientific, and self-expressive, in written, visual, and oral communication) and Objective 5 (to understand and apply basic principles of critical thinking, problem solving, and technical proficiency in the development of exposition and argument), the faculty decided that the written persuasive message would be the best example to use. Analytic scoring was used through a faculty-developed rubric that measured specific areas of the objective (see Appendix). A faculty sub-committee randomly selected three students from each section resulting in approximately ten percent of the assignments being assessed. Faculty then provided the unevaluated persuasive messages that the selected students wrote. Two other faculty members then assessed the writings with the approved rubric. A faculty sub-committee of three members reviewed any cases where the two faculty members disagreed by more than two points and determined the appropriate rankings. The assessment criteria for these objectives was set at 75%.

The second type of assignment the faculty chose for review was the analytical report. This assignment was used to measure Objectives 1 (to understand writing and speaking processes through invention, organization, drafting, revision, editing, and presentation) and 6 (to develop the ability to research and write a documented paper and/or give an oral presentation). Again, an analytical scoring rubric was developed to measure the objectives (see Appendix). A faculty sub-committee randomly selected one student from each section. The team report written by that student was evaluated. With most team sizes at 3 to 5 students, approximately 15% of the students were represented. Each report was assessed by two faculty members and a sub-committee of three faculty members was used to judge disagreements in rankings of more than two points. The assessment criteria for these objectives was set at 75%.

FINDINGS

The six-semester assessment plan conducted from Fall 2006 to Spring 2009 involved 2,562 students in 87 sections of the course offered in Fall or Spring semesters. Courses offered in the summer sessions were not used in the assessment process. For each term all sections of the course were used and all faculty including full-time and part-time faculty were involved. Table 1 indicates the number of students and faculty per semester.

Table 1: Students Involved in Assessment Process, 2006-2009

Semester	Number Enrolled	Number Assessed	Percent Assessed	Number of Faculty Involved
Fall 2006	459	44	9.59%	7
Spring 2007	395	*327	82.8%	8
Fall 2007	431	65	15.1%	8
Spring 2008	399	*367	92.0%	7
Fall 2008	461	44	9.54%	8
Spring 2009	417	In progress		8
Total	2,562			

*Number students who took exams with embedded questions.

During the spring semesters of 2007 and 2008 embedded questions were used to measure Objectives 2 and 4 as shown in Table 2. Of the five questions asked relating to Objective 2, 100% of the students met the assessment goal of scoring 70% or higher on these questions in both semesters. Responses by students to questions relating to Objective 4 were more problematic. In 2007, 80% of the students met the goal of scoring 70% or higher. While the students did well on four questions, they had difficulty with one question. By Spring 2008 a different textbook was in use and 60% of the students met the goal of scoring 70% or higher. While students did well on three questions, two of the questions caused problems.

Table 2: Assessment Analysis of Educational Objectives for BCM 247 Business Communication Embedded Questions

Objectives	Goal	Date	First Measurement	Date	Second Measurement
2 To understand the importance of specifying audience and purpose and to select appropriate communication choices.	70%	Spring 2007	***Five questions 100%**	Spring 2008	***Five questions 100%**
4 To participate effectively in groups with emphasis on listening, critical, and reflective thinking, and responding.	70%	Spring 2007	***Overall 80%** *Four questions at 100% *One question at 65.4%	Spring 2008	***Overall 60%** *Three questions at 100% *Two questions (54.6% and 48.4%)

*Percent of students who achieved the assessment goal

In using an analytic scoring rubric for assignment review of persuasive messages, students in Fall 2008 had higher ratings than those in Fall 2006 (see Table 3). In Fall 2008, 79.8% of the students met the objective of 75% or higher while in Fall 2006, 73.5% met the goal of 75% or higher. After the measurement of 2006, the faculty decided that the rubric really needed to define the content category more carefully. A revised rubric added a section on persuasive argument to clarify that objective for the Fall 2008 measurement.

Table 3: Assessment Analysis of Educational Objectives for BCM 247 Business Communication Persuasive Writing Sample

Objectives	Goal	Date	First Measurement		Date	Second Measurement	
3 To understand and appropriately apply modes of expression, i.e., descriptive, expositive, narrative, scientific, and self-expressive, in written, visual, and oral communication.	75%	Fall 2006	***Overall** *Content *Mechanics *Format	73.5% 65.9% 69.3% 96.6%	Fall 2008	***Overall** *Persuasive Argument *Content *Mechanics *Format	79.8% 76.1% 71.6% 79.5% 92.0%

5
To understand and apply basic
principles of critical thinking,
problem solving, and technical
proficiency in the development
of exposition and argument.

*Percent of students who achieved the assessment goal

In assessing Objectives 1 and 6, the analytical report was used. As shown in Table 4, 61% of the students met the assessment goal of 75% or higher. The second measurement is being conducted in the Spring 2009 semester.

Table 4: : Assessment Analysis of Educational Objectives for BCM 247 Business Communication Report Writing Sample

Objectives	Goal	Date	First Measurement		Date	Second Measurement
1 Requires students to understand writing and speaking processes through invention, organization, drafting, revision, editing, and presentation.	75%	Fall 2007	*Overall *Research *Mechanics *Analytical Approach	61.0% 53.0% 63.3% 66.7%	Spring 2009	In progress
6 Requires students to develop the ability to research and write a documented paper and/or give an oral presentation.						

*Percent of students who achieved the assessment goal

CONCLUSIONS

While differences in universities include such issues as student demographics, student admission requirements, teaching strategies, and accreditation requirements, a large-scale study at one university may provide general guidelines for another school. The undergraduate student enrollment for Stephen F. Austin State University in Nacogdoches, Texas, was 9,980 in Fall 2006; 9,964, in Fall 2007; and 10,284 in Fall 2008, the time period of this study involving undergraduate students.   The number of undergraduate Business majors was 1,774 in Fall 2006; 1,834 in Fall 2007; and 1,898 in Fall 2008. The ethnic composition of the student body has changed from 71.9% white/nonhispanic in Fall 2006 to 66.9% white/nonhispanic in Fall 2008. This change is in line with the state of Texas' plan to bring more diversity into higher education. The largest ethnic increase has been in African American students which has increased from 16.6% in Fall 2006 to 20.2% in Fall 2008. The top five counties from which students attend Stephen F. Austin State University are Harris County (Houston), 21.4%; Nacogdoches County, 16.7%; Dallas County (Dallas), 11.3%; Angelina County (Lufkin), 9.2%; and Tarrant County (Ft. Worth),

6.6%. (Fall 2008 Fact Book, 2008). This mix of rural and urban students creates a unique teaching/learning environment.

One of the issues in assessment is called "closing the loop". This occurs after the assessment measure is completed. For example, what is done with the results? What changes are made to promote continuous improvement? For this study, after each semester the faculty met to discuss the results and to see what changes should take place to result in an improved measure in subsequent semesters.

Embedded Questions – Objectives 2 and 4

In both measures Objective 2 resulted in 100% of the students answering this question at 70% or higher. It is clear that faculty are achieving this objective effectively. In fact, this may be an objective that needs to have a higher assessment goal in the future.

Objective 4 is more problematic. In the first measure 4 of the 5 questions were answered at the goal level or higher. On the second measure 3 of the 5 questions were answered at the goal level or higher. As a new textbook was used during the second measure, different questions were used for each of these objectives on the two different measures. The faculty need to focus more on Objective 4 to improve the response to this measure.

Assignment Review – Persuasive Written Message – Objectives 3 and 5

This assignment was the most effective over time. In Fall 2005 a pilot study was conducted on analytical scoring of the persuasive message. The faculty felt the most experienced and comfortable with this measure. The ratings improved in all areas except format on the second measure (Fall 2008) as compared to the first measure (Fall 2006). After the 96 percent result on format in the first measure, the faculty decided that the other areas of the message were perhaps more important and agreed to also focus more on those items which did result in improvements.

Assignment Review – Analytical Written Report – Objectives 1 and 6

The first measure on this assignment was in Fall 2007 with the second measure currently in progress during Spring 2009. On the first measure only 61% of the students met the goal of 75% or higher. The faculty had hoped for a higher percentage.

What was discovered on the first measure of the analytical report was not so much a difficulty with students as it was with a disagreement among faculty on what should be included in an analytical report. Some faculty did not include research in the final team report. Some faculty included both primary and secondary research while others only included secondary research. As a result of the first scores, the faculty met to establish requirements for the analytical report so that students would be asked to supply the same information in the report across all sections. It is hoped that a clearer understanding of expectations on the part of the faculty will provide better results from the assessed students in Spring 2009.

IMPLICATIONS

For Faculty

As a result of the assessment plan, the faculty is more cohesive and willing to improve the course than before the assessment plan began. The reason for this success was early buy-in and involvement of business communication faculty at all levels including tenure track and adjunct teachers. Part of the result of the buy-in was that faculty understood that student performance would not be linked to individual faculty members. In fact, results were sent to the college and university level with anonymous faculty and student information. The rubrics and embedded questions were designed and approved by all faculty. Meetings to discuss the procedures were held before and after each measurement.

Spring 2009 will conclude the first six semesters of assessing six objectives in the business communication course. A new plan will be developed in future. Some of the factors that will be considered are:

1. Are the assessment criteria appropriate? An arbitrary range of 70% (embedded questions) and 75% (assignment review) were used for the first six-semester plan. How should these be adjusted in future?
2. Should the same type of assignment review and embedded questions be used in the future?

For Policymakers

As accrediting agencies, coordinating boards, and legislatures all favor assessment as a measure for continuous improvement, each university must decide the plan that will work the best. A key element of success is commitment to assessment on the part of deans, department chairs, and faculty. Assessment may require additional resources such as software programs to keep track of results, released time for individuals involved in collecting and processing data, and faculty development in the area of assessment.

The collected data from assessment is of no value by itself. Success in assessment is the result of using that data to see how changes can be made to more effectively meet the goals of instruction. The ultimate goal of any university is to produce graduates who are equipped to be successful in their chosen careers. Assessment plays in integral part in the process that effectively prepares students for the world of work.

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APPENDIX

Complete plan available electronically by contacting the authors.

EEO Assessment Schedule	Course Name and Number: BCM 247 Business Communication
In the first line, indicate which objectives are covered by the course. Then indicate which assessment instrument(s) the department will use to assess student performance on each objective. Use only those instruments which are appropriate for the course and objective.	

	#1	#2	#3	#4	#5	#6
Objectives covered						
Fall 2006						
Embedded exam questions						
Assignment review			XX		XX	
Online student evaluations						
Other						
Spring 2007						
Embedded exam questions		XX		XX		
Assignment review						
Online student evaluations						
Other						
Fall 2007						
Embedded exam questions						
Assignment review	XX					XX
Online student evaluations						
Other						
Spring 2008						
Embedded exam questions		XX		XX		
Assignment review						
Online student evaluations						
Other						
Fall 2008						
Embedded exam questions						
Assignment review			XX		XX	
Online student evaluations						
Other						
Spring 2009						
Embedded exam questions						
Assignment review	XX					XX
Online student evaluations						
Other						

EEO Assessment Plan for BCM 247

Fall 2006

Objective 3:   To understand and appropriately apply modes of expression, i.e., descriptive, expositive, narrative, scientific, and self-expressive, in written, visual, and oral communication.

Objective:	Exemplary Education Objective 3 requires the student to understand and appropriately apply modes of expression, i.e., descriptive, expositive, narrative, scientific, and self-expressive, in written communication.
Assessment instrument:	Assignment review will be the method used for this objective which will focus on assessing student writing. For Fall 2006, the course has 15 sections with 439 students enrolled. The final writing assignment is the persuasive message. Three students will be drawn randomly from each section and their assignments will be evaluated. Criteria have been established to rate the documents on content, grammar, and format. Each document will be evaluated by two instructors (not the instructor who presented the assignment), and a panel will be used to resolve differences in evaluations.
Assessment criteria:	The department expects that 75% of students will achieve a rating of acceptable (3 on a 6 point scale) or higher on each dimension of the metric.

Objective 5: To understand and apply basic principles of critical thinking, problem solving, and technical proficiency in the development of exposition and argument.

Objective:	Exemplary Education Objective 5 requires students to understand and apply basic principles of critical thinking, problem solving, and technical proficiency in the development of exposition and argument.
Assessment instrument:	Assignment review will be the method used for this objective which will focus on assessing student writing. For Fall 2006, the course has 15 sections with 439 students enrolled. The final writing assignment is the persuasive message. Three students will be drawn randomly from each section and their assignments will be evaluated. Criteria have been established to rate the documents on the persuasive argument which will involve critical thinking and problem solving. Each document will be evaluated by two instructors (not the instructor who presented the assignment), and a faculty panel will be used to resolve differences in evaluations.
Assessment criteria:	The department expects that 75% of students will achieve a rating of acceptable (3 on a 6 point scale) or higher on the critical thinking dimension.

Revised October 20, 2006

EEO Assessment Plan for BCM 247

Spring 2007

Objective 2: To understand the importance of specifying audience and purpose and to select appropriate communication choices.

Objective:	Exemplary Education Objective 2 requires students to understand the importance of specifying audience and purpose and to select appropriate communication choices.
Assessment instrument:	The course assessment committee will develop 5 to 10 questions dealing with specifying audience and purpose and selection of appropriate communication choices to be included in the course exams for BCM 247. All faculty who teach the course will approve the questions.
Assessment criteria:	The department expects that students will achieve an average success rate of 70 percent on the embedded questions.

Objective 4:	To participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding.

Objective:	Exemplary Education Objective 4 requires students to participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding.
Assessment instrument:	The course assessment committee will develop 5 to 10 evaluation items dealing with effective participation in groups to be included in the course exams for BCM 247. All faculty who teach the course will approve the evaluation items.
Assessment criteria:	The department expects students to achieve an average success rate of 70 percent on the embedded questions.

Revised November 3, 2006

EEO Assessment Plan for BCM 247

Fall 2007

Objective 1:	To understand and demonstrate writing and speaking processes through invention, organization, drafting, revision, editing, and presentation.

Objective:	Exemplary Education Objective 1 requires students to understand writing and speaking processes through invention, organization, drafting, revision, editing, and presentation.
Assessment instrument:	Assignment review will be used for this objective. During a researched written report, students are involved in organization, drafting, revision, and editing of their reports. The course assessment committee will develop a matrix of evaluation items to assess the final researched written report. Three reports will be randomly selected from each section. Approximately 10% of the written student work will be evaluated. Each report will be evaluated by two instructors (not the instructor who presented the assignment), and a panel will be used to resolve differences in evaluations.
Assessment criteria:	The department expects 75% of students to achieve a rating of Acceptable or higher on all evaluation items.

Objective 6:	To develop the ability to research and write a documented paper and/or to give an oral presentation.

Objective:	Exemplary Education Objective 6 requires students to develop the ability to research and write a documented paper and/or give an oral presentation.
Assessment instrument:	Assignment review will be used for this objective. The course assessment committee will develop a matrix of evaluation items to assess a researched written report. Three reports will be randomly selected from each section. Approximately 10% of the written student work will be evaluated. Each report will be evaluated by two instructors (not the instructor who presented the assignment), and a panel will be used to resolve differences in evaluations.
Assessment criteria:	The department expects 75% of students to achieve a rating of Acceptable or higher on all evaluation items.

Revised November 3, 2006

Evaluator #_____

BCM 247 Assessment Criteria – Fall 2008
Writing Assignment - Persuasive Letter/Message

Objective 3: To understand and appropriately apply modes of expression, i.e., descriptive, expositive, narrative, scientific, and self-expressive, in written, visual, and oral communication.
Objective 5: To understand and apply basic principles of critical thinking, problem solving, and technical proficiency in the development of exposition and argument.

	Excellent 5	Above Average 4	Average/Acceptable 3	Below Average 2	Poor 1
Persuasive Argument	• Excellent persuasive argument	• Good persuasive argument	• Adequate persuasive argument.	• Marginal persuasive argument.	• Limited or no persuasive argument.
Content	• Outstanding creative, attention-getting opening. • Engaging interest-building coverage. • Inclusion of convincing evidence/support. • Excellent action closing. • Outstanding accuracy and clarity of message.	• Creative, attention-getting opening. • Clear and complete interest building coverage. • Inclusion of necessary evidence/support. • Strong action closing. • Strong accuracy and clarity of message.	• Attention getting opening. • Interest building coverage. • Some evidence or support offered. • Acceptable action closing. • Accuracy and clarity of message.	• Lackluster attention-getting opening. • Limited interest building information. • Limited evidence or support offered. • Vague action closing. • Errors of accuracy and/or limited clarity of message.	• Missing elements of persuasive pattern. • Numerous errors or omissions in message.
Mechanics	• Excellent word choice. • No spelling errors. • No grammar errors. • No mechanical errors.	• Good word choice. • One spelling error. • One or two grammar/ mechanical errors.	• Acceptable word choice. • One or two spelling errors. • Two or three grammar/ mechanical errors.	• Some awkward word choice. • Two or three spelling errors. • Four to six grammar/ mechanical errors.	• Illogical word choice. • Four or more spelling errors. • Major mechanics errors: sentence fragments, run-on sentences
Format	• No errors in format as specified in assignment. • Signed or initialed as appropriate. • No spacing errors.	• One or two errors in format as specified in assignment. • Signed or initialed as appropriate. • One or two spacing errors.	• Three or four errors in format as specified in assignment. • Signed or initialed as appropriate. • Two or three spacing errors.	• More than four errors in format as specified in assignment. • Signature missing or incorrect. • Three or four spacing errors.	• Inappropriate or unrecognized format.

Comments:

BCM 247 Assessment Criteria
Researched Analytical Written Report

Objective 1: To understand and demonstrate writing and speaking processes through invention, organization, drafting, revision, editing, and presentation
Objective 6: To develop the ability to research and document a paper and/or to give an oral presentation.

	Excellent 4	Good 3	Below Average 2	Not Acceptable 1
Analytical Approach	• Clear statement of purpose • Organized presentation of supported argument(s) • Logical/supported conclusions/ recommendation(s)	• Inclusion of all elements of Analytical Approach, with only minor issues in clarity	• Inclusion of all Analytical Approach elements, but underdeveloped or with weak coherence	• Failure to include one or more elements of Analytical Approach and/or incoherent development
Research	• Appropriate selection and description of research methods • Adequate inclusion of appropriate sources/ references • Accurate use of in-text referencing method • Inclusion of accurate and complete list of references • Adequate and effective use of appropriate graphics	• Inclusion of all required Research elements, with only minor errors or omissions	• Absence of one Research element, OR underdevelopment or inaccuracy in two or more elements	• Absence of two or more Research elements, OR underdevelopment or inaccuracy in three or more elements
Mechanics	• Appropriate word choice, sentence structuring, and paragraphing • No spelling errors • Absence of grammatical errors (subject verb agreement, plural/ possessive, adjective/ adverb, etc.) • Accurate formatting and page layout	• Minor errors or awkwardness in wording, sentence structure, and/or paragraphing • No spelling errors detectable with spell check • One or two grammatical errors • One or two formatting/layout errors	• Major errors in wording, sentence structure, and/or paragraphing • One or more spelling errors detectable with spell check • More than two grammatical errors • Several formatting/layout errors	• Numerous major errors in wording, sentence structure, and/or paragraphing • Multiple spelling errors detectable with spell check • Many or serious grammatical errors (run-on sentences, fragments) • Numerous formatting/layout errors

Comments:

One report per section (make one copy of each) evaluated by a panel of two teachers. Goal: 75% or higher will score a 3 or 4.

HISTORICALLY BLACK COLLEGES AND UNIVERSITIES (HBCUS): HOW THEY CAN BETTER INFUSE TECHNOLOGY THROUGHOUT THEIR CAMPUSES AND BUSINESS CURRICULUM

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ABSTRACT

As America begins a new chapter and people begin to rethink their attitudes and views regarding higher education and technology, it is important that we focus on strengthening a vital base of our economy and world: HBCUs and the students they graduate. HBCUs must open up the lines of communication to assess their current technological standing and find innovative ways to infuse technology throughout their campuses and in instructing students, especially business students. Among many improvement strategies, HBCUs should partner with other institutions, use subject specific software, increase accountability, and ensure that there are enough technological resources to adequately prepare minority students to competently compete in a technological world.

INTRODUCTION

Technology drives our economy and it has been integrated into every facet of life. Historically Black Colleges and Universities (HBCUs) are institutions with the purpose of preparing minorities to be productive and active members of society. And this can only be done with the use of technology. Minority students at HBCUs have the drive and initiative to use all available resources in preparing themselves for a life of service. HBCUs business students must also have a technology driven curricula to help them compete successfully in a troubled economy. These institutions must ensure their students are technologically savvy by integrating technology into the curriculum, especially the business curriculum, and the campus as a whole. Few schools have successfully incorporated technology through the learning process, while most of them acknowledge the importance of technology to their students' futures (Buzzetto-More and Sweat-Guy, 2007, p. 61).

HBCUs must reevaluate their mission and practices to ensure that they are adequately preparing their students for a technologically advanced workforce. Phipps of the National Postsecondary Education Cooperative and the Institute for Higher Education Policy (2004) asserts that "the value of a college education, both to the individual and society in general is evident … such as greater productivity, increased charitable giving and community service, enhanced quality of civic life, and decreased reliance on government financial support (Institute for Higher Education Policy 1998)" (p. 1). As HBCUs find stability in a shaky economy, they must not undervalue the importance of technology.

The minorities that these institutions educate should and deserve to have access to the latest technologies to ensure a skill set comparable to that of students attending other institutions. HBCU campuses must have a current technological infrastructure and use technology in business instruction.

RESEARCH QUESTIONS

The research questions used to guide the thesis research on how HBCUs can infuse technology throughout their campuses and business curriculum are:

1. How can HBCU business students better compete against predominately white institution graduates in a technological world?
2. What is the current level of technology utilization at HBCUs and what upgrading, if any, is needed?
3. Are HBCU leaders aware of the student and faculty concerns regarding their institution's technological resources?
4. What current technology and business software is available?

The following topics were researched to answer these questions: (1) the digital divide, (2) technology in higher education, (3) technology at predominately minority institutions, (4) importance of computers, (5) technology ownership of college students, (6) technology ownership of HBCU students, (7) ICT (Information and communication technology), and (8) technology in business curricula.

LITERATURE REVIEW

The overall goal of this research is to help improve the technology resources on HBCU campuses and in their respective business programs. My review of literature consisted of many scholarly sources (dates within a ten year period) that focused on my research topics individually. However, no one source jointly addressed all of my research topics. NAFEO's 2000 report was the major source used for attaining the state of HBCUs current technological standing and the resulting impact on student education. Additionally, Foster and Hollowell's 1999 research gave great insight into the proper planning techniques of university technology initiatives.

Unlike other scholarly works, this thesis will jointly address many areas of concerns which include (1) the digital divide, (2) HBCU connectivity, (3) global and national networks, (4) student laptop ownership, (5) business curriculum, (6) strategic planning, (7) and the importance of open communication. The information gathered could serve as an HBCU student's view of the technological standing of HBCUs and their potential for growth in better educating the students they serve.

AREAS OF CONCERN

HBCUs are quality institutions with dedicated and underpaid faculty who use their knowledge and expertise to impact their students' lives forever. HBCUs serve a community of over 350,000, "many of who graduate to become leaders of major institutions, including government, business, and education" (NAFEO, 2000, p. 13). As HBCUs work to fulfill the roles of universities as researched and described by Jackson and McDowell (2000), which include providing a liberal education, solving societal

problems, serving the community, and preparing students to enter new professions, technology should be at the forefront of HBCUs higher education (p. 632).

AREA OF CONCERN 1: DIGITAL DIVIDE

"Despite huge efforts to position computer technology as a central tenet of university education…Belying the notion of the 'cyber-campus', the actual formal use of new technologies in undergraduate and graduate studies remains inconsistent and highly variable from course to course and institution to institution" (Selwyn, 2007, p. 84). Because of a digital divide, HBCU graduates could be less technologically savvy. Phipps (2004) wrote that "institutional digital divide pertains to the perceived gap between institutions that have access to the latest technologies and those institutions that do not" (p. 11). However, the gap is not perceived: it is real and in some cases growing between the technology of HBCUs and predominately white institutions and between public and private HBCUs.

Financial resources are a fundamental building block of all institutions' technology initiatives. The disparity of funding causes a significant difference between which technologies institutions will use in student preparation. HBCU graduates often times may compete with students who have been trained with better resources. "In its report to the President's Information Technology Advisory Committee, [it was] asserted that the federal information technology investment in postsecondary education had resulted in a network capability at the largest universities [that] far outpaced that of other 4-year degree granting institutions" (Phipps, 2004, p. 11). It can be inferred that graduates from the federally funded schools are exposed to more technology mainly because of the institutions ability to afford it.

There is also cause for concern about the divide between public and private HBCUs. A public HBCU's library could have twenty workstations and twenty-plus research engines while a private HBCU's library could have only two workstations and ten research engines. Public HBCUs have greater access to local and state technological resources than their private counterparts (NAFEO, 2000, p. 23).

However, Phipps (2000) is correct in noting that these smaller institutions (other 4-year degree granting institutions) face severe challenges in meeting the advanced networking requirements necessary to educate the 21st century students. He also cites Educause's (2000) data of key issues and obstacles of the digital divide. These include difficulty with recruitment and retention of technology staff, poor support from the lead decision makers, and a poor campus infrastructure (p. 11). HBCUs should recognize this gap and take steps to increase their use of technology in educating their students, especially business students. HBCU administrators, students, the United States government, and HBCU alumni must address the digital divide to ensure that new and exciting methods are used to incorporate technology into academia.

AREA OF CONCERN 2: CONNECTIVITY ON HBCU CAMPUSES

Understanding HBCUs current level of connectivity is an important factor in the technology equation. There are several different connection types such as DSL, T-1, Ethernet, and Fast Ethernet. The

minimum level of connectivity for HBCUs is a T-1 connection, with 88 percent of HBCUs having access to this technology. 72 percent of HBCUs use Ethernet connections, with 55 percent of those connections being Fast Ethernet. While 50 percent of private institutions use Fast Ethernet, 76 percent of public institutions use it (NAFEO, 2000, p. 33,34,40,41).

These connections are not only vital to basic research, but also to accommodating the rising number of freshmen with laptops and allowing students to complete normal coursework. HBCU campuses must realize that their internet connection is one of their most valuable assets and as such, should be maintained and upgraded frequently. These networks are not only instrumental for student social interaction (e.g. Facebook, ect.), but for students to make themselves aware of the world around them through news, events, and other information that would be inaccessible without these connections. It is easy to agree with NAFEO (2000) comments that "if HBCUs are to be competitive in the area of providing network technology supporting basic research, advanced research, e-commerce, imaging, distance learning, and video applications, the institutions should dramatically increase their connectivity speed rates beyond the T-1 level" (p. 54).

AREA OF CONCERN 3: RESIDENCE HALLS AND CLASSROOM CONNECTIVITY

The residence halls at HBCUs must have high-speed Internet capabilities. NAFEO (2000) reported that "while it may be possible for students to access the Internet and campus networks through dorm room phone lines, it would be preferable for access to be provided by plug in access in individual dorm rooms" (p. 42). In addition, many HBCUs have updated their residence halls with wireless networks. However, additional upgrades are needed to ensure a reliable and fast connection.

Also, many classrooms in institutions across the world may have insufficient technology. They lack networked computing stations, monitors, projectors, and the like. Many HBCU classrooms have basic technological equipment such as an overhead projector and screen, but lack internet access. Poor classroom environments and a limited availability of technological equipment, even basic equipment, are significant barriers to effective use of technology in the classroom (Brill and Galloway, 207, p. 101).

Because of older classroom configurations, many classroom instructors are stretching to compensate for classrooms that were not originally designed with today's technology in mind (Brill and Galloway, 2007, p. 102). For example, one sociology instructor converted course materials to PowerPoint, but most classrooms are not suitably equipped for this. This is especially true of some HBCUs whose classrooms have not been technologically renovated. It is important that HBCUs' living and classroom conditions are conducive to the pursuit of knowledge. Thus, increased resources should be devoted to upgrading the technology in HBCUs' classrooms and residence halls.

AREA OF CONERN 4: GLOBAL AND NATIONAL NETWORKS

Because of the varying amounts of HBCU technological resources, there is a need for more collaboration between majority serving institutions to share their technological resources and best practices. "Economies of scale could be achieved by cooperation among HBCUs in purchasing

materials, giving classes online, developing major courses of study through professional collaborative software, training staff and faculty collaboratively…, and sharing the use of data bases" (NAFEO, 2000, p. 42).

HBCUs can benefit from partnering with predominately white schools. Since the overall goal of higher education is to educate the minds of people who will be our future leaders, the breaking down of black/white and black/black institution barriers are vital to the betterment of the overall educational process of students and contributions to society made by these HBCU graduates. Evidence shows that HBCUs' networks only extend to the regional, state, and/or federal level if any networks exist. 31 percent of HBCUs network with colleges in their state, 20 percent with the federal government, 13 percent with K-12 schools, and 5 percent with commercial vendors (NAFEO, 2000, p. 28).

HBCUs who do not have access to government technology (or have it but do not use it) could be in a better position to create their own technological roadmap. For example, some HBCUs bypass wiring buildings and opt to use high speed wireless networks while institutions who are dependent on government resources cannot. It could only cost a school $15,000 to install a campus wide wireless network, compared to $150,000 to wire classrooms and dormitories. This was the case for Mount St. Mary's, a small, private, non-HBCU (NAFEO, 2000, p. 29).

According to NAFEO (2000) academic exchanges, research collaboration, distance learning, and distance learning would be greater if HBCUs have a greater access to resources (p. 29). HBCUs should work with their local, state, and federal governments to find what resources are available and determine if those resources would be beneficial to their student body. Technology costs could be drastically decreased if HBCUs partner with one another and with outsiders to find cost effective technology solutions.

AREA OF CONERN 5: COST OF CAMPUS CONNECTIVITY - Maintaining an effective technology network on HBCU campuses can become quite expensive, especially when the latest technology is used. 47% of urban and 45% of rural HBCUs spend approximately $1,000 - $5,000 per month on connectivity and Internet. Also, 39% of private HBCUs spend about the same amount on connectivity as rural and urban institutions. However, some public HBCUs, (six percent) have reported spending approximately $5,000 - $10,000 monthly. Another three percent of public HBCUs spend more than $10,000 per month to ensure their campus have the necessary technological resources needed by the 21st Century student (NAFEO, 2000, p. 47).

Once HBCUs begin to increase their campus connectivity speeds and infrastructure, their technology costs will increase. It is important that HBCUs should adequately plan for technology upgrades. It should prove beneficial to follow the advice of Foster and Hollowell (1999), "IT planners need to learn each groups [(faculty, department heads, deans, administrators, students)] requirements for usability and access, the outcomes the group is expecting, how outcomes will be measured, and how costs will be weighed against outcomes achieved" (p.   10). Planning will greatly help reduce the impact and costs of IT changes.

AREA OF CONERN 6: STUDENT LAPTOP OWNERSHIP AND COMPUTER LABS

Student computer ownership is especially important into today's higher education institutions. Exams, course registration, class syllabus, and email have become the pencil and paper of today. As HBCUs rethink their position on technology and student impact, student computer ownership, specifically laptops, should be a priority. 15 percent of HBCUs recommend personal student laptop ownership while 30.5 percent of all institutions of higher learning recommend ownership. Also, only three percent of HBCUs indicate that financial aid is available to their students for laptop purchases. With HBCUs' student laptop ownership of 1:4 which is significantly lower than that of majority institutions 1:2, HBCUs must make monies and processes available to get laptops in their students' hands (NAFEO, 2000, p. 24-25).

Minority students should become accustomed to using technology on a daily basis. It is the responsibility of the institution to ensure that these resources are available to all students and to make student laptop ownership an institutional priority. HBCUs could partner with several companies to offer affordable personal laptop solutions to students. Affordable laptop program solutions are offered by Dell (www.dell.com), Lenovo (www.lenovo.com), Hewlett Packard (www.hp.com), and Rent a Computer (rentacomputer.com).

It can be inferred that because of a lack of student laptop ownership, HBCUs place a heavy burden on their campus computer labs. Fortunately, "HBCUs do own significant computing resources primarily located in computer labs… and libraries…[Yet] Individual student "on-demand" access to campus networks is seriously deficient due to either lack of student ownership of computers…or concentration of resources in selected locations" (NAFEO, 2000, p. 41).

If HBCUs do not require laptop ownership or offer an affordable laptop program, then they must have easily accessible and fully operational computer labs. Also, these labs must have enough workstations to accommodate the institutions student population. 75 percent of HBCUs' students do not own laptops. This is another reason why the digital divide is increasing (NAFEO, 2000, p. 23). These institutions must find creative, yet affordable ways to put laptops in the hands of their students.

AREA OF CONERN 7: USERS OF TECHNOLOGICAL RESORUCES (ADMINISTRATION VS.

STUDENTS)

HBCU ADMINISTRATION - A major issue that HBCUs face is their students' viewing themselves as the least important users of technology in relation to the administration. Is it more important for HBCU administrators (who are paid by the institution through student tuition) or for students (who pay tuition) to have greater access to the campus's technology resources? Many students feel slighted by their institutions allocation of technology resources.

According to NAFEO (2000) (emphasis added), "HBCU administration buildings, **not academic departments, instructional areas, and student-centered facilities such as residence halls**, have

better access to the campus backbone[(internet connection, computers, ect.)]" (p. 31). For example (emphasis added):

- It is reported that **93 percent** of public, **92 percent** of private, **90 percent** of urban, and **85 percent** of rural HBCUs' central administration buildings and offices are connected to the campuses backbone.

[But,]

- Only **53 percent** of public, **48 percent** of private, **42 percent** of urban, and **52 percent** of HBCU dormitory common areas are connected to the same campus backbone used by the administration buildings and offices. (p.30-31)

From this research, it could be inferred that HBCUs deem administrators the most important users of technology. Although this assumption of importance may seem extreme, nevertheless HBCU administrators work diligently to serve the interests of students. Although they need the technological resources to ensure the effective administration of the institution, they should ask themselves; "How efficient could I complete my work if I used the same technological resources as my students?

HBCU FACULTY

According to NAFEO (2000), none of the HBCUs faculty and academic units (who responded to the survey) are extremely effective with using the Internet in the classroom. (p.37) However, before we can begin increasing HBCU faculty's use of technology in instruction, we must first look at the attitudes and views of the faculty regarding their institutions technology infrastructure. Phipps (2004) research asserts that Faculty at Black-serving institutions are less likely than their counterparts in all other institutions to (bullets added):

- Rate their personal computers and local networks as excellent or good.
- Rate their centralized computer resources as excellent or good and more likely to rate it as poor.
- Rate the availability of Internet Connections at their institutions as excellent or good, and more likely to rate it as poor. (p. 28-29)

This research sparks several questions of interest, such as: (1) Are HBCU administrators ignoring faculty concerns? and (2) Are HBCU faculty's reluctance to use technology in instruction due to a lack of technological resources or an underutilization of what technology is present, regardless of perceived quality?

HBCU STUDENTS

HBCU students should be viewed as the primary users of technology. Because technology resources vary between institutions, HBCUs must ensure that the majority of these resources are used in student instruction and progression. Sometimes, HBCU students are forced to deal with:

- Computers labs with outdated computers or computers that are not operating properly.
- Slow internet connection (if any) in classrooms, residence halls, and student centers.
- IT department who seem to be more of a hindrance than a help.
- No financial aid assistance to purchase a personal laptop.
- Waiting hours in the library or other labs to complete work assignments using a computer.
- Online resources such as BlackBoard and WebAdvisor that do not work properly.

It could be suggested that the many problems HBCU students have with access to technology indicate that they are the least important users. It is easy to agree with Cookson (2000) that more student centered resources are needed. "There should be an infrastructure of student support services such as student registration, library services, technical support, course materials delivery, tutorial assistance, advising, and counseling" (p. 78) . HBCUs should make student access to the institution's technological resources a priority. New approaches to meeting students technological needs include replacing general use computers with specialist workstations, offering special services such as a loan machine pool, plug in internet access in student areas, and requiring students to have laptops with course specific software (Macpherson, 2000, p. 285-286).

AREA OF CONERN 8: HBCUs BUSINESS EDUCATION

According to Cedrone (2003) "employers frequently share the larger society's perceptions of the underclass, associating crime, illiteracy, drug use, and a poor work ethic with the African American population" (Jackson, 2006, p. 200). It has been argued that the technological training of university students is less important and vocationally valuable than social skills in today's labor market. In addition, they argue that technological training has little to no educational merit (Selwyn, 2007, p. 86). Although this may be true for predominately white institution graduates, it is not for HBCU graduates.

Business students attending HBCUs have strong interpersonal and social skills due to the nurturing environment of their institutions. However, HBCU business students and their faculty must never forgo the importance of mastering technology. HBCUs must continue to produce business graduates who are proficient in technological systems and use technology to solve complex problems by accessing, evaluating, processing, and synthesizing information from many sources (Buzzetto-More & Sweat-Guy, 2007, p. 61).   To accomplish this, HBCUs should ensure that business specific technology is used in instructing HBCU business students.

AREA OF CONCERN 8.1: BUSINESS SOFTWARE

Blackboard has become the most prevalent technology used at some HBCUs. Scholarship has been reduced at some institutions to how to formulate client pitches and infomercials. Student exposure to information technology rarely progress beyond the "PowerPointlessness" of office applications (Selwyn, 2007, The Commercial Concerns of IT Vendors section, para. 4). It is for the betterment of students and their post graduation alma mater contributions to be able to successfully compete with other business graduates. Accordingly, instructors should incorporate the use of subject specific software in their instruction; and all HBCUs who teach business should have an up-to-date business computer lab. Business specific software include Microsoft Office productivity suites (www.microsoft.com), SPSS statistical software (www.spss.com), and Peachtree Accounting software (www.peachtree.com).

Any combination of these software programs will give students a wide array of opportunities to utilize classroom theory and practically apply it. It can reasonably be expected that some HBCU business students will not be eager to embrace the addition or increased use of technology in the curricula. However, HBCU administrators and faculty must be persistent and firm in their decisions to

incorporate such changes. It can properly be assumed that many of the HBCUs business departments need to increase their use of technology and business software.

AREA OF CONCERN 8.2: FACULTY INVOLVEMENT

HBCUs' business faculty should move away from their favorite technologies, confirmed by Brill and Galloway in their 2007 study. The top six technologies that are currently being used by instructors in descending order are the: (1) Overhead Projector, (2) VCR, (3) Slide Projector, (4) the Internet, (5) Large Screen Video Data Display, and (6) Instructor Computer Workstation. Their study also revealed that instructors have the greatest interest in the Internet and CD-ROM in future instruction (p. 98).

This study suggests that many professors are only interested in basic technology, not advanced programs and software. Moving away from their comfort zones, HBCUs' faculty should embrace technology and its academic and employer potential. Also, the institutions must provide support and financial resources to help this potential be realized.

AREA OF CONCERN 9: HBCUs STRATEGIC DIRECTION

Although some universities choose to bypass the adoption of information technologies, others do not. Information technology can pose both threats and opportunities to the learning environment (Cookson, 2000, p. 71). Therefore, it is important that institutions anticipate and react according to these technologies. "Little strategic direction or leadership to drive initiatives forward and an academic culture that supports research above teaching" could leave HBCUs graduates at a technological loss (Bjarnason, 2003, p. 110).

HBCU leaders must be willing make information technology an institutional priority and invest in an infrastructure suitable for a new generation of minority learners and the faculty who educate them. The importance of setting a strategic IT direction is critical because colleges and universities are not known for quickly changing. HBCUs face a bigger challenge of prioritizing the level of importance that an increased use of technology will have in enhancing the learning experience and the resulting resources needed to bring new initiatives into fruition (Bjarnason's, 2003, p. 112).

For HBCUs to be successful in their technology initiatives, planning must be integrated with the institutions missions and goals at specific levels. These levels are (1) the physical level, which accounts for every construction and renovation endeavor, (2) the operational level, which ensures that new technology resources will meet the demand for access, and (3) the functional level, which ensures that technology plans are created to serve the institutions community including, students, faculty, administrators, employees, alumni, and parents (Foster and Hollowell, 1999, p. 9-10).

AREA OF CONERN 9.1: INSTITUTIONAL COMMITMENT TO FACULTY PROGRESSION

NAFEO (2000) questions "whether…[HBCUs'] faculty and administrators are making full use of the marvelous technology that encourages professional exchange and rewards its creative use in the classroom" (p. V). Yet, oddly enough, many professors have noted several uses of technology and feel that their use of it has a positive influence on their teaching and student learning by facilitating elaborate and clear presentations, providing support and structure for in-classroom exercises, and enhancing student attention and engagement (Brill and Galloway, 2007, p. 100). However, these positive influences can be achieved using the standard internet browser and Microsoft Office.

Faculty must make greater strides in using other forms of instructional technology to enhance student learning. The faculty will probably have to re-evaluate their roles as instructors and use the Internet and technology as a supplementary learning resources and a vital way to foster outside class discussion (Cookson, 2000, p. 72). HBCUs' administrators and higher-ups must have an open mind toward integrating technology into instruction and provide the resources to properly train and offer course materials to the faculty if students are to have a skill set that goes beyond the basics.

There are several ways in which HBCU administration and their respective Trustees Board (assuming that the Administration and Trustees Board understand the significance of technology) can help the faculty become more enthused about the expanded use of technology in the classroom and around campus. HBCUs can assist the faculty by (1) offering training and assistance in course design and software programs, (2) taking into account a faculty's use of technology in classroom instruction during times of review for tenure and promotion, (3) offering additional student assistants, and (4) making available an adequate number IT staff for support (Cookson, 2000, p. 77).

Although these particulars may initially be costly, institutions will become more efficient at ensuring the faculty has the resources they need and these costs will decrease. Moreover, despite differing institutional strategies, the results of HBCU leaders' effectiveness at infusing technology into their campuses will be shown by the commitment to assist the faculty with resources and the new ventures students are creating using technology.

AREA OF CONCERN 9.2: INSTIUTIONAL ACCOUNTABILITY TO THE STUDENTS

A serious problem that many HBCUs could face regardless of planning is not following through with commitments. HBCUs must make technology a priority and include the students in their plans. For example, Athabasca University, a HBCU set a strategic priority of establishing a strong service culture where service standards were set and announced to students (Cookson, 2000, p. 78). This un-required announcement not only holds the institution accountable for what they have planned and earmarked institutional funds for, but the student body will be able to assess whether the institution is following a plan which greatly affects their matriculation. HBCUs should ensure that all technological priorities, standards, policies, and improvements the institution has set/planned should be made available to the student body in writing.

AREA OF CONCERN 9.3: OPEN COMMUNICATION

Every attempt to increase technology will probably fail if HBCUs (faculty, staff, students, administration, Board, Alumni, and Parents) do not become better at communicating. Minority serving institutions must foster an environment of open dialogue where every party has the opportunity to express their views and opinions regarding technology and its uses. HBCUs should promote an institutional culture that expects and encourages consultation and collaboration (Foster and Hollowell, 1999, p. 10). The continual push-pull between institutional personnel (IT staff, deans, directors, and administrators) will encourage the free flow of information and strategic strategies. In addition, increased communication is engaging and brings out the creativity in everyone (Foster and Hollowell, 1999, p. 10).

Because students should be the main benefactor of technology, the lines of communication should be extended even further to include their opinions. Students will be able to spot problems after implementation and can help guide faculty with integrating technology into classes. Stillman College is a good example of an HBCU who listens and acts according to student concerns. For example, their Student Government Association collaborated with the College's Vice President for Academic Affairs to open a new computer lab for students and are continuously working together to maintain and update the lab. HBCUs respective Boards, Administrators, Faculty, and Students are the necessary components needed to drive change and foster a new technological learning environment. This environment can only be accomplished through the realization that open and free dialogue and communication is vital to the success of technological change.

RECCOMENDATIONS

With HBCUs rising to the task of preparing their students to enter an unstable economy and compete with other individuals with varying educations, it is important that HBCUs continue to focus on the importance of training students with current technology resources, especially incorporating the business technology and software in the business curriculum. HBCUs should make every effort to ensure that the technological needs of students are being met. Thus, HBCUs should:

- Upgrade the internet connections in the residence halls.
- Ensure that there are workstations and internet access in academic classrooms and student centers.
- Create a student laptop requirement, partner with computer companies to adopt an affordable laptop program, and allow a financial aid allowance for the laptop purchases.
- Partner with other institutions, predominately white institutions, and federal, local, and state governments to share and use new technologies.
- Ensure that there are easy accessible, fully functioning, and technologically sufficient computer labs.
- Re-evaluate the allocation of technological resources between students, faculty, and administrators.
- Increase the use of technology in business student instruction by incorporating the use of subject specific software, mandate a laptop requirement, train and support business faculty.
- Increase accountability to students and faculty.
- Promote an environment of open and free dialogue/communication.
- Evaluate the institutions current technological standing, set a strategic direction, and follow-through with the initiatives.

These strategies will allow HBCUs to become aware of their institutions technological standing (campus connections, available equipment, and technology utilization), student and faculty concerns

(if they are being addressed), and how their respective campuses could better prepare their students for a technological workforce. Additionally, HBCUs will be able to improve their business departments by finding new technologies and software that will increase their students' technological standing in comparison to other institutions. Moreover, this will help close the digital divide which causes some HBCU students to fail due to insufficient preparation by their institutions.

CONCLUSION

Justice Thurgood Marshall, media mogul Oprah Winfrey, and multi-millionaire Attorney Willie E. Gary are just a few of the many HBCU graduates who have led successful lives after graduating from HBCUs. HBCUs educate considerable amounts of African-American professionals at the baccalaureate through post-doctoral levels. They go on to become leaders in their communities and contribute to the nation's productivity in all major sectors including technology (NAFEO, 2000, p. 3). There is no single technological solution for any institution, but HBCU leaders must make an assessment of their needs and resources, then formulate a strategic plan to make their campuses and students technologically savvy.

According to NAFEO, all HBCUs can expand the educational options for students, enhance institutional ranking and impact in the communities they serve, and increase the level of opportunity for professional development for faculty. Moreover, these goals can be achieved for all HBCUs-large, public, small, urban, rural, and private (NAFEO, 2000, p. 42). However, HBCUs will have to drastically become better at communicating and be willing to concede to their institutions technological woes. Breaking down the communication barriers will allow HBCUs leaders and students to discuss the major issue of technology without recourse and immediate dismissal of varying opinions. Working together, HBCU students and leaders can create better ways to educate students utilizing technology.

HBCUs must work to make their graduates technology savvy and ready to compete in today's world. "Unless their preparation is not equivalent to graduates of institutions with a longer tradition of successful…graduates, equal opportunity [and competitiveness] for HBCU [students and especially] business graduates remain limited" (Jackson, 2006, p. 201). HBCUs should make technology an institutional priority and an integral part of campus and student life; thereby ensuring their students success.

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EFFECTS OF SPIRITUALITY IN GENERATION Y ON WORK OUTCOMES

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ABSTRACT

The purpose of this literary review is to consider the literature surrounding the effects of spirituality in Generation Y on work performance/outcomes. This topic has been undertaken because of an emerging interest in spirituality at the workplace as well as the increasing number of Gen Yers in the workplace. The beginning of the review assesses the literature surrounding the definitions of Generation Y, spirituality, and work outcomes in order to clarify these terms. Next the connections between Generation Y, spirituality, and work outcomes are explored. The literature shows relationships between Generation Y and their feelings towards spirituality, Generation Y and the workplace, as well as spirituality and its effects on work performance. There appears to be a gap in the literature that connects Generation Y, their spiritual tendencies, and work performance.

INTRODUCTION

The purpose of this literary review is to consider the literature surrounding the effects of spirituality in Generation Y on work performance/outcomes. This topic has first been broken apart in order to define Generation Y, spirituality, and work outcomes. The second part will study the implications of how these definitions intertwine in order to explore their relationship and understand what the literature presents and what is lacking. The final section will be a proposed hypothesis focused on the effects of spirituality in Generation Y and if it will create a greater capacity in the workplace with relationship to work performance.

GENERATION Y

A generation is defined as "an identifiable group that shares birth years, age, location, and significant life events at critical developmental stages" (Smola & Sutton, 2002 p. 364). A generational group includes those who share historical or social life experiences, the effects of which are relatively stable over the course of their lives (Smola & Sutton). For the first time in history, there are four diverse generations together in the workforce (Gaincola, 2006). Each generation possesses unique characteristics that affect work ethic, relationships, communication, and perception of organizational function and hierarchy (Glass, 2007). The four generations' personal and social values, work ethics,

characteristics, attributes and communication styles directly affect how work is completed. Over the next twenty years, the largest generation, the Baby Boomers, will be leaving the workforce with Generation Y, approximately 80 million strong, entering (Littman, 2008). Research has shown that due to the cultural differences between generations, the influx of Generation Y into the workplace will very likely change the traditional face of business. The four generations that are currently active in the workplace are the Traditionalists, the Baby Boomers, Generation X, and Generation Y (Jenkins, 2008). The following will identify each working generation that is present in today's workplace.

The Traditionalists

The eldest generation in the workplace is the Traditionalists. Traditionalists are born between 1900 and 1945 and are also referred to as: Silent's, Veterans, Matures, and Pre-Boomers (Lyons et al, 2007; Hill, 2004). There are approximately 75 million Traditionalists currently in the workforce (Kyles, 2005).

The Baby-Boomers

Following the Traditionalists is the Baby-Boomer (Boomers) generation. Boomers are defined as having been born approximately between 1941 and 1960 (Glass, 2007). Boomers got their name in reference to the boom in births either during or after WW II and are the largest generation in American history (Glass, 2007). There are approximately 80 million Boomers currently in the workforce (Kyles, 2005). Due to the size and the times they lived through, this generation has had a profound impact on both American and global societies (Swenson, 2008). Some of the defining moments in history that molded their value systems are: women's liberation, the space race, rock and roll, a rise in civil activism, Vietnam, Watergate, urban riots, the assassinations of Kennedy and King, Woodstock, inflation, and the sexual revolution (Smola & Sutton, 2002).

Generation X

The second youngest generation in the workforce is Generation X (Gen X). Gen X was born approximately between 1961 and 1981 (Kyles, 2005). They are a smaller group, representing only about 46 million workers (Kyles). Similar to the previous two generations, one of the characteristics of this culture is their high level of Individualism (Smola & Sutton, 2002). Some of the historical influences on their value systems are: single parent homes/latchkey kid, mass corporate lay-offs in the 1980's, video games, personal computers, the birth of the internet, MTV, and AIDS (Smola & Sutton).

Generation Y

The fourth generation in the workplace is Generation Y (Gen Y). Generation Y is also referred to as: Millennials, Net Generation, Generation Next, Gen Me, Echo Boomers, and MyPod Generation. This generation is the youngest generation, born between 1982 and 1995 (Broadbridge et al, 2007). Almost as large of a generation as the Boomers, Gen Y will be a major force in the workplace numbering up to 81 million (Littman, 2008). By 2012, Gen Y will represent almost 40 percent of the workforce (Southam, 2008).

Not only is the demographic profile of Gen Y different than the previous generations, but they also have vastly different views on spirituality and social justice issues. This generation is Collectivistic as opposed to the other generations being Individualistic (Broido, 2004). One of the reasons Gen Y employees are different is because they feel it is their personal responsibility to make a positive impact on society (Dekar, 2007). They have grown up watching the beating of Rodney King, the trial of O. J. Simpson, as well as the debates on affirmative action and illegal immigration (Downing, 2006; Hill & Stephens, 2003). They have seen the rise of women in peer culture, government, business, politics, and many other areas (Hill & Stephans, 2003). They are highly likely to engage in voting, community service, demonstrations, and discussions of social and political issues (Broido, 2004).

SPIRITUALITY

There is an extensive body of literature on defining spirituality. According to Bruce and Plocha, spirituality is personal, involving "who one is and how one lives" (1999) as well as allowing the soul to be present in every facet of life, whether it be with family, friends, or in the workplace (Bruce, 1999). Another researcher has described the many definitions of spirituality in the following passage:

> Only modest agreement on the definition of spirituality exists. For one Catholic theologian, spirituality is "the way we orient ourselves toward the divine." For a physician at the Harvard Medical School, it is "that which gives meaning to life." For one social worker, it is "an individual search for meaning, purpose and values which may or may not include the concept of a God or transcendent being." For others, to be "Spiritual" means to know, and to live according to the knowledge, that there is more to life than meets the eye. To be "spiritual" means, beyond that, to know, and to live according to the knowledge that God is present in us in grace as the principle of personal, interpersonal, social, and even cosmic transformation. (Bruce, 2000)

There is also a recognized difference between spirituality and religion in much of the literature. Marques and others describe this difference as religion being something that is institutionalized with an outward perspective, whereas spirituality focuses within on topics such as knowledge and feelings (Marques, 2007). Another description of this dichotomy relates religion to principles having specific written guidelines in the form of creeds or a canon of accepted literature, while "spirituality is the praxis of faith" (Harrington, 2001). Harrington also describes religion as a concept that is more tangible and concrete whereas spirituality is questioning (Harrington, 2001). These definitions help establish a general definition that describes the difference between religion and spirituality, which is that religion is a concept that is institutionalized whereas spirituality is more personal and has no institution; however, the two concepts are not mutually exclusive. Spirituality can be found within religion; religion is not found within spirituality.

Spirituality at work, like spirituality, is defined slightly different among every literature piece. As defined by Harrington, Preziosi, and Gooden, spirituality concerns an attachment or feeling of togetherness shared among people within a work unit or entire organization (Harrington, 2001). The concept can also be defined as something that is focusing on the connection to oneself, others, and life in relation to a personal, holy or blessed experience within the larger context of spirituality in the workplace (Gockel, 2004). Gockel also applies the concept of spirituality in the workplace as "an umbrella term" for multiple "loosely related policies and practices that focus on the recognition of 'soul' at a personal and at an organizational level" (2004).

Spirituality as it relates to Generation Y follows a similar definition pattern to that of spirituality in general. The context of this definition for Generation Y comes from a falling out with organized religion. Generation Y has grown up seeing the church as a hypocritical institution, which degrades the authority of the church as an enforcer and regulator of morals, and Gen Y is not particularly enthusiastic on accepting authority viewed as corrupt (Huntley, 2006). Huntley also describes how the lack of a present religious institution "explains in part the interest amongst Yers in spirituality." Generation Y has also attempted to free themselves from a formal organization when searching for spiritual meaning (Webber, 2002).

WORK OUTCOMES

Satisfaction with work is the reason behind approximately a fifth to a quarter of alternative reasons relating to adult life satisfaction (Campbell, Converse, and Rodgers, 1976). The emotional well being of employees and their satisfaction with their work and workplace affect citizenship at work, turnover rates, and performance ratings (Keyes, 2003). Fredrickson (1998) proposed a "broaden and build" model that describes how positive emotions "broaden people's momentary thought action repertoires" and " build their enduring personal resources" (p. 300).

Positive emotions such as joy, hope, optimism, love, contentment and gratitude help us to grow as a person, energize for positive action, solve problems, improve the quality of our relationships and increase our sense of emotional well being. When we engage in positive emotions habitually they can become life enhancing over time. While positive emotions broaden the range of our thinking and actions, negative emotions may narrow our thinking and actions. When we experience a positive affect, we show a greater performance of our actions and see and think of more possibilities and options to solve whatever problem we face (Skinner, Wellborn, And Connell, 1990). People with positive affect are more likely to take action. They are proactive. Psychologist Barbara Fredrickson of the University of Michigan says that positive emotions such as joy, interest, contentment, pride and love broaden the scope of our thinking and actions (Fredrickson, 2001). Organizations that do not invest in creating a culture that allows workers to find meaning and purpose in their work may struggle to release creativity, learning, and passion in the workplace (King, Nicol, 1990). Organizational culture takes on a spirit that ranges from limiting to inspiring. John Epps captures this sentiment as follows:

> When spirit is present, doing business with the organization is a delight, when it's missing; working with the company is a drag, whether as a customer, a vendor, or a staff member. Spirit may be intangible, but its effects permeate the entire system and determine the quality of output. It's too important to be left to happenstance. (Epps 1995)

The relationship between the positive and negative emotion can be understood in the workplace by the constant varying, ongoing organizational changes that are being dealt with by management everyday. Ultimately, workplace performance helps employees align there work habits to their core values and that of the organization and help instill a culture of success.

Also, employees who can connect their work to a larger, meaningful mission or purpose of life are likely to have levels of interest (Wrzesniewski et al., 1997) and ownership for an organization's outcomes. Positive emotions are facilitated by actions within. Actions that support clear outcome expectancies give basic material support, encourage individual contributions and fulfillment, a sense of belonging, and a chance to progress and learn continually (Fawcett, 2008). Well-being in the workplace is, in part, a function of helping employees do what is naturally right for them by freeing them up to do so through behaviors that influence employee engagement and therefore that increase the frequency of positive emotions.

IMPLICATIONS

After defining each generation active in the workplace, comparing their value systems, and reviewing the historical and social influences on each generation's culture, it is now easier to identify some of the possible intercultural issues that may be faced in the workplace. Values can collide when members of generations work together. Having a better understanding of each other can make the work environment more pleasant and productive (National Oceanographic and Atmospheric Association Office of Diversity, 2008).

According to Leuenberger (2005), differences in beliefs and experiences between generations lead to problems in the workplace. For instance, baby boomers may view the desire for flexibility in work hours and relatively frequent movement between jobs attributed to Generation X and millennial generations as a lack of dedication and loyalty to the organization. Other generations may interpret the traditionalists' focus on the history of the organization and consistency as a lack of support for creative solutions and innovation (p. 17). As opposed to previous generations, Gen Y wants to enjoy their work but not let it run their lives (Broadbridge et al, 2007). In addition, the idea of staying with one employer for an entire career is gone. Generation Y does not expect to have a career with only one employer (Hulett, 2006; Busch et al, 2008). Hulett (2006) states, "They are interested in how your job will help them build immediate skills and then move on to the next job" (p. 17). The preferred style of communication of each generation differs and can lead to misperceptions and communication problems. Approximately 90 percent of productivity losses and breakdowns are due to interpersonal conflicts or communication barriers between people. Diversity issues or differences are the most common source of such losses and breakdowns (Guillory, 2007 p.94).

Gen Y is most at ease communicating by sending a quick email, instant message, or other digital message rather than having a face-to-face conversation or via the telephone (Glass). However, Generation Y's form of communication is not always the best route for conducting business. Older generations may view Gen Y as impersonal and often misperceive the tone of an email as abrupt and anti-social due to Gen Y's preferred mode of digital communication. This form of communication also can prohibit younger workers from developing personal relationships with colleagues, managers, direct reports, and customers (Glass, 2007).

Because Generation Y does prefer flexible hours and is not afraid to move from job to job, management will have to rethink practices that will effectively motivate Gen Y and use their talents to full potential. Managers will need to "keep a long leash on Generation Y employees" (Huntley, 2006) or gamble potentially losing employees due to their willingness to change jobs if they dislike their

current one. All of these tendencies amount to a general lack of connection to the workplace, which can be attributed to Gen Y watching their parents get laid off during downsizing experiences in the 1980s. Gen Y also watched their parents become workaholics, which has led them - Gen Y - to seek balance between life and work (Huntley, 2006).

Family is considered to be Generation Y's greatest value (Julian, 2006). Parents, either Mom or Dad, are most likely to be named as a hero figure and Gen Y seeks to establish their own families that support and love one another (Julian, 2006). George Barna describes this desire for family especially well, stating:

> Millions of teenagers have been deeply wounded by their family, yet most of them have a deep commitment to achieving family health in the future. They have been hurt, but they are not giving up. They believe that the family is one of the mechanisms that will enable them to maximize their life. Although it has not been modeled for them, and even though our society is constantly toying with the radical restructuring of family foundations, teenagers anticipate having a strong family experience in the years to come: a good marriage, loving kids, a comfortable home and meaningful intrafamily relationships. (Barna, 2001)

Generation Y values family and a work-life balance, and they are not afraid to move around until they find a job that allows them to achieve this goal.

Another driving factor behind the motivations of Generation Y is religion or spirituality. While Gen Y may consider themselves committed to religion, they tend to have a lack of knowledge surrounding the specificities of that religion which has resulted in a religious outlook "distinct from traditional faith commitments of most historical U.S. religious traditions" (Smith, 2005). This may be religious or non-religious, but it can be tied into the definitions of spirituality presented in the beginning of this paper, where spirituality is not definite but is personal, questioning, and searching. Gen Y also uses spirituality to apply meaning to life.

Organizations are also turning to spirituality to create more meaning in work and an environment that fosters an impression of a deeply connected community. Research by Ashmos and Duchon produced five main reasons for the growing interest in spirituality in organizations, which includes: demoralization of employees (due to downsizing), the workplace as the primary source of community, influence and curiosity surround Eastern and Asian cultures due to increased access, baby boomers developing a growing interest in contemplating the meaning of life, and an increasing push to nurture innovation due to globalization (Ashmos & Duchon, 2000). Expanding on the idea of baby boomers contemplating life, Marques relates the idea that this is not because baby boomers are aging but rather because a new millennium has arrived, which has caused a shift in thinking by realizing that life is more than just any individual - life is connected to the past and the future, and humans must rethink their connection to this concept (Marques, 2007).

As it was previously stated, Generation Y works for a variety of apparent reasons. When employees are in the workplace they produce the best performance and are happiest when they feel what they are doing is compelling (Paloutzian, Emmons, Keortge 2003). To build an argument for the rationality of spirituality, it will be necessary to introduce the concept of spiritual well-being. In ancient times, Judea

Christian scriptures encouraged people who believed in God to do good service for their employers in glory to their God (Proverbs 10:2; 15:27; Jeremiah 22: 13; Ephesians 4:28). Good work was always seen as an obedient act for a higher calling and especially for Christians, "Faith without works was said to be dead" (James 2:17). In other words, good work is a full-time spiritual obligation. These are examples of how spiritual well-being is evident within a particular religion.

Spiritual well-being must also be defined with relation to the workplace. The move towards spiritual well-being is defined as the "self-perceived state of the degree to which one feels a sense of satisfaction in relationship to spirituality or a sense of purpose and direction" (Paloutzian, Emmons & Keortge, 2003). Kouzes and Posner confirmed research that shows people with personal or organizational values are more committed to that organization (Kouzes & Posner, 1995). The findings also suggest the these same levels of commitment can occur, regardless of clarity in organizational values, when the worker has a deep understanding of their own personal values (Kouzes & Posner, 1995). As the levels of spiritual well-being increase or the level in which there is satisfaction in the spiritual life domain increases, there is a positive relationship to the influence on life and workplace satisfaction. This is because spiritual well-being provides meaningful goals in life, positive affects, and social support (Emmons, 1999). This can be furthered depicted in Figure 1 shown below.

Figure 1
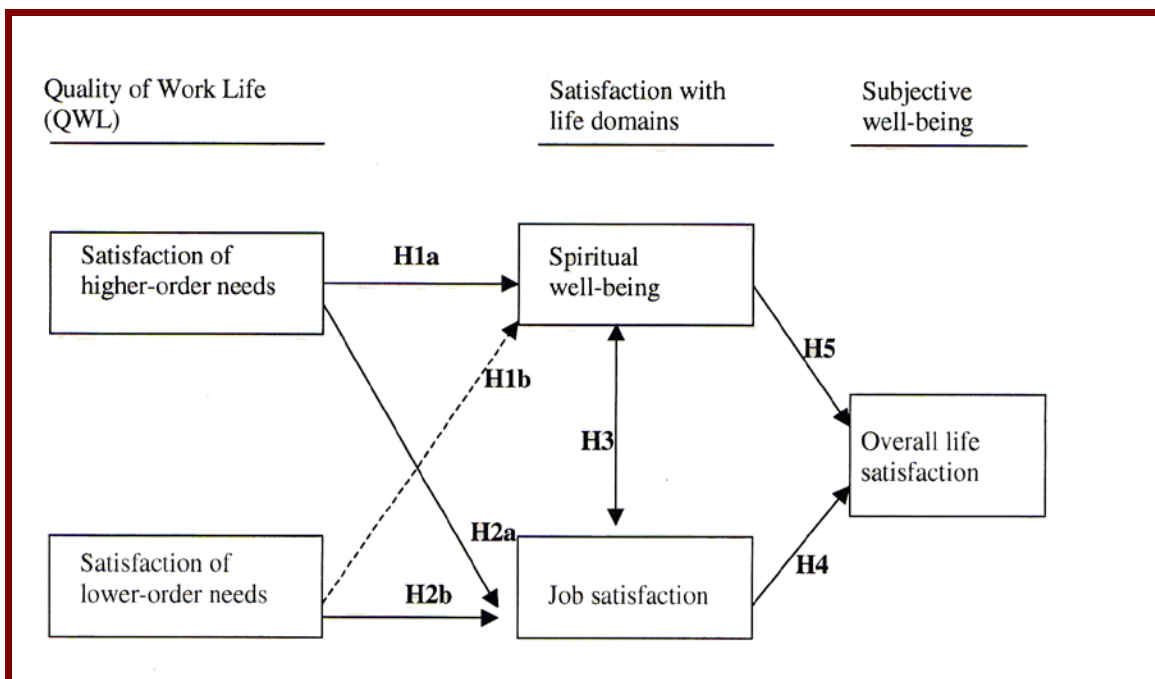
This model posits that overall life satisfaction is influenced positively by spiritual well-being and job satisfaction. Job satisfaction is influenced by satisfaction of both higher- and lower-order needs, whereas spiritual well-being is influenced by satisfaction of higher-order needs only.

Source: Lee, D.-J., Sirgy, M. J., Efraty, D., & Siegel, P. (2003). A Study of Quality of Work Life, Spiritual Well-Being, and Life Satisfaction. In *Handbook of Workplace Spirituality and Organizational Performance* (pp. 209-230). New York: M.E Sharpe.

As you can see, the relationship between job satisfaction and spiritual well-being are positively related. "Those with high spiritual well-being are likely to exercise their moral principles in their daily lives by treating others with compassion" (Emmons, Cheung, & Tehrani, 1998). Thus, the behaviors in the workplace will likely enhance collaborations and citizenship thereby lowering the personal feelings of alienation, and increasing identification throughout the organization.

CONCLUSION

Generation Y, as an emerging generation, has become the subject of many recent writings and shows a great ability to influence the culture around them, including the culture found within their working environment (Julian, 2006). Spirituality in the workplace has also emerged as a recent trend in writings. A publishing executive was interviewed for *Fortune Magazine* about spirituality at work, raising the following question and answer:

> Why would we want to look for God in our work? The simple answer is most of us spend so much time working, it would be a shame if we couldn't find God there. A more complex answer is that there is a creative energy in work that is somehow tied to God's creative energy. If we can understand that connection, perhaps we can use it to transform the workplace into something remarkable. (Gunther, 2001)

The literature describes all of the variables between Generation Y, spirituality, and work performance and how some of these concepts are interrelated (for example, spirituality influencing work performance, or Generation Y's attitudes towards spirituality, etc…). However, there appears to be a gap in the literature connecting Generation Y's spiritual tendencies to their work performance. It would be hoped that the combination of the two recent trends of spirituality at work and Generation Y could be further researched in order to more effectively study how these concepts influence each other.

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INTEGRATING TEAM BUILDING, ONLINE COLLABORATION AND PROJECT-BASED LEARNING WITHIN THE MIS CURRICULUM

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ABSTRACT

An effective information systems curriculum should prepare students to grow personally and professionally throughout their careers. In addition to providing current and relevant course content, an effective curriculum should help develop communication skills, teamwork skills, and leadership skills. A well balanced combination of course development tools and project-based learning using a "whole-parts-whole" paradigm can be effective in meeting the goals of an information systems curriculum. This paper describes how the "whole-parts-whole" paradigm has been used to achieve curricular goals at one university.

Project-based learning can be an important tool to develop communication skills, teamwork skills, and leadership skills. Projects allow teachers to create an environment which mimics many information systems problems in the real world. Projects can be selected or crafted to challenge students and motivate them towards the integration of knowledge necessary to solve real-world problems. The methods used to select, guide, and motivate teams can have dramatic effects on the success of project-based learning. This paper describes how the selection of projects and the selection and guidance of teams to work on projects have helped the MIS department at one university to achieve important goals.

REVIEW OF LITERATURE

Engagement of students in the classroom activities has been a subject of research for the past two decades. The fundamental idea underlying engagement theory is that students must be meaningfully engaged in learning activities through interaction with others and in worthwhile tasks (Kearsley and Schneiderman, 1999). However, engagement is not just a student-oriented activity. Smith et al. (2005) provides an excellent review of recent literature on new pedagogies of engagement and classroom-based engagement. The results of National Survey of Student Engagement (NSSE, 2003) provide compelling reasons for various forms of student engagement that enrich their learning experience in an

educational environment. The Association to Advance Collegiate Schools of Business (AACSB, 2009), the accreditation body of business schools, outlines the standard of teaching and learning as active involvement of students and collaboration and cooperation among participants (faculty-student and student-student). Some of the important and broader arguments towards a change in the mode of education that can lead to meaningful and long-lasting learning experience for students can be summarized by the following:

- *Involved Education:* Students lean more when intensely involved in educational process and are encouraged to apply their knowledge in many situations (NSSE, 2003). The greater the student's involvement or engagement in academic work or in the academic experience of college, the greater his or her level of knowledge acquisition and general cognitive development (Pascrella and Terenzini, 1991). Students who are engaged learn at high levels, have a profound grasp of what they learn, retain what they learn, and can transfer what they learn in new contexts (Kearsley and Schneiderman, 1999).

- *Active and Passive Learning:* The most effective learning takes place when students are actively involved in their educational experiences. Passive learning is ineffective and of short duration. Faculty members should develop techniques and styles that engage students and make students responsible for meeting learning goals. Many pedagogical approaches are suitable for challenging students in this way – problem-based learning, projects, simulations, etc. Faculty members should find such approaches that are suited to their subject matter, and should adopt active learning methodologies (AACSB, 2009).

Engagement theory is based upon the idea of creating successful collaborative teams that work on ambitious projects that are meaningful to someone outside the classroom (Kearsley & Schneiderman, 1999). Project or Inquiry-Based Learning is an instructional method that uses complex, real-life projects to motivate learning and provide learning experiences; the projects are authentic, yet adhere to a curricular framework (PBL, 2006). It allows teachers to create tasks whose complexity and open-endedness mimic problems in the real world. The three components, summarized by Relate-Create-Donate, imply that learning activities: *(i) occur in a group context, i.e., collaborative teams, (ii) are project-based, and (iii) have an outside or authentic focus (PBL, 2006).* Projects that have depth, duration, and complexity challenge students and motivate them towards construction of knowledge. Project-based learning provides a cross-collaborative learning environment which enhances student learning through interactions with each other (Nance, 1998). It provides improved understanding of subject matters, helps develop communication, planning and teamwork, and provides opportunities to take responsibility. Teams outperform individuals acting alone or in a larger group, especially when performance requires multiple skills, judgment, and experiences (Wells, 2002).

COLLABORATION TOOLS

Specialized course delivery products such as Blackboard and WebCT enable students to collaborate on projects. While these course delivery products are extremely useful in the classroom, they generally will not be available in the workplace as the graduates of our programs become employees of public or private organizations. Other collaboration tools, which are commonly available within public or private organizations, can be used to supplement the use of WebCT/Blackboard to enhance team building and collaboration skills.

Communication is one of the most important skills an IT person must have in the workplace. Interviewing customers to gather systems requirements, developing system-related documents such as systems proposals, design specifications, and training manuals, as well as making presentations to customers are common practices. One thing that our classes have in common with real-world IT projects is difficulty, and in some cases, impossibility of face to-face interaction. Many classes use internet technologies to enhance delivery of course materials. Specialized course delivery products such as Blackboard and WebCT enable students to collaborate on projects. While these course delivery products are extremely useful in the classroom, they will not be available in the workplace as the graduates of our programs become employees of public or private organizations. For this reason, we have chosen to supplement course delivery products such as Blackboard and WebCT with collaboration tools which are likely to be available in the workplace.

ASSESSMENT OF COURSE EFFECTIVENESS

Faculty members evaluate the performance of students to assure that certain standards of quality are achieved. Students evaluate the processes used to implement the courses they take. It is not the goal of faculty to make sure that students are happy with the courses they take or happy with the grades they get. Faculty should try to provide courses that are successful in achieving goals articulated in the curriculum. In that sense, feedback from students about achieving important goals can have significant value.

CURRICULUM DESIGNED TO ENHANCE STUDENTS' UNDERSTANDING

In our MIS program, we use the "whole-parts-whole" paradigm to reinforce materials taught in our courses. A complete overview of the field of information systems is presented in our initial Management Information Systems course. In this course, we emphasize the relationships between hardware, software, data, communications, and organizational considerations. We introduce the Systems Development Life Cycle (SDLC) in this course and use a case-based project to involve students in the analysis portion of the SDLC. After taking this course, our students follow several "tracks" consisting of an introductory course and one or more advanced courses within each track. The tracks, which consist of Application Development, Database Development, and Network Design, constitute the "parts" of our curriculum. Group projects are used as part of several courses within these tracks. Our Systems Analysis and Design course is our "capstone" course where all the parts are brought back together into an integrated "whole".

Success in a project-based teaching requires extensive, well-thought out planning for the curriculum and for the courses within the curriculum. It requires establishing course objectives and course activities, developing a schedule of these activities, as well as outlining expectations from students, and identifying a grade distribution. We design our course curriculum based on the key concepts of the project-based learning. It is organized such that students gain knowledge and concepts through lectures, group projects, group presentations, documentations, research papers, classroom writing, and discussion.

USE OF PROJECT-BASED LEARNING IN OUR CURRICULUM

Project-based learning provides a cross-collaborative learning environment that enhances student learning through mutual interaction. Project or Inquiry-Based Learning is an instructional method that uses complex, real-life or simulated projects to motivate learning and provide learning experiences. Projects allow teachers to create tasks whose complexity and open-endedness mimic problems in the real world. Projects that have depth, duration, and complexity challenge students and motivate them towards construction of knowledge. The purpose of the group project is to offer first-hand knowledge of the key concepts of a course as well as the tools, techniques, and technologies necessary to develop the concepts. Project-based learning provides a cross-collaborative learning environment which enhances student learning through interactions with each other. Project-based learning provides improved understanding of subject matters, helps develop communication, planning and teamwork, and provides opportunities to take responsibility.

SELECTION OF PROJECTS

The project activities should address most of the areas of knowledge and skills that will be taught in the classroom. The project activities should ensure that students can attain those objectives in a timely manner through knowledge gained from the overall course activities.

Depending on the learning objectives of a course, the life of a group project may extend for most of a semester. A semester-long project may be a fictitious or published case problem, or it can be a real-life problem. A realistic project should represent the current business environment and implement necessary activities of an organizational domain. Problems applicable to the real world seem to stimulate students' interest and motivation. The project must be large enough to require a high degree of interaction between individuals working on different components. The project must be feasible during the duration of the course and should be of sufficient complexity and detail to challenge and enhance the knowledge and skills of the student participants.

SELECTION OF TEAMS

A team working on an in-class project typically consists of 3 to 5 students. As the majority of project activity is outside the classroom, it is found that for a larger teams, one or more members fail to participate effectively due to poor communication or schedule conflicts.

The groups can be homogeneous or heterogeneous depending on knowledge, gender, ethnicity, cultural background, and socioeconomic background. The instructor may assign the team members or the members may organize themselves in a group.

Ideally, a successful project team should be manageable and should reflect a real-world business team. A successful team should also have a complementary skill set within the group. One of the authors has found that allowing teams to self-select often leads to unbalanced and non-heterogeneous groups. Students who know each other tend to group together. This often concentrates members from the same cultural and ethnic backgrounds. When students choose friends from their classes, this often concentrates with the same educational backgrounds. This author stopped allowing students to self-select when he ended up with two teams of high-tech gurus (mostly from India), two teams of students with business experience (mostly born in U.S.), and two teams of accounting students (mostly from

China and Vietnam). It became obvious that the groups were badly unbalanced and that students were missing the chance to learn how to collaborate with students of different backgrounds.

EMPIRICAL RESULTS

In general, most students don't like team projects. Team projects require additional time and effort to meet with team members. Students also tend to dislike lectures, textbooks, and exams. In Spring 2008, 36 students in a graduate level class in Management Information System Principles were allowed to self-select the teams they participated on. They were given individual assignments and team assignments, including an end-of-semester team presentation. At the end of the semester, they were asked to rank 7 aspects of the course (shown below in the order in which they were introduced during the semester).

Team assignments and team projects ranked 3rd and 4th in enjoyment out of 7, and had average rankings of and 4th and 5th in contribution to learning.

Spring 2008
36 students   **self-selected teams**

| | **Enjoyed** | | **learned from** | |
aspect of course	Average	rank	average	rank
Textbook	4.7	6	2.1	1
Lectures	3.9	5	2.3	2
individual assignments	1.9	2	3.1	3
WebCT	1.6	1	5.2	6
team assignments	3.2	3	3.5	4
team presentation	3.6	4	3.7	5
comprehensive final	6.6	7	6.7	7

When teams were assigned by the teacher, the enjoyment rankings of team assignments and team projects dropped to 5th and 6th, while the contribution to learning rankings rose from 4th and 5th to 2nd and 3rd.

Fall 2008
41 students   **teacher-selected teams**

| | **Enjoyed** | | **learned from** | |
aspect of course	Average	rank	average	rank
Textbook	4.4	4	4.8	5
Lectures	3.9	3	1.7	1
individual assignments	2.3	2	5.4	6
WebCT	1.3	1	4.2	4
team assignments	5.2	5	1.9	2
team presentation	5.6	6	2.7	3
comprehensive final	6.7	7	6.8	7

It should be noted that the increased rank in contribution to learning for Lectures can be easily explained. The textbook used in this course was not very strong in its handling of team building skills. When students could not depend on the textbook or on team member familiarity to make team projects go smoothly, they actually had to come to class and listen to the professor.

CONCLUSIONS

 Project-based learning can be an important tool to develop communication skills, teamwork skills, and leadership skills. The methods used to select, guide, and motivate teams can have dramatic effects on the success of project-based learning. Instructors should select projects which are feasible to complete in one semester and which mimic the properties of problems to be faced in the real world.

Selection of teams can have very substantial effects on the success of classes using project based learning. When students are allowed to self-select their teams, they report having more enjoyment during team projects. This enjoyment often prevents students from participating in the difficult and often awkward process of getting to know new acquaintances well enough to work effectively with them. Self-selected teams are very often unbalanced in terms of academic, experience and ethnic factors.

While teacher-selected teams are often less enjoyable for students than self-selected teams, students often learn more from the experience of working on a balanced team with members they had not previously known.

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INSTANT MESSENGER COMMUNICATION IN A MULTINATIONAL CORPORATION

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ABSTRACT

This research investigates contemporary business communication practices regarding instant messaging. The research will explore the strengths, weaknesses and best management practices of instant messaging in a small multinational company in the Oil & Gas industry.

The research methodology includes employee interviews, employee surveys, and direct observation. The interviews provided guidance for the development of the employee surveys.

The findings are expected to show that instant messaging is a highly utilized communication method in business and has become essential to efficient business operations. The conclusions from this research will equip managers to minimize the risks and maximize the benefits of instant messaging communication in their organizations.

INTRODUCTION

In the 1990's software developers released a communication tool called instant messaging. This new communication method allowed users to communicate through a common instant messaging program. America Online was the first company to successfully attract a strong instant messaging customer base. The majority of AOL's customers were young and technologically savvy. These young consumers quickly made AOL IM a success.

The first generation of IM consumers who flocked to these early IM programs has entered the workforce. They bring with them a level of technological comfort that is changing the face of modern business communication. Managers and business communication professionals should educate themselves about the impact instant messaging technology will have on organizations.

PURPOSE

The purpose of this research is to identify strengths, weaknesses, and the way employees use instant messaging to support daily operations. The research also seeks to determine which subsections of employees are using instant messaging communication most frequently.

RESEARCH METHODS

A survey and several interviews were conducted to collect data regarding instant messaging use in a small international oil trading company, Mabanaft, Inc., based in Houston, Texas. Senior managers at Mabanaft authorized a survey of employees in North America, Europe, and Asia. The survey participants included all Mabanaft employees from these regions. Twenty-seven surveys were completed and returned, for a 60 per cent response rate, which provided very strong data for analysis.

The survey consisted of ten multiple choice questions. The questions focused on employee use of instant messaging systems. Also, several demographic questions were used to provide categories for further analysis. Below are the questions from the survey:

Q1. Rank the following communication methods based on how frequently you use each during an average workday, 1 being the most, 4 being the least:

Telephone
Email
Instant Messaging
Personal Contact

Q2. What percentage of your total business communication is through instant messaging?

0per cent to 20per cent
21per cent to 40per cent
41per cent to 60per cent
61per cent to 80per cent
81per cent to 100per cent

Q3. Please rate the following statements by selecting strongly agree, agree, neutral, disagree or strongly disagree
Instant messaging is convenient to use while working from home.
Instant messaging is easy to access while traveling.
I feel that instant messaging is secure.
My preferred method of communicating at work is instant messaging.

Q4. Please rate the following statements by selecting always, frequently, sometimes, rarely or never.

Instant messaging is useful to communicate with colleagues in other companies.
I use other communication methods to supplement instant messenger conversations.
I communicate with colleagues in other countries with instant messaging.

Q5. Please rate the following statements by selecting strongly agree, agree, neutral, disagree, or strongly disagree.
I believe instant messaging is:

Impersonal
Unreliable
Unprofessional
Efficient

Q6. Please rate the following as strongly agree, agree, neutral, disagree or strongly disagree.

Managers implementing a new instant messaging system in their organization should:

Monitor all incoming and outgoing messages.
Save all instant messenger communication.
Use a messenger program designed for business use.
Use a free messenger program, such as Yahoo or MSN.
Limit Instant Messaging to internal communication

Q7. I work for:
Mabanaft Inc.
Mabanaft BV
Mabanaft PTE
Other (please specify)

Q8. My home office is located in:

North America
Europe
Africa
Asia
South America

Q9. I currently work in the following area:

Finance
Accounting
Operations
Trading
Marketing
Management
Other

Q10. My current age is between:

20 and 30
31 and 40
41 and 50
51 and 60
61 and 70

The Mabanaft survey provided several interesting pieces of information. The most significant findings are listed below.

-When asked how frequently they use instant messaging to communicate with colleagues in other countries, 23.1 per cent of Mabanaft employees selected "Always" and 42.3 per cent chose "Frequently".

-65.4 per cent of Mabanaft employees responded that they communicate with other organizations through instant messaging at least frequently.

-The survey revealed demographic information for employees who use instant messaging for more than 40per cent of their daily business communication. Forty-five percent of North American employees use instant messaging at this rate, compared to 27.3 percent of Europeans and Asian colleagues.

-The survey revealed that 91 per cent of Mabanaft employees who use instant messaging for more than 40 per cent of their daily business communication are between the ages of twenty and forty.

DISCUSSION

The most significant findings from the survey relate to international business communication, not only the use of instant messaging among employees but also between employees and external stakeholders. These results provide a preview of organizational communication changes for which managers must prepare.

International organizations incur significant costs to communicate effectively between international locations. Instant messaging can help managers significantly reduce these costs and improve communicative efficiency in their organizations. The regular use of instant messaging communication allows inexpensive and efficient communication among the international Mabanaft offices.

Another interesting result from the survey was the significant use of instant messaging communication with external business partners. The nature of a trading business requires fast communication between brokers, buyers, and sellers. This study found that traders use instant messaging to contact brokers, buyers, and sellers. Schedulers receive pipeline movement information from pipeline companies and other schedulers. The operations department uses instant messaging to stay updated on vessel movements. Instant messaging is the fastest and most efficient method of communicating between all the organizations involved in moving Mabanaft's products.

Finally, the survey indicates younger members of the workforce are more likely to utilize instant messaging for business communication. The data shows a tendency for employees less than 40 years

of age to use instant messaging for 40 per cent of their daily business communication. Managers must take notice of this trend and should develop systems to manage instant messaging communication.

In 2004, the US Air Force decided to add secure instant messaging portals to their communications network. The Air Force made this decision because military personnel were already using AOL and Yahoo IM to conduct daily military affairs. Rather than ban an effective communication method, the Air Force took steps to effectively manage the grassroots movement toward IM communication. This trend will likely intensify as more members of the generation that made instant messaging a booming business enter the job market.

The following list of strategies emerged from this study. They are a starting point for managers interested in preparing their organization for business communication in the future.

DO
- Archive all incoming and outgoing messages.
- Have a clear instant messaging policy, even if the company does not officially use instant messaging.
- Educate employees about the potential legal liability they expose the company to through instant messaging.

DON'T
- Use instant messaging for highly sensitive communication.
- Ban instant messaging without serious consideration. Employees have and will continue to use it without authorization.
- Wait to develop systems for instant messaging until they become a problem.

CONCLUSION

Clearly there is great potential for growth in instant messaging. Many companies are already utilizing instant messaging in daily business operations. Our survey of Mabanaft employees showed that 48.1 per cent either agree or strongly agree that their preferred method of communication is instant messaging. IBM employees send an average of 6 million internal instant messages on a daily basis. In 2006, they were sending 4 million internal instant messages daily. Managers cannot ignore the growth of instant messaging communication.

As the generation of consumers that made Yahoo, MSN and AOL household names enters the workforce, instant messaging usage will increase. Our research at Mabanaft showed that instant messaging accounts for over 40 per cent of the daily business communication for 55.5 per cent of Mabanaft employees between 20 and 30 years of age. By comparison, 35.3 per cent of Mabanaft employees between 31 and 70 years of age use instant messaging for 40 per cent of daily communication. This trend can be seen in other organizations around the world. Junior members of the labor force are bringing instant messaging programs into organizations around the world.

Billions of dollars in commodities, stocks, bonds and commercial goods are traded every day using instant messaging technology. The strong international communication, easy message archiving, high

level of efficiency and easy implementation will lead more organizations to use instant messaging. The productivity and cost reduction benefits of instant messaging far outweigh the potential negatives to businesses.

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COMMUNICATION DYNAMICS IN ONLINE INSTRUCTION: A SHIFT FROM THE TRADITIONAL CLASSROOM

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ABSTRACT

This paper addresses the communication implications of online instruction. Communication exchanges including the quality and quantity of communication cycles, message types, and user feedback are explored. Communication similarities and differences between online and face-to-face instruction are identified.

Data collected from students' experiences with online instruction as well as direct input from faculty gives examples of participant satisfaction and faculty perceptions. The data reveal that online courses show comparable grade distributions, but higher failure rates. The authors noted that the students thought they were prepared for online instruction, but were surprised when they discovered they had to initiate their own learning. Students were required to write more extensively and, therefore, show an improvement in business writing skills. Faculty observed heavier workloads due to the quantity of individual and group messages.

Finally, the authors give recommendations for improving online communication between instructors and students. Examples include ensuring that the course content is written in a conversational tone, requiring introductory assignments to aid students in connecting with classmates, and informing students of the faculty's expected response rate.

INTRODUCTION

Online instruction continues to increase in institutions of higher education. While overall enrollments at U.S. institutions are growing at 1.5 percent, online enrollments are increasing at the rate of 9.7

percent. Nearly twenty percent of all U.S. higher education students were taking at least one online course in the fall of 2006 (Allen and Seaman, 2007).

The evolution of online course instruction has spawned numerous studies regaling the strengths—and weaknesses—of this delivery system. Factors frequently investigated are student characteristics, student satisfaction, learning styles, and program growth opportunities. For example, Halsne and Gatta (2002) described the typical online learner as female in her mid 30s, employed part-time, with previous college credits. Learners were primarily married or divorced and had children living at home. Skylar, Higgins, and Boone (2005) found no difference in student achievement or satisfaction between students enrolled in online classes and traditional classes.

To emphasize the difference in the way students learn in an online environment, Dykman & Davis (n.d. "Part one…") now refer to their students as "learners" instead of "students." This change is because an online student must be more motivated and take more responsibility for their learning experience. These learners can no longer depend on a traditional classroom teacher to "force" the student to learn.

However, less research has been completed regarding the communication dynamics that occur within the online environment. Issues of the lack of immediate feedback, nonverbal cues, fewer communication cycles and a connection with one's audience are cited as deficiencies in online instruction (Zhang et.al. 2004; Schwartzman, 2007).

These deficiencies are not limited to student perceptions. According to Kirtman (2008), instructors are often afraid of teaching online because they don't think they can project their teaching skills in an online environment. They think that the characteristics that describe them as a good teacher could not possibly be conveyed through an internet connection.

As online instruction continues to evolve, both instructors and students are becoming more sophisticated in technology usage. Online instruction requires faculty to re-invent themselves in an online environment and to learn new skills themselves. There is still a connection with students, but it is a different type of connection (Kirtman, 2008).

PURPOSE

The purpose of this paper is to address the communication implications of online instruction. The nature of communication exchanges including the quality and quantity of communication cycles, message types, and user feedback will be examined.

Contrasts will be made between the communication requirements of traditional and online instruction. Participant satisfaction will be discussed, and faculty perceptions will be given.

SIGNIFICANT DIFFERENCES BETWEEN ONLINE AND FACE-TO-FACE INSTRUCTION

Communication is essential in all learning environments. In the traditional face-to-face course, instructors establish the parameters for the course through the course syllabus, deliver content lectures, and develop meaningful assignments. Faculty-student interaction includes both task and relationship messages. Content delivery and assignments provide the task component, whereas one-to-one discussions and socialization meet the relationship need.

Online instruction requires the same types of communication. However, the channel selection and mode of delivery varies significantly from the traditional class. Perhaps the task dimension of interpersonal communication is easier to accomplish in the online environment than in the traditional classroom because the entire course content is built prior to the beginning of the course. Therefore, all content discussion, directions for assignments, and evaluation rubrics are fully developed without specific knowledge of the students who will enroll in the course. Very specific instructions regarding assignments and their submission are needed because immediate student feedback and nonverbal cues indicating understanding won't be available to the instructor. However, this format leads some developers to present material in a less personal way. It is difficult for them to visualize their reader. Therefore, their instructions appear impersonal.

Clear expectations must be given, and both the instructor and the student may not realize if a miscommunication occurs until it is too late to rectify. Detailed course expectations must be outlined in advance of the course. Traditional classroom teaching allows the instructor to modify the delivery of material based on student feedback. However, it is harder to make these changes in the online environment. Students expect that the instructor will be consistent throughout the course, and once students are comfortable with expectations, changing mid-course can cause misunderstandings. (Dykman & Davis, n.d., "Part two…")

In the online course, there may be a lot of correspondence from the instructor. Postings are placed on the calendar, pop-up announcements are made for upcoming deadlines, and broadcast emails are sent at least weekly. Students do ask questions in email, but few visit or call the office. In the online environment they seem more likely to ask questions that were answered in the broadcast messages; perhaps they are less intimated to ask questions, as is shown in the student evaluations.

To improve the communication experience between the instructor and the students, class materials should be developed using first- and second-person pronouns. It is essential for the course materials to convey the "you attitude" in module content, assignments, and activities. Additionally, care should be taken to use a conversational tone in all module content.

Beyond the obvious differences required for task communication, relationship issues must be addressed in online courses. Online instruction requires instructors to find alternative ways to display their enthusiasm for student learning and their interest in the subject content. Because the student-teacher relationship is more complex, there is a different rapport that must be built. Once a miscommunication occurs, impressions are hard to overcome (Dykman & Davis, n.d., "Part one…")

Introductory activities frequently used in traditional classes had to be modified to accommodate the distant learner. In lieu of first-class introductions, online learners posted a brief introduction of themselves for their classmates. Some added a photo to help their readers visualize them when responding to their messages. A photo of the faculty member and an introductory podcast/video provide students with a connection to their instructor. These activities more nearly replicate face-to-face activities. Students initiated communication among themselves as a result of these postings.

To vary the learning environment, course content modules were developed with multiple subdivisions enabling students to better manage their learning process. The inclusion of photographs, podcasts and/or video clips also provided variety in instructional delivery.

Communications with students are typically more one-to-one than in traditional classes. Therefore, teachers must be diligent in correspondence with students. A lack of response from the teacher implies a lack of presence to the students. Therefore, multiple opportunities for faculty interaction should be incorporated in each course. Discussion boards, chats, and online journals are examples of effective communication between students and between students and the instructor. But teachers need to respond promptly to facilitate student involvement in these communication exchanges.

Online communications may be more inclusive than traditional class communications. Online discussions can be used to give all students a voice—even those whom are usually quiet in the traditional classroom (Kirtman, 2008).

A major difference between online and traditional courses is the expectation of faculty availability. Traditional students will ask questions of their instructor during class or during the instructor's posted office hours. However, online students expect quick responses from their faculty—even if their message is posted at 2:00 a.m. Weekend messaging is frequently the most active period for student communications.

As a consequence of one-to-one instruction, faculty members find themselves engaged in significantly more communication cycles. Although specific directions and clear assignments are usually available, many students pose independent questions to the teacher. Responses to these varied independent questions provide students with a sense of the teacher's personality and enthusiasm. Standardized and/or curt messages may be incorrectly interpreted by both parties.

In lieu of the standard lecture so often employed in traditional settings, online courses must be developed to engage the learner. Module content should be structured to enable students to be active learners. Self-initiated communication is common among online learners.

As for the instructor, there is remoteness in that some students are never seen. Although a face-to-face meeting at the beginning of the semester is often required, exceptions are widely allowed. The

personal relationships built during class time and office hours do not happen in the online environment; therefore, students can lose a potential networking contact.

STUDENT PERCEPTIONS OF ONLINE COMMUNICATION

The data presented in this study have been assembled from our students regarding their experiences with online courses. These data include both formal evaluations and anecdotal information.

Our experiences in online instruction include complete online courses that serve freshman to graduate students. In addition to teaching these courses in the traditional and hybrid formats, we have taught online courses in Introduction to Business (freshman), Business Communication (sophomore), Organizational Communication (senior), and Communication Theory (graduate).

Introduction to Business

Data collected from Introduction to Business courses taught online show little change in student perceptions of the class. The students perceive the class to be comparable to a traditional classroom setting. Students feel they can ask questions of the instructor and feel that their questions are answered promptly. Initially, evaluations completed by the students were lower in the first few semesters. But, ultimately student perceptions of the interpersonal communication showed higher scores than in the traditional class.

Another change in student perceptions is in the applicability of the course material. In the course evaluations, most students strongly agreed that they could use the information learned in the course. Although the assignments given in the course are the same, the online students must post to an electronic discussion board and respond to the postings of their classmates. All students in the class are able to read the postings and use these as additional examples for their own assignment. Seeing the work of others appears to be beneficial to the learning process.

Business Communication

Similarly, students enrolled in the online sections of basic business communication expressed satisfaction with the communication exchanges they experienced. Through the use of a discussion section referred to as Student Talk, students could discuss assignments with their classmates without directing all questions and comments to the instructor. The instructor could monitor these discussions but did not necessarily respond to the postings. This forum enabled students to develop a stronger sense of community with their peers. Additionally, the use of small discussion groups and virtual teams expanded the communication exchanges within the course. Student performance was comparable to that of students in traditional sections. However, a few students initially perceived the course would be easier than a face-to-face class. As a result, they were not as committed to completing assignments within the time limits set for the course.

This course was offered one semester as a hybrid course as an experiment. During part of the semester, the classes only met one day a week. Later in the semester, the course returned to meeting twice a week. Although students agreed to and even welcomed the hybrid format, they did not like it.

Homework assignments were missed, grades were low, and overall class morale suffered. The students were happier when the course returned to the regular meetings. However, as the course concluded, the overall grade distribution was similar in all three classes. Surprisingly, the student perceptions of the course were positive in the hybrid class. Almost every criteria measured in the course evaluation scored higher than the face-to-face classes. Students thought the instructor was well-prepared, available for consultation, and listened to student questions.

Organizational Communication

One of the most significant outcomes of the online Organizational Communication course was the improvement in student writing. Students in this course were required to maintain an online journal. This assignments required students to discuss one concept from the module of study and to apply that concept to their personal experiences. Further, they were charged to indicate how they can apply this concept in the future. During the course, students were expected to post a minimum of 15 journal entries. These entries were graded based on the quality of the communication and the inclusion of the three components of reflective thinking. Initial postings were extremely brief and fraught with errors. As the semester progressed, the quality of the postings improved dramatically.

Additionally, students were expected to engage in a discussion group where they posted their position on the topic/question provided and then responded to the posts of at least three classmates. Similarly, these posts improved significantly during the semester. Many participants actually reached the point where they responded to numerous postings beyond those required. In the course evaluation, students described these activities as being meaningful in their understanding of the course content. Again student evaluations were comparable or better than evaluations in the face-to-face sections.

Communication Theory

The online graduate Communication Theory course was structured similarly to the undergraduate organizational communication course in that students were required to post reflective journal entries and engaged in group discussion of specific content. Additionally, these students were involved in case analyses. As experienced in the undergraduate course, some early entries were brief and poorly written. However, several of the students in this course perceived each of these weekly assignments to be "major papers." As such their journal entries were extensive.

As a result of these writing assignments and independent investigation of the content, students demonstrated a higher level of comprehension of content than was found from students in the traditional class.

FACULTY PERCEPTIONS OF ONLINE COMMUNICATION

In addition to the evaluations and comments from students, faculty will contrast differences we have observed in the traditional face-to-face format, online format, and in the hybrid format.

Grade distributions are similar across the two formats, with the exception of the number of failing grades given. In the traditional face-to-face course, there are few failing grades awarded (around 5%).

This may be attributed to these students being accustomed to the structure of a traditional classroom – they are "forced" to attend classes and take exams. However, the online course does have a higher failure rate (closer to 10%). This higher rate is not because student grades are poor, but instead because more students tend to stop participating altogether.

Students enrolled in online communication courses are required to write more extensively than are students in traditional classes of these courses. An improvement in student writing was seen in all these courses. This observation supports the inclusion of additional writing components in traditional courses. Additionally, students communicate with their instructor through written messages. These exchanges are excellent opportunities for students to learn how to write an effective professional communication as contrasted with personal text messages.

The faculty workload is heavier in an online course because of the quantity of individual messages as well as the group messages needed to effectively communicate with students. General announcements can easily be made in a traditional course; similarly, broadcast announcements may be made to online students. However, many online students also benefit from individualized messages supplementing the general guidelines and requirements.

The responses to the hybrid experiment in business communication lead one to think that not all students are as ready for an online course as they think they are. Online courses are perceived to have an easier work load, but the students were very surprised to learn they had to initiate the learning on their own time. They may have collectively realized the value of the teacher as a guide in the learning process.

RECOMMENDATIONS FOR IMPROVING ONLINE COMMUNICATION

Based on our experiences, we offer the following recommendations for improving communication exchanges between faculty and online students.

- Ensure that all course content is written in a conversational tone with opportunities for student engagement. Talk with the students—not to them. Incorporate personal examples that assist the students in identifying with you as a person.

- Require an introductory assignment where students post a brief introduction of themselves for the entire class to read. This introduction may or may not include a photo. The introduction should include a statement of classification, major, career plans, and reasons for taking the course. Additional information such as hometown, hobbies, and work experience may be provided as the students wish.

- Inform students of your expected response rate to their messages. If you will not be answering questions at specific times (i.e., weekends), tell them that in the course introduction.

- Provide prompt feedback and grades for assignments. The lack of such feedback frustrates students who are unsure of their success on the activities.

- Include the student's name in messages. By doing so, you will develop the sense of belonging and building community.

- Encourage students to communicate with their classmates as well as with you by providing open discussion space in addition to the required postings. By doing so, you may reduce some of the repetitive questions and balance your workload.

- Develop podcasts or video clips to incorporate into your course content. These multimedia presentations may be summaries of specific modules or they may address a topic that is not covered as completely in the content modules. Multimedia clips enable students to hear as well as see information. The added benefit of using instructor-developed media is the perceived personal connection between student and instructor.

- Do not attempt to teach more students in an online course than is feasible in a traditional class setting. The workload is greater if effective communication is accomplished.

As more students take courses online and faculty become more comfortable with online delivery systems, communication exchanges should improve. With a more personable delivery method, reticent faculty and students will feel more comfortable in the online environment. Therefore, enthusiasm for online course delivery will improve as enrollments in these courses grow.

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HOW DO INDIVIDUALS' CONCERN ABOUT FAIRNESS AND ETHICAL IDEALISM CORRELATE WITH DEMAND FOR FORMAL PROCEDURES OF INFORMATION MANAGEMENT?

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ABSTRACT

What factors can predict and explain customers' demand that formal procedures of information management be implemented in information intensive organizations? Using data collected from students at a large U.S. university, we investigate the effects of students' concern about fairness and their ethical idealism on students' demand that universities implement formal procedures in managing information about students stored in databases. We find that individuals' concern about fairness and their ethical idealism positively correlate with their demand for formalization of information management procedures in organizations. Implications of the findings for universities are discussed in light of ethics, strategy, design, control and administration of personal information management systems in organizations.

INTRODUCTION

Information management activities in organizations continue to be increasingly more dependent on computerized databases and networks that connect computers. As organizations computerize their information intensive processes, ethical tensions between organizations and individuals affected by organizational practices related to the management of personal data gain heightened importance. Individuals' concern about fairness of information management (X1) in organizations (Smith, and Milberg, 1996) has been identified as one of the important considerations facing knowledge workers ranging from law enforcement officers to e-commerce managers and database administrators responsible for managing organizational information resources. Since it is common for information technologists to be more process oriented than people-oriented, it is important to note that emphasis on process over what customers want has been identified as a concern that can be responsible for failure of programs such as customer relationship management programs and database marketing programs (Ozimek, 2006). As organizations become more information-based (Drucker, 1988), concerns related to fairness of information management becomes a more relevant factor for keeping the information management functions of organizations customer-centered. This concern is stronger among individuals who are ethically idealistic. Concern about fairness of information management can lead consumers such as students of a university to demand that universities put in place formal procedures to protect students from harm. The dependent variable in this study is students' demand that universities put in place formal procedures for managing student related information resources (Y).The

research question we ask is: do concern about fairness of information management and individuals' ethical idealism positively correlate with students' demand that administrators put in place formal procedures to handle student information stored at universities? There are at least two reasons that make this question timely and relevant for information managers at organizations such as universities. First, students at US universities who come from all over the world are subjected to practices of personal data collection. Second, recent legislation such as the USA Patriot Act has relevant implications for information exchange relationships between organizations and individuals (Rackow, 2002) and between universities and external agencies and organizations. The question asked in this study is timely and can be relevant to managers of information intensive organizations such as universities and hospitals.

LITERATURE REVIEW

It is important to show continuity of the current study with prior studies related to the relationships among the two independent variables and the dependent variable in this study. To create the stream of consciousness for understanding the effects or outcome variables associated with individuals' concern about fairness of information management by organizations and ethical idealism, we review relevant prior literature. Likewise, relevant prior studies about individuals' demand for formalization of information management practices in organizations are summarized.

Concern about fairness of information management by organizations (X1)

It has been reported by information ethics scholars (Mason, 1986; Mason, Mason and Culnan, 1995) that individuals worry about how fair, just and balanced organizations are in managing competing interests among different stakeholders of information collected, stored and managed by organizations. Individuals' concern about fairness can be understood, according to Rawls (1971), as a concern for justice which is considered by many as the highest order ethical principle. A just order of things allows each to play a proper role in society. The use of information and communications technologies, both old and new, by organizations and individuals, warrant a continuous examination and re-examination of different stakeholders' concerns about fairness of information management practices and their demands or expectations of possible safeguards and remedies. For example, concern about the fair use of RFID by organizations is a relatively new but relevant issue (Francom, 2007; Marzie and Bjorke (2007). On the other hand, concerns about fairness of the methods and procedures of archiving, updating and disposing of data, access control mechanisms, balanced reporting and fair use of personal information stored in databases are over forty years old but still relevant issues. How concerned individual members of an organization feel about the fairness of an organization's information management activities need to be continuously measured and monitored by managers and policy makers because customers' fears and concerns about fairness can have negative consequences for relationships between organizations and their members.

Individuals' concern about fairness of information management practices in organizations has antecedents and consequences. Identification of antecedents of concern about fairness can be helpful for understanding the factors that positively or negatively affect individuals' feeling of concern about fairness of information management in organizations. Knowledge of consequences of individuals' concern about fairness of information management can help managers and policy makers realize what outcome variables may be attributed to individuals' concern about fairness of organizational information management practices. Knowledge in this domain can help organization designers and

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managers design effective intervention strategies to prevent or reduce undesirable outcomes and to help an organization succeed in achieving justifiably desirable goals. Because of this practical importance for goal seeking entities in societies, a huge volume of research studies have been and continue to be conducted with the sole purpose of understanding the antecedents and consequences of individuals' concern about fairness of different organizational practices. Many of these practices are not much related to the domain of information management activities—but about organizational practices in other areas such as marketing and advertising, hiring and firing practices, incentive systems and the like.

Individuals demand that an organization effectively respond to individual stakeholders' concern about fairness of organizational practices related to information management (Laudon, 1986; Mason, 1986; Mason et al, 1995). Database experts (Date, 1986) have been warning about safeguards that must be built in the design and administration of databases so that confidentiality, integrity, access rights and privileges, information privacy can be managed within principles of justice and fairness. Legal scholars like Miller (1982) have written about the legal responsibilities of organizations and individuals to protect the privacy of data stored in computer databases. These writings and reports in popular news media about unfair uses of personal information are antecedents of an individuals' concern about fairness of information management by organizations. Mollick's (2008) finding that students' concern about use of data for personal profiling is related to students' feeling of alienation from a university is mediated by students concern about fairness of organizational practices related to information management. It can be argued that concern about fairness is a reason for Mollick and Pearson (2006) to find that students' concern about collection and uses of personal data lead to their feeling of alienation from a university. Why do concern about error in data and access to data lead students to feel alienated from a university (Mollick, 2006)? It can be argued that students perceive organizational practices related to management of error control and access control mechanisms as inadequate to the point of being unfair and this perception of unfairness of organizational practices lead them to a feel alienated.

Individuals' ethical idealism (X2)

The effects of ethical ideology on individuals' evaluation of action and moral behavior have been studied by social psychologists and other scholars (Forsyth, 1980 & 1992). The discovery from these studies is that individuals' moral judgments of certain business practices and their decisions to engage in those practices are influenced by their personal moral philosophies or ideologies. Although there can be as many personal moral philosophies as there are persons, two broad classifications of personal moral philosophies are moral relativism and idealism. Idealists are some times labeled absolutists. Absolutists or idealists assume that actions are moral, provided they yield positive consequences and conform to moral rules or principles. In this paper an individual's ethical idealism has been defined as one's level of idealistic orientation in ethical philosophy which is based on fixed, categorical principles, and does not change according to circumstances. According to ethical idealism, principles of ethics or moral rights and wrongs are absolutes--they do not depend on the context or circumstances of a situation.

How do judgments, behavioral choices and demands for organizational action differ along an individual's level of moral idealism? An answer to this question can be useful for managers of organizations. The different stakeholders of an organization would be interested to know and judge the legality and ethics of policies and practices implemented by managers. To different degrees, unethical organizational actions can be very harmful for some or all of the stakeholders of an organization. If

managers can properly understand how evaluations or judgments and actions of different stakeholders of an organizations are influenced by their level of ethical idealism, they can better respond to ethics related demands of different stakeholders such as customers.

Demand for formal procedures of information management (Y).

Customers' demand for implementation of formal procedures in the organizational information management function ca be viewed in light of the structural contingency theory (Thompson, 1967) that claims that faced with risk and uncertainty, an organization attempts to reduce risk and uncertainty through formal structures and brining uncertain external elements under control of formal structure of the organization. By specifying in written documents procedures, methods and steps that must be followed in each step of the organizational data management function-- collection, storage, updating, and disposing of data—an organization can bring structure to what was previously unstructured and therefore uncertain, risky and prone to error, neglect and abuse. Mahmood and Becker (1986) found a significant predictive relationship between Nolan's (1973) organizational maturity variables and satisfaction of information systems end-users. Demand for formal procedures can also be viewed in light of organizational maturation (Nolan, 1973; Mahmood and Becker, 1986) theory—the more the information management function matures in organizations, the more procedurally formal end-users may expect its management procedures to become. Formal procedures can be viewed as helpful for the development and maintenance of trust in a system because formalization makes it more routine and predictable and less uncertain or unpredictable. To protect themselves from the harmful effects of irresponsible information management, students will want formal procedures to prevent unfair uses of data about them. Formal procedures may include that procedures and methods of archiving, updating and disposing of data be clearly and adequately specified in writing. It may include the provision that each person in charge of updating data be adequately identified by a signature or mark so that a complete audit trail can be established and accountability can be established. Demand for formal procedures includes the demand that each step of data processing be documented and recorded so that an audit trail is maintained. As part of formal procedures, periodic monitoring activities need to be carried out to check that the university is complying with information-oriented laws (Mason et al, 1995; p.215-224).

The discussion about the need for formal procedures of information management in organizations, as expressed by different stakeholders such as employees or customers, can be understood in the context of some concepts of organization theory and the information intensity of organizational processes. Students' demand for a university to put in place formal procedures in managing information about students can be viewed in the context of the relationship between an organization and customers who have been internalized (Thompson, 1967) by their organization. In the context of an existing relationship between an organization and its internalized customers, members have a sense of belonging (Barnard, 1938) and membership (Simon, 1976), and mutual dependency (Donaldson, 1975). Internalized customers who carry out their transactions with their organization in the context of a reciprocal relationship operate on the basis of an expectation of good faith that their organization will be ethical, trustworthy, procedurally fair and just and responsible in how it manages their personal information. Demand for formal procedures to govern information management can arise when the positive sense of belonging, membership and trust is poisoned with concerns such as the concerns about error in data and improper use of data for personal profiling.

We have chosen to study the correlation between concern about fairness in data management, individuals' ethical idealism and demand for formal procedures of information management in the context of a relationship between students and their university because of the information-intensive nature of the exchanges and processes that define these individual-organization relationships. Peter Drucker (1988) predicted that organizations of the future would become increasingly information-based such as hospitals and universities. Organizations such as universities are expected to be conscience-carriers (Mason et al 1995, p.196) and moral agents (Mason et al., 1995; p.198-200) in how they use information-power (Mason et al., 1995; p.996) over different stakeholders (Freeman, 1984; Smith, 1994). Sources of power include information-based organizations' ability to collect, access, store, possess, legally own, control, share, communicate and buy or sell information about different stakeholders. Organizations are networks among individuals within and around an invisible legal entity. As such, organizations are often more powerful than individuals. Different scattered individual stakeholders of the organization can be subjected to indignity, injustice and harm because of what powerful information-based organizations do or fail to do with regard to ensuring the fairness of information management procedures. In light of the research model stated in Figure 1, we theorize below that as organizational processes become more information-intensive, concern about fairness of information management increase, and so does individuals' demand for formal procedures to govern the organizational information management function.

RESEARCH MODEL AND HYPOTHESES

The research model

A large U.S. university represents what Peter Drucker (1988) would call an 'information-based' organization, and students would represent customers of that information-based organization. As presented in the research model in Figure 1, we attempt to theorize and empirically test the effects of two independent variables—students' concern about error in data (X_1), and concern about use of data for personal profiling (X_2)—on students' demand for formal procedures of information management (Y).

Figure 1. The Research Model
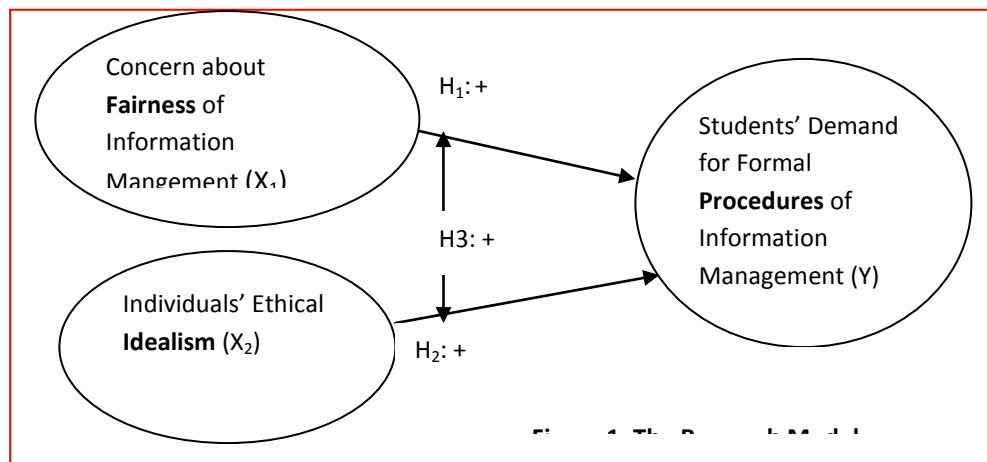
The current study extends existing knowledge in that it theorizes and tests how concern about fairness of information management (X_1) and individuals' ethical idealism (X_2) are related to students' demand that universities put in place formal procedures to govern the information management function (Y).

Research hypotheses: H1, H2 and H3

As shown in Figure 1, three hypotheses are developed. Hypotheses H1 and H2 are about the main effects of X1 and X2, respectively, on the dependent variable Y. Hypothesis H3 is about the interaction effect of X1 and X2 on the dependent variable Y. In a multiple regression model specified as $Y= \beta o + \beta 1*X1 + \beta 2*X2 + \beta 3(X1*X2)$, the research model hypothesizes that all three beta coefficients, if estimated based on data collected from a sample, will be positive. Explanations and arguments to support H1, H2 and H3 are presented below.

H1: Concern about fairness (X1) and demand for formal procedures of information management (Y)

What could be some of the consequences of customers' concern about organizational fairness in the domain of information management? In light of equity theory and theories of justice, it can be said that concern about fairness will lead to a feeling of alienation (Mollick, 2008), a lower motivation to belong to an organization (Barnard, 1938), and a lower motivation to cooperate (Axelrod, 1984). For example, when asked to fill up a form or participate in a survey, students may not volunteer to cooperate. If coerced or forced to cooperation with an organization that they perceive is unfair, concern about fairness may even lead members to protest, bring law suits or participate in a violent revolt against the organization or institution that is held responsible for unfairly handling information about customers. However, if customers want to continue to belong to an organization and cooperate with an organization even as they feel that the organization is not being fair in information management procedures, they will demand that the organization be responsive to their fears and concerns and stop alienating customers by implementing formal procedures of information management that will address their concern about fairness of information management. Simply put, customers will demand a more formal procedure to be in place with the hope that the more formal the procedures are for information management functions, the more customer-centric (Mollick, 2009) and fair they will be.

Research questions (RQ$_i$) and hypotheses (H$_i$)

The discussions presented this far can be formally summarized in the form of a research question and a related hypothesis about the relationship between X1 and Y.
RQ$_1$: Do customers' level of concern about fairness of information management positively correlate with customers' demand that the organization put in place formal procedures in the management of its information about customers?
H$_1$: The higher students' concern about fairness of information management (X_1), the higher their demand that the organization put in place formal procedures in the management of its information about customers. It is hypothesized that there is a *positive correlation* between X_1 and Y. $B_1 > 0$ in the model $Y= \beta o + \beta 1*X1 + \beta 2*X2 + \beta 3(X1*X2)$.

H2: Ethical idealism (X2) and demand for formal procedures of information management(Y)

The second research hypothesis is that X2 and Y are positively related. It means the more idealistic an individual is in ethical ideology, the more strongly an individual believes that an organization should put in place formal procedures of information management. Different organizations like schools and universities would be interested in learning about the relationship claimed in H2. One argument to support H2 is that implementation of formal procedures will be perceived by students as a fair procedure (Grenbergn 1987& 1990) of information management. Another argument to support H2 is that the policy of implementing formal procedures of information management will be perceived as a practice that reduces information asymmetry about how information is managed by an organization. As sunlight takes away the mystery of darkness that may scare many people, so does a written, codified and auditable procedure bring some certainty, structure and possibly transparency in an organization's information practices. Transparency and lack of asymmetry can reduce individuals' fear and leave them with less anxiety and more feeling of peace, certainty and security. Since idealistic orientation of individuals is associated with demand for responsibility, accountability and adherence to a code of ethics (Vitell, 1991; Vitell and Munchy, 1992), the more idealistic one is in moral philosophy the more strongly one will demand transparency and demand that formal procedures of information management be implemented in an organization. These arguments support H2 as formally stated below.

Research questions (RQ$_i$) and hypotheses (H$_i$)

The discussions presented this far can be formally summarized in the form of a research question and a related hypothesis about the relationship between X2 and Y.

RQ$_2$: Do customers' level of ethical idealism positively correlate with customers' demand that the organization put in place formal procedures in the management of its information about customers?

H$_2$: The higher students' ethical idealism (X$_2$), the more they demand that the organization put in place formal procedures in the management of its information about customers. It is hypothesized that there is a *positive correlation* between X$_2$ and Y. $B_2 > 0$ in the model Y= βo+β1*X1+ β2*X2+ β3(X1*X2). Using correlation coefficient r between X2 and Y, research hypothesis H2 can be stated as $r_{x2y} > 0$

H3: Interaction effect of X1 and X2 on Y

Hypothesis H3 is about the interaction effect of concern about fairness (X1) and ethical idealism (X2) on demand for formal procedures of information management (Y). The relevant research question is: does the effect of X1 on Y vary depending on the value of the variable X2? Since concern about fairness and ethical idealism both positively correlate with demand for formal information management procedures, it is argued that the effect of concern about fairness on demand for formal information management procedures will be stronger for individuals whose ethical idealism score is higher.

H3: The effect of concern about fairness (X1) on demand for formal information management procedures (Y) will be stronger for individuals whose ethical idealism (X2) score is higher. $B_3 > 0$ in the

model Y= βo+β1*X1+ β2*X2+ β3(X1*X2). The beta coefficient associated with the interaction term (X1*X2) will be positive.

METHOD

Sample

We solicited 220 students at a university in the mid-eastern USA to answer an online questionnaire. Students were promised extra credit points in exchange for participation. One hundred and eighty seven students completed the survey. Because of a high response rate of 85%, non-response bias, if any existed, would not be high. Of the 187 students, 37 were graduate business students and 150 were undergraduate business students. Statistical tests indicated no significant differences between graduate and undergraduate or male and female students' scores on the X1, X2 and Y variables under study. Because the survey was set up online in a way that did not allow respondents to submit the survey without answering all the questions, there were no instances of missing data. The percentage of male students was 52% and female students made up 48% of the sample.

Questionnaire

Seven-point Likert type scales were used to measure the level of concerns students had about error in data, use of data for personal profiling and students' support for formal procedure in information management. The items for measuring concern about error in data were taken from Smith and Milberg (1996) and Mason et al (1995). The items for measuring concern about profiling (X2) and demand for formal procedures (Y) were taken from the information ethics check list in Mason et al (1995; 221-224). The items in the questionnaire were adapted to the context of students' at US universities. These modified items are presented in Appendix A.

Reliability of the scales of measurement

Cronbach's alpha values (Cronbach and Meehl, 1955) were computed for each of the three constructs X1, X2 and Y to assess the consistency and inter-item reliability of the multiple-item scales. Table 1 shows that constructs X2 and Y have Cronbach's alpha values greater than .70 and the same value for X1 is above .60. The generally agreed agreed upon lower limit for Cronbach's alpha is .70 (Hair et al, 1998). However, the acceptable lower limit may decrease to .60 for exploratory research. Cronbach's alpha value of .703 for the three items used to measure demand for formal procedures of information management show satisfactory level of inter item reliability. Inter-item reliability coefficient .801 for the 10 items used to measure ethical idealism is very satisfactory. Reliability of the given rationale that the construct concern about fairness of information management is exploratory rather than confirmatory, X1 also demonstrate acceptable inter-item reliability.

Table 1: Reliability Analysis--Scale (Alpha)		
	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items
Concern about Fairness (X1), 4 items	0.6370	0.6410
Ethical Idealism (X2), 10 items	0.779	0.801

Demand for Formal Procedures of Information Manageemnt (Y), 3 items	0.701	0.703

RESULTS

The descriptive statistics and correlation matrix for X_1, X_2 and Y presented in Table 2 are from multi-item scales used in the survey instrument presented in Appendix A.

Table 2: Average, Sample Standard Deviation and Correlation Matrix

n=187	Mean	S.D	X1	X2	X1*X2
X1= Concern about Fairness of Information Management	5.1698	0.7818			
X2= Ethical Idealism	5.5968	0.7886	0.3408		
X1*X2	29.1432	6.8717	0.8361	0.7938	
Y=Demand for Formal Procedures of Information Management	5.8075	0.8258	0.5686	0.3416	0.5683

The mean score 5.8075 out of 7 on Y can be interpreted as evidence that students do indeed demand that formal procedures be implemented in organizations like universities to systematically address customers' concerns about organizational information management practices. One-tailed t-tests on correlation coefficient rx1y, rx2y and r (x1*x2, y) showed that all three pair-wise correlation coefficients, with p-values less than 0.001, were statistically significantly greater than zero. Statistically significant correlation between X1 and Y supports research hypothesis H1. Statistically significant correlation between X2 and Y supports research hypothesis H2 and statistically significant correlation between the interaction term X1*X2, product of X1 and X2, and Y supports research hypothesis H3. Based on the statistical significance test of the correlation coefficients, all three research hypotheses are supported with more than 99% confidence. However, the correlation coefficient between X1 and X2 is also statistically significant, indicating a potential problem of multicollinearity if full model is estimated using the regression procedure. Positive correlations between X1 and Y and X2 and Y are visualized in the scatter plots presented in Figure 1 and Figure 2, respectively.

Figure 1: Scatter plot between X1 and Y
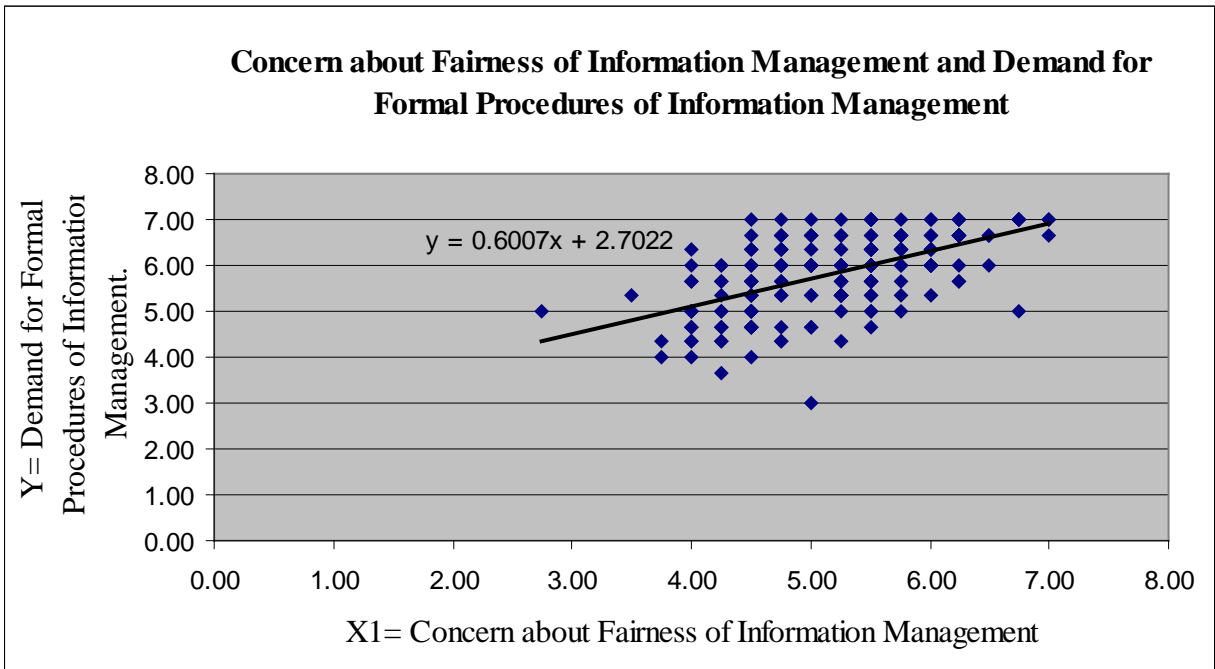
Figure 2: Scatter plot between X2 and Y
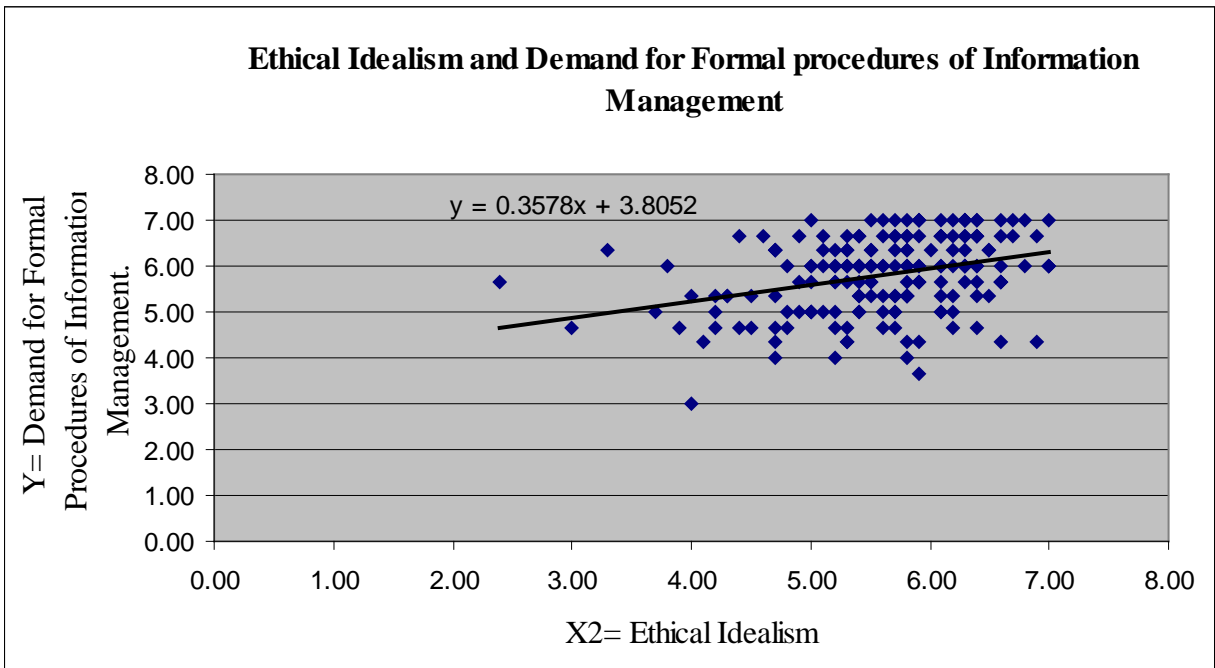
Table 3: Multiple Regression Results

y-hat= 5.293340 -0.114260161*X1 -0.408622334*X2+**0.116384721***(X1*X2)						
Y-hat= 2.033010116 +0.540442557*X1 +0.175190394*X2						
Regression Statistics			*Coefficients*	*Standard Error*	*t Stat*	1-tailed p-value
Multiple R	**0.5900**	Intercept	2.03301012	0.414976	4.90	0.0000
R Square	**0.3481**	X1= Concern-Fairness	0.54044256	0.066883	8.08	**0.0000**
Adjusted R Square	0.3410	X2= Ethical Idealism	0.17519039	0.066300	2.64	**0.0045**
Standard Error	0.6704					
Observations	187					
ANOVA						
	df	*SS*	*MS*	*F*	***Significance F***	
Regression	2	44.15	22.08	49.12	**0.000000**	
Residual	184	82.70	0.45			
Total	186	126.85				

The p-value associated with the F-test in Table 3 is less than .01. This indicates that the multiple regression model in which X_1, X_2 have been used to predict and explain Y *is* statistically significant. The 1-tailed p-value for the estimated beta coefficient for variable X1 is 0.0000 and p-value for estimated beta coefficient associated with variable X2 is 0.0045, respectively. Both p-values are less than .01, indicating that with at least 99% confidence the sample evidence supports research hypotheses H1 and H2. To test H3, the full regression model with the interaction term was estimated and has been presented in the top row of Table 3. Because variables X1 and X2 are statistically significantly related, there exists a problem of multicollinearity in the estimated full model. For this reason, only the interaction term in the full model was tested for significance. For the specified model $Y= \beta_0+\beta_1*X1+ \beta_2*X2+ \beta_3(X1*X2)$, the estimated value for β_3 is 0.116384 and this is positive and statistically significant with 1-tailed p-value= 0.0737, which is less than .10. Thus, the third hypotheses about the interaction effect of X1 and X2 has been supported, even though we have less statistical confidence, about 92.63% confidence, in supporting H3 compared to H1 and H2 which have been supported with more than 99% confidence.

DISCUSSION, IMPLICATIONS AND FUTURE RESEARCH

The results indicate that students' concern about fairness of information management and their level of ethical idealism are positively associated with students' demand that formal procedures be used in a university's information management function. It must be clarified that evidence of significant correlation between X1 and Y or X2 and Y variables do not necessarily prove that X1 or X2 cause Y. With this disclaimer made, it can still be said that this finding can be a call for university administrators, information policy makers, information system designers and administrators to implement formal procedures in the management of organizational information about students, especially if students tend to be ethically idealistic and their concern about fairness of data management is high.

For future research, one could interview managers, system designers, policy makers, data managers, and database administrators to identify with greater detail what specific aspects of information management practices, policies and activities related to management of student records need to be procedurally formalized to reduce students' concerns about fairness of information management in universities. Instead of reacting to student's concern about fairness, managers may also choose to be proactive in implementing formal procedures of information management to prevent tensions about fairness to build up in the first place.

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THE DIFFICULTY OF COLLECTING AND CODING EMAIL DATA DURING OBSERVATIONAL STUDIES IN MULTINATIONAL SUBSIDIARIES LOCATED IN CULTURALLY DISTANT NATIONS

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ABSTRACT

This paper reports the difficulty encountered while trying to collect and code email data during a structured observation study of four managers of technical areas working in the Central American Maquilas of US based multinational corporations (MNC). Better understanding the email communications of technology managers in MNCs could provide valuable insight into the geographically disperse interorganizationsal networks that transfer knowledge and technology. While they spent only 15% of their day on email it was the first task every morning and a significant driver their activities throughout the day. Recommendations are given for structuring such a study.

INTRODUCTION

This research took place in the Central American maquila industry; a regional industry with little existing research. The location is culturally distant from the United States, and Spanish is the predominant language. While the word maquila to describe assembly-for-export factories originates in Mexico with the Border Industrialization Program and is most associated with the NAFTA era factories along the US-Mexican border, Central American maquilas actually pre-date NAFTA. President Reagan announced the Caribbean Basin Initiative (CBI), officially known as the Caribbean Basin Economic Recovery Act of 1983, to the Organization of American States and outlined how it would promote political stability, economic development, and address the underlying causes of illegal immigration (Pastor, 1982; Riding, 1982).

Because this paper discusses the difficulty encountered collecting data in a somewhat unique environment it is necessary to address the researcher's theoretical sensitivity and ability to make appropriate decisions in the field (Glaser & Strauss, 1967; Strauss & Corbin, 1990; Eisner, 1991; Patton, 2002). Although I was born and educated in the US, I lived in Central America for 15 years while working in the maquila industry and as a result I was familiar with the industry and language

was not an issue. I purposefully selected the participants based on the duration of operation of their employers and the experience and authority of the participants, Morrison (2008) provides a detailed explanation and biographies of the participants and researcher. The study participants managed technical areas—Technology Managers (TM) —in apparel, textile, electronics, and automotive components factories, known as maquilas, owned by publicly traded US multinational corporations (MNC). These industries represent the four major sectors of the Central American maquila industry. I observed each participant at work in their respective factories for five consecutive working days. I utilized the structured observation research method used in Mintzberg, (1968, 1970) and Stephens (1991) to code the tasks. The intent of the study was to enhance the understanding of TMs working in this context and identify commonalities and areas for further research.

THE DIFFICULTY OF COLLECTING AND CODING EMAIL DATA

When preparing for the study, it was apparent that the most significant impediment to comparing the findings with Mintzberg (1968) and Stephens (1991) would be the impact of email, computer programs, and the Internet on the subjects' activities. Written postal mail and internal paper reports were much more prevalent in 1968 and email did not exist for private sector use. Stephens (1991) recorded 102 emails, but traditional paper correspondence remained over 75% of the correspondence. Today email is "critical to the ongoing success of an enterprise" and contains up to 60% of the vital business data in the average company (Gray, 2001, p. 54). Stephens (1991) assigned purpose codes and role codes to email; however, there were only 102 of them over the five-week observation period. There were over 1,000 emails counted in this study; although some emails were sent or received outside working hours, this approximates to over one email received every 10 minutes of the observation time.

It was my intent to assign purpose and role codes to each email; however, I performed a half-day pilot study with the textile TM, to test the data collection tools I developed and uncover any unforeseen issues. During this pilot study, it became apparent that a detailed analysis of each email would be impossible without severely affecting the normal activities of the TM. The disruption would be significant enough to destroy the validity of the study. Standing over the back of each TM to read each email was inappropriate and violated the space buffer zone suggested in Hall (1969, cited in Wilson & Streatfield, 1980). Each TM printed to a network printer located several yards away in another office; therefore, leaving to get every printed email would leave numerous holes in the observation time and affect the researcher's understanding of the context of the TM's activities. Printing out every email to a network printer raised confidentiality issues because some contained confidential information about other employees or company strategy and could become mixed up with documents printed by other persons using the same network printer. While this risk exists for the TM normally, it is rare that they print out emails with sensitive information. Printing out dozens per day would raise the risk to an unacceptable level.

Installing a local printer for the observation week was a possibility; however, it would be impossible for a single researcher to read each communication while simultaneously recording the observation data. Taking emails outside the facility to review at night also brought with it confidentiality issues, as would forwarding emails to the researcher's email address. I received unfettered access; however, the participants and I felt that possessing electronic or paper copies of all emails outside the factory would require specific approval from the highest levels of each organization. This would undoubtedly delay

the study and possibly result in complications that could restrict access; therefore, I decided that the detailed recording of email communications was better suited for another study.

As an alternative to personally reading and coding each email, I developed a software program and installed it on each TM's computer with the intention that they self-report pertinent email data; however, the results were not what I anticipated. The great variance in the TMs' typed explanation of each email made it impossible to code the emails accurately. From my observation during the study, the variance related to the TMs' level of activity around the time they read and recorded the email. When the work environment was calm, the TMs seemed to record each email and provided sufficient detail. When the environment was chaotic, which was frequently the case, they provided little or no information about the emails read or written during that period. I counted the number of emails received and sent each day by observing the TMs' email client software; but the TMs regularly read emails received on previous days and they appeared as the current day in the self-reporting software. This made it impossible to verify if the TM recorded each incoming email they read on a particular day because the email client software only displayed the date received, not the date read. From my observations, it was apparent that they failed to record a significant number, maybe as high as 20% and the number with little or no written comments from the TM's approached 45%. Outgoing emails were easier to compare because the email client software indicated the date and time they sent them, and there were fewer of them. I found that collectively the TMs failed to record about 8% of outgoing emails but the number with little or no written comments still exceeded the 40% level. This reflects the hectic and unrelenting pace of the TM's workday. As other observation studies of managerial work have commented, it also raises question about the validity self-reported diary studies.

FINDINGS

Given the impact on the validity of the study, I decided that a detailed analysis of email was better suited for another study. From my experience in this study, I believe that it would be impossible to collect the needed information to correctly code email without significantly affecting the subject's work activities. Many emails are short and refer to information exchanged in previous emails, meetings, or phone calls. Understanding the context of a significant portion of emails sufficiently to code data correctly would require that the subject provide information in real time or soon after reading or writing them. The observed managers endured the problem of information overload (Katz and Kahn, 1966) as they received, wrote, and responded to dozens of emails each day, taking time to explain them would alter their normal pace of work.

This study recorded over 250 more activities than Stephens (1991) and Mintzberg (1968). This increase was due to the TMs checking email numerous times throughout the day. This had a multiplying effect because the change of the medium, as discussed in (Mintzberg, 1968) split one long 1968 – 1991 era paper medium deskwork session into several sessions divided by computer medium. All four TMs glanced at new emails received, to see whom they were from, while speaking on the phone or doing deskwork other than email. I did not record the glances at email; however, if the TM stopped what they were doing and concentrated on the content of the email, composed a reply, or forwarded the email, I considered that a change in the medium and recorded the activity as a deskwork email activity. The average session lasted 11 minutes with a range of 1 to 53 minutes and a standard deviation of 10.53 minutes. The TMs spent another 3% of *deskwork* time Web browsing; therefore, they spent 51% of their *deskwork* time utilizing the Internet. They spent only 9% working with paper.

Although the email data collected was far less than desired, the study still provided valuable insight. I observed that email was an important factor that guided the TMs activities. Less than an hour into the pilot study with the textile TM, he stated" I can see that email is the driver of my activities". The first activity of the day for each TM was to logon to their computer and check email. The emails caused the TMs to reply, forward emails to others, write new emails, and initiate telephone calls or schedule meetings. Although email accounted for only 15% of the TMs workday, it was clearly a driver of many their activities.

I observed that information flowed in multiple directions (up, down, horizontal and diagonal) and via a variety of means including phone calls, meetings, video conferences, email, electronic databases, and written documents. As described by Marschan-Piekkari, Welch, and Welch (1999) language was an important factor. A thorough analysis of email data and mapping of the TM's commucations would provide better understanding of the "concrete personal relations and structures" (Granovetter, 1985, p. 490) in the geographically dispersed interorganizational network (Gohsal & Bartlett, 1990) that transfers the knowledge and technology in MNCs.

RECOMMENDATIONS

It was apparent from this study that self-reporting of email activity is unreliable. Therefore, I do not recommend that it be used as a data collection device. It is not that the participants did not desire to cooperate; they simply did not have the time to enter the information in the computer program provided to them. The work day was hectic and there were constant interruptions. When there were periods with few interruptions, the TMs did report their email activities. However, it was more often the case that pressing issues cause them to read an email and then perform a chain of activities and the recording of email data became a very low priority.

Researchers need to establish an approved protocol with the target firm for collecting and coding email well in advance of the study. Email may contain confidential information and arguably most companies will have concerns about written or electronic copies of emails leaving the premises; despite promises of confidentiality. With this in mind, it would seem imperative to establish a system to review and code the email data on the premises. By keeping the printed out email on the company premises and shredding them after use, one would be more likely to circumvent legal and confidentiality issues that many firms may have.

While performing this study, it became apparent that many of the emails were short, referred to previous emails or conversations, and understanding them required that the participant explain the context. Repeatedly doing this would significantly alter the participants work; therefore, it does not seem prudent to collect detailed email data while performing an observation study where the participants *normal* work activities are of interest. I suggest that a study of participant's email activities include printing the emails out to a local printer at the participant's desk. As the subject reads or writes an email, he or she could print them out and explain the context and position of the other party or parties while a researcher notes them on the email print out for later review or follow up. Understanding the position of the sender or recipients would be important to map the communications

network. It may be necessary for two or more researchers to collaborate, one recording the information on the email and the second coding data in a database while the information is fresh on their mind. Time would need to be allocated at the end of the day to review the entries and cover any uncertainties. It might also be wise to arrange for an extended meeting with the participant at the end of the study to clarify any remaining ambiguities. Clearly, in a multilingual context, the researchers, or at least their assistants, would need to be fluent in the languages used and it would be helpful if they were somewhat familiar with the functioning and terminology of the industry.

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REPORTING PHYSICAL MEASURES
THAT IMPLY INFORMATION PROCESSING

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ABSTRACT

Physical measurements are sometimes used to imply a measure of a mental processing construct that is of interest to marketing researchers. Since the validity of the mental construct measure relies in part on the physical measure, validity of the physical measure should necessarily be assessed. Research reports, however, often do not provide enough details of the physical measurement process to allow a reader to assess the validity of the physical measure. When a report that relies on physical measures is published, future researchers could in turn justify the use of the method by citing a previously published use without questioning the validity of that method, and this could be problematic if the method itself was merely accepted on face validity by the original reviewers. Importantly, a faulty method of physical measurement could lead to erroneous conclusions that could continue to be used or debated by future researchers. Without an ability to assess the physical measure, we should not be accepting the validity of the mental measure that it implies. The present manuscript proposes that physical measures should not be accepted as valid without a written description of the physical apparatus and without assessment of the measurement procedure as part of the review process.

INTRODUCTION

In the study of consumer behavior, marketing researchers must often rely on methodological techniques used by basic theoretical researchers in cognitive psychology and related fields. In many cases, we are not even equipped to use the methods themselves, but must base our hypotheses and ideas on the results that these other researchers found using methods that are not easily available to us. In discussing the limitations of a study concerning how consumers process marketing information, de Melo, MacInnis, and Stewart (2007) suggest that future research that uses process measures such as reaction time could be especially helpful in highlighting process mechanisms; perhaps these researchers might have conducted such a study if it was easy to do without outside technical assistance.

The suggestion that we continue the de Melo study through the measure and recording of reaction time would most likely require technical capabilities that aren't readily available to most marketing researchers. The method would require some means of interfacing stimulus onset mechanisms and human response mechanisms to a computer. A real-time program that runs independently of the not-real-time operating system would then have to be employed to measure the difference between the

onset of a stimulus and the reaction of the human subject. The validity of some information processing construct that the reaction time implies must itself rely on the validity of this physical time measure. The validity of this physical measure is something that few consumer researchers would have the technical ability to prove.   If we rely on some other "techie" folks for taking these measures, however, we should know what questions to ask and what sort of description to include in a research report.

In studying consumer response to brand slogans, consumer researchers Dimofte and Yalch (2007) relied on reaction times that are reported to a resolution of ten *micro*seconds without any description of the equipment used, instead referring a study reported in 1980 – older technology used almost three decades earlier. We have no evidence that the equipment used in the latter study had the capability of microsecond-level resolution, yet we are asked to accept the validity of this measure on faith and are asked to accept on faith that it implies something about the mental processing construct of interest. The implication here is not that the authors did anything wrong in the study; the implication is that we simply don't know if the author's findings are valid. Again, as marketing researchers, we should have an awareness of what kind of description to include in a research report.

BACKGROUND

Physical instrumentation is indispensable to quantifying some kinds of mental processing measurements. Mental processing constructs such as "attention" or "concentration" cannot be directly measured, but we can make physical observations that serve as measures to imply the detection of these constructs. That is, changes detected by some sort of physical measurement can often be used as a probe into or an indicator of changes in a mental processing construct. When asked to perform more and more complex mental math problems or to read more and more complex text passages, for example, people have more and more trouble concurrently tapping patterns with a finger. Jastrow (1892) could not directly measure changes in a person's "mental concentration," but could observe changes in the ability of a person to maintain performance on a concurrent finger tapping task.

Welch (1898) took this "concurrent task" or "secondary task" idea a step further in using a concurrent task that required the person to maintain steady pressure on a hand-grip device. Changes in hand pressure were indicated on a pointer (this is a simplistic explanation) and so were easily quantified. Performance that was less steady on this "secondary task" was taken to indicate that some "primary task" was requiring more "mental concentration." See Figure 1 for a simplified schematic of this type of device.

There are two important validity concerns in an experiment that would use the type of device depicted in Figure 1:

1. Validity of the method that is used to imply the mental construct: that changes in some physical measure imply changes in a mental construct and that a lack of change implies no change in the mental construct.

2. Validity of the physical measure that is used to imply a measure of the mental construct: that the physical measure is reliable (reasonably repeatable) and accurate (reasonably free of random and systematic error).

In using physical measurement procedures to detect mental processing constructs, the validity of the mental processing measure is a function not only of theoretical support, of confounding, of the appropriateness of statistical testing, and such, but is a function of the validity of the physical measurement procedure as well. Finding a reviewer who has familiarity with issues of the first kind of validity is perhaps not so difficult in a very specialized discipline, but nonetheless can be problematic when the method is used by others outside of the discipline. Finding a reviewer who has familiarity with the second kind of validity – issues of the physical measure – is probably more problematic than not. If the physical measure is invalid, then any results with regard to the implication of a mental construct are meaningless. If the reviewer is unfamiliar with issues of error associated with the physical measurement, then s/he cannot possibly assess the validity of the measures that an author has reported. If the research report contains no description of the apparatus used to quantify the physical observation, then reviewers and future readers are forced to accept the physical measures on face validity alone in accepting validity of the research conclusions that are reported.
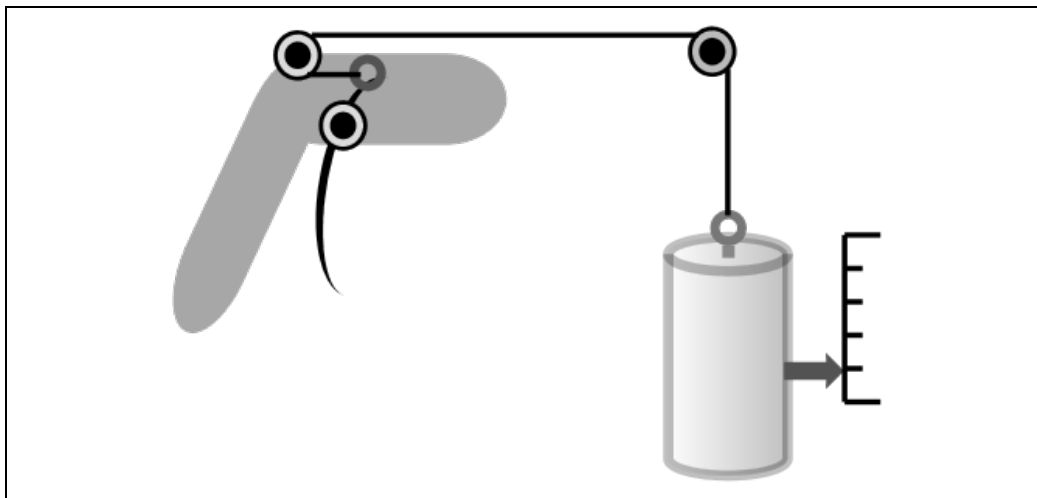
Figure 1. One way to quantify mental workload measures. Maintaining steady grip on the weighted trigger suggests low levels of concentration on a concurrent mental task. Changes from the steady grip level suggest higher levels of concentration on a concurrent mental task.

ONE: VALIDITY OF A MENTAL CONSTRUCT THAT IS SUPPOSEDLY DETECTED BY A PHYSICAL MEASURE

In order to assess research that uses Welch's (1898) hand grip implementation of the "secondary task technique," the reviewer should have some familiarity with such constructs as "attention" and "mental effort" and various methods to measure these and related constructs. Is there really a relationship between the maintenance of a steady hand grip and greater amounts of "mental concentration"? For more than a century, quantifiable physical observations that have been used to imply changes in "attention," "concentration," "mental effort," and such have included changes in hand pressure

(Lechner & Bradley, 1998; Welch, 1898), finger tapping (Friedman, Polson, & Dafoe, 1988, Jastrow, 1892), dial turning (Thorson & Reeves, 1986), reaction times to secondary tasks (Britton & Tesser, 1982; Kellogg, 2001), and so on.

But is a method valid just because published research reports mention the use of a physical measure to imply a mental construct? If another researcher in the past has, say, used a microcomputer to measure reaction times as an implication for detecting changes in "attention," can we now and forever into the future simply reference that researcher as evidence that the method and the apparatus are valid? Noting that "psychologists have used this method for many years," Thorson, Reeves, and Schleuder (1987, p. 367) used reaction time to assess "processing buffer" demands on "attention," with particular reference to the "cognitive capacity" studies of a previous researcher. If the method has been used in published reports by others, is it therefore a valid method? Should reviewers of a present report accept a methodology simply because reviewers of prior reports had accepted it? The present manuscript suggests that this is a leap of faith that could lead to a chain of problems.

A crucial issue that must be understood in the case of secondary task techniques (such as those discussed above) is that acceptance of validity relies on a tautological assertion: secondary task performance is presumed to be caused by changes in the mental construct, so changes in secondary task performance are therefore presumed to imply change in the mental construct. This presumed relationship is only true at the "overload" threshold; a *failure* of the secondary task to suffer interference merely implies that the processing system wasn't yet swamped, not that there were no changes in mental processing. Failure to see changes in secondary task performance could also be due to the effects of automatism – the idea that "practice makes perfect" and that a person can indeed perform two tasks concurrently without interference. (See review in Owen, 1991).

Simply stating that "others have used this method so it therefore must be valid" isn't necessarily proof that a method is valid for a particular situation or that it is valid at all – although it can make it difficult for a reviewer or fledgling researcher to voice concerns. Rene Blondlot was considered in the early 1900s to be a distinguished professor and researcher. His claims of the discovery of "N-rays" were not only accepted, but others claimed to be able to detect N-rays as well. According to Brewer and Lambert (2001), over 300 papers were soon published on the properties of N-rays. Other researchers, however, were unable to replicate experiments that showed the existence of N-rays. One researcher visited Blondlot's laboratory and deceptively altered the equipment such that it shouldn't have been able to detect N-rays, yet Blondlot reported the ability to still see them. After publicity surrounding the incident, interest in the non-existent N-rays came to a halt. (See review in Schnabel, 1994.)

Reviewers shouldn't (but apparently do) accept the use of a method merely because "others have used it." In the case of the secondary task techniques, the usefulness, appropriateness, and validity of the method depends in part on the construct and the situation: Can the secondary task technique really detect all of the constructs of attention, mental effort, mental workload, mental capacity, and/or mental fatigue? If experimental subjects are mentally fatigued prior to starting an experiment, might we detect different changes in "mental effort" than if subjects were feeling more energetic and motivated? Might subjects who are video game players show different reaction time performance on secondary tasks than subjects who are not? Might musicians show higher performance on a concurrent finger

tapping task than non-musicians? The answer to all of these is yes, but that doesn't make the secondary task technique invalid as a generalization. The "yes to all" answer does, however, make the method suspect if the researcher justifies its use simply because "others have used this method" without an assessment of its assumptions and limitations for the particular measurement task.

TWO: VALIDITY OF THE PHYSICAL MEASURE THAT SUPPOSEDLY IMPLIES A MENTAL CONSTRUCT

If a physical measure is used to imply a mental construct, then the validity of the physical measure in turn affects the validity of the mental construct. In the case of Welch's (1898) hand grip method, any kind of stickiness or sloppiness in the physical mechanism will affect the quantitative readings that are taken. If the mechanism is sticky, then gradual but cumulatively large changes in hand grip might not register a change on the scale. A small additional change, however, might be enough to finally unstick the mechanism. The result is that this small additional change would incorrectly register as a sudden large change on the scale. The researcher would incorrectly presume that a change in, say, "attention" suddenly occurred at that point in time when the change had actually started at some earlier point in time.

Since a faulty physical measure will falsely imply something about changes in a mental construct, the validity of physical measure itself must be scrutinized just as critically as the validity of the method that uses the physical measure to imply something about the mental construct. Unfortunately, scrutiny of the physical measure is not always done, perhaps because both the researchers and their reviewer colleagues are not so familiar with issues of assessing a physical measure. For example, if a computer application returns reaction time measures that are decimalized to three places, does that indeed mean that the reaction time measure actually has a one-millisecond level of resolution? Should the reviewer and future readers of the published manuscript accept this three significant digit result on face validity alone?

Possibly faulty assumptions about the validity of physical measures might have been the cause of apparently contradictory findings that have been reported in association with research on the "cognitive capacity" construct.   In justifying a research method, the Thorson work mentioned earlier had cited the research work of Britton, discussed below, on the justification that "psychologists have used this method for many years." But Ihnoff and Flemming (1989) questioned what appear to be contradictory findings in the Britton "cognitive capacity" studies (e.g., Britton & Tesser, 1982) and attempted to assess possible confounds. The results of Britton and Tesser (1982) suggested that "difficult text" consumes more "cognitive capacity" than "simple text" as evidenced by reaction time measures. However, earlier studies by the same researcher had suggested that "simple text" consumes more "cognitive capacity" as evidenced by reaction time measures (Britton, Holdredge, Curry, & Westbrook, 1979; Britton, Westbrook, & Holdredge, 1978; Britton, Zeigler, & Westbrook, 1980). Given these contradictory results, it seems necessary to assess not only the possibility of confounds, but to also address the validity of the physical measures that were used to infer the mental processing constructs.

Unfortunately, no detailed description of the apparatus used in the conduct of the Britton experiments was given in the research reports, so the validity of the physical measures cannot be assessed from

these reports. In attempting to validate the assumption that reaction time is in fact a function of the amount of "capacity" dedicated to the primary task when using the RT-probe secondary task technique, Britton and Price (1981) still provide no description of the instrumentation used to take reaction times, and so even the validity of this validity-verifying study itself remains without proof. Apparently, reviewers of these reports and researchers who relied on these reports never considered that the physical measures could be a possible source of error.

Pittenger and Britton (1985), however, do describe a software package that was presumably used in taking the physical measures upon which the Britton reaction time studies relied. This description cites the "cognitive capacity" study of Britton and Tesser (1982) as an example of the kind of task in which reaction time measurements are needed – suggesting that this apparatus description is probably what was used in this and other Britton studies. The Britton studies used Commodore PET computers. Unless programs were written in machine language, the clock for taking reaction time measures would have used the interrupt or "jiffy" clock, which ticked at a rate about one-sixtieth of a second. In this report of equipment, the authors state that "This clock is accurate to within 1/60 of a second, and all timed functions are reported to the nearest 1/100 of a second."

Before discussing how this apparatus and implementation suggests a potential measurement problem, we must first understand what is meant by *resolution* and *uncertainty*. *Resolution* has to do with the "least count" or smallest change that an instrument is capable of detecting (Owen and Cooper, 1990). In the case of a computer clock that ticks at the rate of once every sixtieth of a second, any event that occurs between sequential tick T1 and tick T2 will be recorded as occurring at time T2; anything that occurs between tick T2 and tick T3 will be recorded as occurring at time T3. We cannot record events with any resolution finer than this sixtieth-second level. *Uncertainty* is the amount of known doubt about the true value of an entity or the interval within which the value is believed to be (Owen and Cooper, 1990). If we record an event as having occurred at T3, it actually could have occurred any time after T2, so we have some known doubt about the true value of the measure (*uncertainty*) even if the equipment otherwise is flawless and has no other sources of error.

What is the *uncertainty* associated with a procedure that uses an algorithm that is based on a sixtieth-second resolution clock, but divides the measures to falsely purport one-hundredth second resolution? An *actual* time interval of 2/60-seconds would be measured by a jiffy-based algorithm as 2/60 seconds. An *actual* time interval of 2.99/60-seconds would be measured as 3/60 seconds. However, the value *returned* by the decimalizing algorithm would be 0.03 seconds for the 2/60-seconds actual time interval, 0.03 seconds for the 2.99/60-seconds time interval, and 0.05 seconds for the 3/60 seconds time interval. The value of 0.03 seconds returned for the 2.99/60-seconds interval, which is actually about 0.050 seconds in duration, would be in error by about 0.02 seconds. Although the algorithm described by Pittenger and Britton purports to have a resolution of 0.01 seconds in the value that it returns, this value could be in error by 0.02 seconds.

It is important for the reader of a report to know that the returned values could be in error by 0.02 seconds. Graphic representations of the results reported by Britton and Tesser (1982), however, appear to indicate that reaction effects of less than 0.02 seconds were compared in statistical analyses. The "cognitive capacity" study of Britton, Piha, Davis, and Wehausen (1978) discusses reaction time

comparisons of as small as 0.01 seconds. The 0.02 second level of uncertainty associated with the Pittenger and Britton equipment package raises suspicions about findings that are drawn from comparisons that are smaller than the equipment is capable of detecting.

EXAMPLE OF A PROBLEMATIC APPARATUS DESCRIPTION

Even when descriptions of physical instrumentation and procedures are given, they sometimes are written in a manner such that all reasonable questions cannot be answered. Consider, for example, the instrumentation described by Ogden, Martin, and Paap (1980, p. 357):

> "Stimuli were videotaped from a four-channel tachistoscope and later played back on a television monitor placed on a table in front of the subject. Timing of the exposure durations was controlled by the interval timers and by an audiotape generated by a PDP-8E computer . . . A variable exposure duration of 0, 50, 150, 500, and 950 [milliseconds] was used."

A tachistoscope is an instrument that can display or light up a visual stimulus for precise amounts of time. Gerbrands (1982) advertised its tachistoscopes to have an uncertainty of 0.005%. This means, then, that a visual stimulus displayed for nominally 50 milliseconds could actually be displayed for 0.005% more or less than 50 milliseconds, or could be displayed for something within the range of 49.75 to 50.25 milliseconds.

Now let's consider what happens if a researcher wants to videotape a 150 millisecond tachistoscopic display with a video camera to play back later on a television display and video tape machine. The standard U.S. television system, NTSC, cannot record and play back an image at the same resolution that was displayed by the tachistoscope. Each complete frame on an interlaced NTSC system takes nominally one-thirtieth seconds to scan. *IF* the care was taken to synchronize the onset of the video scan with the onset of the tachistoscopic display that was videotaped, a *complete* video frame can only be presented in discrete increments of thirtieth-seconds (resolution). That is, an image can be presented for one complete frame of about 33 milliseconds or two frames of about 67 milliseconds, but cannot be presented for 50 milliseconds.

In this example, the research report includes a description of the apparatus and includes an explanation of measures associated with the stimulus materials. However, *assumptions* about the equipment suggest that it wasn't capable of delivering the measured amounts that are described. Either A) the equipment isn't capable and the reviewers neglected to catch this, or B) the equipment is capable, but the description isn't complete and the reviewers never questioned the potential for erroneous results. In either case, something was missing in the editorial review process.

EXAMPLE OF A MORE USEFUL APPARATUS DESCRIPTION

Otherwise cautious behavioral researchers seem to overlook or underestimate the importance of considering such issues as resolution, precision, and accuracy with regard to physical instrumentation used in the conduct of behavioral research. For example, the present author (RSO) was employed to design, fabricate, and assemble the hardware and software used in the conduct of some of the "preattentive" experiments (related to what is more popularly called "subliminal advertising") reported

by Greenwald, Klinger, and Liu (1989). Although these researchers demanded assurances from their technician (RSO) that the physical instrumentation returned valid measures, such assurance is not evident in the final report. Scrutiny by the reviewers was not possible, and scrutiny by future researchers, who might have questions about the research findings, is not possible.

Greenwald et al. provide a very good description of the stimulus materials and the general procedure used to present these, but the validity of the physical measures cannot be assessed from the description given in the published report. Their technician (RSO) had used a Commodore-64 computer to collect reaction-time measures, and it is quite possible that this technician could have used a jiffy clock timer to falsely return hundredth-second or milli-second level results in the manner similar to the apparent method of Pittenger and Britton (1985). Greenwald and his colleagues would never have known and their research could have resulted in the report of false results or, more likely, in a rather unspectacular, time consuming "file drawer" failure. They should have demanded of their technician a *written* description of the physical instrumentation that then could be used in their own published report.

The following description would adequately describe the physical instrumentation that was actually used in the conduct of the research reported by Greenwald et al. (1989) and would not be obtrusive as an appendix in the published report:

> Stimuli were presented using a Gerbrands three-channel tachistoscope. An adjustable intensity LED (visible-red light emitting diode) was continuously visible in a fourth channel. The sequencing of stimuli was controlled with the Gerbrands timer. Gerbrands specifies the uncertainty associated with this timer to be ±0.005%, although the stability associated with the crystal time base within the timer is likely to widen this uncertainty to around ±0.015%. Gerbrands specifies the lamps used in its tachistoscopes to have a rise and fall time of 20 microseconds.

> Reaction time measures were taken using a Commodore-64 microcomputer. The C-64 was interfaced, via the bidirectional game port through optical switches, to the Gerbrands timer, a foot-operated switch, and two hand-operated micro-switches. The foot-operated switch was used by the subject to start the sequence of stimulus presentations. This started a BASIC jiffy clock which generated a half-second delay before calling a machine-level algorithm which in turn disabled machine interrupts and started the Gerbrands timer. At the onset of the target stimulus, the Gerbrands timer returned a signal which started the reaction time clock. The reaction time clock used the internal hardware-based CIA timer/counters.

> Reaction time measures were thereby taken with a resolution of nominally 100 microseconds, with software-caused uncertainty well within this level. This uncertainty, contained wholly within the least significant digit is dropped, and reaction time values were recorded with millisecond resolution. Since the CIA timer/counters use a crystal time base, the uncertainty associated with these counters is presumed to

be about ±0.015%. After the CIA counters were stopped, the counter registers were saved to scratch-pad registers, the counter registers were reset, machine interrupts were enabled, and control was returned to BASIC. Calculations to convert the scratch-pad registers to milli-second values were performed in BASIC.

The instrumentation used by Greenwald et al. appears to be capable of the resolution needed to discriminate the levels of change that were observed and analyzed in their study, and the error introduced by the physical instrumentation appears to be "negligible" given the nature of the experimental task.

CONCLUDING REMARKS

The above description is by no means complete. Without complete schematics, source code, and detailed documentation, and without the inordinate amount of time that would be required to sift through such uninteresting details, one has to accept the technician's assertions on faith that the "software-caused uncertainty was well within the level of 100 microseconds" and that there were no additional sources of error caused by the interfaces or switches. Such an assertion by the technician is rather strong and would be extremely difficult (if not impossible) to prove or disprove (compare with contemporary comments regarding the use of microcomputer assisted measurements: Armitage, 1987; Forbach, 1981; Gerhart & Yelowitz, 1976; Morse, 1986; Roberts, 1980), even with the use of a hardware (CIA), rather than software, counter.

Nonetheless, this brief description does allow a knowledgeable reader to minimally assess the suitability of the physical instrumentation for the experimental task described by Greenwald and his colleagues. Such a description does, unfortunately, leave its author exposed forever to the scrutiny of others. Mistakes associated with the fabrication of hardware and software can remain unnoticed for years and could be uncomfortably embarrassing if noticed by others. The inevitability of an occasional overlooked source of error, however, goes with the territory of devising unique measurement instruments and procedures, and such descriptions must be given regardless of the personal hazards they present.

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AN EMPIRICAL INVESTIGATION OF COMMUNICATION CONTENT IN POPULAR PRESS BUSINESS BOOKS

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ABSTRACT

This study investigates differences among popular press business books (b-books) written by multiple authors, mixed-gender authors, male vis-à-vis female authors, books listed by Crainer (1997) as ultimate, books published by university presses, and books published between 1911 and 2006. These b-book variables were compared based on a depth of communication content measure (dependent variable). Using One-Way ANOVAs, six null-hypotheses were tested. No differences among means on any of the variables were revealed when compared on a depth of communication content measure. B-book authors, therefore, have consistently given advice to their readers on communication for nearly one hundred years. The evidence offers further support business communication is a dominant management function.

INTRODUCTION

Since Chester Barnard first published *The Functions of the Executive* in 1938, communication has been featured in popular press business books (b-books) ever since. This study's purpose was to investigate through content analysis if any mean differences existed in the depth of communication content (dependent variable) found in nearly a century of these b-books. Books purely on economics and marketing were excluded from this study in order to delimit its aim and scope to general business and management topics. Publication dates for these b-books ranged nearly one hundred years from Frederick W. Taylor's *The Principles of Scientific Management* published in 1911 to Judith E. Glaser's *The DNA of Leadership* published in 2006.

Crainer (1997) wrote: "*The Ultimate Business Library* is a collection of fifty of the greatest books of management." (p. 1) Whether or not this list of 50 books is definitive begs the question; even so, there can be no denial of the contribution to the evolution of management and thought many of the authors listed have made. Their lasting contributions continue to impact the management literature. Many of these authors' writings helped shape perspectives in management: 1) classical, 2) behavioral, 3) quantitative, 4) systems, and 5) contingency. Surnames of management theory elite are names easily recognized: Taylor, Gilbreth, Weber, Fayol, Follett, Mayo, McGregor, Barnard, Simon, March, Mintzberg, Schein, Vroom, are just a few.

Denying the contributions made by Frederick W. Taylor (scientific management), Max Weber (bureaucratic management), and Henri Fayol (administrative management) to the Classical Perspective would be futile. Chester Barnard, Mary Parker Follett, Elton Mayo and Douglas McGregor are credited with the theories (in some cases their practical consultative approaches) leading to the behavioral perspective. These early perspectives continue to shape management thinking, and today nearly every management textbook published includes a chapter on the evolution of management thought. Many of these noted scholars in the b-books they wrote, though covering broader business issues, found it necessary to offer their readers advice on what Simon (1976, p. 156) calls "the particular techniques of communication." Today communication is viewed as one of the main functions of management: leading, planning, organizing, staffing, controlling, and communicating. Communicating can be seen as the common thread tying all those other management functions together (Bell & Martin, 2008; Froschheiser, 2008). Several of the management theory elite put their theories into books, and many of their books include keen observations on the necessity of particular techniques of communication in management, and, in some cases, they wrote an entire chapter on communication.

Although Simon (1976) was primarily interested in administrative decision making, he understood the particular techniques of communication used by managers as being inseparable from the distribution of their decision making functions and essential to organizational existence. This Nobel laureate wrote an entire chapter on communication in his book *Administrative Behavior.* Drucker (1974) called this type of communication function "managerial communication," and it was he who appears to have first coined the phrase "managerial communication," which is now a core MBA course in most Association to Advance Collegiate Schools of Business-International (AACSB) accredited programs, offered globally.

Barnard's chapter "*Theory of Authority*" might be considered a chapter on explaining the two aspects of how human beings working in organizations accept or reject communicative authority in line-management. Despite so many noted scholars writing about communication in their b-books, there is a lack of empirical evidence in the literature on systematically comparing the mean differences on the communication content covered in b-books written over the years. Therefore, my primary purpose was to review b-books to investigate empirically if communication content as a measure in b-books differed significantly over the years. Several questions spawned from this main purpose.

The Research Questions

First, is there any difference in communication content and the era in which a b-book was published? Second, do b-books written with multiple authors differ when at least one author is male or female (multiple mixed-gender authors)? Third, do male vis-à-vis female authors differ in the amount of communication content they cover? Fourth, does communication content differ in terms of the number of authors? And, fifth, does a b-book being labeled as an "ultimate book" or published by a university press differ in the depth of communication content measured? A content analysis of the communication content covered in these b-books would reveal some interesting unknowns about authors writing b-books over the years. The majority of b-books I examined offer a cornucopia of advice to their readers on communication in management practice. Therefore, several research questions could be answered by analyzing this rich source of data. In order to answer the aforementioned research questions, I tested six null hypotheses.

Null Hypotheses

Hypothesis 1:   Means of four publication eras (1911-1979, 1980s, 1990s, and 2000-2006) of b-books do not differ on the depth of communication content measure.

Hypothesis 2:   Means of b-books with mixed-gender multiple authors (at least one male or female amongst them) do not differ from books written by same-gender authors on the depth of communication content measure.

Hypothesis 3:   Means for male and female b-book authors do not differ on the depth of communication content measure.

Hypothesis 4:   Means for b-books with one, two, or three authors do not differ on the depth of communication content measure.

Hypothesis 5:   Means for b-books listed by Crainer (1997) as "ultimate books" do not differ from other randomly selected b-books on the depth of communication content measure.

Hypothesis 6:   Means of b-books published by university presses do not differ from b-books published by non-university presses on the depth of communication content measure.

RESULTS

Methodology, Sample, and Descriptive Statistics

Methods common in the social science literature were used to analyze the data. All data were analyzed using the software SPSS 15.0. Furthermore, the six null hypotheses were tested using One-Way ANOVAs. One-Way ANOVA is a robust way to analyze variables when there is only one independent categorical variable with two or more levels being compared on one dependent variable measured at least on the interval or ratio scale (Kachigan, 1991).

The statistical analyses presented in this study were based on 97 randomly selected b-books drawn from a population of 1,000 university library database business titles. The descriptive statistics were compiled and frequencies and percents are presented in Table 1a and Table 1b. My sample of 97 b-books was adequate. "Statistical theory also shows the standard deviation of a sampling distribution is inversely related to the sample size. That is, the larger the sample size, the smaller the standard deviation of the sampling distribution" (Henry, 1990, p. 39). Also, "For a sample size of 100, 95% of the sample means fall within + 1.96 standard deviation units. A sample size of 10 (9 degrees of freedom) would require + 2.26 standard deviation units" (Henry, 1990, p. 40.).

Table 1a: Descriptive Statistics for B-Books with Frequencies and Percents

B-Books = 97	*Demographics*	*Frequency*	*%*
Gender	Male Authors	42	43.3
	Female Authors	22	22.7
	Co-Authored B-Books	33	33.0
	Total	97	100
Mixed Gender	Same Gender	82	84.5
	Mixed Gender	15	15.5

	Total	97	100
Multiple Author Books	One Author	64	65.9
	Two Authors	27	27.9
	Three Authors	<u>6</u>	<u>6.2</u>
	Total	97	100
Ultimate B-Books	Non-Ultimate B-Books	75	77.3
	Ultimate B-Books	<u>22</u>	<u>22.7</u>
	Total	97	100
Publication Era in Years	1911 to 1979	19	19.6
	1980s	21	21.6
	1990s	31	32.0
	2000 to 2006	<u>26</u>	<u>26.8</u>
	Total	97	100
B-Books by University Presses	University Press	13	13.4
	Non-University Press	<u>84</u>	<u>86.6</u>
	Total	97	100

As can be seen in Table 1b, there are 23 b-books containing nine or more layers of communication content, as found in the index of each b-book; these are marked by an asterisk. The author and title of 22 ultimate b-books are in bold. The mode was 30 of the 97 b-books examined had zero communication content or any corresponding synonym for communication mentioned (dialogue, conversation, etc.). One b-book (Phillips, 1985) had 38 layers of communication content. There were 19 b-books with only one layer of communication content. The mean for 97 b-books was 5.21 layers of communication content with a standard deviation of 7.09. The dependent measure (depth of communication) is considered ratio-scale data: unlike temperature measured in Fahrenheit or Celsius, which easily shows an arbitrary zero-point when converting one scale to the other, there was a true zero value for the communication content measure.

Table 1b: Books Listed by the Depth of Communication Content Covered

Phillips, J. J. (1985). Improving Supervisors' Effectiveness	38
Larkin, T. J. & Larkin, S. (1994). Communicating Change	29
Blake, R. R. & Mouton, J. S. (1964). The Managerial Grid	26
Connolly, M. & Rianoshek, R. (2002). The Communication Catalyst	25
Kouzes, J. M. & Posner, B. Z. (2002). The Leadership Challenge, 3rd Ed.	22
Boone, M. E. (2001). Managing Inter@Ctively	20
Brown, J. D. (1973). The Human Nature of Organizations	19
Katz, D. & Kahn, R. L. (1966). The Social Psychology of Organization	18
Baldoni, J. (2005). Great Motivation Secrets of Great Leaders	17
Trompenaars, F. (1998). Riding The Waves Of Culture, 2nd Ed.	17
Stone, F. M. (1997). The Manager's Balancing Act	16
Kanter, R. M. (2001). E.Volve! Succeeding In The Digital Culture Of Tomorrow	15
Glaser, J. E. (2006). The DNA of Leadership	14
Duck, J. D. (2001). The Change Monster	13
Barwick, J. M. (1998). In Praise of Good Business	12
Collins, E. G. C. (1983). Executive Success: Making It In Management	11
Levinson, H. (1981). Executive	11
Barnard, C. I. (1938). The Functions of The Executive	10

Carnegie, D. (1987). Managing Through People	10
Drucker, P. F. (1974). Management: Tasks, Responsibilities, and Practices	9
Rigsby, J. A. & Greco, G. (2003). Mastering Strategy	9
Toffler, B. L. (1986). Tough Choices: Managers Talk Ethics	9
Ulrich, D. & Lake, D. (1990). Organizational Capability	9

Thirty of the 97 b-books sampled (i.e., Burns, 1978; Carnegie, 1936; Juran, 1988; Taylor, 1911) had no mention of the word communication in the index; for example, *Principles of Scientific Management* was coded as having a zero amount of the communication measure. A b-book with communication mentioned only once in its index and not having any subordinate layers received a code of one. A b-book with communication and one subordinate point, say face-to-face as its first subordinate point, received a code of two: communication plus one layer. And, the data was coded accordingly thereafter. Some books were rife with the communication measure.

Baldoni (2005) and Trompenaars & Hampden-Turner (1998) each had 17 layers, Barnard (1938) had 10 layers, Drucker (1974) had 9 layers, and Phillips (1985) had of 38 layers of the depth of communication content measure as found in the index count. Depth of communication was measured by merely counting communication and the number of layers that appeared in the index of the b-book itself. This was a true ratio level measure, because 30 of the b-books selected covered no communication at all. The depth of communication content was a simple measure to observe and code. The table of contents and indexes of each of the 97 b-books was examined.

Furthermore, 22 of the 50 books listed by Crainer (1997) as "ultimate" books were found among the list of 97 randomly selected b-books analyzed. Books purely on economics or marketing were excluded to delimit the scope of this study to general business and management. Since the volume of published b-books is disproportionate across decades, there were far fewer books on business or management published between 1911 and 1979 than in more recent years. Sampling was made more systematic by searching titles by "date" and "business" and "management" and drawing as random a sample as possible from those books published in various decades.

In order to generate a list of older business books from 1911 to 1979, the references of some of the older publications was a good source of information. It was very difficult to find some of these older titles because libraries often cull their collections. Old books often get the ax! Fortunately, the most popular books are still available in the university library database and Drucker's (1954) *Practice of Management*, Simon's (1976) *Administrative Behavior*, and Barnard's (1968) *Functions of the Executive* revealed several business books in their references that could be sorted by dates, compiled into lists of titles, and sampled systematically at random.

Therefore, b-books with publication dates between 1911 and 1979 were combined and coded the same to test for differences on depth of communication across eras (hypothesis 1). The b-books published after 1980 were more plentiful; it was not until after 1982 with the publication of Peters and Waterman's book *In Search of Excellence* the main-stream publishers thoroughly understood there is a huge consumer market for popular press business books (Crainer, 1997). Generating a population of 1,000 b-books published between 1911 and 2006 and systematically sampling was made much easier

this way. None of the assumptions required for ANOVA were violated. Indexes for all 97 b-books sampled were examined on the communication content measure.

Hypotheses Testing

I could not reject Hypothesis 1: Our One-Way ANOVA test in SPSS 15.0 revealed there is no difference among the means of the four publication eras of b-books and the depth of communication content measure. There were 19 books published between1911-1979; there were 21 books published in the 1980s; there were 31 books published in the 1990s; and there were 26 b-books published between 2000 and 2006 with means of 5.85, 5.81, 4.75, and 5.73 respectively. The mean for all 97 b-books was 5.21 layers of communication content. ANOVA Results are shown in Table 2.

Table 2: ANOVA Results for B-Books Published in 1911-1979, 1980s, 1990s, and 2000-2006 on Communication Depth

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	70.029	3	23.343	.457	.713
Within Groups	4751.848	93	51.095		
Total	4821.876	96			

I could not reject Hypothesis 2: One-Way ANOVA test revealed there is no difference between the means of same gender b-books authors and mixed-gender multiple authors (b-books with at least one male or one female amongst authors) and the depth of communication content measure. There were 82 books written by same gender author(s) and 15 written by mixed-gender authors with at least one male or female amongst authors, with means of 5.48 and 3.73 respectively. ANOVA Results are shown in Table 3.

I could not reject Hypothesis 3: One-Way ANOVA test revealed means for 42 male b-book authors and the 22 female b-book authors did not differ on the depth of communication content measure in popular press books they wrote. With means of 4.19 and 6.77 respectively, women obviously wrote more about communication, but, that difference was not statistically significant. ANOVA Results are shown in Table 4. Men and women authors are statistically the same.

Table 3: ANOVA Results for Gender/Mixed Gender B-Book Authors on Communication Depth

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	38.492	1	38.492	.764	.384
Within Groups	4783.385	95	50.351		
Total	4821.876	96			

Table 4: ANOVA Results for Male Authors V. Female Authors on Communication Depth

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	96.270	1	96.270	2.059	.156
Within Groups	2898.340	62	46.747		
Total	2994.609	63			

I could not reject Hypothesis 4: One-Way ANOVA test revealed means for books written by one, two or three authors did not differ on the depth of communication content measure in popular press b-books. There were 64 single authors, 27 dual authors, and 6 b-books with three authors, with means of 5.08, 6.33, and 1.50 respectively. ANOVA Results are shown in Table 5. The number of authors is statistically the same when it comes to depth of communication covered in the b-books they write.

Table 5: ANOVA Results for B-Books Written by One, Two, or Three Authors on Communication Depth

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	117.767	2	58.883	1.177	.313
Within Groups	4704.109	94	50.044		
Total	4821.876	96			

I could not reject Hypothesis 5: One-Way ANOVA test revealed means for the 22 books listed by Crainer (1997) as "Ultimate books" did not differ from the other 75 randomly selected b-books on the depth of communication content measure in popular press books, with means of 3.14 and 5.81 respectively. ANOVA Results are shown in Table 6. The noted scholars did not differ statistically from the less well known b-book authors.

Table 6: ANOVA Results for Ultimate B-Books V. Non-Ultimate B-Books on Communication Depth

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	121.899	1	121.899	2.464	.120
Within Groups	4699.978	95	49.473		
Total	4821.876	96			

I could not reject Hypothesis 6: One-Way ANOVA test revealed means of the 13 books published by university presses (i.e., HBS Press, MIT Press, University of Chicago, and others) do not differ from the 84 books published by non-university presses on the depth of communication content measure in popular press books, with means of 5.39 and 4.00 respectively. The university presses are statistically the same as the other popular press publishers when it comes to the amount of communication content covered in the b-books they publish. ANOVA Results are shown in Table 7.

Table 7: ANOVA Results for University Press B-Books V. Non-University Press B-Books on Communication Depth

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21.841	1	21.841	.432	.512
Within Groups	4800.036	95	50.527		
Total	4821.876	96			

DISCUSSION

Communication Content in B-Books

Crainer (1997) tells us it was after the publication of *In Search of Excellence: Lessons from America's Best-Run Companies* by Peters and Waterman (1982) that publishers realized consumers had an enormous appetite for business books. Thousands of business titles have been published each year since 1982. Peter Z. McKay is a business librarian at the University of Florida and he reports more than 8,000 business titles in the University of Florida Library collection is worth $400,000. He wrote: "The titles are drawn from a database of more than 8,000 business books that I have been carefully collecting for many years…Today, you'll find a well-rounded and up-to-date list of readings on all the major aspects of business. The estimated cost is $400,000 ($50 x 8,000)." (Retrieved December 14, 2008, from http://businesslibrary.uflib.ufl.edu/businessbooks) With so many b-books in circulation, how does one grapple with what all these b-books are advising their readers about communication in management practice?

Chester Barnard's book, *The Functions of the Executive*, was first published in 1938, revised in 1968, and is still selling today. We know Chester Barnard was writing on communication as early as 1938, and his book appears to toggle on the premise communication is the dominant function of management (Zuboff, 1988). Barnard (1968) argues that essential to organizational survival is willingness to cooperate, a system of communication, and continuing integrity of the organization purpose. He saw acceptance of communicative authority as having two aspects: the subjective and objective.

Drucker (1954) gave an enlightened example of how managers use communication in practice. In *The Practice of Management* he argues there are five basic operations in the work of the manager: 1) sets objectives, 2) organizes, 3) motivates and communicates, 4) has the job of measurement, and 5) develops people. In motivating and communicating, the manager's role is to make teams out of people responsible for various jobs using personal relationships and incentives and rewards. The manager is a "promoter of policy." Drucker (1954, p. 347) asserts "managers spend a good deal of time on communications up than down the organization…Good managers do not talk to their men about their own problems." They spend considerable time sitting down with subordinates on outlining their objectives, and as a result they do not have to worry much about communications down. Drucker (1954) appears to suggest management by objective is largely a task of motivating and communicating.

Drucker (1954) viewed motivating and communicating as tasks relating to management by objective, and Drucker (1974) saw communication as perception and expectation within the broad framework of the social sciences: he viewed communication as largely made up of all the work on learning, memory, perception, and motivation. To Drucker, a tree falling in the forest makes a sound only when there is a person there to perceive it; therefore, he urges managers to "talk to carpenters in the carpenter's own language." Drucker (1974) is possibly the first business philosopher to actually call the type of communication in management practice he was observing "managerial communication" in chapter 38 of his book, *Management: Tasks, Responsibilities, and Practices.* According to Drucker:

Despite the sorry state of communications in theory and practice, we have learned a good deal about information and communications. Most of it, though, has not come out of the work of communications to which we have devoted so much time and energy. It has been the by-product of work in a large number of seemingly unrelated fields, from learning theory to genetics and electronic engineering. We equally have a lot of experience—though mostly of failure—in a good many practical situations in all kinds of institutions. We indeed never understand "communications." But "communications in organizations"—call it managerial communications—we do know something about now….What knowledge we have about communications is scattered and, as a rule, not accessible….But at least we increasingly know what does not work, and, sometimes, why it does not work. (p. 482)

Perhaps not as well known as Peter F. Drucker, Douglas J. Brown a long-time provost at Princeton University acknowledged "communication as organization in action" (1973, p. 53). He was heavily influenced by the bureaucratic nature of university administration; yet, his ten factor situational model included views largely framed around the transmission perspective (a view communication is a linear exchange of information between a source and a receiver).

Furthermore, Brown (1973) appears to view communication from the perspective knowledge of communication action can be gained by examining this linear relationship between source and receiver to be action oriented. Another noted scholar is Henry Mintzberg who observed top managers at work. Mintzberg (1973) identified three role domains that account for most managerial activity: the interpersonal, the informational, and the decision-making role. Managers spend most of their time in some communication interactions (Face-to-face, telephone, in meetings, etc.). Another noted scholar, Simon (1976, p. 154) in his book *Administrative Behavior* wrote:

Without communication there can be no organization…Not only is communication absolutely essential to organization, but the availability of particular techniques of communication will in large part determine the way in which decision-making functions can and should be distributed throughout the organization.

Devoting an entire chapter to his framework, Simon (1976) is one of many authors whose b-books include an entire chapter on communication (Bennis & Nanus, 1985; Duck, 2001; Phillips, 1985); these authors are not writing merely on a generic form of language as platitude most people are accustom to, but those aspects of communication particular to the techniques of management in

practice, in the business environment. (i.e., Baldoni, 2005; Drucker, 1974; Katz & Khan, 1966 are additional b-books with chapters on communication)

Bennis & Nanus (1985), in their b-book *Leaders*, saw leadership's attempt to shape social architecture as essential communicative action. Schein (1992) in his b-book *Organization Leadership* viewed communication so essential that no organization could exist without it. Years earlier, Katz & Khan (1966, p. 223) in their chapter called "Communication: The Flow of Information," argued "the closer one gets to the organizational center of control and decision-making, the more pronounced is the emphasis on information exchange…In this sense, communication—the exchange of information and the transmission of meaning—is the very essence of a social system or an organization." Specifically, they noted the limitations of information overload and the necessity of restricted networks.

Phillips (1985) states, "Supervising is virtually synonymous with communicating" (p. 228). Larkin & Larkin (1994) presented an exhaustive overview of managerial communication from a consultancy perspective. Their book in its entirety is an attempt to place the communicative framework into the managerial perspective. Although women were not published as frequently across time in the sample of 97 b-books I generated, especially in the b-books published prior to the 1980s, some women were writing about the role of communication in management practice before and after the 1980s.

Women, Communication and the B-Books

Mary Parker Follett's infusion of humanism into an otherwise scientific management world has been well documented (Follett, Metcalf, & Urwick, 1941; Graham, et al, 1995). Edith Tilton Penrose, also among the first women to write a b-book, wrote *The Theory of the Growth of the Firm* in 1959; she is credited with the resource-based view of strategic management; Kor & Mahoney (2004) argue Penrose (1959) contributed heavily to our knowledge of competitive advantage and sustaining competitive advantage. Kanter (1989) in her book *When Giants Learn to Dance* and earlier in her book *The Change Masters: Innovation for Productivity in the American Corporation* published in 1983 spends considerable time on giving readers advice on communication. In 1977 Rosabeth Moss Kanter wrote *Men and Women of the Corporation* which was her breakthrough work, landing her national acclaim. And, even then, Kanter (1977, pp. 97, 113-114, 148) was instructing managers to use deepening layers of communication, especially from a socio-cultural anthropological perspective, with their wives, to empower employees by opening communication channels, and through secretaries. Zuboff (1988, pp. 101-102) *In the Age of the Smart Machine: the Future of Work and Power* argues "Barnard believed that communication was the dominant function of management and, as he put it, 'the immediate origin of executive organization.'" After the 1980s considerably more women were writing b-books (Duck, 2001; Hill, 1992; Kanter, 2001) that included discussion or entire chapters on communication in management practice.

Duck (2001, p. 187), a senior vice president of the Boston Consulting Group, uses three metaphors to explain management communication: Cassandras, Networkers, and Influencers when she advises leaders "should listen to and communicate with and through three key kinds of networks during the change process." Cassandras usually middle managers and line supervisors can sound alarms and provide early warnings; Networkers know the organizational landscape and the right types of people and; Influencers can adjust and change the attitudes and opinions of the organization.

While examining the contents of 97 b-books, it did not take long to see deep layers of communication content appear frequently in the indexes of 67 of them, ranging the full spectrum of management areas. The systematic examination of the depth of communication content in these b-books contributes to the literature by offering further evidence communication can be viewed as a dominant management function.

This Study's Contribution to the Literature

Most of the books examined for this study were not about communication per se, but, each addressed much broader issues concerning management or business in general (see Barnard, 1968; Drucker, 1954; Drucker, 1974; Kanter, 1977; Kanter, 1989; Mintzberg, 1973; Phillips, 1985; Schein, 1992; Senge, 1990; Simon, 1976). Nonetheless, because of the indissoluble contributions many of these authors have made to management theory, a systematic analysis of their inclusion of communication in their books sheds some new light on the essential role business communications plays in management.

While Lewis, Schmisseur, Stephens, & Weir (2006, p. 114) offer a thematic analysis "about implementation of change" and how popular press book authors "direct readers communicate about those change programs." The themes they uncover are largely delimited to advice readers are given by authors of popular press books concerning problems in communicating organizational change. The measure of the depth of communication content in popular press business books was not the scope of their study.

In an earlier study, but very much related to the findings in this study, Aronoff (1975) traced the behavioral perspective through a content analysis of 28 general management textbooks published between 1910 and 1974. With multiple correlations analysis, Aronoff was able to show terms specific to the behavioral perspective increased pervasively over the years marking the steady increase of jargon relating to the behavior perspective influencing general management textbooks. Aronoff (1975, p. 766) specifically notes "The field of communications research, initiated in the 1940s, bears fruit in the management literature of the late 1960s with consideration of 'feedback' and 'communication networks.'"

Figure 1 presents a modified version of the map provided by Aronoff (1975) concerning the areas in general management textbooks he examined. I condensed his map and added changes only under his Organizational Development branch to better represent communication, information exchange, networks, and feedback as they should branch from organizational development as found in the advice given by authors in the b-books we examined. The advice authors give on communication in the b-books seems to be related mostly to communication's role in organizational development or change or improvement. This is consistent with Lewis, et al (2006).

Figure 1:
Aronoff's Map of the Areas in General Management Textbooks Disciplines Subject to Influence of Behavioral Science Modified for Communication Advice Given in B-Books

MANAGEMENT THOUGHT

HUMAN RELATIONS   CONSUMER BEHAVIOR

EMPLOYEE DEVELOPMENT   ORGANIZATIONAL DEVELOPMENT   ADVERTISING   PRODUCT

DESIGN

　　Industrial　　　　　　Communication　　　Organizational Theory
　　　　Sociology　　　　　　Channels and Flow,　　　　　and Behavior
　　　　　　　　　　　　Information Exchange,
　　　　　　　　　　　　Networks and Feedback

Therefore, my study systematically analyzed data found in 97 randomly selected b-books, and I compared means and determined no differences on communication content measured. Our results were quite revealing too. The results of the data analyses and hypotheses testing lead to some meaningful conclusions about communication content in b-books.

CONCLUSION

In this study, I used One-Way ANOVA tests to compare means of variables we believe were correlated to the dependent variable: communication content as measured in b-books' indexes. What I found was no mean differences on any of the comparison we made. These are interesting findings for many reasons.

I would be the first to admit that popular press business books might not be the first place academicians (or scholars of management thought) go looking for the latest scientific knowledge on communication usage in management practice. Yet, to the contrary, I believe business practitioners buy b-books as a first-stop-shop and read them to try and find answers for many problems they face in business—including business communication related problems. These business practitioners are not necessarily reading highly specialized academic journals (*The Academy of Management Review, Management Communication Quarterly, the Academy of Management Journal, MIS Quarterly*, etc.) to gain new knowledge. Many practitioners don't have the background or training to benefit from reading such journals. This is possibly why there is a huge market for popular press business titles. As I saw through my examination, b-books contain much wisdom.

Practitioners buy a lot of b-books and perhaps they are reading them to gain knowledge on how to become better managers. The production of business books over the last twenty-five years has been enormous and they are selling like hot-cakes. Thus, I know there is a market for b-books. And, apparently, better ways to communicate is a part of knowledge managers are willing to purchase. The University of Florida business reference collection has 8,000 b-book titles worth $400,000. I found that 67 out of 97 books I sampled had an average of 5.21 layers of communication content.

Many b-book authors were very sincere about the advice they were giving on communication in management practice. Kouzes & Posner (2002) urge their readers to collaborate by sharing information and to look for critical information both inside and outside the organization (pp. 191-193, 262-264). Baldoni (2005, p. 52) says, "Communication is integral to leadership, so much so that leaders must practice it at every level of the organization," and "Communication is the way in which leaders build the relationships they need in order to enable their people to fulfill personal, team, and organizational goals." Senge (1990) elaborates on 7 layers of "dialogue" and Glaser (2006) elaborates on 14 layers of "conversation." Bennis & Nanus (1985) argue leaders manage meaning through communication activities: they share vision by analogy, metaphor, and vivid illustration. Accordingly, leaders build trust and foster positive emotions. Blake and Mouton (1964) are a male female team giving extensive advice on communication in management.

Blake & Mouton (1964) write about the types of communication appropriate for each of the five managerial styles illustrated in a grid: the grid represents the range for managerial concern for people vis-à-vis concern for production. For example, a manager with a high concern for production and a low concern for people, "9,1 management communication is formal and is the media through which the authority-obedience system of direction and control is exercised" (p.28); on the other hand, a low functional concern for production and a high concern for people, "In the 1,9 managerial style, communication activities would be expected to be intense, with a high level of conversation in the informal system" (p. 65). Blake & Mouton (1964) provide a comprehensive analysis of communication for each of the styles in their managerial grid which is timeless and practical advice.

The analysis of the communication content in these popular press business books revealed some unknowns. What is now known is gender, a book published by a university press, the era in which a title was published, whether there was at least one male or female among multiple authors, or being listed as an "ultimate book" by Crainer (1997) made no difference as to the communication content covered in these b-books.

I can now say men and women who write b-books are statistically the same concerning the amount of advice on communication they are giving in the b-books. I can now say MIT Press, HBS Press, and University of Chicago Press are statistically the same as other publishers concerning the amount of advice on communication content found among the b-books they publish. I can now say the era b-books were published (1911 to 1979; the 1980s; the 1990s; 2000 to 2006) is statistically the same concerning the amount of advice on communication they are giving. None of the comparisons I made were statistically different on the dependent variable: depth of communication content as measured in the index of each b-book.

In SPSS 15.0, I used a random-effects model because our data was drawn randomly from a population of 1,000 b-book titles. Thus, assuming our sample to be normally distributed allows us to generalize this study's results to the population of 1,000 popular press business books I sampled, especially since there appears to be a great deal of homogeneity in the b-books we examined. I can theorize, therefore, that communication advice given by authors of such b-books will be statistically the same regardless if the b-book is written by a woman or a man, regardless if there are two or three authors and one is male or female. The b-book publisher (whether university or not) will make no difference on the communication content covered. And, the era the book was published won't make a difference scientifically: business communication advice given in the b-books does not appear to be a trend or a fad.

Communication advice to improve or change or develop organization—such as Mary Parker Follett's saying, "Getting things done through people"—appears to be the common advice linking the b-books. What this means for readers of b-books is communication advice given will be a consistent topic years to come. Furthermore, we conclude from the evidence communication can be construed as a dominant management function—as first indicated by Chester Barnard—and it appears communication has been an important topic of business since 1938. The advice authors gave spanned all tiers of management (top, middle, and frontline) and across the functional areas (leading, planning, organizing, staffing, controlling, and communicating).

This, in turn, gives some credence to what Bell & Martin (2008) argue; there has already been enough research published across all tiers and functions of management that justifies management communication as a field of research, and it is an overlaid function of management. This is very good news for management communication professionals and it as an academic field as it seeks its place beside the other disciplines in collegiate schools of business. The empirical findings for this study support the belief communication is a dominant function of management, and it is the common thread linking all the other management function together.

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THE IMPORTANCE OF BUSINESS COMMUNICATION COURSES IN EMPLOYER HIRING DECISIONS

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ABSTRACT

The importance of hiring and maintaining successful employees has been well documented. Most employers agree that certain traits are required for success in any field. Previous literature indicates that the top five new-hire skills include communication, honesty, teamwork, interpersonal skills, and a strong work ethic (NACE Survey, 2001). By contrast, employers rank grade point average (GPA), creativity, sense of humor, and entrepreneurial skills at the bottom of the list.

The purpose of the present study was to determine how campus recruiters value business communication courses on students' résumés, and what the university can do to help develop those traits among our graduates. Recruiters (n=100) attending the Sam Houston State University Business Career Fair during the Spring Semester of 2009 were surveyed.

Results indicated the importance of student's coursework in Business Communication when making hiring decisions. In particular, the importance of a minor in Business Communication as well as the relative importance of certain communication courses were determined. The recruiters also indicated the relative importance of other factors on students' résumés, such as GPA, academic major, and a writing portfolio.

Results of this study have implications for the COBA undergraduate curriculum. Recruiters' strong support for a minor in Business Communication, and/or recruiters' preferences for particular course topics, would be taken into consideration by the curriculum committee.

BACKGROUND

It is important for organizations to hire and retain productive employees. According to an estimate made by the Labor Department, it costs one-third of a new hire's annual salary to replace an employee (Hilton, 2000). Employee selection processes are constantly analyzed for efficiency and effectiveness, and the pressure is on recruiters as they search for top talent.

Human resource specialists use a variety of strategies to find potential employees, including online job postings, newspaper advertising, search firms, open job fairs, employee referral programs, and internships. Recently, however, campus recruiting has become more preferred in a variety of industries (Goff, 1997). Stewart and Anderson (1998) surveyed 76 human resource managers representing a range of industries and company sizes in the mid-Atlantic region, asking them to indicate the extent to which they used each of 13 recruitment methods. The results showed that the most valuable methods for recruiting business college graduates were on-campus interviewing and career fairs. Further, almost 34 percent of the responding firms indicated plans to increase the number of schools to be visited during the next five years, and another 31 percent said their campus recruiting levels were not expected to change in that time period.

Thus, campus recruiting is seen as a cost-effective way to find potential employees. Representatives of certain industries, including the information technology, automobile, and insurance industries, often talk to college students, recruiting them to fulltime positions after graduation (Goff, 1998). Statistics at Massachusetts Mutual Life, Springfield, show it takes 40 interviews for every one hire (Schmitt, 1997). At Eastern Illinois University in Charleston, on-campus recruitment of students has doubled over the past five years alone. Companies such as Caterpillar and State Farm Insurance regularly look for business majors at this rural campus. Similarly, James Madison University in Harrisonburg, Virginia, hosts 200 corporate recruitment visits each semester, twice the total of five years ago. Tennessee Tech, which has 8,600 students, now typically welcomes more than 100 companies at a Career Day in September, and another 200 in April – again, double the totals of five years ago (Murphy, 2000).

At Sam Houston State University in Huntsville, Texas, the College of Business Administration hosts a Business Career Fair each spring. At the 2009 Business Career Fair fifty companies were represented, with several large corporations attending for the first time. About 700 students attended. Evaluations of this event by both recruiters and students were extremely positive. The primary purpose of the current study was to determine how the

Business Career Fair recruiters evaluate students' résumés when considering them for future employment, and particularly how they evaluate students' coursework. A secondary purpose was to identify ways the College of Business Administration can enhance the curriculum, thus making our students more workforce ready in the eyes of recruiters.

LITERATURE REVIEW

The primary advantage of campus recruiting -- the opportunity to interview many potential employees in a compact time period -- can also be a disadvantage if the recruiters have not developed effective search strategies. Companies regularly identify essential job/organizational characteristics, review recruitment strategies, examine employee turnover rates, analyze performance management and compensation practices, and evaluate employee training and development programs in an attempt to improve their success rates in hiring and retention (Hilton, 2000). Their objective is to develop and apply the correct criteria for selection of employees.

Many industries have developed their own standards, traits and credentials that they routinely apply during employee recruitment. For example, the CPA Exam is a requirement for positions in many accounting firms, and information technology positions may require Microsoft Certification. Recent research on industry-specific criteria reveals some interesting and unexpected practices, however. In Pennsylvania the Department of Corrections has developed a series of criteria for screening candidates for entry-level corrections officers. In addition to the typical standards such as medical condition and physical ability, veteran status has been highly predictive of job performance. Problem solving, judgment, and clarity of written expression are also predictive of success (Sproule and Berkley, 2001). On the other hand, the Pennsylvania DOC has found that scores on psychological tests or personality tests such as the MMPI are not useful hiring criteria.

Literature on the banking industry's hiring criteria reveals that recruiters look for new hires with close ties to their community and with affluent friends and relatives (Nadler, 2000). In the securities industry, potential sales representatives are expected to demonstrate "drive, entrepreneurial attitude, honesty, and a concern for the welfare of clients" (Hosler, 1999).

Previous studies have also revealed generic lists of characteristics that recruiters in a variety of industries will expect to find among candidates. A survey of 90 campus recruiters at UCLA revealed that a candidate's appearance and attire directly influence their hiring decisions, with 95 percent of the respondents citing professional image as an important consideration (*PA Times*, 1999). Beyond first impressions, students should also attend to the materials they bring to the campus interview. Recruiters in a nationwide survey indicated that it is essential for a business student to prepare a résumé that includes basic facts regarding career objective,

education, experience, extracurricular activities, awards, special skills, and references (Harcourt and Krizan, 1991).

A landmark study by Scheetz (1994) reported the traits and characteristics that employers generally favor in new hires. Graduates with good interpersonal skills, public speaking, writing, and reasoning abilities, and social graces were rated highest. Also essential were computer proficiencies, teamwork skills, and customer relations expertise.

A more recent survey by the National Association of Colleges and Employers of over 1,600 employers showed that this list of criteria has not changed dramatically. Their report, Job Outlook 2002, shows how employers ranked the importance of 20 personal qualities and characteristics on a five-point scale. According to them, the top five traits include:

- Communication (oral and written) – 4.69
- Honesty/integrity – 4.59
- Teamwork – 4.54
- Interpersonal skills – 4.50
- Strong work ethic – 4.46

By contrast, employers ranked tactfulness, grade point average, creativity, sense of humor, and entrepreneurial skills at the bottom of the list (Gold and Bohovich, 2001).

The term "communication skills" can cover a range of competencies from a recruiter's perspective. A study by Kirmer and Sellers (2009) attempted to clarify which communication skills recruiters valued most highly. After analyzing survey responses from 94 campus recruiters, Kirmer and Sellers found that oral communication skills, specifically formal speaking, teamwork, interpersonal communication, and listening, rated highest (see Table 1).

Table 1: Recruiters' Ratings of Business Communication Topics

Business Communication Topic	Rated "Important" (% of recruiters)
Oral Presentations	77.6
Interviews	74.5
Business Etiquette	67.0
Resumes	63.8
Team Work	62.8
Business Attire	62.8
Listening	59.6
Email	58.5
Conflict Resolution	57.4
Ethical Behavior	56.4

Application Letters	46.8
Thank You Letters	42.6
Routine Request Letters	38.3
Proposals	36.2
Information Reports	32.9
Progress Reports	29.8
Persuasive Letters	28.7
Sales Letters	23.4
International Business Etiquette	9.6

While most recruiters agree that communication skills, commitment to hard work, and integrity are valuable traits, the issue of college grades is controversial. Many employers say that GPA is a poor predictor of job performance (Gold and Bohovich, 2001). Numerous studies prove that there is no correlation between GPA and successful management skills (Pasternak, 1994). A recent study of recruiters for community banks showed that college grades do not matter in their hiring decisions (Nadler, 2000).

Yet recruiters seem to say one thing and do another, hiring graduates based primarily on this objective criterion. Moncada and Sanders (1999) surveyed recruiters for CPA firms and found that students' accounting GPA ranked first as a criterion in selecting students for a first interview, while cumulative GPA ranked fourth. By contrast, technical skills ranked in seventh place. Similarly, a survey of campus recruiting practices at major corporations revealed that GPA is the most important factor in determining both hiring decisions and salary level. Students with a GPA higher than 3.5/4.0 received an average of 3.1 job offers each, but students who earned a GPA of 3.18/4.0 received only 2.6 job offers according to the study (Pasternak, 1994).

In summary, the literature on desirable traits among new hires is inconclusive. While some characteristics seem to be universally valued, others may or may not be considered important among college recruiters. And nowhere in the literature is a student's coursework shown to be a determining factor when recruiters evaluate students' résumés.

RESEARCH OBJECTIVES

This study attempted to clarify one of the criteria that campus recruiters apply to SHSU students when considering them for potential employment: communication skills. Since the literature shows that communication skills are generally accepted as a key prerequisite for business employment, it seemed important first to affirm that our campus recruiters agree. Second, we wanted to know what specific business communication courses the recruiters prefer that our graduates take. Third, we wanted to capture opinions about the value of a

minor in Business Communication for potential entry-level employment. The results of these three research questions would have implications for enhancing our business curriculum.

METHODS

In an attempt to answer the research questions above, a survey instrument was developed. The items were designed to measure relative importance of a range of business communication topics, courses, and course combinations. The survey appears in the Appendix.

The survey was administered to approximately 100 recruiters representing 45 businesses and government agencies who participated in the SHSU Business Career Fair on February 18, 2009. The survey accompanied another evaluation instrument measuring recruiters' overall satisfaction with the event. Seventy-four completed surveys were returned.

Results were tabulated and analyzed to determine group mean ratings and rankings. Open-ended questions were analyzed and similar responses were categorized. Statistical tests were applied to determine significance of any differences between the mean responses.

RESULTS

The first research question focused on the overall importance of communication skills among students being considered for hire. The survey results show that 73 out of the 74 recruiters surveyed agree that a student's coursework is "very important" or "somewhat important" to their evaluation of the student as a potential hire. When asked about specific courses, 43.2 percent of the recruiters responded that they consider a course in Business Communication to be "very important" to their evaluation of a student's coursework. And another 48.6 percent of the recruiters said they consider a Business Communication course to be "somewhat important" to their evaluation. Only 8.1 percent said it is not important.

In order to determine the relative importance of Business Communication courses, we compared the results described above with the recruiters' importance ratings of other résumé elements. We found that many more recruiters considered a Business Communication course to be more important than the student's GPA. That is, only 32.4 percent of the recruiters considered a student's GPA to be "very important." On the other hand, more recruiters considered the length of a résumé (75.6 percent) and a student's major (47.3 percent) to be "very important."

Our second research question focused on which specific Business Communication courses the recruiters consider to be most important. We asked the recruiters to rank six courses in terms of their value in preparing entry-level employees for their organizations. The scale was 1 = "most valuable" to 6 = "least valuable." Results are shown in Table 2.

Table 2: Recruiters' Ranking of Business Communication Courses

Ranking	Mean Score	Course
1	2.34	Team Communication
2	2.40	Successful Workplace Relationships (interpersonal communication)
3	3.14	Business Communication (writing emphasis)
4	3.75	Design & Presentation of Business Projects (speaking/presentations)
5	4.43	Electronic Communication Techniques (software applications)
6	4.95	Intercultural Business Communication

The results indicate that the survey respondents value students' oral communication skills more than their writing skills. Competency in daily interactions with coworkers and customers/clients apparently were considered more important than writing competency, formal presentation skills, and even proficiency with software applications.

Our third research objective was to capture opinions about the value of a minor in Business Communication for potential entry-level employment. The survey results indicate that an overwhelming 82.4 percent of the recruiters would consider a student's having a minor in Business Communication an enhancement. None of the recruiters reported that a minor in Business Communication would diminish their assessment of the student's workforce readiness. The remaining 17.6 percent said a minor in Business Communication would not affect their assessment of the student.

The recruiters' responses to an open-ended question concerning the importance of Business Communication courses and/or a minor in Business Communication, showed consistency in their previous ranking of the importance of oral communication skills. While all of the responses indicated that both writing and oral communication were "key" in preparing students to enter the workforce, well over 50 percent of the open-ended responses indicated that oral skills were essential in: 1) communicating and negotiating effectively with clients, fellow employees, and upper-level management, 2) functioning in work teams, and in 3) establishing, maintaining, and growing business relationships. Other comments concerned the importance of non-verbal skills in "self-confidence," "professional mannerisms," "business attire," and business etiquette. Certainly, these responses taken collectively might seem to indicate that oral skills predominate in the recruiters' assessment criteria. A possible explanation may be that oral skills contribute significantly to a candidate's first impression with a recruiter. On the job, however, a new hire's writing skills may become more important in establishing capacity and in determining career advancement. Regardless, the importance

of oral and written communication skills in the job search process and in the workplace should not be underestimated. As one recruiter observed, "You could have a 4.0 [GPA], but if you can't communicate with people you are going to limit yourself."

Significance of the Results

Part of the mission of the SHSU College of Business Administration is to prepare our students for success in the workplace. Until now, we relied on anecdotal evidence, informal feedback, generic reports, and inconclusive previous research. If we can more accurately identify the business communication competencies that local employers expect our students to demonstrate, then we can improve the likelihood that our students will have successful careers.

In addition, our response to the results of this study may include the launching of a minor in Business Communication, which may eventually lead to increased enrollment in the COBA. Students are attracted to programs that open the door to job opportunities. A college that is able to place its graduates in preferred employment situations will increase its chances of attracting business majors.

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Sam Houston State University
Business Career Fair Recruiters Survey

by
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The purpose of this survey is to determine your opinions about student coursework in Business Communication. The results will be considered as we work to enhance the Business Communication curriculum in the SHSU College of Business Administration.

1. As you evaluate a business student's résumé for potential employment with your organization, to what extent is the résumé's **length** a factor?
   a. The student should present a one-page résumé.
   b. The student may present a multi-page résumé.
   c. The résumé's length is not a factor.

2. As you evaluate a business student's résumé for potential employment with your organization, how important is the student's **G.P.A.**?
   a. Very important
   b. Somewhat important
   c. Not important

3. As you evaluate a business student's résumé for potential employment with your organization, how important is the student's **coursework**?
   a. Very important
   b. Somewhat important
   c. Not important

4. As you evaluate a business student's coursework, how important is it that the student has taken a course in **Business Communication**?
   a. Very important
   b. Somewhat important
   c. Not important

5. As you evaluate a business student's academic record, how important is the student's **major?**
   a. Very important
   b. Somewhat important
   c. Not important

6. As you evaluate a business student's academic record, how important is the student's **minor?**
   a. Very important

      b.   Somewhat important

      c.   Not important

7.   If a business student had earned a **minor in Business Communication**, how would that affect your assessment of the student's workforce readiness?

      a.   It would diminish my assessment.

      b.   It would enhance my assessment.

      c.   It would not affect my assessment in any way.

8.   To what extent would a business student's **portfolio** of writing samples (reports, letters, research papers, etc.) affect your impression of their workforce readiness?

      a.   It would have no effect on my impression of the student.

      b.   It would have a moderate effect on my impression of the student.

      c.   It would greatly affect my impression of the student.

9.   Please rank the following courses (with 1 = most valuable, down to 6 = least valuable) in terms of their value in preparing entry-level employees for your organization.

      ☐   Business Communication (writing emphasis)

      ☐   Design & Presentation of Business Projects (speaking/presentations)

      ☐   Intercultural Business Communication

      ☐   Successful Workplace Relationships (interpersonal communication)

      ☐   Team Communication

      ☐   Electronic Communication Techniques (software applications)

10. What else would you like us to know concerning Business Communication courses and/ or a minor in Business Communication?

_____
_____
_____
_____
_____

Thank you for taking the time to complete this survey! As a potential employer of our graduates, your opinions are important!

LEGAL ISSUES IN BUSINESS SCHOOL INTERNSHIP PROGRAMS

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ABSTRACT

As the job market tightens, it becomes ever more important for students to gain the experience that will prepare them to compete for fewer jobs. Likewise, employers are looking for an easier way to find qualified job applicants without expending time and resources scouring campuses for the right candidate. The solution for many is the internship program. Through internships, students can gain valuable experience in their chosen field and integrate academic learning with employment experience. This often leads to a job with the employers for whom they intern. Employers can "try out" the student as an employee and often use the internship period for job training, eliminating that step if the student is hired. Even the AACSB has encouraged internship programs.

While advantageous for both employers and students, internship programs can also give rise to important legal issues. This paper will examine five legal issues which can cause problems for college internship programs: 1) illegal alien students; 2) unpaid student interns; 3) students with felony convictions; 4) foreign students on student visas; and 5) employer non-compete agreements. The authors will examine the legal issues present in each instance and make recommendations for how business school internship programs can address these issues.

THE MATHEMATICAL STRUCTURE OF ACCOUNTING INFORMATION SETS

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ABSTRACT

This paper describes the accounting information set by means of a mathematical system known as a "group." A group consists of a set of elements together with an operation (meeting certain criteria) defined on the set. Analysis presented in the paper argues that the group concept is embedded in orthodox accounting methodology.

INTRODUCTION

Schrader et.al. (1988, 11) describes the domain of financial accounting to be exchange events, a term the authors use to define transactions with parties outside the entity. They argue that the general ledger data bases of entities accounted for under USA GAAP almost without exception consist *of and only of* an entity's own exchange events and that financial statements are partitions of these accounts.

This paper will extend the work of Schrader et.al. by demonstrating that the domain of financial accounting can be described by the mathematical concept known as a "group." The justification for such an analysis is that it allows the accounting domain and general ledger data base manipulations to be conceptualized and studied as a mathematical system.

PRIOR ACCOUNTING LITERATURE

There is little prior research in this area. Mattessich (1957, 1964) uses the concept of a matrix to arrange accounts as row and column elements, but he does not attempt to define a group concept on accounting. Several authors (e.g., Ijiri (1975), Tippett (1978), Willett (1987)) have sought to establish an axiomatic approach of accounting measurement but do not attempt to define a group on the accounting set. The work of Lim (1966) uses the concept of a mathematical field (essentially a group with two operations instead of one) to examine measurement per se and did not address the accounting process. Sterling (1967) uses matrices to describe financial statements but does not establish why such an approach is valid. Ellerman (1985, 1986, 2007) uses ordered pairs and vectors to describe double entry bookkeeping but does not establish the group structure of this description, though he does use an analogy of T accounts and the "group of differences" attributable to Hamilton.

Arya et.al. (2003) argue that the double entry mechanism of accounting has many properties in common with circuitry and networks as found in engineering and chemistry. They support pursuing commonalities with even other academic disciplines. Arya et.al. (2000) have explored the relationship between matrix algebra and the numbers processed in double entry accounting (though they did not address the mathematical nature of the double entry process itself).

The current paper will not derive an axiomatic theory of accounting measurement, but rather it will examine the underlying structure of the accounting information set upon which a measurement dimension is imposed.

MATHEMATICAL THEORY

Regarding mathematical theory, Benner (Benner et al. 1962, 1) explains:

A mathematical system consists of a set of elements, relations among its elements, operations on its elements, postulates, definitions, and theorems. ... The postulates are statements concerning the elements, relations, and operations of the system. These postulates are assumed to be valid for the system and they form a basis from which further properties can be developed. These deduced properties are called theorems.

A mathematical system, then, is based upon assumptions, i.e., postulates (also known as axioms), and utilizes deductive reasoning to derive other properties of the system, i.e., theorems.

According to Dean (1966, 22):

In mathematics the word "algebra" refers to a mathematical system in which all the operations on a set are finitary.

And he also states (1966, 21):

...(A)n abstract algebra is a set S of elements together with a number of operations and relations on S.

One of the simplest of abstract algebras is known as a "group." Kargapolov and Merzljakov (1979, xiv) indicate the magnitude of the impact of this concept as follows:

At the present time, group theory is one of the most highly developed branches of algebra, with numerous applications both within mathematics and beyond its boundaries: for instance to topology, function theory, crystallography, quantum mechanics, among other areas of mathematics and the natural sciences.

This paper demonstrates the applicability of group theory to accounting. The justification for such an analysis is that it allows accounting to be conceptualized and studied as a mathematical system.

THE GROUP CONCEPT

The following three definitions were taken (with modifications) from Dean (1966, 14, 24, 28, 30, 31).

Definition. A closed binary operation on a set $\underline{A}$ is a mapping from $\underline{A}$ x $\underline{A}$ into $\underline{A}$.
A closed binary operation, then, is a rule that indicates how to combine a pair of elements of the set $\underline{A}$ to obtain an element of the set $\underline{A}$.

Definition. A group is a nonempty set of elements $\underline{S}$ together with a closed binary operation defined on $\underline{S}$, here denoted (o), which satisfies the following axioms:
G1. The operation (o) is associative: For every triple $(\underline{a}, \underline{b}, \underline{c})$ of elements from $\underline{S}$, $(\underline{a}$ o $\underline{b})$ o $\underline{c} = \underline{a}$ o $(\underline{b}$ o $\underline{c})$.
G2. Under (o), $\underline{S}$ possesses a unique identity element: there exists an element $\underline{e}$ in $\underline{S}$ such that, for every $\underline{a}$ in $\underline{S}$, $\underline{a}$ o $\underline{e} = \underline{a}$, $\underline{e}$ o $\underline{a} = \underline{a}$.
G3. For the identity element $\underline{e}$ there is for every $\underline{a}$ in $\underline{S}$ a unique inverse element $\underline{a}^*$ such that $\underline{a}$ o $\underline{a}^* = \underline{e}$, $\underline{a}^*$ o $\underline{a} = \underline{e}$.

Definition. A group is called commutative or abelian if the following axiom holds:
G4. For every pair $\underline{a}$, $\underline{b}$ of elements from $\underline{S}$, $\underline{a}$ o $\underline{b} = \underline{b}$ o $\underline{a}$.

As an example of a group consider the set of all even integers under addition. Addition is a closed binary operation on the set because the sum of any two even integers is an even integer, i.e., the result of the operation, the sum, is a member of the set, even integers. G1 is satisfied because addition on the even integers is associative, i.e., $(\underline{a} + \underline{b}) + \underline{c} = \underline{a} + (\underline{b} + \underline{c})$, or, using integers, $(2 + 4) + 6 = 2 + (4 + 6)$. G2 is satisfied because O (an even integer) is the unique additive identity, i.e., if $\underline{a}$ is a member of $\underline{S}$, then $\underline{a} + O = \underline{a}$. G3 is satisfied since for every even integer $\underline{a}$ the additive inverse $-\underline{a}$ is also an even integer, i.e., for the even integer 2, its additive inverse -2 is also an even integer, and $2 + (-2) = O$, where O is the additive identity. The set of all even integers under addition, then, forms a group. Note also that the group is abelian in that G4 is satisfied because addition on the even integers is commutative, i.e., $\underline{a}$ o $\underline{b} = \underline{b}$ o $\underline{a}$, or, using integers, $2 + 4 = 4 + 2$.

APPLYING THE GROUP CONCEPT TO ACCOUNTING

To show that accounting is a group:
   1. The accounting information set must be specified.
   2. The relevant accounting operation must be identified and shown to be closed on the set.
   3. The operation must be shown to be associative on the set (G1).
   4. The identity element for the operation must exist and be a member of the set and be unique (G2).
   5. The inverse element for the operation must exist and be a member of the set and be unique (G3).

To show that the above group is abelian:
   6. The operation must be shown to be commutative on the set (G4).

The Specified Accounting Set

Let the activity of a given accounting entity be classified into accountable entity activity (i.e., activity admitted into the accounts of the entity) and nonaccountable entity activity (i.e., activity not admitted into the accounts).

Include as accountable entity activity all exchanges of the entity over the life of the entity (i.e., exchanges that have already occurred plus those that have yet to occur). There is, therefore, no time dimension applicable to accountable entity activity (as it is defined herein). In addition, include as accountable entity activity allocations and reclassifications (as required by orthodox accounting) of the original exchanges of the entity.

Let the accountable entity activity (i.e., the exchanges of the entity with other entities) be further classified in accordance with orthodox accounting.

All entity activity, then, can be classified into accountable and nonaccountable, and the accountable can be additionally classified into consideration received/consideration given and other aspects of the asset, expense, revenue, equity classification scheme (including allocations and reclassifications of exchanges).

Let the set S consist of all x such that x is a classified exchange which has occurred or will occur of the entity, or x is an allocation or reclassification of exchange data, or x is a combination of classified exchanges or allocations or reclassifications of the entity, or x is a nonaccountable activity of the entity (i.e., entity activity classified as nonaccountable).

Let the nonaccountable activity of the entity be represented by e. Call e the null exchange. (Note that e will later be used to also represent certain combinations of exchanges of the entity, specifically those combinations that result in the null exchange.) Let the accountable entity activity (i.e., classified exchanges, allocations, reclassifications) be represented by lower case letters other than e, e.g., a, b, c, ...

The Accounting Operation and Closure

Let the operation (o) be that of combining classified entity activity, i.e., combining in the manner of double entry accounting.

A central feature of the double entry accounting mechanism is its ability to compress the mass of an entity's exchanges (and allocations and reclassifications) into a form that is more understandable (Littleton, 1953, 36). It does so by combining together exchanges (i.e., portions of exchanges) and allocations and reclassifications that are classified in the same way, e.g., cash, inventory, etc.

That the operation (o) is closed on set S is evident. S includes all classified exchanges of the entity and combinations of those exchanges. Clearly, if a and b are exchanges (members of the set S), then combining the two will result in a combination of exchanges (which is a member of set S) so that
a o $b = c$, where a, b, c, are members of S,
and closure of (o) on S is established. Note that if either a or b or both is already a combination of

exchanges, then their combination will result in yet another combination of the exchanges of $\underline{S}$, and closure is preserved.

Combining an element of the set with $\underline{e}$, the null exchange (also a member of $\underline{S}$), will result in an element of the set (and therefore closure) as explained below in the discussion of the identity element (G2).

The Associative Property (Gl)

Gl is satisfied because combinations of exchanges via double entry accounting is associative, i.e., ($\underline{a}$ o $\underline{b}$) o $\underline{c}$ = $\underline{a}$ o ($\underline{b}$ o $\underline{c}$). For example, let

$\underline{a}$ =
>   Dr   Cash
>   Cr   Notes Payable

$\underline{b}$ =
>   Dr   Inventory
>   Cr   Accounts Payable

$\underline{c}$ =
>   Dr   Supplies
>   Cr   Cash.

The result of $\underline{a}$ o $\underline{b}$ combined with $\underline{c}$ is the same as $\underline{a}$ combined with $\underline{b}$ o $\underline{c}$, i.e.,
>   Dr   Cash
>   Dr   Inventory
>   Dr   Supplies
>   Cr   Notes Payable
>   Cr   Accounts Payable
>   Cr   Cash.

The Identity Element (G2)

G2 is satisfied because of the existence of an identity element, i.e., $\underline{e}$, the null exchange,

>   Dr   ____
>   Cr   ____

The identity $\underline{e}$ combined with any exchange $\underline{a}$ results in exchange $\underline{a}$.
For example, let
$\underline{a}$ =
>   Dr   Cash
>   Cr   Capital,

then

a o e = a,

since
     Dr   Cash
          Cr   Capital
combined with
     Dr   ____
          Cr   ____
results in
     Dr   Cash
          Cr   Capital.

Uniqueness of the identity e can be established by considering whether any element of S besides e exists that when combined with any element a of S results in element a. Assume such an element does exist and call it f. Then,
     a o f = a.

Let
          Dr   Cash
     a =
               Cr   Capital.

What element of S can exist that when combined with a results in
     Dr   Cash
          Cr   Capital?

The element f must be an exchange of the entity or an allocation or a reclassification or a combination of these items because the other elements of S, i.e., nonaccountable entity activity, are already represented by e, the null exchange. It is clear that f cannot be any single exchange (or allocation or reclassification) since this exchange would be classified into specific debit and credit components, i.e.,
     Dr   Account X
          Cr   Account Y,
and this combined with a would yield
     Dr   Cash
     Dr   Account X
          Cr   Capital
          Cr   Account Y,
and this is not the same as a.

Suppose f is a combination of exchanges of the entity. What combinations of exchanges exist that when combined with a results in a? Many can be proposed since the only requirement is that the combined exchanges have no effect on a. Any pair of original exchange and "inverse" exchange will suffice. For example, suppose

```
              Dr    Cash
      b =
                  Cr    Notes Payable
          (borrowing money)
and
              Dr    Notes Payable
      c =
                  Cr    Cash
          (repayment of the loan)
```

then $\underline{f} = \underline{b} \text{ o } \underline{c}$ would result in
```
      Dr    ____
          Cr    ____,
```
and this combined with $\underline{a}$ would result in
```
      Dr   Cash
          Cr   Capital.
```
But
```
      Dr    ____
          Cr    ____
```
has already been defined as $\underline{e}$, and therefore $\underline{e}$ is unique.

Inverse Elements (G3)
For each element $\underline{a}$ in $\underline{S}$, there exists in $\underline{S}$ an inverse $\underline{a}^*$ for element $\underline{a}$ such that $\underline{a} \text{ o } \underline{a}^* = \underline{e}$. For example, let
```
          Dr   Cash
      a =
                  Cr    Notes Payable.
```

Ignoring interest, the inverse exchange will occur when the note is paid,
```
          Dr    Notes Payable
      a* =
                  Cr    Cash.
```

The inverse exchange $\underline{a}^*$ combined with the original exchange $\underline{a}$ will result in the identity $\underline{e}$, i.e., $\underline{a} \text{ o } \underline{a}^*$ $= \underline{e}$, e.g.,
```
          Dr    Cash
              Cr    Notes Payable
```
combined with
```
          Dr    Notes Payable
              Cr    Cash
```
will result in
```
      Dr    ____
          Cr    ____
```

For some types of exchanges, for example revenue exchanges, the inverse is less clear; no single inverse exchange exists, however, over the life of the entity the <u>effect</u> of such an exchange does occur

(remember that <u>S</u> is defined to be exchanges over the life of the entity).

Consider the following,

    Dr   Accounts Receivable
       Cr   Sales.

An inverse for this exchange can be demonstrated, but it is the composite effect of two items, an exchange and an allocation (and only parts of the exchange and the allocation carry the inverse effect). The inverse for the accounts receivable debit (i.e., the accounts receivable credit) is found in the exchange that collects the account receivable,

    Dr   Cash
       Cr   Accounts Receivable.

The sales portion is reversed as part of the allocation of revenue to the time period made under orthodox accounting practices, i.e.,

    Dr   Sales
       Cr   Income Summary.

The above allocation can be linked to an exchange in the following way. The above is an allocation to a time period and results in an increase in owners' equity (for example, retained earnings for a corporation) and the effect of this increase <u>is</u> part of the final exchange of the entity, i.e., the transfer of residual assets to owners when the entity ceases to exist. For example, consider the following exchange for a corporation,

    Dr   Retained Earnings
       Cr   Cash.

The reduction in retained earnings is analogous to the debit to sales above that allocates to periodic revenue.

In a similar way one can argue that the effect of a reclassification, for example,

    Dr   Work In Process
       Cr   Raw Material Inventory,

will eventually be included in an exchange.

Argument for existence of inverses is strengthened by considering that over the life of the entity from start to finish (as <u>S</u> is defined) all exchanges are "reversed," i.e., the beginning balance sheet is a blank, e.g.,

    ————————
        |
        |
        |

and so is the ending, e.g.,

    ————————
        |
        |
        |

as well as all revenue and expense accounts.

The inverse $\underline{a}^*$ is clearly unique for certain types of exchanges. For example, if

$$\underline{a} = \quad \begin{array}{lll} \text{Dr} & \text{Cash} & 5{,}000 \\ & \text{Cr} & \text{Notes Payable-X Company} & 5{,}000 \end{array}$$

(notice that dollar amounts are included in the example to identify the specific exchange $\underline{a}$; in addition there would be a specific incurrence date and a due date and the physical note itself to identify $\underline{a}$), then the specific exchange on the due date to pay off the note (ignoring interest) would be

$$\underline{a}^* = \quad \begin{array}{lll} \text{Dr} & \text{Notes Payable-X Company} & 5{,}000 \\ & \text{Cr} & \text{Cash} & 5{,}000, \end{array}$$

and there would be no other exchange in payment of this specific note. Therefore, $\underline{a}^*$ is unique.

In a similar way the uniqueness of the inverse for revenue or expense exchanges can be demonstrated. For example, if

$$\underline{a} = \quad \begin{array}{lll} \text{Dr} & \text{Accounts Receivable-X Company} & 5{,}000 \\ & \text{Cr} & \text{Sales} & 5{,}000 \end{array}$$

(notice that the exchange will occur in a specific time period with a specified due date on the account receivable), then (again using composite exchanges, allocations) part of the $\underline{a}^*$ will be the collection of the account receivable, i.e.,

$$\begin{array}{lll} \text{Dr} & \text{Cash} & 5{,}000 \\ \text{Cr} & \text{Accounts Receivable-X Company} & 5{,}000, \end{array}$$

and part of the $\underline{a}^*$ will be included in the allocation of revenues to that specific time period, i.e.,

$$\begin{array}{lll} \text{Dr} & \text{Sales} & \text{XX} \\ \text{Cr} & \text{Income Summary} & \text{XX.} \end{array}$$

The composite inverse effect $\underline{a}^*$ is unique, i.e., receipt of payment on a specified account and allocation of revenue to a specified time period.

It is obvious that the null exchange $\underline{e}$ is its own inverse for

$$\begin{array}{ll} \text{Dr} & \underline{\quad} \\ \quad \text{Cr} & \underline{\quad} \end{array}$$

combined with

$$\begin{array}{ll} \text{Dr} & \underline{\quad} \\ \quad \text{Cr} & \underline{\quad} \end{array}$$

results in

$$\begin{array}{ll} \text{Dr} & \underline{\quad} \\ \quad \text{Cr} & \underline{\quad} \end{array}$$

the null exchange, and therefore

$\underline{e}$ o $\underline{e}$ = $\underline{e}$.

It should also be obvious that the inverse for an exchange can precede temporally the exchange itself. This causes no concern because there is no time dimension on the set $\underline{S}$. For example, if the exchange is payment of a note, i.e.,

$\underline{a}$ =
> Dr   Notes Payable
>> Cr   Cash,

then the inverse $\underline{a}$* would be the exchange for borrowing the money, i.e.,

> Dr   Cash
>> Cr   Notes Payable,

for then $\underline{a}$ o $\underline{a}$* would equal $\underline{e}$,

> Dr   ____
>> Cr   ____

The above arguments are persuasive evidence for the existence of an inverse in set $\underline{S}$ for each element in set $\underline{S}$. The conditions of G3, then, are met.

Inverses - A Different Approach

There is another approach that could have been taken to establish inverses. If the set $\underline{S}$ had been defined not as exchanges, allocations, reclassifications, and combinations of these elements, but rather as the individual halves of the exchanges, allocations, reclassifications, (i.e., the consideration given in a particular exchange, the consideration received; the specific debit in a particular allocation or reclassification, the specific credit), and combinations of these elements, then the difficulty encountered in establishing certain inverses (i.e., the reliance upon the composite effect of exchanges, allocations, reclassifications) could have been avoided.

Take, for example, the sale exchange discussed above, i.e.,
> $\underline{a}$ = Dr   Accounts Receivable
>> $\underline{b}$ = Cr   Sales.

The inverse of the accounts receivable entry is found in the exchange for collection of the receivable, i.e.,
> $\underline{c}$ = Dr   Cash
>> $\underline{d}$ = Cr   Accounts Receivable,

and the inverse is the half of the exchange that recognizes the reduction of the accounts receivable, i.e.,
> $\underline{d}$ = Cr Accounts Receivable,

since $\underline{a}$ o $\underline{d}$ = $\underline{e}$. The sales portion is reversed as part of the allocation of revenue to the time period, i.e.,
> $\underline{f}$ = Dr   Sales
>> $\underline{g}$ = Cr   Income Summary,

and the inverse is the half of the entry that allocates revenue from the sales account, i.e.,
> $\underline{f}$ = Dr   Sales,

since $\underline{b}$ o $\underline{f}$ = $\underline{e}$.

As discussed in this section the difficulties of the original analysis of inverses could have been avoided by redefining the set S to be half exchanges, allocations, reclassifications, and also combinations of these elements; nevertheless, the original approach was retained because the author wished to integrate exchanges (i.e., transactions) in the discussion as directly as possible. This position regarding the importance of exchanges is well established in accounting literature; see, for example, Littleton (1953, 36), Schrader (1962, 646), and Willingham (1964, 550).

The Commutative Property (G4)

G4 is satisfied because a o b = b o a, i.e., the order of combination of two elements of S is irrelevant; the same result is obtained. For example, let

$$a = \begin{array}{ll} \text{Dr} & \text{Cash} \\ & \text{Cr} \quad \text{Capital} \end{array}$$

and

$$b = \begin{array}{ll} \text{Dr} & \text{Purchases} \\ & \text{Cr} \quad \text{Cash.} \end{array}$$

Regardless of the sequence of combination, a o b or b o a, the effect is the same, i.e.,

    Dr   Cash
    Dr   Purchases
       Cr   Capital
       Cr   Cash.

CONCLUSIONS

The above analysis demonstrates that the set of classified entity activity (both accountable and nonaccountable) over the life of an accounting entity together with the operation of combination of classified entity activity by double entry accounting comprise a mathematical group (via G1, G2, G3). The identity element is the null exchange, and the inverse is the exchange or allocation or reclassification that "reverses" the original exchange or allocation or reclassification under consideration.

In addition, G4 reveals that this group is abelian.

Implications

Several consequences follow from the establishment of accounting as a group. Groups exhibit a well defined structure, and this structure (via analogy) must be present in accounting (though additional study is needed to draw out its meaning and make both the meaning and the structure clear for accounting).

An extensive set of group theorems exist, theorems revealing conclusions not readily obvious in the group axioma themselves. By applying these theorems to accounting, i.e., interpreting the theorems from an accounting viewpoint, deeper insight can be gained into the structure of accounting. A brief

example will illustrate this. Dean (1966, 31) states the following group theorem (modified for this example):

If $\underline{S}$ is a group and $\underline{a}$ and $\underline{b}$ are any two elements, there is a unique element $\underline{x}$ such that $\underline{a} \circ \underline{x} = \underline{b}$ ... .

In other words in a group the equation $\underline{a} \circ \underline{x} = \underline{b}$ has a unique solution. Auditors are well familiar with the accounting problem of identifying unknown exchanges, i.e., where $\underline{a}$ is the accounts before being combined with unknown exchange $\underline{x}$, and $\underline{b}$ is the accounts after combination with $\underline{x}$. Why is it that accountants are able to determine the missing exchange? The theorem stated above implies why it is possible to solve the equation and find the missing exchange. It is the group structure of accounting that allows this to be done. This example was simple, but it explained why a technique commonly used by accounting practitioners works. Group theorems exist that are considerably more complex than the above example. Additional research is needed to fully explore the interpretation of group theorems in an accounting context.

The audit problem is essentially one of making inferences about an accounting information set, a set that has group structure. The audit task is hindered because from the auditor's viewpoint boundary problems may exist with the accountinmg information set, i.e., closure on the set cannot be assured - there may be unrecorded transactions. The group characteristics of accounting may here come to the aid of the auditor (though extensive analysis will be required to determine if this is so) - there are certain subsets within a group that are capable of generating the entire group. In theory, then, if such a subset exists and is known for the accounting set, then the entire transaction set could be generated and lead to assurance of set closure. At this point in our knowledge of accounting sets, such a statement may not be warranted. Nevertheless, it does indicate a way in which group research might be useful to auditors.

Limitations

There are limitations to the arguments presented in the paper. In establishing G3, the existence of inverses, use was made of composite exchanges and allocations and reclassifications made over time. No single exchange or allocation or reclassification exists as an inverse for certain exchanges. Even though plausible, should such an approach be allowed? Is the relaxing of the inverse criteria sufficiently damaging to negate group status? (Note that if G3 is not allowed and G2 is ignored, the resulting mathematical system (i.e., G1) is known as a semigroup.)

Regarding the set $\underline{S}$, the inclusion of all exchanges over the life of an entity (particularly exchanges that have not yet occurred but will occur) may seem to some to be a limitation, especially when consideration is given to the going concern assumption where the cessation of an entity is not expected to occur. Going concern implies (or seems to imply) an infinite set of exchanges, but the set being infinite causes no mathematical problem.

The definition of set $\underline{S}$ includes entity activity that is not admitted to the accounts, i.e., entity activity classified as nonaccountable. This was necessary in order to establish the identity element $\underline{e}$, the null exchange, as an element of the set. This approach was retained even though $\underline{e}$ also results from the

combination of elements with their inverses, i.e.,

$$\underline{a} \text{ o } \underline{a}^* = \underline{e}.$$

Elimination of the time dimension in the definition of $\underline{S}$ (i.e., the set contains all exchanges and allocations and reclassifications of the entity, those that have occurred and those that will occur) removes the theory somewhat from the everyday experience of practical accounting.

The same limitation applies to the way that the operation (o) is defined. There is a notable absence of the measurement dimension, a fundamental accounting concept.

Future research may yield more satisfactory definitions of the set $\underline{S}$ and operation (o).

Summary and Future Research

The operation of combining classified entity activity defined on the set of classified entity activity (i.e., classified exchanges, allocations and reclassifications of exchanges, combinations of classified exchanges or allocations or reclassifications, and entity activity classified as nonaccountable - the null exchange) over the life of an accounting entity has been shown to be a group.

Group structure establishes a mathematical foundation for the Dr/Cr mechanism of double entry accounting and provides an explanation of why the mechanism works.

Future research will seek to identify how the mathematical structure of the accounting information set exhibits itself in the structure of the system that processes it.

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CONSUMER DECISION-MAKING STYLES OF HISPANIC AMERICAN COLLEGE STUDENTS MAJORING IN BUSINESS ADMINISTRATION: A CONSUMER STYLES INVENTORY APPROACH

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ABSTRACT

This study investigated the consumer decision-making styles of Hispanic American college students majoring in Business Administration. The Consumer Styles Inventory, developed by Sproles and Kendall (1986) for examining different consumer decision-making styles, was adopted for this study. A questionnaire survey was employed to collect primary data administered to 196 Hispanic American college students majoring in Business Administration. The consumer decision-making styles of these participants were examined through factor analysis which identified nine reliable factors that explained 64.4% of variance identifed: Brand Consciousness; Perfectionistic or High-Quality Consciousness; Recreational and Hedonistic Shopping Consciousness; Shopping and Fashion Unconsciousness; Confusion from Overchoice of Brands; Novelty-Fashion Consciousness; Price and Value for Money Shopping Consciousness; Habitual, Brand-Loyal Orientation; and Impulsiveness, Careless Consumer Orientation.

INTRODUCTION

Due to the pressure of an increasingly competitive environment, attracting and retaining enough loyal customers plays a key role when developing business strategies. For example, businesses should understand and target consumers from a different background and culture differently. Understanding consumers from a different background and culture is imperative for businesses retailers to effectively adapt their marketing strategies. It is essential for marketers to identify segments of consumers sharing similar an orientation to shopping (Lysonski, et al., 1996).

Since 2001, according to the U.S. Census Bureau, the Hispanic American population in the U.S. has grown at four times the rate of the general population. By 2020 their population is projected to be 60 million, accounting for 20 percent of the U.S. population. In 2008, the 46 million Hispanic Americans

living in the United States was a powerful influence within the American economy. According to market research publisher Packaged Facts, "The Hispanic Market in the U.S.: A Generational View", Hispanic American buying power totals more than $980 billion (2009).

This report (2009) also mentioned that Hispanic Americans from ages 18-44 are particularly influential, because they control more than 60% of all Hispanic American buying power. These young Hispanic American generate significant consumer spending both for themselves and their families. Consequently, they have a disproportionate impact on a number of industries in the American economy related to entertainment, apparel, and children's items.

Assessment of decision making styles may contribute to a better understanding of young Hispanic American consumers. No systematic study has been conducted or published related to understanding young Hispanic American shoppers from a decision-making perspective and specifically on profiling these groups of consumers using the Consumer Styles Inventory (CSI) approach.

The main purpose of this study is to contribute toward a better understanding of young Hispanic American consumers by investigating their decision-making styles. The conceptual framework of decision-making styles designed by Sproles and Kendall (1986) was employed to guide this research. Specifically, the objectives of this study are to employ the CSI among Hispanic American college students majoring in Business Administration; to identify the consumer decision-making styles of these young Hispanic Americans; and to examine the differences among consumer decision-making styles of Hispanic American college students majoring in Business Administration for each variable specified.

This study has both theoretical and practical implications. With updated testing of the well-developed conceptual framework of the CSI among young Hispanic American consumers, this research contributes to existing decision-making literature by either providing more evidence of validity and robustness of this framework or by providing suggestions for adaptation in applying this framework to understand consumer groups across different backgrounds and cultures. Also, this research adds more to the existing literature on the dynamically changing young Hispanic American consumer. This research may provide practical implications for business organizations by proposing better ways to understand and target appropriate consumers. Research results may provide direction for business organizations developing marketing strategies.

LITERATURE REVIEW

Consumer decision-making styles can be defined "as a mental orientation characterizing a consumer's approach to making choices" (Sproles and Kendall, 1986, p.268). The goal of Sproles and Kendall (1986) was to provide a tool for marketers to better understand consumers' purchasing styles. They developed the CSI scale which identified eight mental characteristics of consumer decision-making styles. The CSI provides a quantitative instrument for classifying different consumer decision-making styles into distinct categories of shopping orientation.

Through empirical research, Sproles and Kendall (1986) defined the following eight categories of decision-making styles: (1) Perfectionism: this trait is characterized by a consumer's search for the highest or very best quality in products. (2) Brand consciousness: Consumers who are oriented towards buying the more expensive, well-known national brands, believing that a higher price means better quality. They also prefer best-selling advertised brands. (3) Novelty-fashion consciousness: This dimension characterizes novelty seekers, who find seeking out new things pleasurable. Novelty seekers are likely to shop less carefully and more impulsively, and are less price sensitive. (4) Recreational shopping consciousness: Consumers who view shopping are recreation and entertainment. These consumers find shopping a pleasant activity and shop just for the fun of it. (5) Price-value consciousness: Those scoring high on this dimension look for sale prices, appear conscious of lower prices in general, and are likely to be comparison shoppers. They are also concerned with getting the best value for their money. (6) Impulsiveness, carelessness: The impulsiveness dimension measures an orientation that is characterized by careless and impulsive shopping. Those scoring high on this dimension do not plan their shopping and appear unconcerned about how much they spend. (7) Confused by overchoice: This trait characterized consumers who are confused about the quantity of different brands and by the information available. High scores on this characteristic have difficulties making choices. (8) Brand-loyal, habitual: Consumers who have favorite brands and stores and have formed habits in choosing these repetitively.

The Consumer Styles Inventory has been successfully applied to the markets of various countries, including the United States, South Korea, China, New Zealand, Germany, Greece, and India (Durvasula, et al., 1993; Fan and Xiao, 1998; Hasfstrom, et al., 1992; Hiu, et al., 2001; Walsh, et al., 2001). A study was conducted (Lysonski et al., 1996) with undergraduate business students in four countries to investigate the applicability of the CSI in different countries. The countries represented in the sample were the United States, New Zealand, India, and Greece. The results of factor analysis were quite similar to those of Sproles and Kendall (1986). However, their study confirmed seven of the eight Sproles and Kendall decision-making styles, but excluded Price Consciousness, "Value for Money" dimension. Also, this study suggested decision-making styles from the CSI might be influenced by different cultures in other countries, as well as different retail environments (types of retail stores available, whether consumers use credit cards in the particular country). It was determined that the original CSI was more applicable to New Zealand and the United States, and not as applicable to India and Greece when using verified rotation of factors. The researchers concluded that there might be specific decision-making style differences within cultures.

Canabal (2002) suggested that the CSI had more applicability across cultures. In a study, which used college students as the target sample, the author adapted the conceptual framework to reflect the German's study (Hafstrom *et al*., 1992) and factor analysis to determine applicability of the CSI. The CSI was administered to adult male and female non-student shoppers, ages 18 and above in Germany, and six factors of the original eight included in the CSI were confirmed: Brand Consciousness, Perfectionism, Recreational/Hedonistic, Confused by Overchoice, Impulsiveness, and Novelty-Fashion Consciousness. Hafstrom et al. (1992) found similar factor loadings in the United States study (Sproles & Kendall, 1986). However, the CSI was modified to include a new consumer decision-making style, Time-Energy Conserving. This characteristic included parts of the brand conscious and habitual brand-loyal characteristics of Sproles and Kendall's (1986) original study.

Researchers have conducted some Chinese consumer decision-making styles studies. Fan and Xiao (1998) who used college students for their target sample administered the CSI to see if the consumer decision-making styles were suitable to Chinese consumers. They adopted a modified seven-factor model for Chinese consumers. As a result, a five-factor model was found that includes brand, time, quality, price-conscious and overwhelmed by information. Their findings suggested that the decision-making styles of Impulsive/Careless and Habitual/Brand Loyal were not characteristic of the Chinese sample.

Wang (2002) investigated Chinese consumer decision-making styles on domestic and imported brand clothing. The author found that seven decision-making styles together with other consumer behavioral characteristics could be used to distinguish and profile consumers who prefer to buy domestic, imported or both types of clothing. Tai (2005) extended the ten shopping style dimensions relevant to the Chinese working females and four new dimensions that are personal style consciousness, environmental and health consciousness, reliance on mass media, and convenience and time consciousness.

METHODOLOGY

Instrument

The questionnaire for measuring decision-making styles developed by Sproles and Kendall (1986) was adopted. The CSI is composed of 40 Likert-scaled items scored from 1 (strongly disagree) to 5 (strongly agree). The next section of the questionnaire also asked the respondents' gender, academic classification, and the frequencies of department store and online shopping behaviors.

Sample

The survey was administered to undergraduate and graduate students during the Spring and the Fall 2008 semesters. In the beginning, the instructor gathered consent from students who enrolled in an introductory statistics course, BUSIU 2341, offered by the School of Business at the University of Texas at Brownsville. After a brief introduction of this research project, the questionnaire was administered by the instructor and took from 5 to 10 minutes to complete. Student participation was voluntary.

The sample consisted of 196 Hispanic American college students majoring in Business Administration at the University of Texas at Brownsville. Of the total sample, 104 (53%) were female and 92 were male (47%). The majority of respondents were Junior (n = 85, 43.4%), followed by Sophomore (n = 51, 26%), Graduate students (n = 32, 16.3%), Senior (n = 23, 11.7%), and Freshman (n = 5, 2.6%). About 31% of the total participants reported that they used to shop at department stores once a month, 29.6% shopped once every two weeks, 19% shopped at least once a week, 19.4% shopped once every three months, and 1% shopped once a year. The frequency of online shopping behavior was 33.2% once a year, 24.5% once every three months, 22.4% once a month, 10.2% once every two weeks, 4.1% at least once a week, and 5.6% never shopped online.

Data Analysis

The analysis employed statistical procedures identical to those used by Sproles and Kendall (1986). The analysis examined the psychometric properties of the CSI. First, the dimensionality of the CSI was assessed by examining the factor solution (Gerbing and Anderson 1988). Specifically, the amount of variance explained by the extracted factors (i.e., their eigenvalues) was noted. In addition, item-factor correlations (i.e., factor loadings) and other indices of model adequacy were examined. A principal component factor analysis was used to determine if the factors identified by Sproles and Kendall (1986) were common to the sample in this study. Second, the scale reliabilities and the identified factors were compared with the Sproles and Kendall's (1986) study. The reliabilities of the CSI Scale, according to Sproles and Kendall (1986), ranged from 0.48 to 0.76, with several factors lower than .60. Such an approach is commonly the first step in determining the generalizability of a model or scale to another background and culture (Irvine and Carroll 1980).

RESULTS

Descriptive statistics of the 40-item CSI scale in this sample are shown in Table 1. The consumer decision-making styles were examined by using the exploratory factor analysis. The original 40-item CSI scale was factor analyzed with varimax rotation, providing a clearer separation of the factors (Hair, et al., 1998).

To determine whether the exploratory factor analysis was an appropriate statistical technique, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity were performed. In the literature it is accepted that KMO measures should be greater than 0.50 and that Bartlett's test should be significant (Hair et al., 1998). The factor loading and corresponding reliabilities (using the Cronbach's alpha) of the nine resulting factors are shown in Table 2. The KMO measure of sampling adequacy was 0.801 which met the fundamental requirements for factor analysis. The Bartlett's test of Sphericity showed that nonzero correlations exist at the significance level of 0.001.

The Cronbach's alpha coefficient was used to assess the internal consistency among the set of the items on each factor. The Cronbach's alpha is the most widely used measure of reliability which is an assessment of the degree of consistency between multiple measurements of a variable. The generally agreed upon lower limit for the Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research (Hair, et al., 1998). The internal consistency coefficient score of the 40-item CSI scale showed the Cronbach's alpha of 0.842 was acceptable. Each of these nine factors had a satisfactory Cronbach's alpha of 0.870, 0.884, 0.835, 0.728, 0.780, 0.800, 0.657, 0.689 and 0.662, respectively, which explained a cumulative 64.392% of the variance in statement response (Table 3).

As a result of the exploratory factor analysis nine factors were identified. Each factor was named by examining the content of the variable making the greatest contribution to each of the dimensions. An initial interpretation of these factors suggested that Factor 1 named *Brand Conscious, "Price Equals Quality" Consumer* comprised six items (structure coefficients ranging from 0.822 to 0.698) and explained 9.990% of the variance with an eigenvalue of 3.996. Factor 2 emphasized *Perfectionistic, High-Quality Conscious Consumer* comprised five items (structure coefficients ranging from 0.873 to 0.684) and explained 9.437% of the variance with an eigenvalue of 3.775. Factor 3 focused on

Recreational, Hedonistic Consumer comprised six items (structure coefficients ranging from 0.763 to 0.422) and explained 8.506% of the variance with an eigenvalue of 3.403. Factor 4 explained *Shopping and Fashion Unconscious Consumer* comprised five items (structure coefficients ranging from 0.703 to 0.501) and explained 7.537% of the variance with an eigenvalue of 3.015.

Factor 5 titled *Confused by Overchoice Consumer* comprised four items (structure coefficients ranging from 0.820 to 0.520) and explained 6.754% of the variance with an eigenvalue of 2.702. Factor 6 named *Novelty-Fashion Conscious Consumer* comprised four items (structure coefficients ranging from 0.805 to 0.543) and explained 6.621% of the variance with an eigenvalue of 2.648. Factor 7 emphasized *Price Conscious, "Value for Money" Consumer* comprised four items (structure coefficients ranging from 0.775 to 0.508) and explained 5.952% of the variance with an eigenvalue of 2.381. Factor 8 performed *Habitual, Brand-Loyal Consumer* comprised three items (structure coefficients ranging from 0.795 to 0.627) and explained 5.185% of the variance with an eigenvalue of 2.063. Factor 9 revealed *Impulsive, Careless Consumer* comprised three items (structure coefficients ranging from 0.712 to 0.475) and explained 4.437% of the variance with an eigenvalue of 1.775.

Table 3. Factor Analysis and Reliability Coefficient of Nine Consumer Style Characteristics

Consumer Style Characteristics	Eigenvalue	% of Variance	Cumulative %	Alpha
Brand Conscious, "Price Equals Quality" Consumer	3.996	9.990	9.990	0.870
Perfectionistic, High-Quality Conscious Consumer	3.775	9.437	19.427	0.884
Recreational, Hedonistic Consumer	3.403	8.506	27.933	0.835
Shopping and Fashion Unconscious Consumer	3.015	7.537	35.470	0.728
Confused by Overchoice Consumer	2.702	6.754	42.224	0.780
Novelty-Fashion Conscious Consumer	2.648	6.621	48.845	0.800
Price Conscious, "Value for Money" Consumer	2.381	5.952	54.797	0.657
Habitual, Brand-Loyal Consumer	2.063	5.158	59.955	0.689
Impulsive, Careless Consumer	1.775	4.437	64.392	0.662
Reliability Coefficient of All 40 CSI Items = 0.842				
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy = 0.801				
Bartlett's Test of Sphericity: Approx. Chi-Square = 3724.596; df = 780; Sig. = 0.000				

By examining the differences among consumer decision-making styles of Hispanic American college students majoring in Business Administration for each variable specified, a one-way between-group multivariate analysis of variance (MANOVA) was employed. Nine dependent variables were used: Brand Consciousness; Perfectionism or High-Quality Consciousness; Recreational and Hedonistic Shopping Consciousness; Shopping and Fashion Unconsciousness; Confusion from over Choice of Brands; Novelty-Fashion Consciousness; Price and Value for Money Shopping Consciousness; Habitual, Brand-Loyal Orientation; and Impulsiveness, Careless Consumer Orientation.

The independent variable was gender. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. There was a statistically significant difference between males and females on the combined dependent variables: $F(9, 186) = 5.963$, $p = 0.000$; Wilks' Lambda = 0.776; partial eta squared = 0.224.

Similarly, there was also a statistically significant difference among academic classification on the combined dependent variables: $F(36, 744) = 1.621$, $p = 0.013$; Wilks' Lambda = 0.734; partial eta squared = 0.07. There was also a statistically significant difference among the frequency of department store shopping behavior on the combined dependent variables: $F(36, 744) = 1.799$, $p = 0.003$; Wilks' Lambda = 0.699; partial eta squared = 0.08. There was a statistically significant difference among the frequency of online shopping behavior on the combined dependent variables: $F(45, 930) = 1.794$, $p = 0.001$; Wilks' Lambda = 0.654; partial eta squared = 0.08.

CONCLUSION AND DISCUSSION

As the Hispanic American population grows and matures, its structure is changing in almost every way, from educational levels and labor force composition to household characteristics and accumulation of wealth. It is these evolving factors that drive the increasing influence of Hispanic Americans in U.S. consumer markets. However, Hispanic Americans in U.S. are by no means a homogeneous market. They share many common demands and needs.

Multiple studies have compared the generalizability of the CSI across different cultural populations. But there is no systematic study has been conducted on understanding young Hispanic American shoppers from a decision-making perspective and specifically on profiling these groups of consumers using the CSI approach.

The proposition of Sproles and Kendall's eight-factor model was examined using a sample of 196 Hispanic American college students majoring in Business Administration. Through exploratory factor analysis; a nine-dimensional structure was found to be the most appropriate representation of the decision making style of young Hispanic American consumers. These nine dimensions are: Brand Consciousness; Perfectionistic or High-Quality Consciousness; Recreational and Hedonistic Shopping Consciousness; Shopping and Fashion Unconsciousness; Confusion from Overchoice of Brands; Novelty-Fashion Consciousness; Price and Value for Money Shopping Consciousness; Habitual, Brand-Loyal Orientation; and Impulsiveness, Careless Consumer Orientation.

The consumer decision-making styles can be used as the basis for market segmentation as both specific needs and product and service preferences are associated with those segments. However, market segmentation based on decision-making styles could be even more effective when used together with other segmentation criteria, e.g. demographic or psychographic segmentation. The results of such a multistage segmentation approach would be more precise, meaningful and consequently, of greater practical relevance.

Future studies on consumer decision-making styles of Hispanic Americans should take into account the adult market. Furthermore, the differentiation among the dimensions should be evaluated through demographic variables such as gender and age.

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Table 1. Descriptive Analysis of the Consumer Styles Inventory

Statement	Mean	S.D.	Communalities
1. Getting very good quality is very important to me	4.58	0.816	0.615
2. When it comes to purchasing products, I try to get the very best or perfect choice	4.32	0.811	0.784
3. In general, I usually try to buy the best overall quality	4.24	0.866	0.777
4. I make special effort to choose the very best quality products	4.10	0.909	0.770
5. I really don't give my purchases much thought or care	2.11	1.202	0.588
6. My standards and expectations for products I buy are very high	3.99	0.897	0.576
7. I shop quickly, buying the first product or brand I find that seems good enough	2.38	1.253	0.649
8. A product doesn't have to be perfect, or the best, to satisfy me	2.77	1.188	0.512
9. The well-known national brands are best for me	3.26	1.055	0.651
10. The more expensive brands are usually my choices	2.73	1.110	0.661
11. The higher the price of a product, the better its quality	2.65	1.213	0.694
12. Nice department and specialty stores offer me the best products	3.09	1.061	0.643
13. I prefer buying the best-selling brands	3.10	1.011	0.609
14. The most advertised brands are usually very good choices	2.77	1.006	0.578
15. I usually have one or more outfits of the very newest style	3.24	1.180	0.707
16. I keep my wardrobe up-to-date with the changing fashions	3.13	1.150	0.812
17. Fashionable, attractive styling is very important to me	3.43	1.008	0.677
18. To get variety, I shop different stores and choose different brands	3.84	1.030	0.606
19. It's fun to buy something new and exciting	4.18	0.863	0.565
20. Shopping is not a pleasant activity to me	3.68	1.220	0.764
21. Going shopping is one of the enjoyable activities of my life	3.40	1.175	0.707
22. Shopping the stores wastes my time	3.62	1.168	0.725
23. I enjoy shopping just for the fun of it	3.32	1.191	0.714
24. I make my shopping trip fast	3.07	1.139	0.640
25. I buy as much as possible at sales prices	3.50	1.030	0.510
26. The lower price products are usually my choice	3.03	1.030	0.560
27. I look carefully to find the best value for the money	4.05	0.861	0.573
28. I should plan my shopping more carefully than I do	3.35	1.096	0.605
29. I am impulsive when purchasing	2.97	1.215	0.678
30. Often I make careless purchases I later wish I had not	2.96	1.129	0.630
31. I take time to shop carefully for best buys	3.63	0.954	0.637
32. I carefully watch how much I spend	3.62	1.048	0.636
33. There are so many brands to choose from that often I feel confused	2.96	1.054	0.607
34. Sometimes, it's hard to choose which stores to shop	2.91	1.119	0.722
35. The more I learn about products, the harder it seems to choose the best	3.01	1.119	0.588
36. All information I get on different products confuses me	2.54	1.014	0.591
37. I have favorite brands I buy over and over	3.89	0.949	0.707
38. Once I find a product or brand I like, I stick with it	3.72	1.011	0.707
39. I go to same stores each time I shop	3.41	1.056	0.492
40. I change brands I buy regularly	2.80	0.985	0.492

Table 2. Consumer Style Characteristics: Nine Factor Model

Statement	Loadings
Factor 1: Brand Conscious, "Price Equals Quality" Consumer	
11. The higher the price of a product, the better its quality	0.822
10. The more expensive brands are usually my choices	0.745
13. I prefer buying the best-selling brands	0.743
12. Nice department and specialty stores offer me the best products	0.737
9. The well-known national brands are best for me	0.728
14. The most advertised brands are usually very good choices	0.698
Factor 2: Perfectionistic, High-Quality Conscious Consumer	
2. When it comes to purchasing products, I try to get the very best or perfect choice	0.873
3. In general, I usually try to buy the best overall quality	0.867
4. I make special effort to choose the very best quality products	0.837
1. Getting very good quality is very important to me	0.762
6. My standards and expectations for products I buy are very high	0.684
Factor 3: Recreational, Hedonistic Consumer	
20. Shopping is not a pleasant activity to me	0.763
21. Going shopping is one of the enjoyable activities of my life	0.756
22. Shopping the stores wastes my time	0.729
23. I enjoy shopping just for the fun of it	0.726
24. I make my shopping trip fast	0.694
19. It's fun to buy something new and exciting	0.422
Factor 4: Shopping and Fashion Unconscious Consumer	
5. I really don't give my purchases much thought or care	0.703
7. I shop quickly, buying the first product or brand I find that seems good enough	0.668
26. The lower price products are usually my choice	0.608
8. A product doesn't have to be perfect, or the best, to satisfy me	0.606
40. I change brands I buy regularly	0.501
Factor 5: Confused by Overchoice Consumer	
34. Sometimes, it's hard to choose which stores to shop	0.820
33. There are so many brands to choose from that often I feel confused	0.744
35. The more I learn about products, the harder it seems to choose the best	0.722
36. All information I get on different products confuses me	0.560
Factor 6: Novelty-Fashion Conscious Consumer	
16. I keep my wardrobe up-to-date with the changing fashions	0.805
15. I usually have one or more outfits of the very newest style	0.754
17. Fashionable, attractive styling is very important to me	0.710
18. To get variety, I shop different stores and choose different brands	0.543
Factor 7: Price Conscious, "Value for Money" Consumer	
31. I take time to shop carefully for best buys	0.775
27. I look carefully to find the best value for the money	0.659
32. I carefully watch how much I spend	0.605
25. I buy as much as possible at sales prices	0.508
Factor 8: Habitual, Brand-Loyal Consumer	
38. Once I find a product or brand I like, I stick with it	0.795
37. I have favorite brands I buy over and over	0.784
39. I go to same stores each time I shop	0.627
Factor 9: Impulsive, Careless Consumer	
28. I should plan my shopping more carefully than I do	0.712
30. Often I make careless purchases I later wish I had not	0.638
29. I am impulsive when purchasing	0.475

OVERCOMING MULTICULTURAL CHALLENGES IN INFORMATION SYSTEM PROJECTS

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ABSTRACT

Information systems projects have historically been team-oriented projects. Over the past 10 years, information systems projects have become increasingly globalized. The internet, satellite technology, and other improvements in broadband electronic communication have open new paths for global commerce. The emergence of highly skilled programmers and technicians in India, China, Vietnam, and other rapidly developing countries has introduced a huge supply of highly-trained workers. These workers are capable of producing large volumes of high quality work at costs which are very low compared to previous cost standards of developed countries. This emergence of global talent, coupled with the need for technological improvements in rapidly developing countries has created a robust market for information system development.

This paper presents three views of information projects. The first view is academic, as the paper reviews literature on multi-national information system projects. The second view is practical, as the paper reports on the management of actual information system projects which deal with multicultural challenges. The third view is pedagogical, as the paper reports on efforts made in two university classes to deal with team building in information system projects.

INTRODUCTION AND REVIEW OF LITERATURE

The label "Made in China" is easily seen on many items from Wal-Mart, Toys-R-Us and Home Depot. The impact of India and other emerging nations on the global economy has been very strong, but much more subtle. India has used its huge pool of highly skilled, low-cost, English-speaking engineers, technicians, and other professionals to transform the processes used in research, customer response centers, diagnoses (both medical and technical) and information processing (Engardio, 2007). India, China, Vietnam, and other emerging nations are providing a highly productive global workforce which has drastically changed the nature of the global economy. Taking advantage of the emerging global market often requires a combination of information system infrastructure, marketing skill, and

technical talent, all at a moderate-cost. Such a combination is hard to find in any single location. Multinational information system projects have emerged as a natural consequence of this changing information environment.

Globalization and Competitive Advantage

National firms have a general advantage of better information about their country, its economy, its language, its laws and its politics. A foreigner might have to pay a very high price to obtain this information (Makino, 1996). A firm that invests abroad can obtain an ownership advantage which is can be transferred across borders, but would have a disadvantage due to its lack of local knowledge of social, political and economic conditions in the host country.
Ball (2006) states that the five major drivers of globalization are based on: technological, cost, market, political and competitive factors. In order to succeed in the current global marketplace, organizations must be able to quickly identify and exploit opportunities to gain competitive advantage, wherever they occur, domestically or internationally. Ball (2006) goes on to state that international companies must develop skills or competencies that 1) create value for customers, 2)are not widely available, 3) are difficult to imitate, and 4) allow the company to exploit the competencies.

Griffin (2009) states that multination firms can gain competitive advantage over local firms by taking advantage of Related Diversification, in which a company operates in several different, but fundamentally related businesses or markets at the same time. Related Diversification allows firms to take advantage of the lowest available labor and material rates while building economies of scale for the firm. The use of related diversification has important implications for the information processing needs of the firm. In a firm using related diversification, all parts of the firm must be able to communicate with other parts to effectively capitalize on available synergies.

Erickson (1996) states that the strength and quality of business network relationships are strongly related to profitability of multinational business ventures. He goes on to propose that the strength and quality of business network relationships can be analyzed in terms of Relationship Understanding and Relationship Commitment.

Ball (2006) describes how outsourcing, defined as hiring or contracting outside sources to perform noncore activities in an organization's value chain, can give significant competitive advantage to business firms. Although any activity in the value chain might be outsourced, commonly outsourced components include logistics, data processing, payroll and other accounting functions.

MULTICULTURAL CHALLENGES

Along with multinational system projects, come multicultural challenges. One of the first challenges to appear is communication difficulty due to different preferred languages of the project participants. Differences in legal structures also cause challenges for multinational projects. Different currencies present problems, especially if the people who will be using the system have to deal with currency

differences among buyers and suppliers. Cultural differences among team members can also create
challenges in scheduling, managerial style and reward structures.

There are several areas where multicultural problems tend to occur in Information system projects.
Problem areas usually include: separation of knowledge and experience, communication difficulties,
differences in legal and accounting systems, scheduling difficulties, cultural difficulties, and
differences in units of measure and formats. Each of these areas will be discussed below.

Separation of Knowledge and Experience

Information systems projects are built and managed by teams. Large information systems projects
often are developed by several teams, often differentiated by function and often located in separate
facilities. Having different teams or different members of the same team working in different facilities
often causes a separation of customer knowledge from product knowledge and separation of product
knowledge from support infrastructure knowledge. There are many products available to facilitate
document sharing and collaboration. These document sharing and collaboration products can help
alleviate separation of knowledge and experience problems, but often at the expense of introducing
new sets of problems.

Communication Difficulties

Communication difficulties occur in many forms. These difficulties often can be separated into three
sub-groups of problems: Infrastructure problems, Language problems, and Timing problems.
Infrastructure problems occur when people need to communicate, but do not share access to the same
set of communication tools. Groups who work on computers have problems sending documents to
groups who don't use computers. Groups who speak only English have problems communicating with
groups who speak Spanish, Chinese or any other non-English language.

Timing differences can cause serious problems, and the greater the differences (in time zones), the
more serious the problems. Email and other forms of asynchronous messaging have alleviated many
timing-based communication problems, but at the cost of delays in responses.

Differences in Legal systems and Accounting Systems

International businesses must develop accounting systems that provide the internal information
required by its managers to run the organization and external information needed by lenders,
shareholders, and government officials in all countries in which the organization operates. Accounting
standards and practices reflect the influence of legal, cultural, political and economic factors. Because
these factors vary by country, the underlying goals and philosophy of national accounting systems
vary dramatically (Griffin, 2009).   In common law countries like the United States and United
Kingdom, accounting procedures evolve from decisions of independent standard-setting boards.
Accountants in common law countries follow generally accepted accounting principles (GAAP) that
provide a "true and fair" value of a firm's performance based on standards promulgated by standard-
setting boards. Operating within the boundaries of GAAP, accountants can exercise professional
discretion in reporting a "true and fair" depiction of a firm's performance (Griffin, 2009).

In countries which rely on code law, national accounting practices are likely to be codified rather than based on the collective wisdom of professional accounting groups. In France, for example, firms must adhere to a national chart of accounts. This accounting system dates back to the seventeenth century and reflects a long tradition of strong government control over the economy (Griffin, 2009).

In countries where accounting practices are determined by national laws, the government plays the major role in monitoring accounting practices. Common law countries rely to a greater extent on private litigation to enforce the accuracy and honesty of accounting practices.

A country's accounting system may also reflect its cultural background. Large French must publish a "social balance sheet" detailing compensation of their workforces and strong anti-inflation biases are embedded in German accounting practices as a reaction to the hyperinflation of the early 1920s (Griffin, 2009).

Accounting system structure is heavily influenced by economic and political systems also. In centrally planned economies, accounting systems are designed to provide information which shows how state funds are used and whether state-mandated production quotas are being met.

Cultural Differences

Language differences are a major source of problems caused by cultural differences, but certainly not the only source. Differences in expectations by people of different cultural backgrounds can cause problems within and among workgroups. Competition is emphasized in some cultures and de-emphasized in other cultures. In some cultures, questioning the suggestions of a group leader is acceptable, sometimes encouraged. In other cultures, questioning the suggestions of a group leader is discouraged to the point of being unacceptable. In some cultures the concept of "intellectual property" is highly respected, whereas in other cultures, "intellectual property" is treated as common property.

In some cultures, the work day begins when the sun comes up and lasts until the sun starts to set. In other cultures, the work day may last longer and may blend into "work + social" activities which last late into the evening. In some cultures, especially those with long "work + social" schedules, it is common to take time off to relax during the day. Different holidays also present problems. In the U.S., productivity starts to decline before Christmas and doesn't pick up again until after the U.S. New Year's Day. In Europe, productivity declines in the month of August. In many Asian countries, the two weeks surrounding the Lunar New Year is a period of reduced productivity.

Differences in social and commercial institutions may also lead to intercultural misunderstandings. In the U.S., credit is widely available. Many people pay for almost all goods and services by using credit cards. Any commercial system which hopes to sell to U.S. customers must have strong provisions for handling credit cards and debit cards. In other cultures, credit cards are not widely used, so people are not accustomed to dealing with credit issues.

Different Units of Measure, Currencies and Formatting

Currencies, dates and other units of measure differ significantly from one country to the next. In the U.S., I might write a date as 3-27-2007 and a thousand currency units as $ 1,000.00. In Vietnam, the same date would be written as 27-3-2007 and a thousand currency units would be 1.000,00. Enterprise Resource Planning systems have tools for selecting appropriate currencies and formats, but at the expense of introducing many new sets of problems.

ACTUAL EXPERIENCE IN DEALING WITH MULTICULTURAL CHALLENGES

One of the co-authors was raised and educated in Vietnam. After receiving a Masters Degree in Management Information Systems in the United States, this co-author was hired by a U.S. EDI Service company. EDI Service companies provide Electronic Data Interchange (EDI) services to customers. A standard for EDI, called X12, defines a general format for transactions between suppliers and buyers. There are many types of transactions defined in X12. Some popular transactions covered by X12 are Purchase Order, Advance Ship Notice, Invoice, and Payment Notice.

Within the overall X12 standard, each Retailer can the flexibility provided by X12 to implement and customize their own particular EDI standards. Therefore, although retailers use the same X12 standard version, no two retailers use exactly the same EDI standard. Vendors who sell goods many retail buyers have to handle transactions differently for each buyer. Many vendors find EDI Service Companies to translate different versions of EDI standards for them.

 One EDI service company, based in the United States, developed an application which processes data supplied by vendors and converts that data to multiple output files which can be easily converted to the appropriate version of X12 for each buyer. The vendors do not need to know specific details about X12. They just send and receive transactions using popular data formats such as Excel file, XML, or delimited text file. The EDI service company translates these formats to the appropriate X12 formats of particular retailers and sends formatted X12 data to retailers.

The EDI integration package was developed in US group and then was turned to Vietnam group to maintain. Maintenance means fixing bugs as well as adding new features.   Most customers have their own accounting systems or Enterprise Resource Planning (ERP) software. The EDI integration package must synchronize data between each customer's particular data formats and the requirements of their ERPs.

One team is responsible for coordinating the work between the US staff, which handles marketing, sales and general management functions and the technical support staff in Vietnam. That coordination team must get the system requirements in from clients in the US and sending those requirements to the technical support group. The US group sends functional designs, information on what needs to be handled and how the integration will work. The US team also provides general database designs, general code structures and rules that need to be followed to make sure no conflicts occur.

When the technical support staff in Vietnam finishes their work, they upload source code to the system test server. The coordination team reviews code, runs the code on the test server and provides feedback as to what needs to be modified. This process might go through several iterations. After the

project passes this initial testing, it is turned over to the Quality Assurance group for further verification.

To reduce the difficulty caused by multiple languages, the EDI service company chose English as the default language for intra-company communication. Members who were not fluent in English were encouraged to receive help in translating documentation to English. On large projects, special efforts are made to make sure that all workers correctly understand requirements and that all documents are prepared using common templates.

Since Vietnam is almost half way around the world, timing differences were a significant source of problems. A combination of synchronous and asynchronous communication was used to solve these problems. For non-critical problems, US employees can send a message via email, go to sleep and have the answer the next day because Vietnamese employees were at work while US employees were sleeping.   For critical problems, synchronous communication was needed. One or more US workers would work from 8 p.m. to 11 p.m., which would be 8 a.m. to 11 a.m. in Vietnam. A few Vietnamese workers would work from 8 p.m. to 11 p.m., which would be 8 a.m. to 11 a.m. in the United States.

The EDI service company adopted US accounting standards for its base system with user interface systems capable of preparing reports which met accounting standards of other client countries.

To solve the document conflict problems which occur when many workers in different locations working on the same projects, the EDI service company used document control software such as Visual Studio Team Foundation.

OVERCOMING MULTICULTURAL CHALLENGES IN CLASS PROJECTS AT A UNIVERSITY

One co-author teaches Management Information Systems classes at a university. In these classes, students are required to work in small groups to collaborate on the analysis and design strategy for a case study. Prior to 2008, students were allowed to self-select the teams they worked on. In these projects, quality varied greatly from team to team. The co-author noticed a substantial concentration of technical talent on some teams, a concentration of accounting and financial talent on other teams, while some teams had no members with technical backgrounds and no members with accounting and financial backgrounds. Students picked students they knew from other classes. The co-author also noticed very little ethnic diversity on the self-selected teams. While some students (on teams with little experience) voiced dissatisfaction with the process, other students reported satisfaction with the team assignments on a survey given at the end of the semester.

Starting in the Fall of 2008, the team selection process was changed to teacher-assigned teams. Team assignments were based on resumes submitted by the students. The teacher deliberately separated students with similar backgrounds – academic, experience and ethnic, forcing the students into a multicultural team environment.

Student satisfaction is more uniform under the new system. No one really likes having to do team projects, but no one hates them because they got stuck on a team without any experience. Performance of teams is more uniform under the new selection system. There are fewer super-star teams and fewer teams which are completely lost. Most importantly, students indicate on end-of-semester surveys that they learned more about teamwork and team functions under the new system. When forced to work with students they didn't know, students took the time and made the effort to learn about their teammates and learn about team processes. Even though they reported decreased enjoyment on teacher-selected teams, they did report increased sense of learning.

CONCLUSIONS

Globalization has increased greatly over the last decade. There is no evidence to indicate a reversal of this trend. Businesses are globalizing to take advantage of large pools of highly trained professional labor available in China, India, Vietnam, and other emerging labor markets. Information system projects increasingly involve multicultural teams working in different locations. Multinational projects lead to multicultural problems, but most of those problems can be solved with proper planning and attention to important cultural differences. Team projects in university classes can help prepare students for the increasingly multicultural environment they will be working in.

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OBAMA PROOFING FOR "WEALTHY" AMERICANS: USING FLP'S AND TRUSTS

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ABSTRACT

As America's other greatest generation (baby boomers) enter their golden/retirement years, they wish to accumulate and retain as much wealth as no other American generation before. During the 2000's (Bush years) taxpayers experienced income tax rate cuts and an estate tax phase out, yet, all such cuts are subject to repeal or phase out now that a more inclined "tax and spend" generation takes over both Congress and the White House. "Relief" in the form of family limited partnerships (FLP) and trusts can fill an important role in asset protection and estate planning strategies. At a minimum, this writing should provide a useful primer for everyone in order to speak the language of FLP's and trusts with even certified experts, and come away with an enhanced appreciation of wealth/estate planning instruments.

FLP's

Family Limited Partnerships are often used to move wealth from one generation to another by forming an entity consisting of General Partners (GP) (usually parents or grand parents) and Limited Partners (LP) (younger generations). The LP's do not have control over operation of the FLP and can transfer their interests only to other family partners within the FLP.

The FLP holds property (business, realty, securities) contributed by family members with resulting benefits:
   (1) Pooling of family assets saving (sometimes) administrative expenses;
   (2) Assets within the FLP can be transferred by the GP to other family members (LP's) in an equitable and equal manner;
   (3) Assets in the FLP have a lower (30-60%) valuation for tax purposes due to the complex limited rights and controls (and lack of marketability) of the property within the partnership; and
   (4) With a reduced valuation of assets, said partnership property can be gifted from the older (GP) generation to the younger (LP) generation in greater amounts.

Thus, a grandfather could place $2 million of realty into a FLP with younger family members as LP's. Because the property is not within the control of the LP's, i.e., they have to wait for the GP to declare a distribution many years away possibly, the fair value is discounted up to 35% due to a limited market value and possibly another 15 to 35% due to the minority position of an LP in the realty or business assets.

CAVEAT

There are disadvantages:
(1) The IRS is constantly monitoring the FLP's for abuse by families which form the FLP solely for tax purposes without a legitimate business purpose or excessively discount the assets to be transferred to other LP's;
(2) GP's may not be insulated from lawsuits, creditor seizures or judgments;
(3) LP's receiving gifted property do not get a stepped up basis, resulting in potential capital gains taxes;
(4) Potential family disputes including birth or adoption of "problem" children;
(5) Fees to set up FLP's range from $2,000-$10,000 and the FLP may be an unnecessary complication to something that could be solved in a more simple manner, such as a trust;
(6) Appraisers charge fees;
(7) Annual maintenance expenses;
(8) Some insurance agents have difficulty (unfamiliarity) obtaining policies for assets within the FLP, or obtaining coverage without a larger premium. (commercial coverage versus residential);
(9) Some GP's have to give personal guarantees to lenders to raise cash; and
(10) Family members could lose favorable tax treatments on their personal residences.

The future of the FLP or perhaps a FLLC (No GP's) is still viable and worth exploring as Americans enter Obama/Left-Wing Democrat "soak-the-rich" territory (post 2010) with any estates greater than $250,000 possible fair game for taxation.

TRUST TERMS

A trust arrangement involves a transfer of property to someone (the Trustee) on his/her promise to hold the trust property (the corpus) according to the transferor's (Settlor/Trustor) instructions. These trust basics remain the same today, despite the great complications discussed herein; as they were in Roman Empire days where the modern trust form has its roots. Whether a trust is created while one is among the living (inter vivo) or comes into existence upon death (testamentary), there seem to be common goals of preservation and protection of assets from taxes and other creditors for present and future beneficiaries, provision for basic needs of beneficiaries, professional and fiduciary management of assets, and peace of mind.

Lawyers, accountants, bankers and other financial professionals are familiar with the basic trust functions and terminology. The full uses of a trust and major pitfalls of trust misuse are not as familiar. Who or what should be the Trustee, fatal terms, proper distributions, accounting and estate planning are salient issues to explore.

THE TRUSTEE

If a person wants to "man his own canon," he or she can name himself or herself as trustee and could be the beneficiary as well, so long as the trust provides for some other beneficiary after the beneficiary's death (commonly known as a "gift over"). Naming oneself as trustee provides full control and, if death or disability ensues, naming an independent or disinterested successor trustee allows the trust to continue without negative tax consequences. A spouse is not a bad selection as trustee provided an ascertainable standard is put in place to guide the trustee as to discretionary distribution of trust principal and income, for example, "Health, Education, Maintenance, and Support." If one gets creative or outside the box of the four standard words, such as providing for comfort, the entire trust (a bypass as discussed later) could be thrown into the spouse's estate for tax purposes.

Naming a friend as trustee is problematic if the friend is not qualified or competent. Choosing an institution, such as a bank or trust company, has become more popular because of the experience and competence factors as well as the financial responsibility and continuity factors. Corporate trustees have regulated fees usually disclosed up front. However, corporate trustees can also have "sticky fingers" and can be cold and unresponsive. Attorneys can tell many tales of having to sue or threaten litigation against a large bank trustee for not releasing funds to pay for a beneficiary's emergency appendectomy or properly documented tuition. One suggestion to mediate the coldness of a corporate trustee is to add one's spouse or family member as a co-trustee. Another option would be to give one's spouse the power to remove the cold corporate trustee and appoint a friendlier corporate trustee, and presumably one whose performance is better. Some smaller trusts (up to $400,000) may choose to use a family member or attorney for economy.

MORE TRUST TERMS

A trustor should go beyond the simple trust bank account and establish some clear guidelines for trustee actions involving:
   (1) Distributions (lifetime) of assets and income;
   (2) Conditions for distributions;
   (3) Death of beneficiaries during the trust;
   (4) Successor trustee(s) and powers
   (5) Asset protection from creditors (a "spendthrift" clause); and
   (6) Usual and customary trust provisions as well as boilerplate clauses commonly understood under court cases and state statutes, such as, regular accounting of trust income, expenses and distributions.

The "spray" or "sprinkle" clause should allow the trustee to distribute income (or principal) to beneficiaries as and when the trustee deems appropriate without having to make equal payments. The trustee may decide not to make such distributions over a period of time according to the changing needs of beneficiaries. Most authors (and parents) agree that the trustee should make the ultimate distribution when the beneficiary has attained a responsible age (whatever that is).

Rather than require a release by the trustee of a lump sum to an 18 or 21 year old, estate planners should allow the trustee to spread installment distributions over a period of years slowly inoculating the beneficiary as to mature and careful handling of wealth. A 25 to 30 percent distribution at age 25 and likewise each five years thereafter seem prudent for all concerned. (Of course, prudence is not synonymous with fun.) Trustees should always have the flexibility to meet the needs of beneficiaries who are accepted at Vanderbilt, get married, have children or fall ill.

TYPES OF TRUSTS

One important use of a trust is to avoid estate taxes so long as such are assessed on graduated estates sizes through the year 2009 exceeding $3.5 million. Estate taxes are to be phased out after 2000, yet one has to wonder whether Congress can give up this "politically correct" source of revenue in the future. Given the present and near future of the estate tax structure, the trusts recommended for estate planning consist of: (1) Marital Deduction Trust or AB "Family" Trust, (2) QTIP Trust, (3) Crummey Trust, and (4) Retained Interest Trust such as GRITs, GRATs, GRUTs, and QPRTs.

1.   **Family Trusts**

With a family trust, each spouse establishes a revocable living trust with a provision that upon death, the deceased spouse's estate is divided into two irrevocable trusts: (1) a Marital Deduction Trust for the benefit of the surviving spouse, and (2) a Bypass/Family Trust for the benefit of surviving spouse and children.

If a spouse leaves his or her entire estate outright to the surviving spouse, no estate taxes are assessed.

2.   **Qualified Terminable Interest Property (QTIP) Trusts**

If, however, the surviving spouse ends up with a taxable estate upon his or her death, the tax consequences could be brutal. If the deceased spouse's estate is left in trust for the surviving spouse, certain requirements must be met: (1) The surviving spouse must be the only beneficiary during his or her lifetime and (2) he or she must either have unrestricted power to dispose of the trust assets on her death, or the surviving spouse must receive all trust income at least annually during his or her lifetime allowing the settler (who created the trust) to direct the disposition of the trust assets on the surviving spouse's death such as to children of a prior marriage. This last power is called a qualified terminable interest property trust or QTIP where the settler wishes to take care of the surviving spouse but to be certain his or her children receive the trust assets.

Example: H has assets of $2.5 million and W has $300,000. If H dies in 2003, $1,500,000 can pass exempt to anyone, but the entire 2.5 million may pass to wife tax free, making wife's estate $2.8 million (and most wives would say "there is a problem with this?") Should the wife die, her estate would be exposed to estate taxes of almost $144,000 in 2004 (48% of $300,000 taxable). By Husband leaving Wife $1, 200,000 in a Marital/QTIP Trust, Wife's estate will be $1.5 million, resulting in no estate taxes. The balance of Husband's estate ($1,300,000) would go into a Family Trust for wife and

their children. The Family Trust passes tax free under the 2004 $1.5 million exemption. The Marital Trust could include a general power of appointment limited in amount which could provide principal access for wife during her lifetime or for H and W's children as needs are determined. No such clause should be placed in the Family Trust.

Husband's above $1.3 million Family Trust is designed to escape estate tax for Wife or other family beneficiaries as well as providing for some of Wife's needs. Since W has no extensive control over the trust and does not create it, it should not be included in Wife's estate. The Family or Bypass Trust is often used for children's benefit and will not be included in their estates.

2.A.   Generation Skipping Transfer Trust (GST)

If the trust passes to their children upon death (.i.e., grandchildren) a generation-skipping trust (GST) exists for which a $1 million original funding exemption/limit applies. Most settlers who wish to establish a GST and avoid a gift tax problem may fund the GST with assets up to the estate tax exemption. An amount in excess of the original $1 million exemption is subject to a flat 55% GST tax!

2.B.   Dynasty or GST Supertrust

If the Settlor places the exempt $1 million in a GST which purchases $10 million in life insurance on the Settlor, and that amount is professionally managed (invested without lavish distributions), the corpus could be $50-100 million decades later, clearly a "supertrust"! If set up in a friendly forum such as Alaska or South Dakota, the Supertrust could last forever, possibly or until descendents run out or laws change. The Trust should provide for such contingencies.

3.   Crummey Trust

Since the 1968 Crummey case victory for taxpayers, Husband may contribute an amount of $30,000 to a trust which allows Husband's three children to each withdraw up to the annual exempt amount of $10,000 (or more) without gift tax consequences. Why use a trust? The trust provisions allow Husbands to make the contribution in December and the beneficiary children, possibly minors, have a very short period (30 day 'window') to the end of December to withdraw or risk having the amounts become permanent corpus in the trust. Without the Crummey powers of withdrawal, Husband's contributions have to count against Husband's lifetime exemptions. Typically, a Crummey trust for numerous children terminates as the youngest beneficiary reaches age 30 or 35 (GST is used for grandchildren).

4.   Irrevocable Trusts

A. CHARITABLE REMAINDER TRUST (CRT)
- An irrevocable trust to benefit grantor for life with the remainder principal estate/corpus passing to a charity upon the death of all income beneficiaries.
- Allows a tax deduction for present value of remainder.
- Would want to use a highly appreciated property as corpus.

B. CHARITABLE LEAD TRUST
- Operates in reverse to the CRT with present income paid to a charity and remainder to heirs or designated beneficiaries.
- Reduces the value of a taxable gift since remainder gift is a future interest.
- Grantor has not retained control or income producing assets, so it is not in his estate at death.

C. IRREVOCABLE LIFE INSURANCE TRUST
- Set up with "Crummey powers" to pass through assets without gift or estate tax consequences to Grantor.
- Grantor contribution may purchase life insurance which death proceeds provide liquidity for heirs to pay estate taxes for example.

D. GRANTOR RETAINED ANNUITY TRUST (GRAT)
- Trust is split into present income flow and future remainder for a specific term of years.
- Creates a fairly certain sum of payments to the Grantor and creates a possible gift tax problem, but the value of the property for tax purposes is frozen at the time the gift to the trust is made.
- Grantor should not add to the trust once annuity is fixed.

E. GRANTOR RETAINED UNI-TRUST (GRUT)
- Grantor does not receive a fixed annuity as in the GRAT, but receives a "uni-trust interest" wherein the income interest is a fixed percentage of the fair market value of the trust property revalued annually.
- Grantor may add to the trust assets giving it a preference to the GRAT.

F. QUALIFIED PERSONAL RESIDENCE TRUST (QPRT)
- No fixed income stream because the trust asset is a personal residence; yet, "use" equals income.
- Grantor could use a residence for which the mortgage interest deduction would apply. Thus a vacation house retained for 280 days and lived in at least 28 days annually could fund a QPRT.
- Transfers a future remainder interest to beneficiaries while retaining the use/income stream of the house for the term of the trust.
- Removes the property and its appreciation from the taxable estate if the Grantor keeps the property in the family as future remainder vests a present fee with the beneficiary/heirs.

CONCLUSION

By declaring that in the year 2011 the elimination of the death tax will revert back to whatever laws Congress will pass in the future, the Congress has essentially bought its compromise by having estate planners enjoy the opportunity posed by complete uncertainty.

Phase-out schedule for estate tax repeal

Year	Top Estate Tax Rate	Exemption Amount
2008	45%	$3.5 million
2009	45%	$3.5 million

| 2010 | repealed | All |
| 2011 | Grim Reaper? | ? |

While most of the trust devices surveyed in this paper offer inheritance tax deferment or relief, their relevance will not diminish under the current estate tax laws. On the contrary, estate planning will have a field day given the uncertainties built into the system. Annual review of estate plans is now a necessity. One of the more complicated issues is to what extent may trusts be written or amended to reflect whatever tax laws are passed in the future. Such an issue was purely academic prior to the passage of the new estate tax laws. Now, however, the issue assumes real relevance.

Even in the event that Congress miraculously recognized the immorality of taxing property that has already been taxed once and permanently discards the estate tax, the trust vehicles or at least some of them would still be relevant estate planning tools. Turning over an entire estate to a child or young adult who does not have the temperament to resist spending the entire corpus or who does not have the background to make sound investment decisions would necessitate the use of trusts. Trusts have been useful devices for planning smooth transition of small to medium sized businesses even without the incentive of punitive estate taxes. Small to medium sized businesses do not want to find themselves dealing with family shareholders who have no understanding of the business. Hence, the use of life insurance to buyout divorced spouses or children of major stockholders or founders will continue regardless of the estate tax issue. Placing shares of stock in trust subject to sale according to specific events such as divorce or death of the principal or founder makes sense in many circumstances.

Trusts may also be written to provide for some degree of "dead hand" control over children. Some trusts contain provisions that restrict income to beneficiaries if they test positive on drugs or do not secure some sort of full time work. These restrictions provide that treatment will be funded but the habit will not be funded!

Trusts have had a surprisingly long history – even longer than the corporate form of organizing business. And, there is sufficient evidence to suggest that their utility is still valuable.

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ORGANIZATIONAL CULTURE AS A PREDICTOR OF ORGANIZATIONAL DIVERSITY PRACTICES

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ABSTRACT

This study examined the relationship between organizational culture as a predictor of organizational diversity practices. A total of 225 students in undergraduate and graduate programs at a private Texas university agreed to take part in the study which included a diversity questionnaire designed to measure attitudes toward diversity management. Students were then asked to complete the GLOBE research survey, which consisted of five sections. Sections 1 and 3 asked about their society and rated their perception of leaders and leadership using two different formats. One format required the student to choose from 1-7 (very pleasant to very unpleasant). The second format allowed students to choose from 1-7 (strongly agree to strongly disagree). In Sections 2 and 4, students were given a list of behaviors and characteristics that a leader might display. They were then asked to rate these behaviors and characteristics using the scale 1-7 (greatly inhibits to contributes greatly). The dependent variable was attitudes toward organizational diversity practices. The independent variables included the nine GLOBE study cultural preferences and the six GLOBE study leadership dimensions. The data for this study were analyzed using correlation and regression analysis. Study results indicated that collectivism was a strong predictor of how positively participants rated their

organizations support for diversity, diversity recruitment efforts, and diversity training for mentors and employees with disabilities. Collectivism and assertiveness were both strong predictors with regard to participants' ratings of CEO's support of diversity and the organization's overall diversity training.

INTRODUCTION

Managing the increasing diversity of the workforce is a critical task for leaders. Successful diversity management has been shown to increase the richness of the recruiting pool, (Taber and Hendricks, 2003) increase job satisfaction and work group performance (Pitts, 2009) and increase employees' organizational commitment. (Magoshi and Chang, 2009)

Several studies have offered insight into predicates of successful diversity management. (Bassett-Jones, Brown and Cornelius, 2007) found that appropriate structures and systems are required to have successful diversity management. They also found that sufficient communication and implementation of arrangements are needed.

Similarly, the importance an organization places on diversity management also has a tremendous impact. The higher the degree of importance of the organization's diversity management, the more that women and minorities consider it important when accepting employment. CEO commitment is also regularly cited as a pre-requisite to successful diversity management (Anand and Winters, 2008). A 2005 GAO comprehensive report found that nine factors impact successful diversity management. The most important driver was commitment to diversity as demonstrated and communicated by an organization's top leadership. Additional important predictors included diversity management in an organization's strategic plan and linking diversity management to performance.

While systems and leader commitment are undoubtedly important, the culture of an organization is also likely a key factor in predicting the success and importance of diversity management. Surprisingly, however, few empirical studies have been done that measure culture as a predictor of the importance of diversity management.

METHODOLOGY

Measuring Culture

Although the pioneering work of Geert Hofstede in measuring dimensions of culture is seminal, over the last decade a global study of culture and leadership in 62 societies has been published as Project Globe (House, 2004). The GLOBE project consisted of a total of 17,370 middle managers from 951 organizations in three industries (finance, food processing, and telecommunications). The GLOBE research provided empirical findings of each of the nine cultural dimensions (performance orientation, future orientation, gender egalitarianism, assertiveness, individualism and collectivism, power distance, humane orientation, uncertainty avoidance) in the 62 societies studied (House et al., 2004).

Each cultural dimension was measured from two perspectives and at two levels. First, respondents were asked to describe the extent to which they *valued* each of the nine cultural dimensions. Respondents were also asked to describe the extent to which they *practiced* each of the nine cultural dimensions. In addition to these two dimensions of value and practice, respondents were also asked to answer for two levels: their society and their organization.

Table 1 provides a synopsis of the cultural dimensions used in Project GLOBE

Table 1

Project Globe Cultural Dimensions

Power distance	The degree to which members of an organization or society expect and agree that power should be stratified and concentrated at higher levels of an organization or government.
Uncertainty avoidance	The extent to which members of an organization or society strive to avoid uncertainty by relying on established social norms, rituals, and bureaucratic practices
Humane orientation	The degree to which individuals in organizations or societies encourage and reward individuals for being fair, altruistic, friendly, generous, caring, and kind to others.
Collectivism (institutional)	The degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action.
Collectivism (in-group)	The degree to which individuals express pride, loyalty, and cohesiveness in their organizations or families.
Assertiveness	The degree to which individuals in organizations or societies are assertive, confrontational, and aggressive in social relationships.
Gender egalitarianism	The degree to which an organization or a society minimizes gender role differences while promoting gender equality.
Future orientation	The degree to which individuals in organizations or societies engage in future-oriented behaviors such as planning, investing in the future, and delaying individual or collective gratification.
Performance orientation	The degree to which an organization or society encourages and rewards group members for performance improvement and excellence.

Instruments

The participants in this study were provided definitions of diversity and diversity training and then asked the following six questions on a likert scale.

1. How do you rate your organization's support of diversity?

2. How do you rate your CEO's support of diversity

3. How do you rate your organization's diversity recruitment

4. How do you rate your organization's overall diversity training?

5. How do you rate your organization's diversity training for *mentoring*

6. How do you rate your organization's diversity training for *employees with disabilities*

The students were then asked to complete the GLOBE research survey, which consisted of five sections. Sections 1 and 3 asked about their society and asked to describe the culture of their society "as is" and "as it should be." In Sections 2 and 4, students were given a list of behaviors and characteristics that a leader might display. They were then asked to rate these behaviors and characteristics using the scale 1-7 (greatly inhibits to contributes greatly).

Participants

A total of 225 students in undergraduate and graduate programs at a private Texas university agreed to take part in the study. The gender of the participants for the total sample was (N = 74) 32.9% male and (N = 151) 67.1% female. More than half, or 57.3% of the respondents self-reported as Hispanic. Participants who self-reported as White, Caucasian, or Anglo constituted 24 % of the sample. Participants who self-reported as Black or African American constituted 9.8% of the sample. The remaining 8.9% represented American Indian, Asian Indian, Chinese, Vietnamese, Pacific Islander, or Italian. Participants who took part in the survey ranged from 21 years to 64 years of age. Participants ages 21-30 represented 30.6% of the total sample, while participants ages 31-40 represented 33.9% of the total sample. Participants ages 41-50 represented 22.8% of the total sample, while participants ages 51-60 constituted 11.9% of the total sample. Fifty-two respondents or 23.0% were undergraduate students, 87 respondents or 38.8% were graduate students, and 85 respondents or 37.8% were post-masters students.

RESULTS

How Do You Rate Your Organization's Support of Diversity?

The results of a multiple regression analysis using participant age, gender, ethnicity, years of management experience, and rating of the culture in the organization on each of the nine dimensions of culture listed in table 1 had only one significant reduced model. The participants' rating of the collectivism of the culture in their organization was a strong predictor of how positively they rated their organizations' support for diversity ($R^2 = .24$, p = .00), ($\beta = .428$, $r = .48$, p = .00). Table 2 provides the results of the multiple regression analysis. Results showed that the more collectivistic the respondents believed the work culture to be the more positively they rated their organizations' support for diversity.

Table 2

Multiple Regression Analysis for Organization's Support of Diversity

Model	R	R Square	Std. Error of The Estimate	R Square Change	df1	df2	Sig.
1	.485[a]	.235	.914	.235	1	223	.000

How Do You Rate Your CEO's Support of Diversity?

The results of a multiple regression analysis using the same predictor variables and the criterion variable of the CEO's support for diversity had two significant predictors. The participants' rating of the collectivism of the culture in their organization was again a strong predictor of how positively they rated their CEO's support for diversity (R^2 = .25, p = .00), (β =.53, r_p = .52, p = .00). The rating of the assertiveness of the culture improved the model's predictive power by 3%, (β = -.17, r_p = -.19, p = .00). The more collectivistic and less assertive the organizational culture, the more positively the respondents rated their CEO's commitment to diversity. Table 3 provides the results for this multiple regression analysis.

Table 3

Multiple Regression Analysis for CEO's Support of Diversity

Model	R	R Square	Std. Error of The Estimate	R Square Change	df1	df2	Sig.
1	.497[a]	.247	1.049	.247	1	223	.000
2	.525[b]	.276	1.032	.028	1	222	.017

Note. Model 1 Collectivism, Model 2 Collectivism, Assertiveness

How Do You Rate Your Organization's Diversity Recruitment?

The results of a multiple regression analysis using the same predictor variables and the criterion variable of the organization's diversity recruitment practices again had only one significant predictor, collectivism (R^2 = .16, p = .00), (β =.37, r = .40, p = .00). The more collectivistic the corporate culture, the more positively the respondents rated their organization's support of diversity recruitment. Results of the multiple regression analysis are provided in Table 4.

Table 4

Multiple Regression Analysis for Organization's Diversity Recruitment

Model	R	R Square	Std. Error of The Estimate	R Square Change	df1	df2	Sig.
1	.403[a]	.162	.994	.162	1	223	.000

How Do You Rate Your Organization's Overall Diversity Training?

The participants' rating of the collectivism of the culture in their organization was again a strong predictor of how positively the participants rated their organization's support for diversity (R^2 = .10, p = .00), (β =.27, r_p = .28, p = .00). The rating of the assertiveness of the culture improved the model's predictive power by 2%, however the directionality was positive, (β =.17, r_p = .16, p = .05). The more collectivistic and more assertive the organizational culture, the more positively the respondents rated their organizations' overall diversity training,

Table 5

Multiple Regression Analysis for Organization's Overall Diversity Training

Model	R	R Square	Std. Error of The Estimate	R Square Change	df1	df2	Sig.
1	.317[a]	.100	1.081	.100	1	223	.000
2	.351[b]	.123	1.070	.023	1	222	.049

Note. Model 1 Collectivism, Model 2 Collectivism, Assertiveness

How Do You Rate Your Organization's Diversity Training For Mentors And Employees With Disabilities?

The results of multiple regression analyses for the last two questions had similar results. Collectivism was the only predictor for rating of diversity training for mentorship (R^2 = .24, p = .00), (β =.45, r = .49, p = .00). Similarly, collectivism was the only predictor for diversity training for employees with disabilities (R^2 = .15, p = .00), (β =.36, r = .38, p = .00). Thus, the more collectivistic the respondents believed the organizational culture to be, the higher they rated their organization's support of diversity training for mentors and employees with disabilities.

Factor Analysis

A factor analysis for the six questions found that all questions loaded on a single factor with an Eigenvalue of 4.11, accounted for 68% of the variance. A multiple regression using the factor loadings of this factor again found that only collectivism predicted ratings of diversity management ($R^2 = .27$, p = .00), ($\beta = .44$, $r = .52$, p = .00).

Leadership

This study also asked respondents to rate the degree to which the six dimensions of leadership used in Project Globe were desirable.

Table 6
Project Globe Dimensions of Leadership

1. *Charismatic/Value-Based*	3. *Self-Protective*
Visionary	Self-centered
Inspirational	Status conscious
Self-Sacrifice	Conflict inducer
Integrity	Face-saver
Decisive	4. *Participative*
Performance-oriented	Non-Autocratic
2. *Team-Oriented*	Participative
Collaborative Team Orientation	5. *Humane-Oriented*
Team Integrator	Modesty
Diplomatic	Humane orientation
Benevolent	6. *Autonomous*
Administratively competent	Individualistic
Procedural	Independent
	Autonomous
	Unique

The results of a multiple regression analysis using the six dimensions of leadership shown in Table 6 as predictor variables and the criterion variable of the organization's diversity recruitment practices again had only one significant predictor, team oriented leadership ($R^2 = .08$, p = .00), ($\beta = .48$, $r = .28$, p = .00). The more participants believed team oriented leadership was desirable the more positively the respondents rated their organization's support of diversity recruitment. Results of the multiple regression analysis are provided in Table 7.

Table 7

Multiple Regression Analysis for Organization's Diversity Recruitment

Model	R	R Square	R Square Change	df1	df2	Sig.
1	.281[a]	.079	.079	1	222	.000

Note. Model 1 Team Oriented Leadership

An additional regression was run using the six leadership dimensions as predictor variables and the criterion variable of the participant's rating of the degree to which the participants would like a collectivist cultures. Preference for humane-oriented leadership was the sole predictor of preference for collectivist culture. ($R^2 = .05$, p = .00), ($\beta = .32$, $r = .22$, p = .00). Preference for collectivist culture was positively related to preference for humane-oriented leadership.

Table 8

Multiple Regression Analysis for Collectivist Culture

Model	R	R Square	R Square Change	df1	df2	Sig.
1	.218[a]	.048	.048	1	222	.000

Note. Model 1 Team Oriented Leadership

Project Globe

Project Globe found that four dimensions of leadership - Charismatic Leadership ($R^2 = .12$), Team Oriented ($R^2 = .13$) Participative Leadership ($R^2 = .02$) and Humane-Oriented Leadership ($R^2 = .11$) were positively related to preference for collectivist culture in organizations. (pp. 497 – 500).

Conceptual Model From This Study
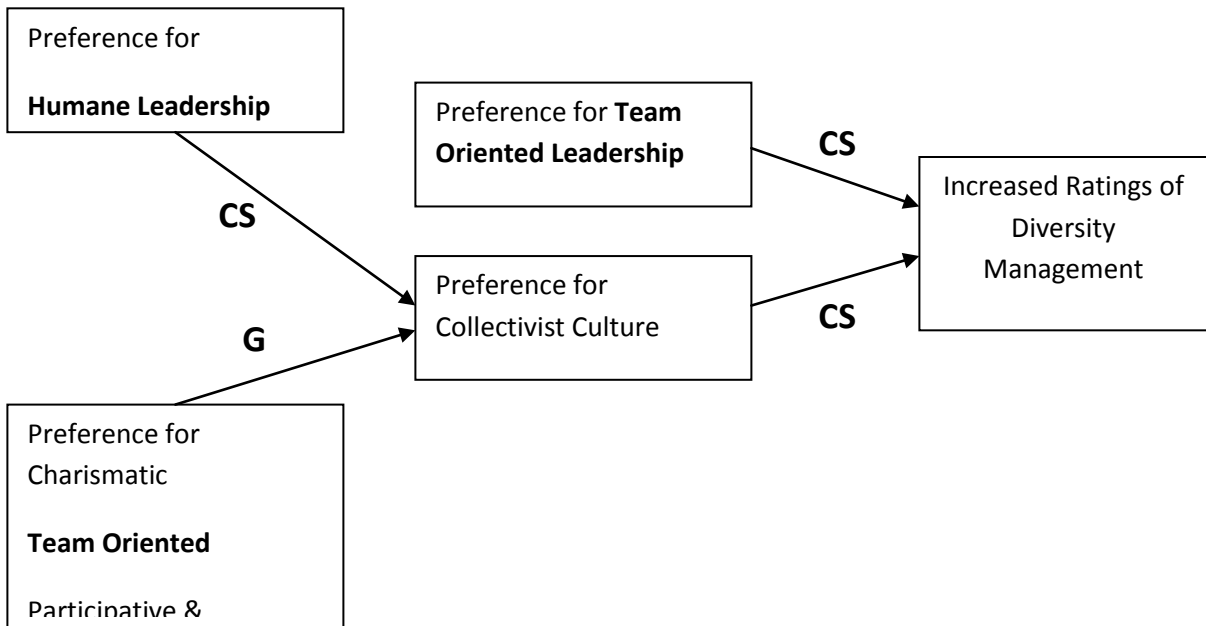
CS – Relationships Found in the Current Study
G – Relationships Found in Project Globe

Figure 1. Conceptual model.

Figure 1 illustrates the importance of two forms of leadership in promoting diversity management. The relationships marked "CS" illustrate two important findings. First, preference for Humane Leadership is a positive predictor of preference for collectivist culture. Collectivist culture, in turn, predicts diversity management ratings. Second, from this study, preference for team oriented-leadership also predicted ratings of diversity management.
The relationship marked "G" from Project Globe, illustrated the four types of leadership positively related to preference for collectivist culture. Two of those four, team and humane, are the same as those found in the current study.

DISCUSSION

The results of this study are not surprising. Collectivist cultures have a high degree of interdependency among group members. This interdependency likely promotes a higher value on diversity. Aycan (2000) found that managers, who tend to prefer collectivism as a cultural value, tend to assume that employees in their organizations will exhibit a high degree of obligation toward other organizational members. Brandt (1974) and Choi, (1996) found that members of collectivist cultures are more likely to engage in group activities than members of individualistic cultures. Wheeler, Reis and Bond (1989) found that relationships in collectivist cultures tend to be longer in duration, more intimate and more group-oriented than relationships in individualistic cultures.

It is unclear from this study whether participants who prefer a collectivist culture tended to self-select toward organizations that promote diversity management, or whether organizations that promote diversity management tend to acculturate workers toward a preference for collectivism. Erez and Earley (1993) found that human resources practices varied between organizations that promoted individualistic cultures and organizations that promoted collectivist cultures. Those promoting collectivist cultures emphasized interdependence and obligations to others. Erez and Earley speculate that these organizational cultural values likely manifest themselves during employee recruitment, performance appraisal and job design.

Leaders and managers in an increasingly complex world are confronted with increasing diversity in the workforce. The increased growth of women and minorities into the workforce has necessitated the need for empirical research to provide insight into organizational culture as a predictor of organizational diversity practices. The results of this study indicate that promoting a more collectivist rather than individualistic culture is associated with the increased rating of multiple aspects of diversity management.

APPENDIX: DIVERSITY QUESTIONNAIRE

For purposes of this questionnaire, diversity in the workplace, or workforce diversity, is

"the uniqueness of all individuals, which encompasses differences and similarities in age, gender, ethnicity, religion, cultural background, education, and mental and physical disabilities."

1. **Does your organization have a diversity management program?**

Yes_____ No_____

If yes, is the organization serious about diversity?

Serious	No Opinion	Not Serious
1	2	3

If yes, are the leaders of the organization serious about diversity?

Serious	No Opinion	Not Serious
1	2	3

If yes, why do you believe the diversity management program exists?

For Compliance Purposes	No Opinion	To Actually Increase Diversity
1	2	3

2. **Does your organization have a diversity awareness training program?**

Yes_____   No_____

If yes, how many hours per year is the training? _____

If yes, how many times per year do employees receive training? _____

For purposes of this questionnaire, **diversity in the workplace**, or workforce diversity, is

the uniqueness of all individuals, which encompasses differences and similarities in age, gender, ethnicity, religion, cultural background, education, and mental and physical disabilities.

3. **Using the definition above, how do you rate your organization's support of diversity?**

One of best in the industry	Excellent	Good	Average	Poor	Unacceptable	One of worst in the industry	Don't Know
1	2	3	4	5	6	7	8

4. **Using the definition above, how do you rate your CEO's support of diversity?**

One of best in the industry	Excellent	Good	Average	Poor	Unacceptable	One of worst in the industry	Don't Know
1	2	3	4	5	6	7	8

For the following question **diversity recruitment management** is defined as

an organization's concerted effort to actively seek out and recruit a workforce that is representative of the diverse communities it serves.

5. **Using the definition above how do you rate your organization's diversity recruitment management?**

One of best in the industry	Excellent	Good	Average	Poor	Unacceptable	One of worst in the industry	Don't Know
1	2	3	4	5	6	7	8

For the following question **diversity training** is defined as

training for the purpose of increasing participants' cultural awareness, knowledge, and skills, which is based on the assumption that the training will benefit an organization by protecting against civil rights violations, increasing the inclusion of different identity groups, and promoting better teamwork.

6. **Using the definition above how do you rate your organization's support of diversity training?**

One of best in the industry	Excellent	Good	Average	Poor	Unacceptable	One of worst in the industry	Don't Know
1	2	3	4	5	6	7	8

For the following questions **diversity training** is defined as

training for the purpose of increasing participants' cultural awareness, knowledge, and skills, which is based on the assumption that the training will benefit an organization by protecting against civil rights violations, increasing the inclusion of different identity groups, and promoting better teamwork.

7. **Using the definition above how do you rate your organization's diversity training for Employee Resource Groups:**

One of best in the industry	Excellent	Good	Average	Poor	Unacceptable	One of worst in the industry	Don't Know
1	2	3	4	5	6	7	8

8. **Using the definition above how do you rate your organization's diversity training for Mentoring:**

One of best in the industry	Excellent	Good	Average	Poor	Unacceptable	One of worst in the industry	Don't Know
1	2	3	4	5	6	7	8

9.Using the definition above how do you rate your organization's diversity training for Multi-Cultural Marketing?

One of best in the industry	Excellent	Good	Average	Poor	Unacceptable	One of worst in the industry	Don't Know
1	2	3	4	5	6	7	8

10. Using the definition above how do you rate your organization's diversity training for employees with disabilities?

One of best in the industry	Excellent	Good	Average	Poor	Unacceptable	One of worst in the industry	Don't Know
1	2	3	4	5	6	7	8

11. Using the definition above how do you rate your organization's diversity training for acceptance for Gay, Lesbian, Bi-sexual, and Transgendered (GLBT) employees?

One of best in the industry	Excellent	Good	Average	Poor	Unacceptable	One of worst in the industry	Don't Know
1	2	3	4	5	6	7	8

For the following question, **Supplier-Diversity** is the avenue that leads corporations to supplier-businesses owned by women and people of color as a means to show their commitment to inclusion and investment in the community.

12. Using the definition above how do you rate your organization's supplier diversity program?

One of best in the industry	Excellent	Good	Average	Poor	Unacceptable	One of worst in the industry	Don't Know
1	2	3	4	5	6	7	8

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THE CHANGING LIFO-FIFO DILEMMA AND ITS IMPORTANCE TO THE ANALYSIS OF FINANCIAL STATEMENTS

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ABSTRACT

This paper examines how the probable demise of the LIFO inventory costing method will affect companies currently using LIFO as well as the financial analysis of those companies. Key financial ratios are examined along with how these ratios may be affected by the switch away from LIFO. A mixed bag of changes to key ratios, both improvements and deteriorations, are presented, along with a discussion of more complex topics for whom the impact of these changes are less clear.

INTRODUCTION AND BACKGROUND

Financial statements are the lifeblood of finance. Whether trying to evaluate a potential equity or debt investment or assess the creditworthiness of a potential borrower, the ability to properly analyze financial statements is crucial to the success of decision-making. One key element in this process is the determination and assessment of various financial and accounting ratios that allow one to better interpret the results of operations and financial condition of the company being evaluated. As this is almost wholly dependent on accounting numbers arising out of the accounting process, it is imperative that one understands the process and the reporting standards in place to guide such a process.

One important aspect of many-a-company's activities is the accumulation and subsequent sale of its inventory. Although there are many rules and guidelines in place governing the reporting of inventory, no other factor affects the analysis of financial statements greater than the method used to allocate costs between the units of inventory sold and those remaining unsold at the end of the reporting period.

For most entities, this decision comes down to one of three choices: the average cost method, FIFO (first-in, first-out) method, and LIFO (last-in, last out) method. Of particular interest are the polar extremes of FIFO and LIFO because the use of each causes the greatest differences in various figures reported on the balance sheet and income statement, and, ultimately, the financial ratios based on those figures.

FIFO assumes that the costs of the inventory that has been on hand the longest are the ones matched against the revenues generated from selling that inventory. Typically, in times of rising prices, the result is a lower amount assigned to the cost of goods sold on the income statement and a higher amount allocated to the valuation of the unsold inventory. LIFO instead matches the most recent costs of inventory against current revenues, resulting in a higher amount going to cost of goods sold and a lower amount to inventory on-hand.

The choice between the two is typically based on a comparison of the advantages from using LIFO with the disadvantages. One of the more persuasive arguments for using LIFO is that it better fulfills a key assumption in accounting to match current expenses with current revenues. On the other hand the most *pervasive* reason for choosing LIFO is the resulting tax benefits and improved cash flow situation. The so-called "LIFO conformity rule" states that a firm choosing LIFO must do so for both financial accounting and tax purposes. Under LIFO more costs are charged off against revenues, resulting in a lowering of before-tax earnings as well as the amount of taxes paid. This reduction in taxes (perhaps it is more accurate to say the delay in paying taxes) improves the current cash flow situation for the reporting entity.

The tax benefits must be balanced against the other reality, the reporting of lower earnings. Reporting lower earnings may have negative repercussions in meeting various debt covenants as well as in the valuation of the company's common stock. Furthermore, the inventory is reported at an understated value on the balance sheet. To lessen this issue, companies that use LIFO are required to report the extent to which the inventory is undervalued relative to a FIFO (or average cost) approach that is referred to as the LIFO reserve account.

But the crucial point is that this choice in inventory costing method will soon likely vanish. There has been a long-term effort under the auspices of the International Accounting Standards Board to harmonize global accounting standards so that a single set of international financial reporting standards (IFRS) could be used anywhere. The Securities and Exchange Commission (SEC) has recently proposed that U.S. firms will have the opportunity to switch from U.S. generally accepted accounting principles to the new IFRS beginning in 2010 and will be *required* to do so by 2014. One important aspect of this change is the elimination of LIFO because the IFRS do not allow it. This will likely have a dramatic impact on companies that currently use LIFO. This paper examines how this change will likely affect the financial statements of companies using LIFO and, more importantly, the analysis of those statements.

INVENTORY COSTING METHODS AND FINANCIAL STATEMENTS

The choice of inventory costing method effects a company's financial statements in a variety of ways. On the balance sheet, because it understates the value of the inventory, it will also understate the amount of current assets, as well as total assets of the company. This ultimately will affect any ratio calculation that involves inventory (e.g., days' sales in inventory), current assets (e.g., current ratio), or total assets (e.g., return on assets).

On the income statement, because it typically overstates the cost of goods sold, it will typically understate gross profits, operating profits, and net profits. In turn, any ratio involving profit figure will be affected. However, there is one important exception. Occasionally, companies will sell inventory to such an extent that not only do current-cost inventory items get matched against the revenues, but also earlier *layers* of older costs and the resulting LIFO reserve account is reduced. This leads to the probable *understating* of the cost of goods sold and an *overstating* of reported profits.

In any case, analyzing financial statements for companies using LIFO has always been difficult, particularly if comparisons are made with companies using FIFO. With the probable elimination of LIFO, this analytical problem will be minimized in the future. However, the elimination of LIFO can profoundly affect the analysis of companies currently using LIFO. Some of these potential effects are examined here.

DATA AND METHODOLOGY

ll financial statement data were gathered from Compustat based on the data that was current through January 30, 2009. Relevant figures from the balance sheet and income statement were taken from the most recent annual reports as well as the three years prior. Several traditional financial ratios (the current ratio and quick ratios, days' sales in inventory, debt and debt-equity ratios, return on assets, and Altman Z-score) were then calculated based on the equations summarized in Exhibit 1.

Exhibit 1. Calculation of Financial Ratios

- Current ratio = Current assets ÷ Current liabilities
- Quick ratio = (Current assets – Inventory) ÷ Current liabilities
- Days' sales in inventory = Inventory ÷ Daily cost of goods sold [COGS/365]
- Debt ratio = Total liabilities ÷ Total assets
- Debt-equity ratio = Total liabilities ÷ Total common equity
- Return on assets = Net income ÷ Average total assets
- Altman Z-score = $1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.999X_5$, where X_1 is defined as net working capital (current asset – current liabilities) divided by total assets, X_2 as retained earnings divided by total assets, X_3 as earnings before interest and taxes divided by total assets, X_4 as market value of the company's equity to the book value of its liabilities, and X_5 as sales divided by total assets
- Free cash flow (as taken from and defined by Compustat) = Net cash flows from operations less cash dividends and less capital investment

The Altman Z-score is a common metric used to assess creditworthiness. An overall score of 3.0 is typically considered a minimum threshold below which the likelihood of default or of bankruptcy would become a serious concern. Because the score itself includes a wide variety of ratios, it was included to assess the potential impact on the change in credit standing of companies if they are no longer able to use LIFO.

The ratios were then recalculated based on the assumption that LIFO was eliminated. Any ratio involving inventory, current assets or total assets was adjusted to include the value of the LIFO reserve

for that period. The liabilities of the company would also be affected as the underreported profits from using LIFO would now be reported, creating an immediate tax liability. Current tax regulations allow for the payment of this liability to be spread over four years (Bloom, 48). Thus, twenty-five percent of the newly-created tax liability is allocated to current liabilities (due within one year) and the remaining amount to noncurrent liabilities. The equity (retained earnings) of the company would also be affected by the resulting difference between the adjustment made to assets and to the liabilities.

Ratios involving before-tax income statement items (e.g., cost of goods sold, earnings before interest and taxes) were adjusted to account for any positive or negative increments in the cost of goods sold. If the LIFO reserve account increased (decreased) during a particular time period, the assumption was that the cost of goods sold was overstated (understated) by that amount and adjusted accordingly. After-tax figures (e.g., net income) were adjusted to also remove the tax expense associated with the increase or decrease in cost of goods sold. We assumed a flat tax rate of thirty-five percent in each case to eliminate the impact of other items (e.g., capital gains and losses and tax loss carryforwards) in the calculation of individual company's effective-tax rates for any given periods.

RESULTS

From the Compustat database we find that 385 companies were listed as using LIFO. However, only 333 of these actually reported a LIFO reserve account balance. Further reductions in the database (e.g., companies that did not report a stock price or another relevant variable such as current assets) resulted in a final sample size of 262 companies. The sample ranged in size from some of the largest and best-known companies in the world (ExxonMobil, Dow Chemical) to others with scarcely $10 million in total assets. Although heavily concentrated in specific industries (energy, minerals), LIFO firms can be found throughout the spectrum of industries, companies as distinct as Walgreens, ColgatePalmolive, HarleyDavidson, and Whirlpool.

As seen below in Exhibit 2, the use of LIFO can have a significant effect on various financial ratios. Depending on the extent to which LIFO had understated inventory and overstated cost of goods and other company factors, we find a wide range of changes to many of the ratios. For example, the median days' sales in inventory figure increases by over thirteen days, a twenty percent increase over the current median of 63.7 days. This is not necessarily surprising given the extent to which the inventories are understated and to a lesser degree the extent to which cost of goods sold may have been overstated.

Exhibit 2. Selected Figures for Entire Sample: As-Reported and Adjusted Values

	As-Reported (Medians)	Adjusted (Medians)	Percentage Change
Current Ratio	1.89	1.96	3.8%
Quick Ratio	1.10	1.09	-1.3%
Days' Sales in Inventory	63.66	76.75	20.5%
Debt Ratio	54.93%	54.52%	-0.8%
Debt-Equity Ratio	117.43%	114.01%	-2.9%
Return on Assets	4.01%	4.10%	2.3%

Altman Z-Score	3.63	3.59	-1.1%
Free cash flow	$81.1	$75.3	-7.1%

Other ratios do not demonstrate as large of a change but may be equally important. Adding the LIFO reserve amount to the reported inventory figure and the related tax liability to current liabilities has the effect of increasing the current ratio (by almost four percent on average), yet reducing the quick ratio. This apparent disparity occurs because inventory is included in the current ratio but not the quick ratio (affecting the numerator of each ratio differently), but the current tax liability increases the amount of current liabilities and thus affects the denominator of both ratios equally.

On the other hand the debt and debt-equity ratios decrease, which makes the average company appear less leveraged. This is not surprising, given that, except for companies with extremely low amounts of debt, the adjustments to the denominator (total assets and equity, respectively), are proportionately larger than the adjustments to the numerator (total liabilities).

Similar comments can be made about the average increase in the return on assets. Although the denominator (average total assets) is typically increased, often in large amounts, by the size of the LIFO reserve, net income typically rises as well, and proportionately in greater amounts, particularly when the LIFO reserve account increases substantially in any given time period.

Finally, we examine the impact on the Altman Z-score. Although it would appear that the ratio should fall with the inclusion of the LIFO reserve in the total asset figure that appears in four of the five variables, this effect is offset in large degree by increases in working capital earnings before interest and taxes, and retained earnings. However, there is one component of the Z-score that is more difficult to assess, that being the ratio of market value of equity to book value of liabilities. The market value of the equity could be positively affected by the higher reported profits but more likely will be negatively affected by the reduction in cash flows from the company having to make higher additional tax payments. As seen in Exhibit 2, the median amount of free cash flows falls by over seven percent. Simple common stock valuation models would thus forecast a reduction in a company's stock price by at least seven percent; and likely significantly more. This point will be examined in more detail later.

Although the changes in the ratios highlighted above are by no means consistent across the board, the results of individual companies can sometimes be almost *grotesquely* affected. To examine this further, we select three random case histories to demonstrate how differently the changes may affect individual companies.

We begin by examining ConocoPhillips, one of the largest companies in the world. Over the past three years, Conoco has expanded in size from $107 billion in total assets to nearly $178 billion. During this period, the reported value of its total inventories went from $3.7 billion, up to $5.2 billion, and then down to $4.2 billion. At the same time, the value of its LIFO reserve moved from $4.7 billion, down to $4.2 billion, and then jumped up to $6.7 billion. Conoco represents a classic case of the typical effects on key financial ratios. A summary of the results for Conoco is found below in Exhibit 3.

Exhibit 3. Selected Figures for ConocoPhillips: As-Reported and Adjusted Values

	As-Reported Figures	Adjusted Figures	Percentage Change
Current Ratio	0.92	1.14	24.3%
Quick Ratio	0.76	0.75	-2.1%
Days' Sales in Inventory	11.21	29.44	162.6%
Debt Ratio	49.94%	49.40%	-1.1%
Debt-Equity Ratio	99.77%	97.63%	-2.1%
Return on Assets	5.90%	6.63%	12.5%
Return on Assets (previous year)	2.68%	2.34%	-12.6%
Altman Z-Score	2.73	2.76	1.0%
Free cash flow	$11,891.0	$11,307.6	-4.9%

If not for using LIFO, Conoco would have reported a much higher current ratio. Its days' sales in inventory would have more than doubled in length to almost thirty days. Its return on assets would have been more than twelve percent higher. On the other hand, we also find at least one of the problems that can occur in cases where the value of the LIFO reserve falls, as it did for Conoco two years ago. The dual components of having net income overstated and total assets (because of the inventory) understated combine to produce an actual return on assets that is more than twelve percent less than the one based on the reported figures.

We move next to Central Steel & Wire. Over the past three years, CS&W has remained relatively, beginning with $299 million in total assets two years ago, growing to $307 million the subsequent year, and then shrinking to $272 million last year. However, the size of its inventory did not follow the same pattern, as it moved from $73 million to $58 million and then to $64 million. Even more remarkable is the extent to which the LIFO reserve valuation dwarfed the actual value of the inventory, as it shifted from $141 million to $134 million and finally ending at $167 million. A summary of the results for CS&W is found below in Exhibit 4.

We find many of the same changes as we found with Conoco. However, given how much larger the LIFO reserve account is relative to the size of the company, the changes are more profound. We have a current ratio increasing by more than fifty percent and a quick ratio falling by more than seventeen percent. The days' sales in inventory amount almost triples, adding nearly 100 days to the reported amount. The debt and debt-equity ratios also fall precipitously. The Altman Z-score falls an entire point. Although still well above the 3.00 threshold, the reduction from 5.43 to 4.42 would likely not be seen in a very favorable light. Nor would the elimination of the reported free cash flows. CS&W would not have had sufficient free cash flows to cover the additional taxes that would have been due had LIFO been eliminated. Lastly, as with Conoco, we find the conflicting impact on return on assets due to increases or decreases to the LIFO reserve account. Two years ago, in a period with the LIFO reserve account fell, the return on assets figure would have been cut in half had LIFO not been used. The next year, when the reserve increased, we find that the reported losses would have been all but eliminated and the significantly negative return on assets reduced to essentially nil.

Exhibit 4. Selected Figures for Central Steel & Wire: As-Reported and Adjusted Values

	As-Reported	Adjusted	%Change
Current Ratio	2.87	4.34	51.2%
Quick Ratio	1.95	1.62	-17.2%
Days' Sales in Inventory	35.35	133.23	276.8%
Debt Ratio	44.76%	41.05%	-8.3%
Debt-Equity Ratio	81.01%	69.63%	-14.0%
Return on Assets	-7.57%	-0.21%	-97.3%
Return on Assets (previous year)	8.32%	4.75%	-42.9%
Altman Z-Score	5.43	4.42	-18.6%
Free cash flow	$11.8	($2.8)	-123.5%

Lastly, we move to Hancock Fabrics, a smaller company that has also been shrinking, falling from $242 million to $151 million in total assets. Its inventory, which makes up an extremely very large percentage of its total assets, unsurprisingly followed the same pattern, falling from $192 million to $114 million. On the other hand, the LIFO reserve valuation remained relatively constant over this period, beginning at $39 million, and then moving up to $42 million before declining last year to $36 million. A summary of the results for Hancock is found below in Exhibit 5.

Exhibit 5. Selected Figures for Hancock Fabrics: As-Reported and Adjusted Values

	As-Reported Figures	Adjusted Figures	Percentage Change
Current Ratio	2.63	3.34	27.3%
Quick Ratio	0.46	0.42	-8.1%
Days' Sales in Inventory	180.42	256.10	41.9%
Debt Ratio	82.08%	72.93%	-11.1%
Debt-Equity Ratio	457.83%	269.38%	-41.2%
Return on Assets	18.36%	13.55%	-26.2%
Return on Assets (previous year)	-4.29%	-2.97%	30.9%
Altman Z-Score	3.28	2.94	-10.2%
Free cash flow	(24.3)	(27.5)	13.1%

Again, we find many of the same results as with both Conoco and CS&W, the only differences being a matter of degree. However, perhaps more noteworthy, is the impact on the Altman Z-score. Based on its reported results we find its Altman Z-score from last year would have been a sold, but not stellar, 3.28. But after making the adjustments associated with eliminating LIFO, we find this number fall to 2.94, below the "magic" 3.00 threshold. And this does not include any adjustment to the stock price (and value of its common equity) that might result from the reduction in its cash flows associated with having to pay additional taxes!

SUMMARY AND CONCLUSIONS

Many companies (albeit a shrinking amount) have enjoyed the ability to reduce/delay payments for taxes on profits through their use of the LIFO inventory costing method. However, with the impending disallowance of the use of LIFO under International Financial Reporting Standards, these companies face a situation where their balance sheets and income statements (and cash flow statements) face significant changes. The analysis and interpretation of these financial statements also face an uncertain future.

We have shown that many of the key financial ratios used in business can be severely affected by a switch from LIFO. Balance sheets and income statements will be larger. Liquidity ratios (e.g., the quick ratio and days' sales in inventory) will largely suffer while leverage ratios (e.g., debt and debt-equity ratios) will largely improve. Profitability ratios (e.g., return on assets) will typically improve although they may also deteriorate depending on the relative impact of changing costs and growth or shrinkage of inventories.

More complex variables can be affected in a variety of ways. For example, although the Altman Z-score can be negatively affected by larger amounts of assets and liabilities, it is also positively affected by increased amounts of working capital and retained earnings and higher earnings. What is unknown is the possible influence on stock prices. It is conceivable that if the loss of LIFO results in lower cash flows, the value of a company's stock can be negatively affected. Many valuation models are in large part driven by estimates of cash flows. If cash flows fall by seven percent, which was the average amount shown in this study, stock prices could fall by some seven percent using a very conservative no-growth perpetuity model. And if a company would normally have expected increases in future cash flows the impact on its stock price could be significantly higher.

As with other studies of this type, many liberties had to be taken regarding assumptions. For example, we have assumed that the companies using LIFO would have operated in the same way with the same results as if they did not have the ability to use LIFO. Nonetheless, the impending demise of LIFO as an option will likely have a significant effect on companies employing the technique. The analysis of these companies will also be affected, particularly in terms of trend analysis, as analysts will likely need to restate past financial statements in ways similar to those discussed here prior to make any long-term assessments of these companies. We await this major shift in the accounting landscape with baited breath.

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INFORMATION SYSTEMS SECURITY AND SAFETY MEASURES: THE DICHOTOMY BETWEEN STUDENTS' FAMILIARITY AND PRACTICE

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ABSTRACT

Information systems security and safety measures (ISSSM) are attributes that contribute to the safety of information if properly implemented and system monitored continuously. This proper implementation will prohibit viruses and hackers from continuing to plague the digital environment. This problem of data and cyber insecurity could be reduced if more systems users become familiar with safe computing and also practice it regularly. Information on the relationship between familiarity with and usage of safe computing practices is needed to address this problem. This study analyzes the relationship between students' familiarity with ISSSM and actual usage of these measures on a daily basis. We use survey data from a sample of 867 students for the study. Results indicate that familiarity with ISSSM does translate into practical use for six of the ten attributes. Four of the attributes did not indicate a significant relationship between familiarity and usage. This underscores the need to supplement methods of disseminating information about safe-computing to students.

INTRODUCTION

One burning issue concerning information safety in contemporary digital computing is how university students' computing behaviors contribute to enhance or depreciate the safety and security of information in their domain. The overwhelming interest in the subject of digital information systems security has focused on the coder and distributor of virus and spam ware programs all over the

internet. The human access component that requires careful protection of data by the end-user has recently become a subject of major discourse. Since the world has a multiplicity of students who access the internet every minute of every day, it is imperative for safety and security of information focus to shift to this large group of users to determine if there is a concomitance between what they are familiar with and what they actually practice. Also, the incessant continuous connectivity of corporate infrastructure and critical information via the World Wide Web has created a state of unsurpassed vulnerability (Crowley, 2003) that is genie-like in scope. This vulnerability calls for a concerted effort to enable the end-user become aware of, familiar with and use ISSSM.

In 1996, the National Research Council for information security alert and the 1998 Decision Directive 63 by the President on the vulnerability of critical data in cyberspace is indicative of the importance of the problem. To solve this problem requires training and education which gave birth to Information Systems specialization degree at the University of Houston. In the same line of thought (Zhang, 2005) agrees that to ensure security of information and avoid spyware invasion of systems requires avid vigilance and education in information security issues. Also, the populace needs further education on computer protection and privacy as evidenced in the suggestion that courses related to computer security should be taught to all majors. Security awareness (Siponen & Kajava, 1998) has steadily evolved through the years in three stages as follows: "drawing peoples' attention on security issues, getting users acceptance, and getting users to learn and internalize the necessary security activities." In terms of drawing people's attention to the challenges of information technology, the Federal Executive Council of Nigerian in 2001 approved a National Information Technology Development Agency (NITDA) (Federal Executive Council) to bring information technology closer to the people by ensuring that "the entire citizenry is empowered with information technologies through the development of a critical mass of IT proficient and globally competitive manpower." The organization of the paper from this point on is as follows: related literature, purpose of the study, methodology, data analysis, results, discussion, conclusion, and further research.

RELATED LITERATURE

The vocabulary that covers information security is vast but for the sake of brevity, we are going to limit our related literature discourse to password protection security interests.

Password:

A password is a system protection or identity releasing, must-remember nonsense/sensible word that allow or deny access to proprietary systems. Passwords can be categorized into simple and sophisticated. The simple passwords are easy to remember, easy to guess and non-hacker proof. Sophisticated passwords are more difficult to hack and require a combination of letters, numbers, and special characters to make it effective. On the whole, passwords can be algorithmically hashed by a person with avid interest in doing so. In explaining the password concept, Weinshall and Kikpatrick describe it as a self-certifying method that requires a conscious effort to recollect (Weinshall & Kirkpatrick, April 24-29, 2004). They argue that passwords should be seen as less perfect and therefore advocate the use of human natural characteristics for identification. The first level of software protection for any system is to understand how to create a password and use it to log into a protected system. Passwords, though most popular among the known authentication schemes, is the weakest (Stoller, 2009) because it can be stolen, it may be forgotten and unwittingly openly exhibited.

Several researchers have proposed different approaches to password creation and use. Passwords' robustness is an attribute that can prevent unauthorized access to proprietary systems (Oreku & Jianzhong, 2009). Password authentication systems must identify the user and charge a fee based on the number of times of usage without implementing a password table that lends itself to a "replay attack" (Lin & Chang, 2009). Password authentication must be required to identify users who want entry into systems (Chang, Chen, & Hwang, 2004).

Organizations boost the confidence of their clients by having a password requirement combined with preregistered questions and answers. The drawback to the preregistered question and answer such as "what high school did you attend?" is that the answer to such a question cannot be a secret to or difficult to obtain by an ardent enquirer. We suggest that the registrant be given the opportunity to create at least ten questions and provide the answers concomitantly. At entry beyond the password permission zone, the logger is asked to provide answers to random selection of questions. When the answer given matches the answer in the database, the requester is given full entry permission to the system.

Pervasiveness of security problems:

The unfortunate continuous success of intrusions into systems and the concomitant loss of capital, money, man hours, and goodwill, etc. can be attributed to several influences. A study by Teer, Kruck, and Kruck (2007) found that students are not the most savvy when it comes to protecting their passwords. They often allow others to make use of and share their passwords. In social engineering circles, releasing a password to a persistent imposter is not as burdensome as a full-fledged attack on a computer system (Mitnick & Simon, 2002), but it does promote avoidable vulnerability. Research found that using social engineering physical approach to solicit usernames and passwords successfully netted 80% of respondents who released their user names and 60% who released their passwords (Orgill, Romney, Bailey, & Orgill, October 28-30, 2004). In a study at Sydney University, researchers used bogus email to ask students to provide their passwords and usernames for purposes of system upgrade. The result was that 47% of the participants succumbed to the prank (Greening, 1966). Sometimes institutions understand the challenges that privacy poses but they do not employ new technology for privacy enforcement (Brodie, Karat, & Feng, July 6-8, 2005). The enforcement of privacy policies combined with password use for data protection can mean better data and system handling. Misgivings about negative publicity drive companies that have suffered intrusions to withhold the information from the public. This is contained in CSI/FBI Computer Crime Security Survey which also indicates that security incident reporting has increased from 20% to 25% (Gordon, Martin, Loeb, Lucyshyn, & Richardson, 2006). Some companies have strong sentiments about reporting of security breaches because the knowledge, if made public, will present an imperfect persona of the organization (Roberts, 2005). Reporting of intrusions can elicit client legal actions but more importantly is the fact that failure of organizations to install breach control mechanisms such as firewalls and anti-virus software is tantamount to contributing to the problem. A study explored how security breach announcement affected market reactions and thus the value of firms but found the result inconclusive (Cuvosoglu, Mishap, & Raghunatan, 2004).

PURPOSE

The primary purpose of this study is to determine if there is a significant relationship between familiarity with ISSSM on the one hand and actual usage of these same ISSSM on the other. In other

words, do students who say they are familiar with ISSSM also practice the use of these measures in their daily affairs with computers?

METHODOLOGY

A 24-item survey was developed to collect data for this study. The survey consisted of three sections. In the first section students were asked to indicate on a three-point Likert-type scale whether they are unfamiliar, somewhat familiar or extremely familiar with a given security measure. In the second section they were asked to indicate the percentage of times, <31%, 31-50% , and >50%, they use each measure on a regular basis. The third section requested some demographic data. The survey instrument was critiqued by other researchers for redundancy, ambiguity and readability of questions. This portion of the survey instrument is part of a larger study that encompasses four continents – Africa, Europe, China, and US. Those who critiqued the instrument were also from Africa, U.S., and Europe. To administer this instrument, professors at a random sample of 20 out of the 90 member universities of the National Universities Commission that accredits institutions of higher learning in Nigeria were contacted to participate in the study by administering the survey to their students. The surveys were sent as email attachments to enable participants to download, open and use mouse click to make their selections and return the instruments via email. Prior to full blown administration of the questionnaire, a 100-person pilot test was conducted to ensure that the statements were easy to understand.

DATA ANALYSIS

Descriptive statistics and cross tabulations were used to analyze the data in this study. Table 1 presents the frequencies/percentages of levels of familiarity (unfamiliar, somewhat familiar and extremely familiar) and percentage levels of usage (<31%, 31-50%, > 50%). Figures 1a to 10b are graphical representations of levels of familiarity with ISSSM and percentage levels of usage respectively in pairs.

Table 1: Frequencies (Percentages) of Levels of Familiarity with and Levels of Usage of ISSSM

	Familiarity			**Usage (percent of the time used)**		
Security Measures	Unfamiliar	Somewhat Familiar	Extremely Familiar	<31%	31-50%	>50%
Simple passwords	69(8%)	202(23%)	596(69%)	217(25%)	99(11%)	551(64%)
Sophisticated passwords	857(87%)	85(10%)	25(3%)	780(90%)	52(6%)	35(4%)
Daily computer system scan	432(50%)	164(19%)	271(31%)	74(9%)	191(22%)	602(69%)
Scan of email attachments	651(75%)	79(9%)	137(16%)	110(13%)	291(34%)	466(54%)
Anti-virus software	484(56%)	171(20%)	212(25%)	510(59%)	230(27%)	127(15%)
Password on email attachments	682(79%)	79(9%)	106(12%)	712(82%)	152(18%)	3(.3%)
Biometric authentication	819(95%)	38(4%)	10(1%)	847(98%)	11(1%)	9(1%)

Firewalls	544(63%)	184(21%)	139(16%)	673(78%)	135(16%)	59(7%)
Intrusion detection systems	386(45%)	180(21%)	301(35%)	759(88%)	69(8%)	39(5%)
Multifaceted authentication systems	818(94%)	41(5%)	8(1%)	853(98%)	8(1%)	6(1%)

RESULTS

One thousand one hundred surveys and 867(79%) were distributed and returned respectively. Demographics information are as follows: female (54%), undergraduate (63%), graduate (38%); majors in Arts & Sciences (29%), Business (37%), Engineering (18%), Others (16%); and level of experience in computing were Expert (46%), Very good (22%), Good (18%), Poor/Novice (14%). The following are relevant descriptions of each measure:

Simple Passwords:

 Specifically, Figure 1a indicates that while 69% of respondents are familiar with or aware of simple passwords, 64% use it more than fifty percent of the time (see Figure 1b). Usage of simple passwords by only 64% of students is not very impressive considering the fact that even a simple password is necessary to keep some data safe and maintain system integrity.

Figure 1a: Familiarity with Sample Passwords

Figure1b: Usage of Simple Passwords
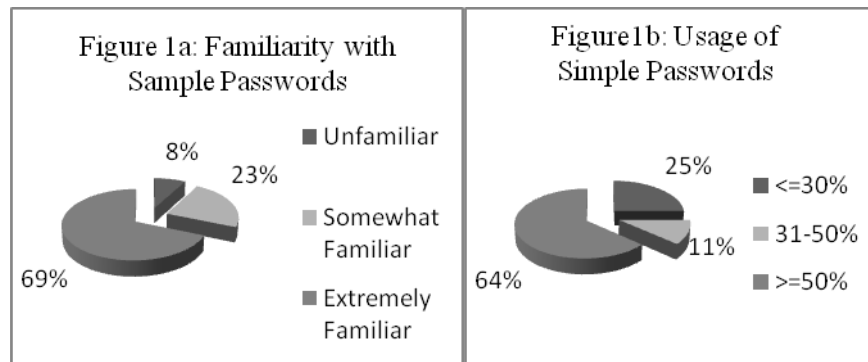
Sophisticated Passwords:

Figures 2a and 2b illustrate that 87% of respondents are unfamiliar with sophisticated passwords. To add to that, only a dismal 4% use it more than 50 percent of the time. This should raise an alarm because the non-use or application of sophisticated passwords by 96% (100%-4%) of students is a perilous contribution to the problem of system compromise.

Figure 2a: Familiarity with Sophisticated Passwords

■ Unfamiliar
■ Somewhat Familiar
■ Extremely Familiar

10% 3%
87%

Figure 2b: Usage of Sophisticated passwords

■ <=30% ■ 31-50% ■ >=50%

6% 4%
90%
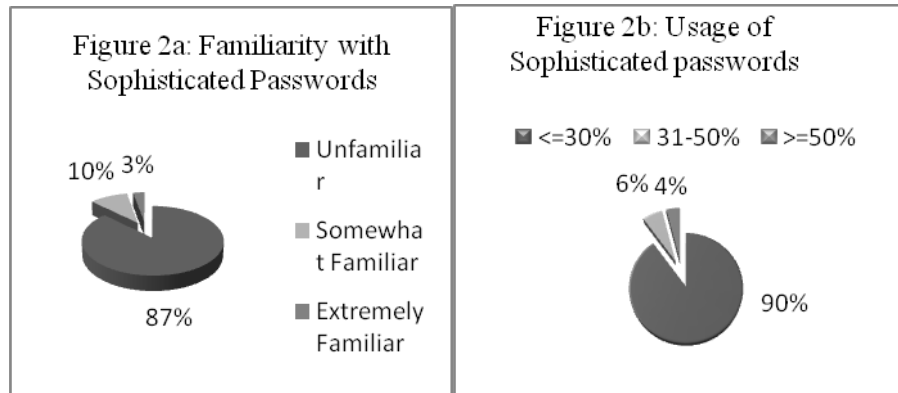
Daily Computer System Scan:

Figures 3a and 3b show that 50% of respondents are familiar with daily computer systems scan but 69% use it more than 50% of the time. Because daily computer system scan is an automatic process in contemporary computing most people may probably know that it is happening during the boot process and interpret that as using it.

Figure 3a: Familiarity with Daily Computer System Scan

■ Unfamiliar
■ Somewhat Familiar
■ Extremely Familiar

31%
19%
50%

Figure 3b: Usage of Daily Computer System Scan

■ <=30% ■ 31-50% ■ >=50%

9%
22%
69%
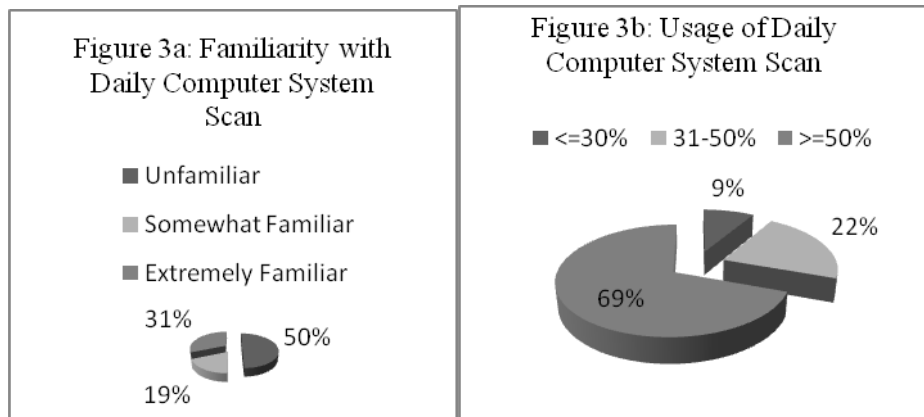
Scan of Email Attachments:

Figures 4a and 4b indicate that 75% of respondents are unfamiliar with scan of email attachments while 54% use it more than 50% of the time. Again, since email scanning is generally an automatic process respondents may consider familiarity and usage to fall in the same realm of understanding and therefore claim usage.

Figure 4a: Familiarity with Scan of Email Attachments

Figure 4b: Usage of Scan of Email Attachments
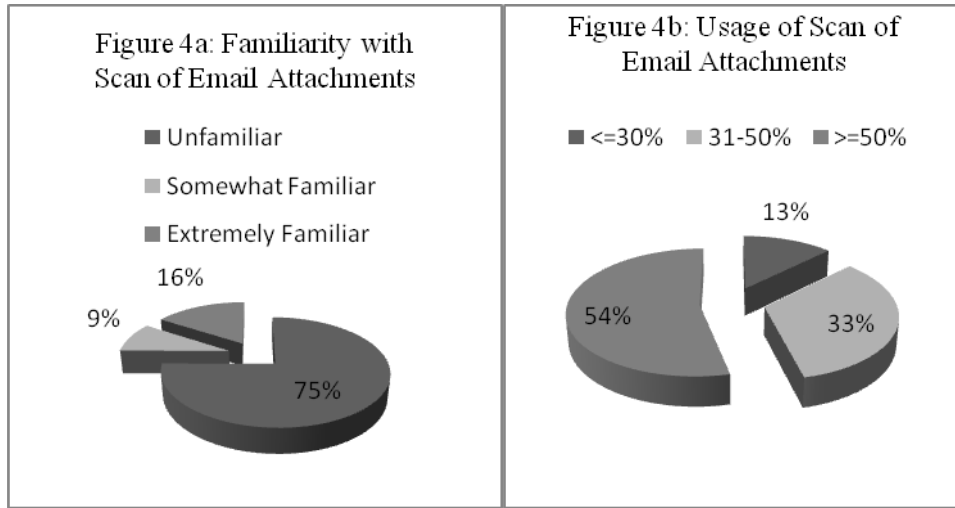
Anti-virus software:

Figures 5a and 5b indicate that 56% of respondents are unfamiliar with anti-virus software but only 15% use it more than 50% of the time. Most computer systems today have preinstalled anti-virus software or have an online access to one and therefore usage may be automatic. The data that indicates that only 15% use it more than 50% of the time may be a reflection of those who do not have an online access to anti-virus software and therefore have to purchase and install their own copy.

Figure 5a: Familiarity with Anti-virus Software

Figure 5b: Usage of Anti-virus Software
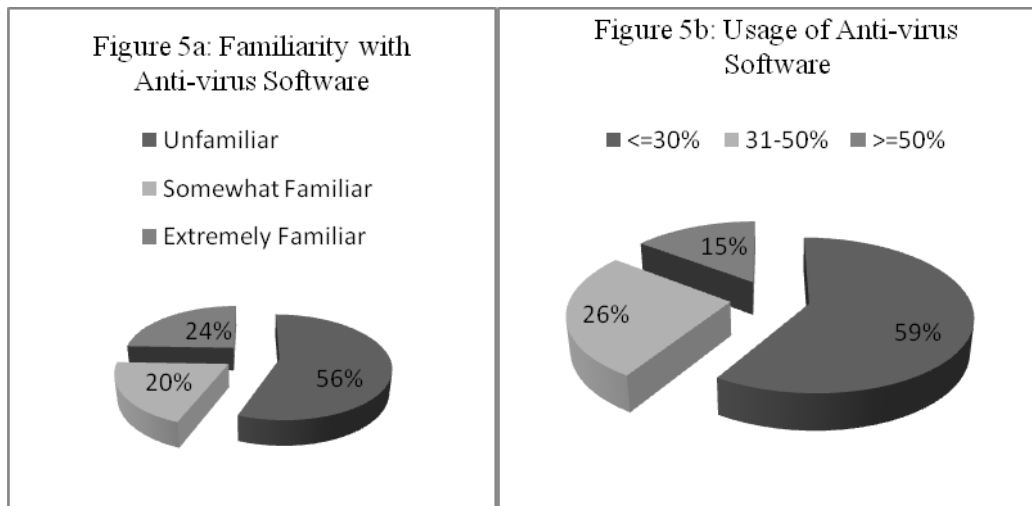
Password on Email Attachments:

Figure 6a indicates that 79% of respondents are unfamiliar with creation of a password, building it into a file and attaching the file to email. Figure 6b indicates that only 3% use passwords on email attachments more than 50% of the time. A-seventy nine percent unfamiliarity with password attachment and a dismal 3% usage for more than 50% of the time are deplorable. This is a reflection of findings in previous studies (Teer, Kruck, & Kruck, 2007) and (Aytes & Connolly, 2004) that show student apathy towards computing.

Figure 6a: Familiarity with Password on Email Attachments

- Unfamiliar
- Somewhat Familiar
- Extremely Familiar

12%
9%
79%

Figure 6b: Usage of Passwords on Email Attachments

- <=30% - 31-50% - >=50%

0%
18%
82%
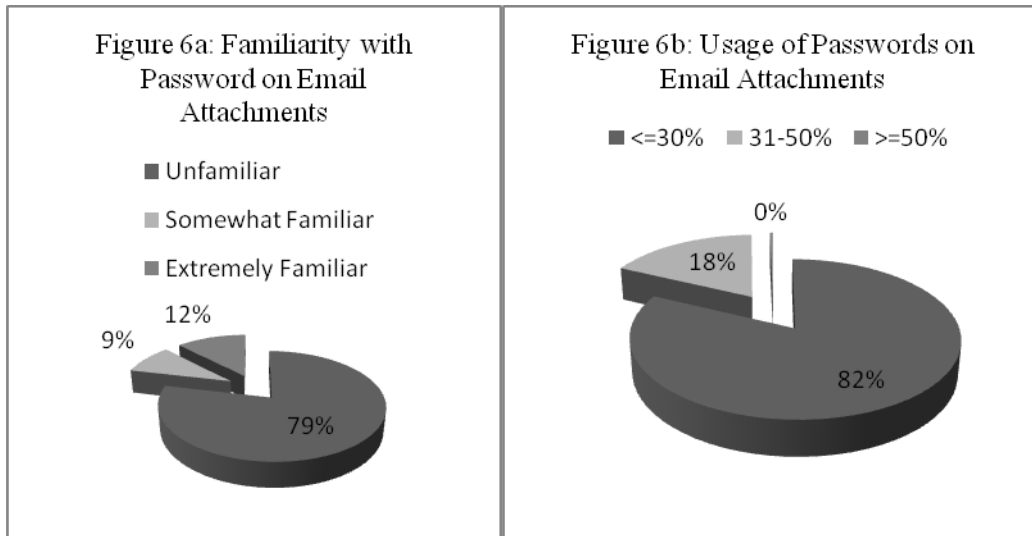
Biometric Authentication:

Figure 7a indicates that 95% of respondents are unfamiliar with biometric authentication while only 1% uses it more than 50% of the time (Figure 7b). Since biometric authentication uses the uniqueness of what humanity already has such as finger printing or retinal scanning and we do not have to make an effort to remember anything such as passwords, it is a technology that should be required to interface between all systems users and systems.

Figure 7a: Familiarity with Biometric Authentication

- Unfamiliar
- Somewhat Familiar
- Extremely Familiar

4%1%
95%

Figure 7b: Usage of Biometric Authentication

- <=30% - 31-50% - >=50%

1% 1%
98%
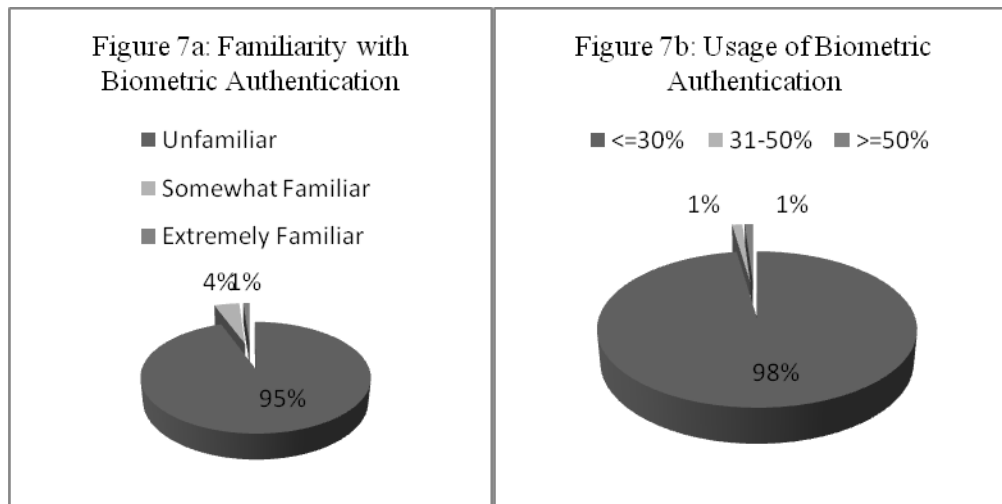
Firewalls:

Figure 8a shows that 63% of respondents are unfamiliar with firewalls while only 7% use it more than 50% of the time (Figure 8b). Firewalls filter incoming traffic before they arrive at the computer station and therefore their presence may not be apparent to the non-savvy user.

Figure 8a: Familiarity with Firewalls

- Unfamiliar
- Somewhat Familiar
- Extremely Familiar

16%
21%
63%

Figure 8b: Usage of Firewalls

- <=30% - 31-50% - >=50%

7%
15%
78%
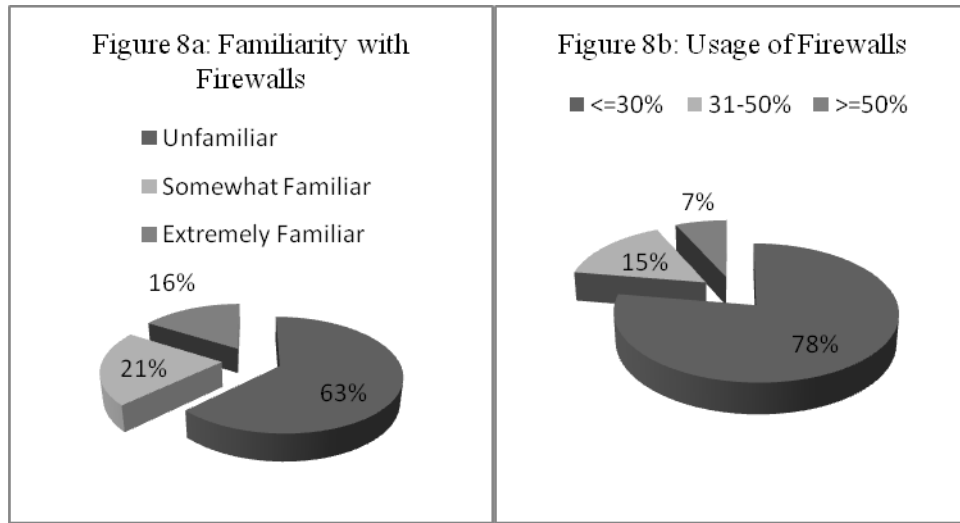
Intrusion Detection Systems:

Figure 9a shows that 45% of respondents are unfamiliar with intrusion detection systems while 5% use it more than 50% of the time.

Figure 9a: Familiarity with Intrusion Detection Sysystems

- Unfamiliar
- Somewhat Familiar
- Extremely Familiar

35%
44%
21%

Figure 9b: Usage of Intrusion Detection Systems

- <=30% - 31-50% - >=50%

8%
4%
88%
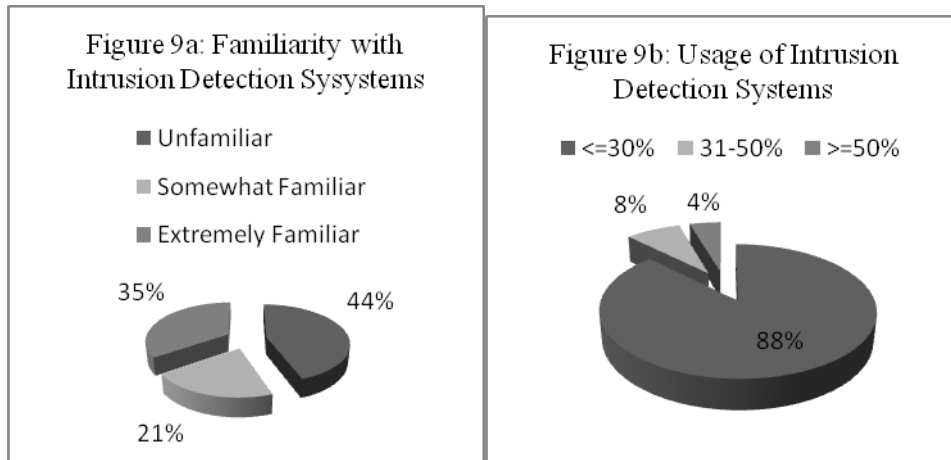
Multifaceted Authentication Systems:

Figure 10a shows that 94% of respondents are unfamiliar with multifaceted authentication systems while .7% uses it more than 50% of the time.

Figure 10a: Familiarity with Multifaceted Authentication Systems

- Unfamiliar
- Somewhat Familiarity
- Extremely Familiar

5% 1%

94%

Figure 10b: Usage of Multifaceted Authentication Systems

- <=30% - 31-50% - >=50%

1% 1%

98%
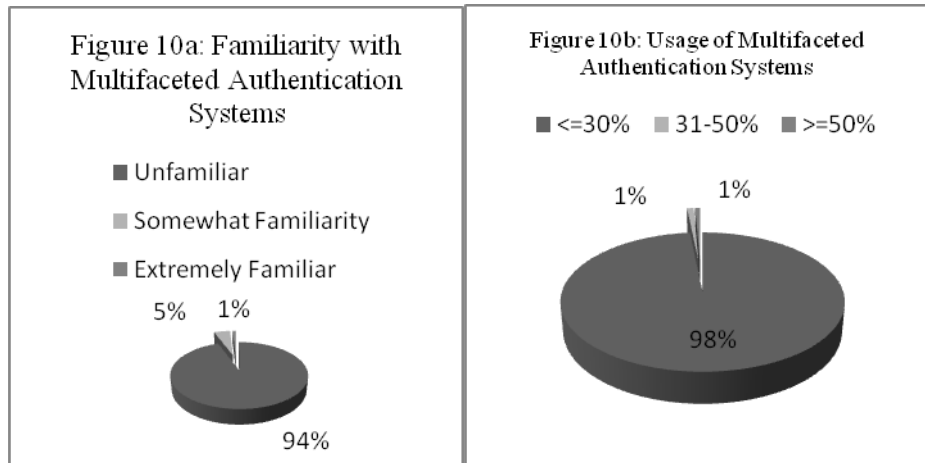
HYPOTHESES TESTED FOR THIS STUDY

Table 2 shows the null hypotheses for this study.

Table 2: Hypothesis for the Study

1.	There is no significant relationship between **familiarity with** and **usage** of simple passwords as security measure.
2.	There is no significant relationship between **familiarity with** and **usage** of sophisticated passwords as security measure.
3.	There is no significant relationship between **familiarity with** and **usage** of daily computer system scan as security measure.
4.	There is no significant relationship between **familiarity with** and **usage** of scan of email attachments as security measure.
5.	There is no significant relationship between **familiarity with** and **usage** of anti-virus software as security measure.
6.	There is no significant relationship between **familiarity with** and **usage** of passwords on email attachments as security measure
7.	There is no significant relationship between **familiarity with** and **usage** of biometric authentication as security measure.
8.	There is no significant relationship between **familiarity with** and **usage** of firewalls as security measure.
9.	There is no significant relationship between **familiarity with** and **usage** of intrusion detection systems as security measure.
10.	There is no significant relationship between **familiarity with** and **usage** of multifaceted authentication systems as security measure.

Table 3 shows the results of SPSS 15 cross tabulations and Chi-Squares of familiarity with and usage of information systems security and safety measures.

Table 3: Cross Tabulations and Chi-Squares Analyses of **Familiarity with** and **Usage** of Information Systems Security and Safety Measures

	Familiarity versus Usage	Chi-Square Value	df	Significant at .05
$H_0 1$	Simple passwords	20.506	4	.000*
H_{02}	Sophisticated passwords	12.810	4	.012*
H_{03}	Daily computer system scan	16.215	4	.003*
H_{04}	Scan of email attachments	105.283	4	.000*
H_{05}	Anti-virus software	11.749	4	.019*
$H_0 6$	Passwords on email attachments	5.832	4	.212
$H_0 7$	Biometric authentication	7.733	4	.102
$H_0 8$	Firewalls	82.948	4	.000*
$H_0 9$	Intrusion detection systems	8.900	4	.064
$H_0 10$	Multifaceted authentication systems	.852	4	.931

*Significance at $p < .05$

Hypothesis 1: Simple passwords. We did find a significant relationship between familiarity with and usage of simple passwords at the .05 level.

Hypothesis 2: Sophisticated passwords. We found a significant relationship between familiarity with and usage of sophisticated passwords at the .05 level.

Hypothesis 3: Daily computer systems scan. We found a significant relationship between familiarity with and usage of daily computer systems scan at the .05 level.

Hypothesis 4: Scan of email attachments. We found a significant relationship between familiarity with and usage of Scan of email attachments at the .05 level.

Hypothesis 5: Anti-virus software. We found a significant relationship between familiarity with and usage of anti-virus software at the .05 level.

Hypothesis 6: Passwords on email attachments. We found no significant relationship between familiarity with and usage of scan of email attachments at the .05 level.

Hypothesis 7: Biometric authentication. We found no significant relationship between familiarity with and usage of biometric authentication at the .05 level.

Hypothesis 8: Firewalls. We found a significant relationship between familiarity with and usage of Firewalls at the .05 level.

Hypothesis 9: Intrusion detection systems. We found no significant relationship between familiarity with and usage of intrusion detection systems at the .05 level.

Hypothesis 10: Multifaceted authentication systems. We found no significant relationship between familiarity with and usage of multifaceted authentication systems at the .05 level.

DISCUSSION

The discussion below will be based on the six ISSSMs that showed significant relationships between familiarity and usage at the .05 level. The other four that did not show significant relationship will not be discussed because of brevity required in this paper.

Significant ISSSM:

Regarding simple passwords, we found that a large percentage (69%) of respondents is extremely familiar with it and do actually use it in their daily access to computer systems. Sixty four percent of respondents use it more than 50% of the time. If we add the 64% of those who use it more than 50% of the time to the 11% who use it 31% to 50% of the time, it will show that more than 30% of

respondents use simple password at least 75% of the time. This indicates that being familiar with simple passwords does translate into its use. It should be noted that simple passwords do not protect malicious entry into a system as much as sophisticated passwords.

As for sophisticated passwords 87 percent of respondents are unfamiliar with it and 90% use it less than 3 % of the time. In this case, unfamiliarity with sophisticated passwords translates into non-use. This is understandable because familiarity has to precede usage.

Daily computer system scan occurs each time you turn on the computer. Even though fifty percent of respondents are unfamiliar with daily computer system scan, 69% use it more than 50% of the time. Since the process is automatic, even those who are unfamiliar with it are forced to use it.

Scanning email attachments ensures that viruses embedded in files do not infect a computer system. In most systems this is an automatic process but there are computers that require users to manually scan the system for viruses. Seventy one percent of respondents are unfamiliar with scanning systems for viruses even though 54% use the process more than 50% of the time. The high percentage of users may be due to the fact that most system scans for viruses in file attachments are automatic and require no input from users.

Anti-virus software is designed to protect computer systems from being infected by viruses. Fifty six percent of respondents are unfamiliar with anti-virus software. Only 15% use it more than 50% of the time. Here unfamiliarity of a large percentage of respondents explains the very low 15% usage. Because the anti-virus software scanning is an automatic process, several end-users may not be aware that the machine is constantly being scanned for viruses. It is occasionally that end-users will conduct a manual scan for viruses because the automatic process is obsolete.

Firewalls are either software or hardware that filters information coming into computer systems. Sixty three percent of respondents are unfamiliar with firewalls while 78% use it less than 30% of the time. Because firewalls are designed to automatically protect computer systems, most users may neither be familiar with it nor know that they use it if they are not savvy network personnel.

CONCLUSION

Based on the results from this study, we conclude that students who are familiar with the functions of simple passwords are also practical users. The predictive power of hypothesis one was p=.000, indicating a high probability that that the two factors, familiarity and usage are significantly related. Regarding sophisticated passwords, respondents who are familiar with it also use it. The results also showed a significant relationship between familiarity and usage of daily computer system scan. This indicates that respondents who are familiar with this factor also use it. Familiarity and usage are highly related in the case of scanning of email attachments thus indicating that respondents who are familiar with it also use it on a regular basis. In the case of anti-virus software, a relationship does exist between familiarity and usage thus confirming that respondents who are familiar with this factor will also use it to ensure that system integrity is not compromised. Testing familiarity with and usage

of firewalls indicated a strong relationship. This attests to the fact that respondents who are familiar with firewalls will use it to shield their systems from invasion by rogue software.

Familiarity and usage did not show a significant relationship in the cases of placing passwords on email attachments, biometric authentication, intrusion detection systems and multifaceted authentication systems. This lack of significant relationship is an indication that familiarity in these cases would not translate into usage.

FURTHER RESEARCH

Further research using the same framework might be conducted and targeted at Fortune 500 companies. It will be interesting to find the status of familiarity with and usage of ISSSM in the healthcare industry and among academics as well. This study might be replicated in the US, Canada, Europe and other African countries. The current study identified six ISSSM that lend themselves to familiarity and usage. A study should be conducted to identify the attributes that make these six ISSSM amenable to the concomitance of familiarity and usage. Appendix A shows the instrument used for this study.

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Appendix A

INFORMATION SYSTEMS SECURITY AND SAFETY MEASURES QUESTIONNAIRE
This survey is designed to obtain information about security practices regarding computer and information technology usage. Your responses will remain anonymous and you will not be identified in any way.

	SECTION I: FAMILIARITY AND CONFIDENCE WITH COMPUTER SECURITY MEASURES			
	Please circle your level of familiarity/confidence with the computer security measures below.			
1	Use of simple passwords to protect your computer data and software.	Not Familiar	Somewhat Familiar	Extremely Familiar
2	Use of sophisticated passwords to protect your computer data and software.	Not Familiar	Somewhat Familiar	Extremely Familiar
3	Daily computer system scan	Not Familiar	Somewhat Familiar	Extremely Familiar
4	Scan of email attachments	Not Familiar	Somewhat Familiar	Extremely Familiar
5	Functions and usage of anti-virus software	Not Familiar	Somewhat Familiar	Extremely Familiar
6	Placements of passwords on email attachments before sending.	Not Familiar	Somewhat Familiar	Extremely Familiar
7	Functions of biometric authentication as a security measure	Not Familiar	Somewhat Familiar	Extremely Familiar
8	Functions of firewalls as security measures	Not Familiar	Somewhat Familiar	Extremely Familiar
9	Functions of intrusion detection systems as security measures	Not Familiar	Somewhat Familiar	Extremely Familiar
10	Functions of multifaceted authentication systems	Not Familiar	Somewhat Familiar	Extremely Familiar
	SECTION II REGULARITY OF USAGE AND PRACTICE OF SECURITY MEASURES			
	Indicate on average the percentage of times you use or practice the following measures when computing.			
11	Use of simple passwords to protect your computer data and software.	<=30%	31-50%	>50%
12	Use of sophisticated passwords to protect your computer data and software.	<=30%	31-50%	>50%
13	Daily computer system scan	<=30%	31-50%	>50%
14	Scan of email attachments	<=30%	31-50%	>50%
15	Functions and usage of anti-virus software	<=30%	31-50%	>50%
16	Placements of passwords on email attachments before sending.	<=30%	31-50%	>50%
17	Functions of biometric authentication as a security measure	<=30%	31-50%	>50%
18	Functions of firewalls as security measures	<=30%	31-50%	>50%
19	Functions of intrusion detection systems as security measures	<=30%	31-50%	>50%
20	Functions of multifaceted authentication systems	<=30%	31-50%	>50%
	SECTION III DEMOGRAPHICS			
21	Please circle your gender.	Female	Male	
22	Please circle your classification	Undergrad	Graduate	
23	Please circle what you are studying or studied in university	Arts/Sciences	Business	Engineering	Other
24	Please rate your knowledge and experience with computers	Expert	Very good	Good	Poor
	Thanks for participating in this survey. Please write any comments here: _____			

THE INTRANET: A KNOWLEDGE CATALYST WITHIN A COMPANY'S E-BUSINESS STRATEGY

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ABSTRACT

This paper provides an overview of one the fastest growing segments of the Web environment – the Intranet. Discussions include what an Intranet is (definition), its uses and benefits (both general and specific), its challenges and critical issues (both organizational and technical), as well as future trends (both short-term and mid- to long-term). In addition, throughout this paper the position the Intranet has as a knowledge catalyst and the vital role it plays as part of a company's overall e-Business strategy is highlighted.

INTRODUCTION

An Intranet can be understood as "a private version of the Internet", or as an internal Internet confined to an organization, as the definition offered by Webopedia [2007] – one the major online encyclopedias dedicated to computer technology – indicates:

> *"A network based on TCP/IP protocols (an Internet) belonging to an organization, usually a corporation, accessible only by the organization's members, employees, or others with authorization. An Intranet's Web sites look and act just like any other Web sites, but the firewall surrounding an intranet fends off unauthorized access."*

The same concepts and technologies of the Internet, such as clients and servers, are used to build an Intranet. HTTP (HyperText Transfer Protocol) and other Internet protocols, especially FTP (File Transfer Protocol) and SMTP (Simple Mail Transfer Protocol), which is often used for email, are commonly utilized as well.

The Intranet is an e-Business element and, therefore, part of a company's e-Business strategy, as shown in Figure 1.

Figure 1
E-business Elements
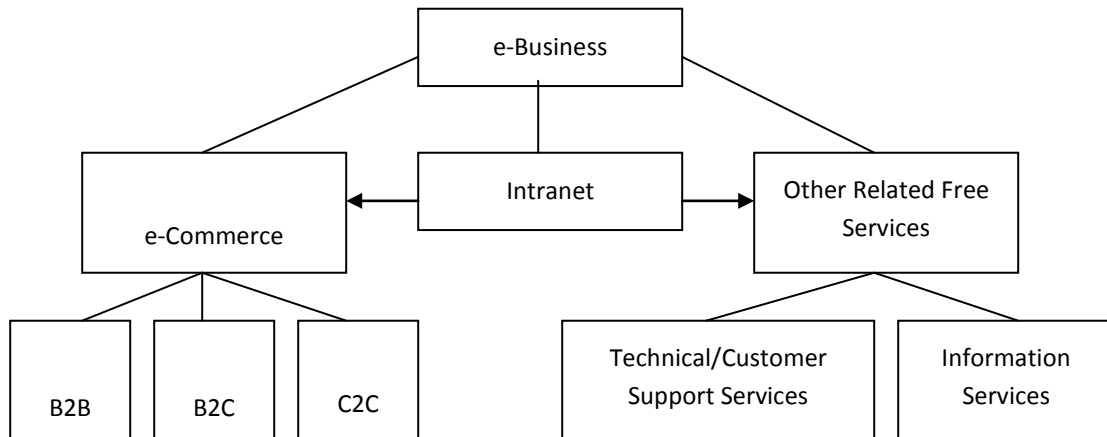
The Intranet contributes greatly to the enhancement of the business process. This is evident when one considers the existence of so many company-specific knowledge bases within the Intranet environment. As shown in Figure 1, the Intranet cannot be categorized as a customer support or information service per se, since it is not directly geared towards the customer. However, it not only affects the components of the other services element indirectly as an information generator for the information services but also likewise supports customer support services, including technical aspects.

In addition, for the same reasons as the Intranet affects the other free service element, it also affects the e-Commerce element of e-Business. The same knowledge bases and information exchanges among employees can be and are used to improve product quality, promotional effectiveness, price considerations, and other business areas dealing with the purchase and sale of products (these and other benefits are discussed in detail in the following section). Therefore, Intranets should be considered an independent element of e-Business, affecting the other two elements.

THE USES AND BENEFITS OF INTRANETS IN E-BUSINESS STRATEGIES

Intranets are more and more being used to deliver various tools and applications, which are discussed in this section. In addition, the many benefits derived from as well as the various challenges and issues concerning Intranets are also presented.

Uses

A multitude of applications and tools are being delivered via Intranets to organization's employees, managers, and owners. To develop at a fairly complete list, three groups of people must be considered: 1) the users (those who want to get information), 2) the information providers (those inside the organization that have information of interest to others), and 3) the developers (those in

charge of the technical aspect of delivering the tools and application with an Intranet platform). Considering these three groups, the following is a list of applications and tools categories [cio.com, 2007A].

- User Tools. User tools are a collection of tools a user will utilize on the Intranet.
- Discovery Tools. These tools help users find the information they are looking for, e.g., Web page navigation aids, index of internal servers, directories, and search engines.
- Support Systems. This collection of tools assists users in finding solutions to problems that arise while using the Intranet. Such user toolkits include online FAQs (Frequently Asked Questions), access to problem reporting systems, help pages, and online training manuals.
- Web Toolbox for Developers and Publishers. This collection of tools (such as the Adobe Flash Player and Shockwave, sound and video players, scripts, tracking tools, converters, etc.) helps developers and publishers of Web sites to design and implement the most appropriate Intranet components for a company.
- Web Applications (or Gateways to Existing Applications). The applications in this group are shared over the Intranet by users and cover business areas including sales & marketing, product development, human resources, customer sales/service, and general applications (e.g., external news feeds, libraries, corporate newsletters, conferencing, catalogues, performance trackers, financial/management queries, etc.)
- Environment Managers. Environment Managers are tools that assist in managing a distributed, changing Intranet environment, including tools that link validation, user administration, document control, statistics tracking and reporting, version control, HTML validation, site viewers, and other security tools.
- Information Repositories. The Web Information Repository is a collection of shared information provided and maintained by an organization (e.g. on the external Web server) as well as on the corporate Intranet. It generally includes security, levels of access, and distribution mechanisms.
- Publishing Systems. These tools are configured, tested, packaged collections of tools that are used by an organization to create and maintain information. Tools include HTML editors, feedback forms, Java applets, search mechanisms, navigation aids, etc.)

Apparently, Intranets are being used for a variety of purposes utilizing a multitude of tools and applications. Organizations using such Intranets have experienced many substantial benefits.

Benefits

If designed, implemented, and utilized properly, Intranets have offered and will continue to offer substantial benefits to organizations [Horgan, 2007; Sheth, 2002; Wikipedia, 2007]. These benefits contribute greatly to the overall success of an organization's e-Business strategy. These benefits cover five general areas, including workforce productivity, time, communication, Web publishing, and business operations and management.

1. Workforce Productivity: Intranets assist employees in finding and viewing information and applications that are important to their roles and supportive to their responsibilities. The data that organizations want to make available to their employees are stored in databases (knowledge bases) that can be accessed by any user (employee) via a simple-to-use web

browser interface. This can be done anytime, anywhere, if proper security measures are in effect. Employees are, therefore, empowered to do their job more efficiently and more effectively, knowing they are working off the right information.

2. <u>Time:</u> With Intranets, employees are enabled to access relevant information when they need it. That means, that organizations can make more information available (in knowledge bases), which can then be "pulled" by the employees rather than organization "bombarding" the employees with information that might not even be relevant for the employee's task at hand.

3. <u>Communication:</u> Intranets serve as data generators and distributors, and therefore are powerful tools for horizontal and vertical communication within an organization.

4. <u>Web Publishing:</u> Web publishing, using mostly hypermedia and Web technologies, allows corporate knowledge, such as company policies, employee manuals, business standards, benefit documents, newsfeeds, and training, to be easily maintained and accessed. Such knowledge is made available with the use of common Internet standards, including Flash and Acrobat files, as well as CGI applications. Due to the fact that each Business unit can revise and update any document in these knowledge bases, the most recent versions are always available.

5. <u>Business Operations and Management:</u> Intranets are also being used as a platform for developing and deploying applications to support business operations and improve decisions across a networked organization.

The following lists more specific benefits realized by companies that have successfully implemented Intranets as part of their overall e-Business strategy [Horgan, 2007; Sheth, 2002; Wikipedia, 2007].

- <u>Increased competitiveness:</u>
  - Better access to competitive and internal information
  - Just-in-time access
  - Single access interface
  - Ease of publishing
  - Knowledge sharing
  - New business opportunities
- <u>Expanded Sales:</u>
  - Faster access to information needed to win bids
  - Shortened time to market
  - Linking customers with internal systems
  - Links to purchasers
  - New market opportunities
- <u>Reduced Costs:</u>
  - Automated functions save labor
  - Reduced cost of software and paper distribution
  - Faster access to information
- <u>Higher Productivity - Better Information Access:</u>
  - Single interface, platform independence
  - Ease of learning
  - External information
  - Ease of publish
  - Connection to existing data
  - Just-in-time information and training

- – Over time information access
- Higher Productivity - Better Application Access:
  - – Delivery to desktops
  - – Gateways to existing applications
  - – Cross-platform concerns reduced
  - – Browser testing reduced
  - – New possibilities
- Shortened Time to Market:
  - – Reuse of existing information
  - – Share information instantly (even globally)
  - – Share information with business partners
  - – Faster development time
- Better Customer Support:
  - – Cost savings
  - – Around the world
  - – 24 hours a day
  - – With reference material
  - – Sharing between users
  - – Access to internal experts
- Support for Collaboration:
  - – Sharing documents, work
  - – Use of conferencing, other tools
  - – Support for virtual, distributed teams
  - – Not bound by restrictions of platforms and networks

These benefits of using Intranets strongly outweigh those critical areas discussed in the following section.

CHALLENGES AND CRITICAL ISSUES OF INTRANETS

Challenges are prevalent in such issues as scale, bandwidth, security, manageability, ROI questions, skills, and making it all work together efficiently. Data needs to be integrated from different sources; access to that data needs to be provided to everybody in an organization; information needs to be presented in a format that is understandable and usable by everybody; and the Intranet's performance, availability, serviceability, and security needs to be ensured [cio.com, 2007B].

Challenging issues can best be categorized into organizational challenges and technical challenges, as discussed in the following section.

Organizational challenges

Organizational challenges deal with managerial and qualitative issues. For example, it should be determined if there is a need for a central group – a team of managers whose specific tasks are related to the implementation and running of the Internet. If yes, what should its size be, its purpose, as well as scope of responsibility? Should they be located on-site or off-site in a remote location?

Another issue revolves publishing standards – who is allowed to publish, who is responsible for published content, what are the publisher's responsibilities, and are there any standards or guidelines to be considered when publishing?

In addition, a consistent appearance (look) and feel of the various Intranet websites might be a concern to some organizations, whereas others purposely keep different part of the Intranet different, thereby pleasing the diverse needs of it users. Should the internal web (intranet) be similar (or even the same) in appearance as the external website? Is there a need to control such an issue?

A fourth challenge relates to data quality and management. The issues deal with if the data provided is the "right" (i.e. useful) information, and if it is accurate and up-to-date. Also, who is in charge of data quality?

Technical Challenges

These critical issues, as the term states, deal with the electronic and technical aspects of making an Intranet and its role in an organization's overall e-Business strategy successful.

A successful Intranet implementation and deployment, for example, depends strongly on IP (Internet Protocol) issues and other related factors. There are many dependencies in a website environment; webmasters rely heavily on system reliabilities and network experience. It should be noted that an organization has to understand that not all problems can be solved satisfactorily by a control (or Web) team. In that case outsourced troubleshooting is an option.

In addition, differences in Web development dynamics are a challenge. Development cycles become faster, tools and applications need to be continually updated and new ones made available, and traditional supports are not appropriate anymore.

Staffing is another critical issue. In such a dynamic and ever changing environment experienced, competent labor is not as easy to find as one might expect, since most skilled people do not "update themselves", i.e. learn about and be trained in the latest technical, graphics, and web & information design skills.

The continuous stream of new data leads to a huge volume of information that can easily overwhelm the developer and ultimately the user as well. The decision about which information to provide & keep and which data to neglect becomes an important issue.

And finally, the fact that the technology underlying the workings of Intranets are constantly evolving with new inventions being introduced into the marketplace on a constant and fairly quick basis. The

question arises which new technology to use and implement into the existing systems – compatibility is crucial in this regard.

As the previous sections clearly show, Intranets have contributed greatly to organizations' success. However, the implementation and development of successful Intranets needs to be done in such a way that the discussed challenges and issues are considered, addressed, and in many cases solved.

FUTURE TRENDS

Security has always been and will continue to be a focus in Intranet development. Secure Intranets have actually become the fastest-growing segment of the Internet since they can be built and managed much more cost effectively than private networks based on proprietary protocols. Industry experts have singled out a few trends that are expected to influence and shape the world of Intranet development and usage.

For example, Intranets are expected to become more pervasive, in the sense that they will be more dynamic and innovative. Users will benefit, and developers are challenged to provide more creative, innovative and dynamic Intranet applications and tools.

In the past, employees have demanded more aesthetic experiences on their Intranet. But another trend is surfacing. Employees are demanding simpler, more intuitive and more Web-like intranet experiences [Singh, 2005].

Blogs were arguably the most significant Web phenomenon since 2004; they have also been utilized in Intranet environments. In that regard, a technology to watch is Really Simple Syndication (RSS), a content format to publish information, which will enable to assist employees in publishing more effectively and efficiently than with blogging alone [Employee Benefits, 2006].

In the past, corporate email, telephony, mobile warrior applications, virtual team rooms, executive dashboards, and enterprise intranets are currently distinct tools with independent owners and budgets. As intranets integrate, however, into the organizations they serve, they are losing their independent identities, because IT departments are pushing to consolidate the interfaces, applications, and data sources. The pace of this consolidation is expected to pick up substantially, with the goal to have a single, integrated voice and data interface sometime in the future [Hook, 2006].

Intranet users can also expect to see nifty, task oriented, highly interactive Ajax based applications on your intranet fueling the next wave of user adoption. Ajax is a loose knit of programming technologies that speeds up the Web experience and brings greater interactivity to websites. Mr. Singh paints a picture of an Ajax-based Intranet application [Singh, 2005]:

"Now imagine a physical map of your office on your intranet. But also imagine that you could scroll around it, click on a graphic of a desk and get a person's name, designation and contact information right away. And imagine if by clicking on his or her name, you got a listing of all the recent e-mails sent to you by that person. Or imagine an application on your intranet that has built-in calculators that let you quickly calculate your ideal monthly 401k contributions and depict the results in a graph without requiring several pages to load. And imagine if the graph could be manipulated in real time."

It is obvious that the possibilities seem endless with Ajax and other similar technologies and tools such as Macromedia flex. Luis Suarez, Knowledge Management Specialist at IBM, states that there " … is no doubt that web content aggregation will become one of the hot players …" [Suarez, 2006]. Many developers are continuing to experiment with Ajax which is expected to result in the fact that more of this new generation of tools would actually become available for everyone to make use of it.

CONCLUSION

Looking at the recent past and the future trends discussed in the previous sections, it becomes apparent that Intranets are focusing more sharply on meeting employee needs, responding to employee demands, and finding innovative solutions to meet the evolving information sharing, knowledge management, and collaboration needs of organizations. It should be remembered, that an Intranet is only as good as how it serves its employees and its company. Each organization is unique in its need. Therefore Intranet developers would be wise in trying to understand the users better and strategize about how an Intranet can more innovatively meet the needs of the organization. By accomplishing this task organizations will realize the importance and effect of a well-designed and efficiently functioning Intranet in their overall e-Business strategy.

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PROBABILITY OF SPREADSHEET PROGRAM USAGE FOR DIFFERENT JOB TASKS IN ORGANIZATIONS —AN EMPIRICAL INVESTIGATION

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ABSTRACT

The technology acceptance model and the task-technology fit model are used as the underlying theoretical base for generating hypotheses about spreadsheet program usage for different tasks for which computers are used. Data collected from businesses in South Texas are used to test hypotheses about the probability of spreadsheet program usage for different job tasks for which computers are used by individuals working in organizations.

INTRODUCTION

Spreadsheets are one of the most widely used software programs. An important area of research in the management of information driven processes and systems in organizations centers around usage of computers in general and about use of specific computer programs for different job tasks employees perform in organizations [1,4,10]. Report of an empirical investigation of usage of spreadsheet programs for ten different job tasks is presented in this paper. The results indicate that whether an employee uses a spreadsheet program depends on the tasks they perform. The findings have implications for business students and professionals who may have to use spreadsheet programs to perform different job tasks in organizations.

Spreadsheet programs are taught in required undergraduate classes in the area of management information systems in business schools in the USA and elsewhere. I wanted to let students of business discover first hand what tasks employees perform using different software packages. As part of this broad question, I focus in this paper on the use of spreadsheet programs for different job tasks in organizations surrounding Texas A&M University-Corpus Christi where I teach. My expectation was that after being exposed to real professionals' usage of computer applications, students would be motivated to learn to apply different software tools to prepare themselves for the job market.

My second motivation was to partially replicate and extend a study [18] on personal computing acceptance factors using recent data from South Texas area. The study in [18] by Igbaria used data from New Zealand collected in the mid 1990s and analyzed the data set to test some hypotheses based

on the technology acceptance model (TAM). Testing the popular Technology Acceptance Model (TAM) based predictions is not the main focus of this paper. Analyses of only a part of the survey data are presented in this paper to focus on assessing the empirical probability of spreadsheet usage for ten different job tasks. We try to discover the relationships between ten job tasks for which employees use computers and their use of spreadsheet programs. The question we try to shed light on is: how does the probability that an employee uses Spreadsheets (e.g. Excel or Lotus 1-2-3) in a job vary depending on specific job tasks?

LITERATURE REVIEW

The technology acceptance model (TAM)

 The theory spring board for this study is the information systems theory called the technology acceptance model (TAM). TAM is an information systems theory that models how users come to accept and use a technology. TAM is an attempt to understand attitudes toward technology and predicting usage of technology [2]. The model suggests that a number of factors influence potential users' decision to use a technology presented to them. The most important predictor variables that can explain individuals' use of information technology in organizations are perceived usefulness of the technology and perceived ease of use. Perceived usefulness (PU) was defined by Fred Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance". Davis defined Perceived ease-of-use (PEOU) as "the degree to which a person believes that using a particular system would be free from effort" [7,8]. In the stream of research involving the TAM, the dependent variables that are used are intention to use a tool or a system, or actual usage of an information technology or system. To measure the dependent variable computer usage, which the TAM model attempts to explain and predict, researchers have used items such as frequency of computer use, hours of computer use per day or week, computer use for different job tasks and usage of different types of application software. While the relationships between the independent and dependent variables in the TAM have been tested in many studies, not enough attention has been paid to the nature of the relationships between computer usage for different specific job tasks and usage of specific types of application software by employees as they perform their jobs. This is where this current study attempts to make a contribution—to show how use of a specific type of application software, such as a spreadsheet software, depends on the specific job tasks that users want to perform. One value of this study is its theory driven practical orientation. It is an investigation of relationships among the items used to measure computer usage, the most prominent dependent variable in the line of research involving the TAM. The study by Igbaria et al (1997) from which the survey questionnaire items for this research were borrowed used data collected from New Zealand. The current study has additional empirical value in that it is based on data from a different country, region and time and a different phase of the evolving information age.

The task-technology fit (TTF) model

 In their Task-technology fit (TTF) theory, Goodhue and Thompson [15] theorize that IT is more likely to have a positive impact on individual performance and be used if the capabilities of the IT match the tasks that the user must perform. Goodhue and Thompson [15] developed a measure of task-technology fit that consists of 8 factors: quality, locatability, authorization, compatibility, ease of use/training, production timeliness, systems reliability, and relationship with users. The TTF model has been applied in the context of a diverse range of information systems including electronic commerce systems and combined with or used as an extension of other models related to IS outcomes

[12,13,14] such as the technology acceptance model (TAM). In light of the TTF model, arguments can be made that a specific technology or software tool is used if it fits the task that an individual is trying to do.

Computer use for different job tasks in light of TAM and TTF Model

Computer usage is a heavily researched topic in the field of management information systems. Researchers attempt to predict and explain computer usage by individuals in performing jobs in organizations and in personal lives. However, computer usage for specific job tasks can be understood in light of evolutionary biology and anthropology of human behavior related to tools. Tools are used by human beings to enhance their natural abilities to acquire things needed for survival. Computer usage by human beings to perform different job tasks can also be viewed in light of theoretical concepts such as technology adoption life cycle [5] and diffusion of innovations [21]. There are innovators, early adopters, early majority, late majority and laggards among users of new innovations. Computer programs are new innovations whose diffusion and adoption can go through similar cycles or stages. Usage of information technology can be better explained when constructs from the technology acceptance model are combined with constructs from the task-technology (TTF) model [9,23,25,26,27,28]. In the TAM, the focus is on attitudes toward using a particular information technology (IT) which users develop based on perceived usefulness and ease of use of the IT [11]. The task-technology fit model focuses on the match between user task needs and the available functionality of the IT. The specific type of IT we study here are spreadsheet software systems. In the current study, hypotheses are supported using constructs and arguments from both the TAM and the TTF model.

Software use in light of TAM and TTF Model

Software use by individuals can be understood in light of the technology acceptance model and the task-technology fit model. A software application is a tool that can be used to perform a task. Thus, a software must be useful for performing a task that an employee in an organization is required to perform. However, if a tool is too complex and difficult to use, a potential user may not be motivated to use such a tool because of its lack of user friendliness and difficulty to use. In light of the TTF model, an employee may evaluate which tool may be fit best for which ones of the many tasks that he or she will have to perform. Thus, if the task is simply to write a memo or letter without any graph or chart or table in it, a simple word processor may be the right fit for that task. On the other hand, if the memo or letter may need to contain graphs, charts or tables—a spreadsheet program may be a better fit for creating charts, graphs or tables.

Spreadsheet use

Before computers came along, spreadsheet meant a piece of paper with rows and columns for recording financial data for use in comparative analysis. Accounting worksheets are organized by rows and columns, providing a two-way system for analyzing related accounts. An organization's income statement and balance sheet used to be prepared using data collected in this format on spreadsheets. *In computer science and information systems, a spreadsheet is a*n accounting or bookkeeping program that displays data in rows and columns on a screen. However, the uses of spreadsheet have gone far beyond the profession of accounting or business—and now an ever increasing variety of professionals are using electronic spreadsheet programs to do different job tasks. An electronic spreadsheet can be used as a forecasting tool to project the impact of interest rate changes on a deposit or a loan portfolio during future time periods. Budgeting, financial planning and what if analyses are common tasks

where a spreadsheet software can be very useful. Some basic operations in a spreadsheet software include scrolling, selecting and editing cells, filling adjacent cells, copying, inserting, deleting, moving, exporting and importing data, entering and sorting data, formatting numbers and text, aligning text, using built-in functions. A spreadsheet software allows users to create simple lists, tables, apply mathematical and statistical functions [3] to data sets and visualize data sets using charts and graphs. In a spreadsheet program, any cell may contain either data or a formula that describes the value that should be inserted in that cell based on the values in other cells. When one makes a change in one cell, the program automatically recalculates the contents of all cells affected by the change. This automatic recalculation of all related cells is one of the most useful features of a spreadsheet program, making it one of the most widely used business application programs. In light of some of the constructs from the TAM and TTF model, it can be argued that a spreadsheet software will be used if it is easy to use, perceived by potential users to be useful and effective in analyzing and solving problems and if it represents a good fit between the task at hand of the potential user of the software.

Research hypotheses

Ten research hypotheses about the relationship between computer use for each of the ten tasks for which computers are used and spreadsheet use are presented in Table 1. Brief arguments to support each hypothesis are also presented in Table 1.

Table 1: Research hypotheses about relationships between 10 job tasks and spreadsheet use

Task for which computer is used	Hypothesis	Arguments to support hypotheses
Producing reports	H1: $r \geq 0$	Reports require data analysis
Letters and Memos	H2: $r \geq 0$	Letters and memos need charts, tables
Data Storage/Retrieval	H3: $r \geq 0$	Data retrieved from databases for analysis in spreadsheet
Making Decisions	H4: $r \geq 0$	Decision making requires data analysis
Analyzing Trends	H5: $r \geq 0$	Analyzing trends often require simple statistical functions found in spreadsheet programs
Planning/Forecasting	H6: $r \geq 0$	Planning/ forecasting require data analysis
Analyzing problems/ alternatives	H7: $r \geq 0$	Analysing problems and comparing alternatives require simulation, scenariio analysis
Budgeting	H8: $r \geq 0$	Budgeting is quantitative planning that require resource allocation and related computation
Controlling and Guiding Activities	H9: $r \geq 0$	Activity schedules, time sheets, performance records can be analyzed using spreadsheets
Electronic communications with others	H10: $r \geq 0$	Some electronic communications may require tables, charts and attached appendices that show computations

DESIGN AND METHODOLOGY

Students in introductory classes on computer applications for business were sent out to interview five individuals who worked in an organization. A structured questionnaire was given to each student which they used to conduct the interviews and collect data. Most of the interviewers came back with five interviews while a few came back with as few as three completed interviews. Data were collected between 2005 and 2007 from different organizations in south Texas area. The ten tasks and the eight

software types on which data were collected were collected from Igbaria et al (1997). Since the independent variables and the dependent variable were all measured at the nominal scale, resulting in categorical data, the methods of analysis chosen for the data set were conditional probability analysis and Chi-squared test of independence and correlation analysis.

To collect data about computer usage for specific job tasks, the survey participants were asked to indicate whether they used a computer to perform each of the ten tasks listed as:(1) producing report, (2) letters and memos, (3) data storage/retrieval, (4) making decisions, (5) analyzing trends, (6) planning/forecasting, (7) analyzing problems/alternatives, (8) budgeting, (9) controlling and guiding activities, (10) electronic communications with others. It is important to note that computer use is a broader concept that includes the concept of software use. Likewise, software use is a broader concept that includes use of specific category of software programs such as spreadsheet programs.

To collect information about usage of software programs, the survey participants were asked to indicate whether they used any of the following eight types of computer software listed as: (1) Spreadsheets e.g., Excel, Lotus 1-2-3, (2) Word processing e.g. MS Word, (3) Database e.g., Access, (4) Statistical analysis, (5) Electronic mail, (6) Programming languages e.g., COBOL, (7) Graphics, (8) Application packages e.g., accounting or payroll packages.

RESULTS

Results of descriptive statistics about computer usage for ten different job tasks and about usage of specific types of application software are presented in sub-sections 4.1 and 4.2, respectively. Results of conditional probability analyses are presented in sub-section 4.3. In sub-section 4.4, you can read the results of tests of significance of correlation coefficients between each of the ten job tasks for which computers are used and the dependent variable, spreadsheet use. Results of Chi-squared tests for independence of categorical variables are also presented in sub-section 4.2. Results of data analyses are discussed in light of their implications for the research hypotheses presented earlier.

Usage of computers for ten job tasks

The bar chart in Figure 1 shows the percentages of respondents who said they used computers to perform ten different job tasks.

Figure 1: Tasks for which computers are used by a sample of 383 employees

Tasks for Which Computer is Used
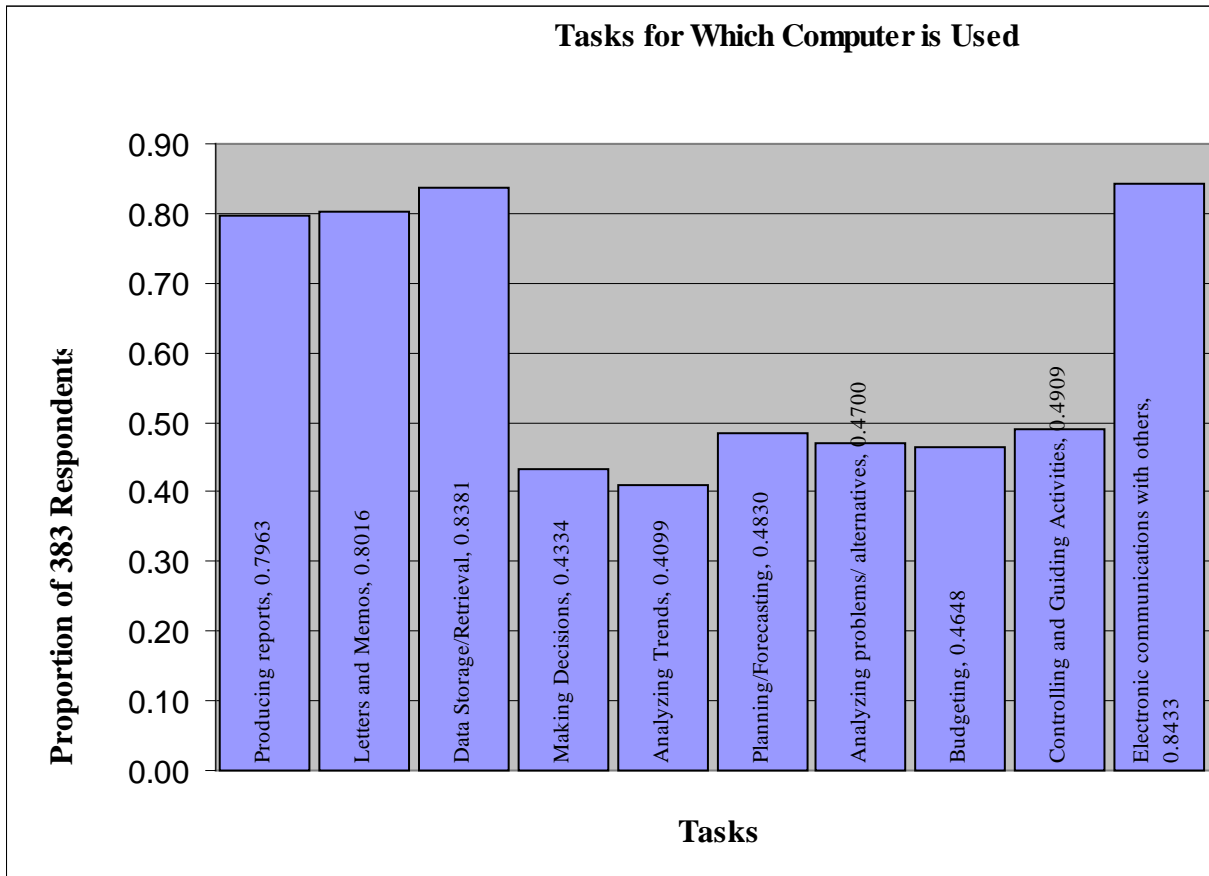
For example, Table 1 shows that 84.33% of the respondents said they used a computer to communicate with others. Communicating with others is the most frequent reason for employees to use a computer. The task for which a computer is second most frequently used is data storage and retrieval: 83.81 percent of the respondents said they used a computer to store and or retrieve data. On the lower end, the task for which a computer is least frequently used is analyzing trends: only 40.99% of the respondents use a computer to analyze trends.

Usage of eight different types of application software

The bar chart in Figure 2 shows the percentages of 383 respondents who said they used eight different types of computer software to do their job.

Figure 2: Use of eight software packages by a sample of 383 employees

Use of 8 Software Packages

Proportion of 383 Respondents (y-axis, scale 0.00 to 0.90)

Software (x-axis)

Bars:
- Spreadsheets (E.g. Excel, Lotus123 etc.), 0.8016
- WordProcessing (e.g. Word), 0.8303
- Database (e.g. Access), 0.4883
- Statistical Analysis, 0.2037
- E-mail, 0.822
- Programming Languages (e.g. COBOL), 0.0940
- Graphics, 0.331€
- Application Packages (e.g. accounting or Payroll packages), 0.4413
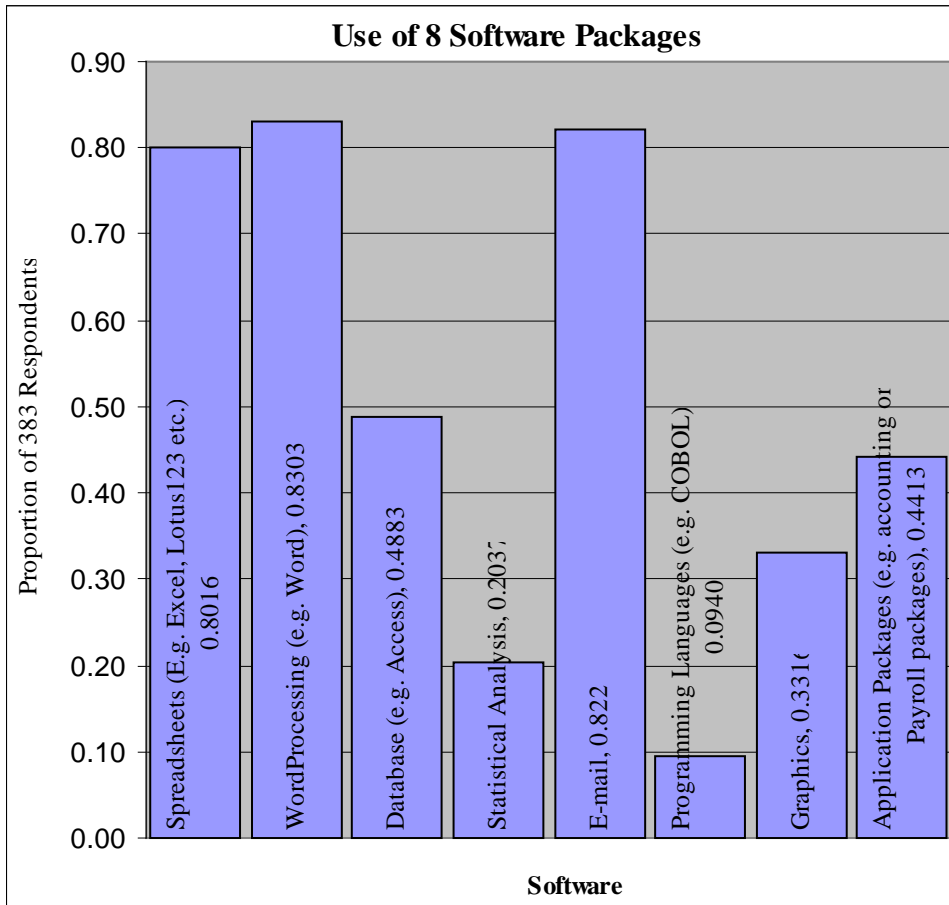
Spreadsheet use

For example, the chart shows that 80.16% of the respondents use spreadsheet programs to do their jobs. In other words, the probability that a randomly selected employee from this sample of 383 respondents will say that he or she uses a spreadsheet software to do his or her job is 0.8016. Using the complement rule of probability, about 19.84 % of the respondents do not use a spreadsheet software to do their jobs.

Analysis of dependence of spreadsheet use on computer use for job tasks

An event A is dependent on event B if probability of the event A differs depending on whether event B has occurred or not. For example, in the context of using computer for Task1, producing reports, and spreadsheet use, if P(spreadsheet use) = P(Spreadsheet use | Computer is used for Task1), then spreadsheet use and computer use for Task1 are independent events; otherwise, they are dependent events. The probability of spreadsheet use for any randomly selected employee from the sample space of 383 respondents is 307/383 = 0.8016. However, as Table 2 and Figure 3 show, the probability of spreadsheet use increases for those who use computers for a specific job task. On the contrary, the probability of spreadsheet use decreases for those who do not use computers for a specific job task. Spreadsheet use is dependent on each of the ten job tasks listed in our study for which computers are

used. We discuss how each of the ten examples of job tasks for which a computer is used by an employee, influences the probability of spreadsheet use by an employee.

Table 2: Dependence of spreadsheet software use on computer use for ten job tasks

Dependence of the event of spreadsheet use on job task performed using a computer	Task #	P when Task= No	P when Task= Yes	Difference in Probability of Spreadsheet Use
(1) Producing report	Task1	0.4545	0.8918	0.4373
(2) Letters and memos	Task2	0.3421	0.9153	0.5732
(3) Data storage/retrieval	Task3	0.4032	0.8785	0.4753
(4) Making decisions	Task4	0.7005	0.9337	0.2333
(5) Analyzing trends	Task5	0.7168	0.9236	0.2068
(6) Planning/forecasting	Task6	0.6919	0.9189	0.2270
(7) Analyzing problems/alternatives	Task7	0.6798	0.9441	0.2643
(8) Budgeting	Task8	0.7073	0.9101	0.2028
(9) Controlling and guiding activities	Task9	0.7128	0.8936	0.1808
(10) Electronic communications with others	Task10	0.5833	0.8421	0.2588

Figure 3: Differences in probability of spreadsheet use depending on computer use for ten job tasks.
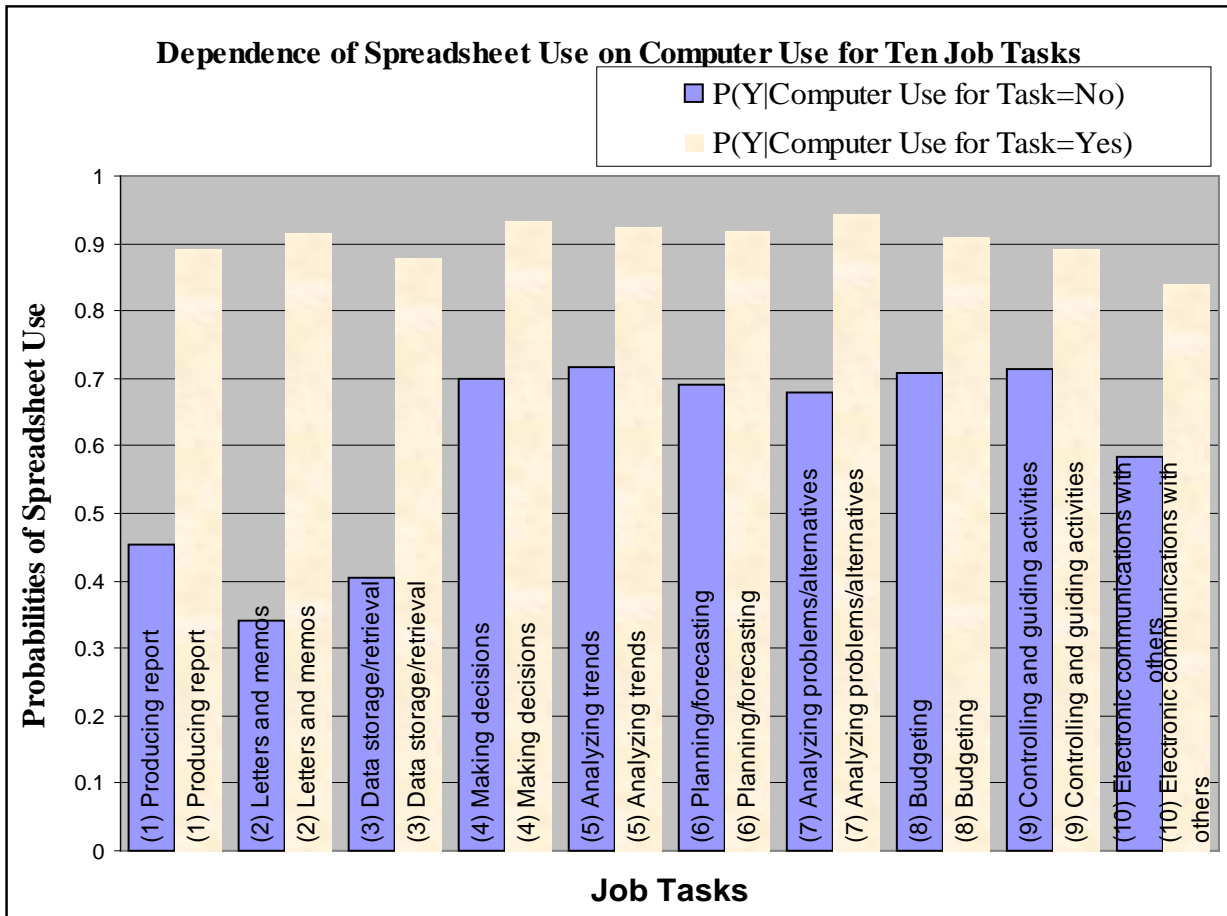
Computer use for producing reports, and spreadsheet use

For the first example, among those who use computers for producing reports, 89.18% use a spreadsheet program. Among those who do not use computers for producing reports, only 45.45% use a spreadsheet program. This 0.4373 difference in probability indicates that using computers for producing reports and using a spreadsheet program are positively related, dependent events. This is consistent with research hypothesis H1.

Computer use for letters and memos and spreadsheet use

For the second example, among those who use computers for producing letters and memos, 91.53% use a spreadsheet program. Among those who do not use computers for producing letters and memos, only 34.21% use a spreadsheet program. This 0.5732 difference in probability indicates that using computers for letters and memos and using a spreadsheet program are positively related, dependent events. This is consistent with research hypothesis H2.

Computer use for data storage/retrieval and spreadsheet use

For the third example, among those who use computers for data storage/retrieval, 87.85% use a spreadsheet program. Among those who do not use computers for data storage/retrieval, only 40.32% use a spreadsheet program. This 0.4753 difference in probability indicates that using computers for producing reports and using a spreadsheet program are positively related, dependent events. This is consistent with research hypothesis H3.

Computer use for making decisions and spreadsheet use

For the fourth example, among those who use computers for making decisions, 93.37% use a spreadsheet program. Among those who do not use computers for making decisions, only 70.05% use a spreadsheet program. This 0.2333 difference in probability indicates that using computers for making decisions and using a spreadsheet program are positively related, dependent events. This is consistent with research hypothesis H4.

Computer use for analyzing trends and spreadsheet use

For the fifth example, among those who use computers for analyzing trends, 92.36% use a spreadsheet program. Among those who do not use computers for analyzing trends, only 71.68% use a spreadsheet program. This 0.2068 difference in probability indicates that using computers for analyzing trends and using a spreadsheet program are positively related, dependent events. This is consistent with research hypothesis H5.

Computer use for planning / forecasting and spreadsheet use

For the sixth example, among those who use computers for planning/forecasting, 91.89% use a spreadsheet program. Among those who do not use computers for planning/forecasting, only 69.19% use a spreadsheet program. This 0.2270 difference in probability indicates that using computers for planning / forecasting and using a spreadsheet program are positively related, dependent events. This is consistent with research hypothesis H6.

Computer use for analyzing problems / alternatives and spreadsheet use

For the seventh example, among those who use computers for analyzing problems/alternatives, 94.41% use a spreadsheet program. Among those who do not use computers for analyzing problems/alternatives, only 67.98% use a spreadsheet program. This 0.2643 difference in probability indicates that using computers for analyzing problems/alternatives and using a spreadsheet program are positively related, dependent events. This is consistent with research hypothesis H7.

Computer use for budgeting and spreadsheet use

For the eighth example, among those who use computers for budgeting, 91.01% use a spreadsheet program. Among those who do not use computers for budgeting, only70.73% use a spreadsheet program. This 0.2028 difference in probability indicates that using computers for budgeting and using a spreadsheet program are positively related, dependent events. This is consistent with research hypothesis H8.

Computer use for controlling and guiding activities and spreadsheet use

For the ninth example, among those who use computers for controlling and guiding activities, 89.36% use a spreadsheet program. Among those who do not use computers for controlling and guiding activities, only71.28% use a spreadsheet program. This 0.1808 difference in probability indicates that using computers for controlling and guiding activities and using a spreadsheet program are positively related, dependent events. This is consistent with research hypothesis H9.

Computer use for electronic communications with others and spreadsheet use

For the tenth example, among those who use computers for electronic communications with others, 84.21% use a spreadsheet program. Among those who do not use computers for electronic communications with others, only 58.33% use a spreadsheet program. This 0.2588 difference in probability indicates that using computers for electronic communications with others and using a spreadsheet program are positively related, dependent events. This is consistent with research hypothesis H10.

Discussion on usefulness of discovering dependence relationships

The dependence relationships identified and discussed above can be used to motivate employees and students to use spreadsheet software for different job tasks for which they already use computers, as well as for those tasks for which they do not currently use computers. How spreadsheet software is appropriate for different specific job tasks can be explained to non-users of spreadsheet programs and students of management information systems. Teachers' and software trainers' explanations and arguments in favor of spreadsheet use can be supported with these empirically estimated probability relationships.

Correlation Analyses and Chi-Squared tests for independence of categorical variables

The correlation coefficients between each of the ten job tasks and spreadsheet use are presented in Table 3. The job tasks were coded as dummy variables where 1 represented one's use of computers for a specific job task and 0 to represent one's non-use of computers for that specific job task. Likewise, the dependent variable, spreadsheet use, was coded as a dummy variable where 1= I use spreadsheet software and 0= I do not use spreadsheet software. According to the hypotheses developed earlier, all ten correlation values were expected to be positive. So, a one-tailed test of hypothesis was conducted for each of the ten hypotheses to see if the estimated correlation coefficient was statistically significantly greater than zero. Table 3 shows that all ten research hypotheses are supported by the sample data with overwhelming evidence, with p-values less than 0.001. This means, there is overwhelming evidence in the sample of 383 observations to conclude that spreadsheet use is positively correlated with computer use for specific job tasks in organizations. The p-values associated with Chi-squared tests of independence also indicate that there is overwhelming evidence to conclude that spreadsheet use is dependent on computer use for specific job tasks.

Table 3: Results of tests of hypotheses using correlation coefficient r and Chi-Squared tests of dependence						
Tasks for which computers are used (X1…X10)	Y=Use Spreadsheet?	Hypothesized Correlation	Pearson's r	P-value of r (1-tailed)	Chi Squared p-value	H1..H10 Result?
Producing reports	Yes=1	Positive	0.41865	0.0000	0.0000	H1***
Letters and Memos	Yes=1	Positive	0.57320	0.0000	0.0000	H2***
Data Storage/Retrieval	Yes=1	Positive	0.43896	0.0000	0.0000	H3***
Making Decisions	Yes=1	Positive	0.28985	0.0000	0.0000	H4***
Analyzing Trends	Yes=1	Positive	0.25496	0.0000	0.0000	H5***
Planning/Forecasting	Yes=1	Positive	0.28443	0.0000	0.0000	H6***
Analyzing problems/ alternatives	Yes=1	Positive	0.25857	0.0000	0.0000	H7***
Budgeting	Yes=1	Positive	0.25361	0.0000	0.0000	H8***
Controlling and Guiding Activities	Yes=1	Positive	0.22663	0.0000	0.0000	H9***
Electronic communications	Yes=1	Positive	0.23584	0.0000	0.0000	H10***

*** Hypothesis has been supported with p-value less than .001.

DISCUSSION AND IMPLICATIONS

The overwhelming empirical support presented in favor of the ten research hypotheses has implications for theory and practices related to management of information systems and software use in general. The empirical findings have more direct implications for management of spreadsheet use by employees as they perform different job tasks in organizations. The technology acceptance model attempts to predict and explain individuals' behavioral choices concerning acceptance and use of computers, software tools and systems. If spreadsheet programs in general and specific tools ,procedures and functions in spreadsheet programs can be made easier to use and the usefulness of each of the different tools in spreadsheet programs can be explained to potential users of spreadsheet programs, more individuals will use spreadsheet programs to do tasks for which they use computers anyway. For those who do not currently use computers to perform a specific task, it might be that they have not yet been trained or educated about the usefulness, effectiveness, task-technology fit and user-friendliness of computer application programs like spreadsheet software programs. To be effective in the marketing of software tools and education and training courses [6] on software tools like spreadsheet programs, it might be helpful to find out what job tasks individuals perform in organizations or would like to perform in future jobs and then explain to them the likelihood of using computers to perform that job and then focus on how tools and procedures in spreadsheet programs can be useful [19, 20] for performing those tasks. Arguments can also be made in light of how good a task-technology fit exists between a task on hand and a software tool such as a spreadsheet program. For individuals involved in developing spreadsheet software tools and developing applications based on spreadsheet programs, it is important to incorporate into programs and applications features such as ease of use [16], usefulness [17] in light of specific tasks to be performed and a good task-technology fit.

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CHINA'S ECONOMIC REFORM: A STUDY OF ITS WTO ACCESSION AND LABOR ISSUES

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ABSTRACT

China, the world's second largest economy, is revealing itself. After the economic reforms three decades ago and its accession to the World Trade Organization (WTO) in 2001, China has enjoyed one of the highest growth rates among all the countries thanks to the export sector. However, its excessive dependency on exports also creates income gaps and lack of worker protections. China's government faces new challenges from the one-child policy and the massive rural-urban internal migration. In addition, China is losing its low labor cost advantage to other countries such as Vietnam and Bangladesh. If China does not discipline itself, recalculate its formula, and take care of its labor problem more seriously, it may soon lose its position as the world's leading manufacturer.

INTRODUCTION

After China's long-cherished desire to host the Beijing Olympics, the Chinese government finally showed their thirty year's of continuous effort of economic reforms to the world. The progress of economic reforms (including the World Trade Organization accession) led the economy to openness by taking advantage of unlimited cheap labor while introducing foreign capital and increasing the volume of exports. China's formula for growing its economy—increasing the volume of exports by using unlimited cheap labor was a clear and strong strategy. However, it is doubtful that China can maintain this formula in the next 10 years. When did China's formula start to go off track? This paper will discuss the process of opening the Chinese economy to international markets, especially economic reforms, how China's WTO accession had positive effects on the Chinese economy and negative effects that most people might overlook. It will also focus on China's tactics of excessive exports, its powerful manufacturing segment, its advantages as well as challenges to large-scale cheap labor, and the current shifting in the manufacturing industry in China.

Economic Reforms

Pre-economic Reform Period

Back in the 1950s, the Chinese government set out to create a system consciously patterned on that of the Soviet Union. Therefore, the government's first step was trying to take over all enterprises, whether public or private, with bureaucrats in China's State Planning Commission. By 1956, all industries had been socialized. "China's State Planning Commission was responsible for allocating key industrial commodities such as steel and machinery and the state rationed consumer goods ranging from basics, such as grain and cotton cloth to bicycles and the few other consumer goods," (Perkins, 1998, p.606). The state also played a very large role in capital allocation. There were no stock or bond markets and the state rigidly controlled interest rates on banks and deposits. This means that enterprises' inputs and outputs were not available on any market but only through the government's allocation system. Most Chinese people were not satisfied with the centralization of decision making, and the centralization was not accompanied by any method for coordinating inputs and outputs. Thus, the result was chaos (Perkins, 1998, p.606).

In fact, the state planning commission's plan covered more than 90 percent of all imports. The commission designed the import plan to increase the supplies of machinery and equipment, industrial raw materials, and intermediate goods that were in short supply and needed to meet physical production targets for high-priority final goods (Lardy, 2002, p.29). Since the Chinese bureaucrats established the prices of most commodities, there was little connection between profits and productivity (Bergsten, Lardy, Gill, & Mitchell, 2006, p.19). Thus, Chinese bureaucratic restrictions raised the cost of doing businesses in China and limited market opportunities for foreign companies before economic reforms.

In the Cultural Revolution period (1966-76), there were still many forces interfering with any attempt at systematic planning. China, in the industrial sphere, remained a nearly complete bureaucratic command system. It was not clear just who in the bureaucracy did much of the planning and control of enterprises, but planning and control through the bureaucracy did take place in a bureaucratic hierarchy (Perkins, 1998, p.607).

During this period, China lacked a market for labor. "In urban areas the state assigned jobs to individuals when they finished their schooling, the structure of wages was set by the state, and there was little labor turnover," (Bergsten et al. 2006, p.19). Also, strict controls on the migration of labor from the countryside into urban areas resulted in most rural labor being in low productivity farming or small rural industry. Thus, the Chinese bureaucracy prevented the Chinese economy from rapidly growing at that time.

During and After Economic Reforms

Following the death of Mao Zedong in 1976, China's leadership put revolutionary politics and class struggle aside and set out to make the nation wealthy and powerful (Perkins, 2001, p.601). This made the Chinese government recognize that economic development or economic reforms needed to become the number one priority. While economic reforms made possible an improving standard

of living for the majority of Chinese people in a particular region, they came at the cost of a number of unintended consequences later. The main goal of China's economic reforms was to make the Chinese economy more open and integrated into the world's economy. Thus, the key to success in economic reforms was to decentralize the Chinese government's allocation system and liquidate enterprises' input and output markets.

The most common perception of the nature of the problem of economic reform is that central planning or centralization led to a misallocation of both investment goods and of current inputs and outputs (Perkins, 2001, p.602). Also, it is true that the more government bureaucracies attempt to intervene in the market, the more the system slides back toward one of bureaucratic planning (Perkins, 1998, p.603). The major strides toward expanding the role of the market in both rural and urban areas had been made, but many features of central planning and bureaucratic control still remained.

Over the first two decades of economic reforms starting from the 1970s, market forces gradually displaced those non-market institutional arrangements. Market-determined prices replaced those of the planning authorities for all but a handful of goods and services. The reform of markets for goods had a very positive indirect effect on capital allocation. More efficient firms had higher profitability and were able to expand more rapidly while less efficient firms grew more slowly or even went bankrupt. In urban areas, "Individuals competed for jobs, wages were flexible, and labor turnover was considerable. Also, the state had eased rural-to-urban migration barriers, which created a more integrated labor market," (Bergsten et al. 2006, p.20).

Aggressively introducing foreign capital to urban areas also helped improve openness of the Chinese economy, leading to a marked change in market structure and more competition. From 1984 to 1993, realized foreign direct investment (FDI) in China's urban areas grew at 40.9% on average per year, with the amount increasing from $1,258 million to $27,589 million (Haishun and Dillip, 1997, p.843). This means that not only urban areas or the eastern region were more economically developed, they also had better infrastructure, such as transportation, communication, and developed financial systems. Thus, FDI had become a significant driving force for economic growth in Eastern China only. As a result of the uneven regional distribution of FDI, its contribution to total capital formation is significantly different between the eastern and the western regions (Haishun and Dillip, 1997, p.850). Therefore, the Chinese government's main focus on urban areas or the eastern region were necessary to expand the economy, but left some problems between the eastern and the western regions.

The problem was that economic reforms created income disparities between the eastern and the western regions. In 1982, income per capita in the eastern region was 1.6 times as much as income per capita in the western region. By 1993, the income per capita ratio between the eastern and western regions had increased to 2.2, which indicated that income per capita in the eastern region was 122.3% higher that that of the western region (Haishun and Dillip, 1997, p.843). The main reason was that the Chinese government mainly focused on large infrastructure in the east and built modernized systems there. This led to inequality of GDP growth rates between the eastern region and the western region. As this paper will discuss later, the inequality of GDP growth rates would

end up causing labor problems, such as wage differences, between the eastern and the western regions.

Another major factor during the reform period is the tremendous export expansion. China's merchandise exports increased to about US$10 billion in 2002, or about 5 percent of total world exports—making it the sixth largest trading nation (Yang, 2006, p.2). The economic openness, in terms of export expansion, was expected to promote economic growth in various ways. A country or region could achieve higher productivity and lower production costs by specializing in industries or products of comparative advantage. In addition, the Chinese economy could get benefits from trade because it facilitated broader access to new technology and markets, which would bring positive impacts to the economy (Sun and Dutta, 1997, p.847).

However, the different income level between the eastern and the western regions also created the different levels of openness, in terms of trade expansion. Sun and Dutta argued, "Because the share of foreign trade in GDP is much smaller in the western region than in the eastern region, the impact of exports on economic growth of the western region was not as significant as in the eastern region," (1997, p.848). Therefore, some people see that China's export expansion created the economic openness to the country, but others see that the different levels of openness in the two regions led the Chinese economy to the different economic growth and income disparities between regions. Refer to table 1 below:

Table 1

Openness of the economy in the Eastern and Western regions

Date	Eastern region			Western region		
	Exports (X)	Imports (M)	(X+M)/GDP	Exports (X)	Imports (M)	(X+M)/GDP
1984	18643	3683	0.15	793	479	0.02
1985	20081	7327	0.19	1065	608	0.03
1986	19399	7568	0.19	1445	794	0.05
1987	24348	9362	0.22	2024	968	0.06
1988	28402	13457	0.22	2554	1283	0.06
1989	31034	13822	0.21	2810	1457	0.06
1990	36997	13386	0.27	3156	1147	0.07
1991	42908	17825	0.32	3713	1165	0.07
1992	53475	24690	0.35	4520	2125	0.09
1993	68393	40001	0.36	5302	3545	0.10

Note: The sum of exports and imports as a share of GDP=[The sum of exports and imports converted into the Chinese currency (Reminbi yuan)/GDP].
The exchange rates used are annual official exchange rates. The values of GDP are in current prices.
Sources: Statistical Yearbooks of 10 Eastern provinces (for data from 1984 to 1992) and of nine western provinces (for data from 1985 to 1994) and *Statistical Yearbook of China 1994* (for 1993 data).

Table 1 above shows that during the period from 1984-1993, both the eastern and the western regions made significant progress in opening their economies. On the other hand, there was a marked difference in the economic openness of the two regions. In 1993, over one-third of the total output of the eastern region was sold in international markets, compared to only 10% in the western region. Therefore, the degree of economic openness and volume of exports were related to each other.

In the period of post-economic reform, the Chinese government experienced a huge economic slowdown and decided to introduce more significant reform programs. The Chinese government was trying to seek new economic reforms to speed up the economy. One was to prepare for the integration of its domestic market into the international trading system via the WTO. From a reform perspective, the impact of China joining the WTO would be as great as, or even greater than, the one arising from the merging of planned prices and market prices ten years previously (Liu, 2001, p.4). Thus, the Chinese government's decision to enter the WTO indicated their strong intention to push enterprise reform further by opening its domestic market to foreign competitors who would bring international competition to reshape industry.

CHINA'S WTO ACCESSION

Positive Impacts

Despite increasing competition from international markets, China's WTO accession created many positive effects on its economy. Further economic expansion was the major reason for entering into the WTO, and domestic economic growth in China increased the demand for overseas markets. Pei and Shen mention that the export refunds became an important resource for industrial enterprises. With the improved structure for the export of commodities, China's ability to compete in the international markets had improved (2006, p.11). Thus, China's export expansion, accelerated by the world economic recovery of that time, led them to take the road to WTO accession which helped to improve the export environment and meet international standards.

In addition to China's benefits from export expansion, the WTO accession had an active effect on China's manufacturing industry. Manufacturing products make up the majority of exports (Pei and Shen, 2006, p.13). The manufacturing industry gained significant benefits from WTO accession because it is strongly competitive and holds a position of dominance in the domestic economy. Thus, WTO accession was fortunate for the manufacturing industry because the excessive domestic demand made it easier to grow much faster by additional access to international markets.

China's WTO accession also attracted more foreign companies and accelerated the growth of FDI while it also brought some dangerous challenges to FDI. Zhang discusses, "It is estimated that China could attract about $100 billion in FDI annually after 2007, due to an increasingly liberalized FDI climate following China's commitment to the WTO and its subsequent rapid economic growth," (2006, p.23). The reason for the further growth was that the China's WTO accession forced the Chinese government to liberalize investment practices, which affected FDI inflows and operations of foreign investment enterprises. In 2001, FDI inflows constituted over 10 percent of gross fixed capital formation; 29 percent of industrial output was produced by foreign investment

enterprises (FIEs); and half of China's exports were created by FIEs (United Nations Conference on Trade and Development 2003). Thus, WTO accession contributed to the inflows of FDI and attracted foreign investment enterprises.

Growth for China

Since its entry into the World Trade Organization (WTO) in 2002, China's foreign trade has entered a period of rapid development, with the growth maintaining a level of more than 20% for six years running in both imports and exports. According to statistics from customs, China's total imports and exports reached US$2.1738 trillion in 2007, rising 23.5% year on year, exceeding US$2 trillion for the first time, and achieving a US$1 trillion increase in three years. Of this, the export value was US$1.218 trillion, an increase of 25.7%, and 1.5 percentage points lower than the growth in the previous year. The combined trade surplus was US$262.2 billion last year, rising 47.7%, and presenting a net increase of US$84.7 billion ("China's Total Import," 2008). These enormous growth rates are results of the export boom that are created by a large portion of manufacturing goods.

The increase in exports was the essential factor in maintaining the continuous rise in industrial output value. Over the past two decades, China's share of global manufacturing, measured in terms of value added, has risen faster than that of any other country. Its exports have been posting double-digit annual growth. "Global Insight, a US economics consultancy expects China to overtake the U.S. as the world's largest manufacturer in 2020," (Harney, 2006, p.4). However, this increase is a double-edged sword for China because they became too dependent on exports. "Along with the expansion of China's foreign trade, its industry has become increasingly dependent on exports," (Wang, 2006, p.84). Refer to table 2 below:

Table 2

Development of China's Foreign Trade and Changes in Export Dependence

Year	Total import and export volume (US$ billions)	Exports (US$ billions)	Export dependence (%)	Imports (US$ billions)	Import dependence (%)	Ratio of China's exports in world exports	China's ranking in world exports
1980	38.14	18.12	6	20.02	6.6	0.91	26
1985	69.6	27.35	9	42.25	14	1.42	17
1990	115.44	62.09	16.1	53.35	13.9	1.84	15
1995	280.86	148.78	21.3	132.08	18.9	3.28	11
1999	360.63	194.93	19.7	165.7	16.7	3.51	8

Source: National Bureau of Statistics, China Statistical Yearbook (2001, 150)
As table 2 shows, China's dependence on exports reached 23.4% in 2000 and 23.0% in 2001. With the government's help to stimulate various industries, they facilitated trade growth and China's membership in the WTO would provide many domestic enterprises with opportunities in the overseas market. Thus, the continuing growth of exports in China demonstrated a successful industrial adjustment and a shift of export direction and dependency.

Negative Impacts

The reason behind the Chinese government's eagerness for entering the WTO—the culmination of years of difficult negotiations and compromises— was trying to establish further economic restructuring and institutional reform. However, the Chinese government would have to face several problems regarding its WTO accession. Shaojia warns, "The merger [between China's domestic market and the international trading system] signifies that enterprises are no longer allowed to operate in a market shielded by a wall of trade protection; rather, they are to confront market competition without trade barriers," (Shaojia, 2001, p.5). Thus, enterprises were forced to compete with foreign competitors under the international trading rule without any government trade protection.

After WTO accession, the Chinese government forced their enterprises to compete with international markets, which differentiated their products from domestic rivals. As a result, enterprises in China were forced to change their strategies—selling lower value-added products while they were protected by the government, into higher value-added strategies that were necessary to compete globally. As Shaojia points out, "China must bid up its technical upgrading efforts in order to be able to produce more high-tech textile products to fend off similar high-tech imports expected to be pouring into China after the WTO accession," (Shaojia, 2001, p.22). However, most enterprises that produced value-added products were foreign competitors' factories in China. Thus, sophisticated technology developments in Chinese enterprises have not made nearly as much progress. This forced the Chinese government to allow further introduction of foreign competitors' technology into the country by letting more FDI flow into China. Because they were not developing their own technology there will not be many research and development based companies in China, such as Sony or Honda (Nikkei Newspaper China Staff, 2008, p.1).

Another downside of the WTO accession is the increasing disparity between working classes. Through WTO accession, the Chinese government thought that introducing foreign capital to China and combining adequate and cheap labor with the investment would enable China to increase their exports. However, Yang argues that concerns over China's WTO membership are not just its prospective economic and trade-related impacts globally but also the increasing disparate distribution of welfare and the lack of workers' protections within China (Yang, 2006, p.104). This means that while China had benefited from economic reforms, which included the WTO accession, 100 million people have joined the middle class, (which meant earning at least $2,500 a year) while millions more slipped into a new underclass of displaced peasants, unemployed or underemployed factory workers, and low-level laborers whose wages could barely sustain them (Einhorn, Dawson, and Kunii, 2001, p.48-52).

Most of the poor are concentrated in certain areas. According to World Bank statistics, about 90 percent of the poor live in the rural, eastern areas in China (World Bank, 2004). This again relates to the disparity in economic growth between the eastern and western regions. Some 70-100 million poorly educated villagers were roaming the cities for job opportunities. Moreover, given that China's urban unemployment had been rising due to the ongoing reform and downsizing of state-owned enterprises, which all resulted from the WTO accession, the massive numbers of surplus laborers from the rural areas remained a big challenge to China's long-term economic stability

(Yang, 2006, p.105). Thus, China would experience income disparities between urban or the eastern region and rural or the western region. This was also true historically in the first stages of economic reforms before. As a result, the process of globalization has led to a division of the workforce into specialized high-salary workers and low-wage workers (Sassen, 1991, p.56). The Chinese government's decision to enter the WTO may have worsened the economic situation in some regards.

THE MANUFACTURING SECTOR

China achieved enormous growth rates as a result of the export boom that was created in large portion by manufacturing goods. China's excessive dependency on exports and cheap labor costs brought a lack of understanding toward domestic needs. The Chinese government thought that WTO accession could accelerate China's further economic growth by leveraging the typical formula for a world manufacturing country—cheap labor costs, and exporting to international markets. As we have seen, this resulted in domestic issues. In this section, the paper will further discuss the manufacturing sector, labor issues, the picture behind the Chinese pricing strategy, and the current shifting of manufacturing firms.

Factory of the World

China has been known as the world's factory. If you pick a toy from the shelves from anywhere, it is more likely that it is made in China. By one estimate, 70 percent of conventional toys sold in the world are from China (Harney, 2008, p.2). Many decades ago, the U.S. conceded toy manufacturing to other economies, such as South Korea, Hong Kong, and Taiwan. Now they have to compete with China. Shenkar pointed out, "U.S. toy giants such as Hasbro and Mattel remain competitive by moving production to low-cost locations while retaining design, development, and marketing skills in-house, under a powerful brand name," (2006, p.17). Toy manufacturing uses, for the most part, rudimentary technology, is not strategic, and has no national security implications. The same is true for other labor-intensive industries such as textiles that the U.S. exited, moved up market, or relied on immigrant labor to prolong its staying power.

China is no longer only about toys, however. Today, it is a major player in product lines that are still mass produced in America and Europe, such as home appliances. China-made components are used extensively by the competition. The next phase will see subcontracting of entire operations, with the foreign firms maintaining oversight, branding, and marketing. When they export back, however, these established developed country firms will face competition from a new breed of Chinese manufacturer that export under their own brand name and in some instances set up for production on U.S. soil. China is also fast becoming a player in capital-intensive lines, some of which, like flat-screen TVs, have conceivable strategic use. "Greater China now accounts for more than eighty percent of global merchandise exports, with the mainland alone responsible for more than sixty percent of the export. In 1996, this figure was less than three percent," (Shenkar, 2006, p.17). The shift toward China-based manufacturing is also underpinned by impressive advances in global supply chains. Driven by technological improvements and managerial efficiencies, the cost of logistics has been a downward trend for two decades, and in some cases is down by two-thirds from its level a decade or two ago. According to Shenkar, the savings lower the cost of importation of finished goods and of components that travel back and forth between China and the United States (2006, p.17).

In The Pie of Profit

Investment from foreign countries plays a significant role here. Chinese customs record that more than half of the exports are from foreign-invested firms. Foreign companies bring in components from elsewhere, often in Asia, and result in about 55 percent of China's exports being made with imported parts. "Often, these goods are made by contract manufacturers, companies you have never heard of that produce goods carrying customer's brand names," (Harney, 2006, p.9). China does not always add much value to a product for export, although its name goes on the label. By one estimate, the value added in China, including labor, parts and components bought in China and the profits earned by foreign-owned firms, is only one-third of the value of the output in the whole export processing sector. The manufacturer often gets the smallest slice. Depending on the product, manufacturers can make as little as a few percent or even less. Retailers or brands often take the largest piece, marking up the goods anywhere between two and ten times—or—more between the time they leave the factory and when they hit the shelves. Bruce Rockowitz, president of the trading arm of Li & Fung, which manages logistics and manufacturing in China and around the world for big international companies states that, "What I think Americans don't really understand is that a big portion of the value that is developed by manufacturing in China is not left with China. It's left with the people that manufacture the brands, the retailer, and the consumer… The profit a factory will make is very low," (Harney, 2006, p.36).

CHINA'S LABOR ISSUES

Changes in Labor Force

One reason that made the Chinese government depend on exports was largely the limitless cheap labor supply. The continual growth in the labor force input has apparently become one of the essential elements driving China's economic growth. As table 3 shows, it is obvious that the size of the employment base kept increasing from 1952 to 2001.

Table 3

*Increase of China's Labor Force and GDP Growth, 1952-2001*

Year	1952	1978	1990	1997	1999	2001
GDP (billion RMB)	67.9	362.41	1,859.84	7,446.26	8,503.28	9,593.30
Employment (10 thousands)	20,729	40,152	63,909	69,600	70,586	73,025
Urban Area	2,486	95,14	16,616	20,207	21,014	23,904
Public Sectors	1,603	9,499	13,895	13,927	-	-
Period	**1953-78**	**1979-97**	**1979-90**	**1991-98**	**1999**	**2001**
GDP Growth Rate (%)	6.1	9.8	8.8	10.8	7.1	7.3
Employment Growth Rate (%)	2.6	2.9	2.9	1.1	0.9	1.3

Source: National Bureau of Statistics, China Statistical Yearbook (1998, 1999, 2001)

The increasing availability of labor as shown in the table above is a very important for China's industrialization progress. Thus, combining labor resources with domestic and international resources would develop even further economic growth. WTO accession was a necessary step to implement China's export tactics.

Yet, China's workforce will not grow forever. During economic reforms, the Chinese government introduced the "one-child policy" in order to control the birth rate. Consequently, the aging population will come out of the workforce at a rapid pace in China. Figure 1 shows the change in China's working-age population:

Figure 1

Change in China's Working-Age Population (Aged 15-59) by Decade
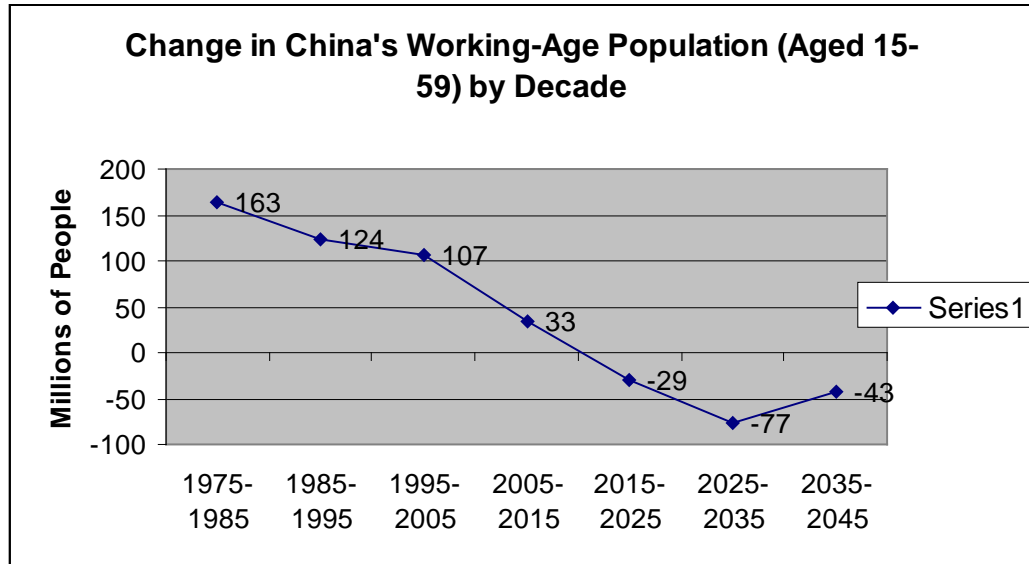
Source: United Nations Population Division, 2004 U.N Data, *World Population*

Prospects:

The 2008 Revision Population Database, http://esa.un.org/unpp, access December 3,

2008

Figure 1 above predicts that the working-age population in China will keep decreasing until 2025-2035 and then start to recover. This is because as the aging population retires, the new generation of one-child policy period will enter the workforce, causing a decrease in the number of labor force. This decline is expected to last for a period of time until 2025-2035 when the Chinese population starts to boost again.

In addition, China also faces the starkest gender imbalance in the world. According to Baculinao, the global norm for male-female sex ratio at birth is 105 boys to 100 girls. China's ratio increased to roughly 120 males for every 100 females (2004, p.1). This skewed ratio results from the one-child policy, the traditional preference for a male child, advances in sonogram technology to determine the sex of fetuses, and widespread availability of abortion in China. "Some experts believe China's growing population of single men—perhaps as many as 30 million by 2020—may threaten the country's prospects for stability," (Bergsten et al., 2006, p.49).

The Floating Population

China's advantage that overcomes any other countries over the world is their abundant population: 1.3 billion people as of 2008. Among those, 104 million are workers. Many of them are internal migrants from the Chinese countryside. Over the past two decades, China has witnessed one of history's greatest migrations. Millions of Chinese are abandoning the countryside in the poorer central and the western provinces and flocking toward urban areas in search of economic opportunity. Estimates vary, but there are between 120 million and 200 million migrants in Chinese cities today. According to the National Population and Family Planning Commission, the number of internal migrants increased from 53.5 million in 1995 to over 140 million in 2004, and will continue to grow for the near term. Migrant workers today account for about 20 percent of China's working age population (15-64 years old) (Bergsten et al., 2006, p.46).

Rural-to-urban migration is a double-edged sword for China. Migration enables surplus rural labor to find urban jobs and accumulate savings. Remittances from migrant workers are important sources of income for poorer family members who stay behind. Areas that employ migrant workers benefit from a ready supply of cheap labor, which has contributed to rapid economic growth in urban areas, particularly in the light industrial sector. However, the increased rate of urbanization in China brings challenges that include environmental pollution, health and sanitation problems, and social unrest, as migrant workers increasingly protest harsh working and living conditions. Some improvements have been made to address the situation. "…the State Council in January of 2006 passed new guidelines on the protection of rural migrant workers' rights, including timely wage payment, and provision of education to their children," (Bergsten et al., 2006, p.46).

Labor's Competence

China's education system has influenced the competence of labor but not in proportion. Since 1986, Chinese law has required nine years of mandatory education for all Chinese children. According to Ministry of Education estimates in 2004, more than 93 percent of the country has achieved the nine-year basic education. Illiteracy rates have also declined steadily; the nationwide average was approximately 10.95 percent in 2003, down from 21.7 percent in 2000 (Bergsten et al., 2006, p.50). However, these overall trends are unbalanced, and reflect disparities seen elsewhere in China where urban and coastal areas benefit far more than China's poorer, rural regions. Illiteracy tends to be more concentrated in the less-developed central and western regions. In general, rural areas are unable to attain and attract talented teachers, and poor rural localities typically charge student fees to help cover costs of books, food, uniforms, and housing. Almost all of the students who do not finish their compulsory schooling live in poor rural areas, where many families struggle to obtain sufficient funds to attend school.

The China Pricing Advantage

Over the last several years, China has redrawn the global manufacturing map and laid the foundation for the next economic superpower. Cheap Chinese goods have made shopping more affordable. By one estimate, products made in China have saved the average American family $500 a year. But such a savings is of limited consolation to those who have lost their jobs. "The China Price," it is screamed a *Business Week* headline in 2004, has become "the three scariest words in US industry," (Harney, 2006, p.2).

The term *China price* has become interchangeable with lowest price possible. The China price is part of new conventional wisdom that companies can move nearly any kind of work to China and find huge savings. It holds that any job transferred there will be done cheaper, and possibly better. Many common everyday objects, such as refrigerators, cameras, and cell phones, can have hundreds of parts produced by hundreds of companies. Bigger things, such as automobiles, commercial aircraft, and industrial robots, have thousands parts produced by hundreds of companies supplying them. By the time objects get to their end users, corporate purchasers have scoured the globe for their best parts and the best prices (Fishman, p.177, 2005).

In order to achieve the low price, China depends largely on the low-wage advantage. There is no doubt that wages in China are very low compared to wages in the United States. "On average, Chinese manufacturing workers are estimated to have earned $0.57 an hour in 2002, which translates to about 3 percent of the average hourly compensation of manufacturing employees in the U.S. and other developed countries," (Harney, 2008, p.8). Taking into account bonuses, incentive pay, and fringe benefits, total average hourly labor cost in manufacturing in urban areas in China is about $1 compared to almost $30 in the United States (Bergsten et al., 2006, p. 87). However it is not only U.S. wages that should be examined. China also has the labor cost advantage compared to many other countries around the world. The table below shows average hourly pay in manufacturing for selected countries in 2001 (employer cost, including bonuses, and all direct pay and mandated insurance).

Table 4:

Hourly Pay in Manufacturing 2002

U.S	$ 21.33
Europe	20.18
Japan	18.83
Korea	9.16
Singapore	7.27
Taiwan	5.41
Brazil	2.57
Mexico	2.35
China	0.69

Source: Bureau of Labor Statistics; China Statistical Yearbook

The magnitude of the wage gaps suggests that the currency alignment will hardly change the equation for labor-intensive industries in the industrialized world. While U.S. manufacturing productivity is five-times higher than productivity in China, the difference is not enough to compensate for a thirty-time higher wage differential. Also, the productivity gap is likely to narrow as more foreign multinationals open up shop in China and as Chinese firms invest in capital equipment and upgrade employee skills.

China's labor cost advantage extends to technology-related jobs. In 2002, the average salary for a Chinese engineer was only $8,135—a 16 percent increase from 2001, but still eight-times cheaper than the average U.S. level. The *Wall Street Journal* cited internal IBM documents showing a total hourly cost of $12.50 for a Chinese low level programmer versus $56 for a comparable U.S. employee. Shenkar argues that these figures reflect internal company accounting rather than market prices but are indicative of the companies' perceived gap, which normally would take into account differences in productivity and transaction costs (2006, p.132).

However, simply focusing on the level of wages or even total labor cost is misleading. "Wages in China are low primarily because productivity is low. The World Bank, for example calculated that the average value added per U.S. manufacturing worker in 1995-1999 was 28 times the Chinese level," (Bergsten et al., 2006, p.87-88). Since the productivity of a Chinese worker is only a small fraction of that of an American, the Chinese firm will not be able to sell the goods in question for one-thirtieth the U.S. firms' price. Moreover, wages are only one component of the overall cost of producing any good. Low wages are more likely to be a source of comparative advantage in industries where labor is a larger share of total cost (shoes and apparel) than in industries like semiconductor fabrication, in which wages are only 5 percent of production costs. China clearly does not have the advantage in those products.

Another comparison of wages in China with those in other developing countries also confirms that wages alone do not determine a nation's competitiveness. Countries in South Asia and in sub-Saharan Africa all have wages and total labor cost even lower than China. However, few firms in these countries are large exporters to the U.S. Unlike China, they failed to provide an attractive environment for foreign investment and they have not invested in the physical infrastructure necessary to support large volumes of international trade. Low wages of Chinese workers provide an advantage for Chinese firms in international trade, but not one that is insurmountable in many sectors where the U.S. maintains a competitive advantage. Bergsten et al. suggested that U.S. policy should be directed toward further enhancing the productivity advantage of U.S. workers, in order to maintain high wages rate in the U.S., rather than trying to compete with Chinese exports of labor-intensive products (2006, p.89).

The Physical Cost

The government's negligence of worker's working conditions comes at a price. More than 200 million Chinese workers in 16 million companies are exposed to dangerous working condition (Harney, 2006, p.57). As of the end of 2005, China had recorded 665,043 total cases of occupational illness; of these, 606,891, or about 90 percent were pneumoconiosis, an umbrella term for a group of debilitating lung diseases. It is also known as "black lung" which causes lung cancer in coal miners. The actual number is probably much higher. Shanghai Medical University has put the number of pneumoconiosis victim at more than one million (2006, p.57). Beijing estimates occupational illnesses and injuries cost the country more than $13 billion a year. Indirect costs could bring the total cost to twice that figure. Pneumoconiosis alone costs China $1.8 billion in direct economic losses, and an additional $79 million every year, according to the state-owned media (Harney, 2006, p.83).

China's millions of migrant workers are very vulnerable to occupational disease. Some 90 percent of the victims are believed to be migrants (2006, p.65). They tend to take the most dangerous, dirty,

exhausting jobs—those least likely to adhere to national laws for health and safety. Many lack labor contracts to formalize their relationship with their factory. The product may have been pretty, but there was nothing glamorous about the work. Based on a true story of an immigrant worker whose name is Tang, Harney describes the hardships that most Chinese workers face:

> Tang remembers nearly 12-hour days, seven-day weeks and sealed windows that held in the dusty air. In jewelry factories in the area, it was common for workers to be fined for forgetting their factory badge, or taking a day off, or washing their hands minutes before their shift finished… Tang recalls how government labor inspectors would warn her boss before they came. "They would clean everything up until it sparked," she said. The government officials would never know there was anything wrong. (Harney, 2006, p58-59)

> Migrant workers not only face hardship at work but also in living conditions. They often live in cramped, unsanitary conditions—prime breeding grounds for infectious disease. Even in relatively good factories' dormitories, many workers in Southern China's industrial cities sleep 12 in a room and share one bathroom. Housing outside the factory gates can be even worse: piles of trash in the stairwells, filthy shared kitchens, communal toilets that are rarely clean. Dirty crowded living conditions like this often lead to tuberculosis, cholera, smallpox and other disease that spread so quickly (Harney, 2006, p.65). Beside occupational illness, many workers also face injury risks due to poorly equipped working conditions. Many coal workers have lost part or all of their limbs when they get caught in the machines. Many of these workers are the breadwinners of their households so losing their abilities to work also endangers their families financially. However, due to lack of insurance, employers usually do not compensate these workers enough for them to pay for hospital, medical expense, and unemployment compensation. Most cases involving migrant workers' claims against their employers never make it to courts in China because they are too poor to afford legal representation, too poorly educated to navigate the complex legal system, too scared to challenge authority. "They are no match for their wealthier, better-connected bosses and local officials hoping to attract foreign investment by limiting labor disputes," (Harney, 2006, p.75).

Workers Left Out

Under China's official labor law, workers are entitled to social insurance benefits to cover maternity care, unemployment, occupational illness, or work-related injury. Typically, a factory manager buys a package of social welfare benefits on behalf of the employees but these benefits cost money. Unsurprisingly, to save money, some managers skip insurance entirely for some or all of their workers. "Left out of the formal health care system, living as temporary immigrants in their own country, unaware of the risk they may face and unprotected by insurance, China's migrant workers are on their own when illnesses strike," (Harney, 2006, p.69).

For two decades after China opened the door to reform, most of its workers personified the global manufacturing ideal: docile, diligent, and willing to work under almost any conditions at great length for little pay. But at the turn of the century, it is no longer the case. In the post-reform migrant workers generation, many of them are born under the one-child policy and they are better aware of the risk and rewards of their lives. These workers grew up listening to stories of dirty, dangerous factories and they are more likely to shun factories with poor conditions, more prone to protest, and more willing to sue their employers. Worker activists have helped spur the government to draft labor contract laws and to encourage the creation of branches of the national labor union. However, China still keeps a tight grip on labor activists, harassing, arresting and imprisoning those who step over the blurry line. "Many

workers still remain unaware of their entitlements under the law or too scared to do anything about violations of their rights," (Harney, 2006, p.111).

THE CURRENT SHIFTING

China remains the most attractive destination for industrial investment in the world, drawing almost $83 billion last year. However, it is choking on its success at attracting the world's factories. In a strategy that companies are calling "China plus one," multinationals- worried about soaring costs in China and becoming overly dependent on factories in one country-are increasingly establishing or expanding bases elsewhere on the continent (Bradsher, 2008, p.1). A study by Booz Allen Hamilton, a consultancy, on behalf of the American Chamber of Commerce in Shanghai, says more than half of foreign firms believe China is losing its edge over low-cost Asian countries, and 17% intend to relocate ("The Problem With," 2008).

An increasing number of companies think that China is not necessarily the best place to make things. The factors that worry companies includes inflation, rapidly rising labor costs, shortages of workers and energy, a strengthening currency, dwindling tax breaks for foreign investors, and the possibility of civil unrest. Chinese firms are facing rapid wage inflation. Regulations adopted in 2007 are making it harder for companies to avoid paying for benefits, like pensions, further increasing labor cost. That could push up the prices for exported goods to the U.S. Although this is partly offset by productivity improvements, it still means that overall unit labor costs are rising by 8% a year. China's main rival, Vietnam, also suffers from serious inflation. But their costs rise from a lower starting point. According to Bradsher, "inflation hit 25.2 percent in October 2008 in Vietnam, yet workers there still earn less than half as much as Chinese workers," (2008, p.1).

Shortage of workers and energy also create problems for Chinese manufacturing companies. "The Guangdong Labor Ministry reckons 11% of the workers did not return after the holiday [New Year]; other estimates are as high as 30%," ("Where is everyone," 2008). Many of these workers work for factories that are said to be in low-cost, low-skill areas: toys, plastics, shoes, and so on. Many are sweatshops with poor working conditions. As the new generations of worker are more aware of their worthiness as discussed earlier in the paper, worker shortage in the low-skill manufacturing area is becoming a problem. In contrast, Evans, the president of global supply chain at Hanes brands, claims, "We found more availability of both land and labor in both Vietnam and Thailand," (Bradsher, 2008, p.2).

The factory investment shifting from China to elsewhere in Asia tends to be low-skill, low wage industries as China deliberately focuses on higher-wage industries like precision machining manufacturing. In a recent trend, manufacturing plants in China owned by foreign companies are shifting some production work to low-cost countries such as Vietnam and Bangladesh, where labor costs are even lower. In a recent study, Pricewaterhouse Coopers names Vietnam the most profitable emerging market for manufacturing companies, calling it a "serious rival destination to powerhouses India and China," (Hopfner, 2008, p.1). Thus, in the dynamic constantly changing world, China is facing more and more competition from the neighboring countries.

As China experiences higher wages and inflation, Vietnam, Bangladesh, and Indonesia are the next primary targets for low-cost manufacturing labor (Blanchard, 2008, p.38). The shift will be a positive sign as production shifts to Southeast Asia neighbors, and even Africa, spreading the wealth and deepening manufacturing skills. Whereas China was once desperate to grow through exports, it is now developing its own domestic economy and thrives beyond merely producing cheap goods. This means China is becoming more competitive because they are moving upscale. The downside of these shifts are hundreds of thousands, even millions of unskilled workers in China still depend on China's low-cost factories for their livelihoods. Once lost, the competitive advantage can be hard to regain.

CONCLUSION

It seems that China's formula for reform contains many flaws and problems that the government did not anticipate when the first reform actions were taken 30 years ago. In the short run, China succeeded to be the world's second largest economy by taking advantage of its cheap and enormous pool of labor. However, in the long run, WTO accession forces China to start developing their own technologies instead of relying on technologies coming from foreign capital. The labor force is no longer the core advantage, but instead it may create more problems than benefits: gender imbalance, massive internal migration, poor working conditions, and labor rights violations. The current trend is that manufacturing companies in China are shifting to other countries. Unless China disciplines itself, recalculates its formula and solves its labor problem, the possibility of losing its position as the world's leading manufacturer is assured.

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THE TAX COLLECTOR COMES KNOCKING: AN EVALUATION OF THE STATE INCOME TAXATION OF NONRESIDENT PROFESSIONAL ATHLETES AND THE ROLE OF CONGRESS

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ABSTRACT

Most everyone knows about the two certainties in life: death and taxes; although, some Cubs fans would argue for a third with respect to their team's chances of never winning another World Series Championship. Of the three, however, it is the "certainty" of paying taxes that we seem to have the most control over (sorry Cubs fans). Or do we? The current tax structure in this country is convoluted at best and inequitable at worst. Who should pay taxes and how much one should pay are issues that have been debated for centuries in every forum from the kitchen table to the Halls of Congress. Some would suggest that citizens of this great land might as well agree to disagree over issues of taxes because no single answer can satisfy all "payers" involved. There are specific tax issues, however, that arise from time to time that are worthy of debate and should be examined more closely in order to establish or maintain a perception of equity. One such issue involves the state income taxation of nonresident athletes. The "jock tax", as it is more commonly known, is a plan implemented by most states which is designed to generate additional revenue by taxing visiting professional athletes and employees affiliated with professional sport franchises.

A BRIEF HISTORY

Prior to 1990, the only states and cities that taxed visiting team athletes were Detroit, California, Cleveland and Wisconsin. Cleveland has always imposed an earnings tax, which is withheld at the source and does not require the filing of a tax return, while Detroit has always required the filing of a tax return. While all resident team states have always taxed their nonresident players on the games played in the resident state (which is usually 50%), the aggressive taxing of nonresident visiting players did not begin until mid 1989, in the midst of the battle with the state of Wisconsin. One by one, with New York leading the way, states and localities began "to join the union" in taxing nonresident athletes, especially in light of the average baseball players salaries' increasing from

approximately $350,000 in the mid 1980's to $1,028,667 in 1992. The reason there was such a dramatic increase in player salaries is that there was extensive collusion among the Major League Baseball owners to keep the salaries low. Major League Baseball was assessed in excess of $10,000,000 in back salary damage awards by an independent arbitrator in December 1990. (Major League Baseball Players Association (MLBPA) Grievance # 86-2 (Collusion I), MLBPA Grievance # 87-3 (Collusion II), and MLBPA Grievance # 88-1 (Collusion III) Award Settlements are on file at the office of the Author, and can also be obtained from the Baseball Commissioners office or the MLBPA, all three located in New York City). While the highest paid player in the league in 2008 was paid in excess of 25 million per year, the average salary in 2008 was $2,925,679.

Alaska, Florida, Nevada, New Hampshire, South Dakota, Tennessee, Texas, Washington and Wyoming are the only states (and their localities), which do not impose a state income tax on individuals. Therefore, forty-two states are left to exercise their taxing power. Additionally, only four of the eight non-taxing states have professional sports teams. It should also be noted that Texas amended their state Constitution 6 years ago, to allow for a personal income tax, although no such legislation has been enacted as of September, 2008.

ISSUES WITH IMPLEMENTATION

The cry for intervention from U.S. Legislators is long over due in the area of nonresident state income taxation of Professional Team Athletes. Numerous states and localities continue to impose arbitrary, unconstitutional and quite burdensome taxes on high net worth individuals. The present question is "why does Congress form a Congressional Committee to study the use of steroids and other performance enhancement drugs (PED) in Baseball, but not address a major issue regarding the unconstitutional enforcement practices used by taxing jurisdictions and the need for estoppels on those matters?" It will always be more attractive for a jurisdiction to export the tax burden on nonresidents. Additionally, the nonresident jurisdictions' interests continue to increase when the cost benefits to the jurisdictions are far outweighed by the administrative burdens. This is attributable in part to the visibility of professional athletes, the relative ease with which their time in the state and their employer can be identified, and player salary levels relative to the population as a whole. Presently, athletes perform services in 28 states and the District of Columbia, and they have become the focus of state and local authorities. (See Jeffrey L. Krasney, State Income Taxation of Nonresident Professional Athletes, 47 Tax Law. 395 (1994), for a detailed discussion of the duty days and various states codes and regulations).

This research will evaluate the Federal Constitutional limitations, (as well as the lack there of), on the states' powers to tax nonresidents' income. Additionally, New York and California are believed to be the two most aggressive states in pursuing the nonresident athletes and entertainers, and both states have current landmark cases and appeals pending. The well recognized New York Yankee, Derek Jeter recently settled his case which was on appeal in New York regarding residency status for the filing of nonresident tax returns. A brief review of the facts and circumstances are discussed in a subsequent section of this treatise.

As one leading tax expert has advocated, "Congress should adopt a consistent single rule of general application to protect every individual who performs services in more than one jurisdiction." There is such a desperate need for the creation of greater conformity at the state and local levels. In this

regards, private actions by the joining forces of the professional team athletes' agents, athletes' business representatives, and the athletes' union officials, specifically MLBPA, standing up and saying to these jurisdictions, "I am mad, too, EDDIE, and I am not going to take it anymore!" These joint efforts have assisted in easing the onerous compliance and arbitrary enforcement imposed by the states on nonresident athletes. The Union officials are challenging the states by hiring legal experts to docket cases in the state and local jurisdictions and working out settlements on behalf of the players.

IMPACT ON NON-ATHLETES

Approach toward Uniformity and Compliance

In 1992, The Federation of Tax Administrators (FTA) formed a Task Force to examine various nonresident income tax issues facing the professional athlete. After a two and one half year study, the FTA made recommendations based on their evaluations with a belief that there would be strength in numbers. However, without the enactment of federal legislation, the FTA's recommendations were not enforced upon the states. The necessity of a call to arms is still outstanding and there remains no uniformity in the various jurisdictions' statures and regulations. As long as Congress applies the rational basis constitutional standard to fiscal policy, the Supremacy Clause of the United States Constitution will not trump state legislation in the area of state income taxation.

The Task Force reviewed and analyzed four options for resolving the uniformity and compliance issues involved in the taxation of nonresident athletes. The alternatives itemized below will be evaluated for any constitutional prohibitions and other potential complexities involved with the implementation of each respective alternative:

a) "Home State Apportionment", which was the primary alternative advocated by the team sports industry, would allocate all income earned by an athlete for performance of personal services to the state where the team plays its home games or otherwise maintained its primary facilities. Under this scenario, the athlete would be required to file returns in no more than two states, the home state and the athletes' state of residency, if it were different than the home state. The states where away games are played would forgo taxation of any nonresident player's income, but would then be allowed to tax all income of a player whose team plays its home games in the state. Although this approach would provide the most simplistic scheme, numerous constitutional concerns were raised which arguably violated the Commerce Clause, the Privileges and Immunities Clause, the Due Process Clause and Equal Protection;

b) Uniform Apportionment Formula to provide for a consistent approach to the division of income by all states taxing nonresident athletes. The Uniform Apportionment Formula is more commonly known as the duty day method and is the most commonly used method today. However, the arbitrary application of such duty days by the states still imposes a very onerous, tedious and complex set of rules onto the players. Greater detail to this alternative is provided in the analysis of various state cases and their respective statutes and regulations;

c) Base State Model under which the tax return filing responsibilities would be satisfied by a single filing with the state in which the team was domiciled. The state, in turn would be responsible for providing the relevant information and funds to all other states involved. This approach would be very similar to the International Fuel Tax Agreement (IFTA) for apportioning interstate motor carrier fuel use tax liability. Under IFTA, a carrier files a single tax return and any necessary payment with its "home state" or state of domicile rather than filing with each state in which it traveled. The carrier is liable for fuel tax on the basis of the proportion of miles traveled in each

state. The base state then provides payments and information to any other state in which the carrier operated. This type of Interstate Compact was made possible by imposing Federalism principles upon states and removing the constraints that the states were imposing on the carriers. This also shifted the compliance burden upon the states, instead of allowing them to proceed with their witch-hunts for nonresident taxpayers. This is the same type of legislation that the team sports industry would like to see enacted by our U.S. Congress;

d) <u>Partnership Model</u> wherein the tax return filing responsibilities would be satisfied through a composite or consolidated return filed on behalf of all eligible players. Many states permit large multi-state partnerships to file a composite return on behalf of nonresident partners. Conditions imposed on such partnership filings generally include: agreement to the filing, the income included is the only income received from the state, the highest marginal rate is applied, and no deductions, exemptions or credits unrelated to the partnership can be claimed. This alternative would shift the compliance burden onto the teams, as well as the responsibility of withholding and remitting the correct state income tax. The League officials would not endorse this method, therefore rendering this a nonviable option.

In short, the Task Force concluded their two-year investigation by making two general recommendations, but left the adoption of their proposals up to each individual state. Thus, the wars are still being fought through exhausting administrative proceedings and then on to the courtrooms the players and their representatives continue to march. The two recommendations made by the Task Force were as follows:

- States should adopt a uniform formula for apportioning the income of professional athletes. To encourage the uniformity of this endeavor, the task force developed a specific recommended formula and set forth a model regulation to implement the formula.
- States should take affirmative steps to reduce the return filing and compliance burden facing professional athletes and sports teams. The Task Force further reiterated that the adoption of simplified filing approaches would help promote voluntary compliance among professional athletes and teams.

Throughout the 1990s, many states amended their regulations and adopted the uniform formula apportionment of income recommended by the FTA Task Force. The process of the various states adoptions and amended regulations is detailed in the pages of this treatise. However, the continued uphill and decade long battles with states like Illinois, further illustrate the need for enforceable Federal Legislation. These types of experiences lend a lot of candor to "one bad apple can spoil the whole bunch," especially with the knowledge that other state and local jurisdictions will continue to follow suit of assessing state income taxes upon the nonresident athlete.

Current Authority

The need for Congressional Intervention in the area of State Taxation of Professional Team Sports can be analogous to numerous other Federal enacted Statues. In numerous instances such as the Federal Motor Carrier Act, Congress exercised its Plenary Power and Preempted State Regulations when the State Regulation was in direct conflict with Federal law, or as in this case the tax scheme impermissibly discriminated against Interstate Commerce. Numerous other violations of Constitutional Provisions will be evaluated, in an effort to provide substantiation for the thesis of this treatise. Several other Federal Statues spawned by the resulting Congressional Action when the States unduly exercised their taxing powers will also be compared to the unconstitutional actions of the states in taxing the nonresident Professional Athlete. In reviewing the listed federal and state cases one will be able to quickly conclude, regardless of the Federalism issues involved, Congressional Action is an

absolute necessity. A long awaited Federal Statute will be the only hope of bringing an end to the ongoing constitutional violations.

Federal Constitutional Issues

The following Constitutional Articles and Amendments demonstrate how the "Home State Apportionment" may be prohibited by the U. S. Constitution. Additionally, the constitutional violations by the State of Illinois pursuant to its current taxing scheme of nonresident athletes, employed by Illinois based employers, is also discussed wherever applicable.

a. U.S. CONST. art. I, § 8, cl. 3- Power of Congress to regulate commerce. **The Commerce Clause-**

- The allocation of 100% of the home state of where the athlete's team is domiciled would violate the Commerce Clause which mandates that state taxation of interstate commerce be fairly apportioned and that the tax imposed be related to services provided by the state. While the tax is applied to an activity with a substantial nexus with the taxing State, the home team state has rendered no benefits to the athlete on the away games played in other states against other teams. However, the Illinois Department of Revenue was clearly in violation of the Commerce Clause by taxing nonresident athletes' income that is not earned in their state because the athlete's business activity lacks sufficient contacts with the taxing state for games played in other states. The tax also leads to a an unfair cumulative burden, because it is not fairly apportioned as between the company's in-state and out-of-state activities, or it is unrelated to services rendered by the taxing state.

b. U.S. CONST. amend. XIV, § 1. **The Due Process Clause of the Fourteenth Amendment.** …nor shall any State deprive any person of life, liberty, or property, without due process of law.

- The Due Process Clause prohibits states from taxing income earned outside their borders under the industry proposal of "Home State Apportionment." The Due Process Clause imposes essentially three restraints on the states' power to tax income from interstate activities. The industry proposal raises no question of sufficient nexus between the taxpayer and the taxing state, since athletes will have more than sufficient contacts with their home states to justify the exercise of state taxing authority. Nor is there a problem in that there must be a minimum connection between the taxpayer's income-producing activity and the taxing state, since the athlete will be performing the same "unitary" professional sports services both within and without state. The problem, if there is one, relates to the "fair apportionment" of the income generated by the athlete's activities. With regard to athletes who are residents of their home states, the industry proposal raises no due process issue since it is well established that states possess the constitutional power to tax residents on all their personal income from whatever source derived. The critical due process question thus becomes whether the home state may tax all of the compensation that a nonresident athlete earns from his professional sports services, including income tax earned from services performed in other states. Namely, whether the benefits derived by an employee from his employer's base of operations are, as a matter of due process, sufficient to justify a tax on all of his compensation, including compensation for services performed elsewhere. The State of Illinois maintains that the nonresident athlete receives "substantial" benefits from the home state as a result of the business or employment relationship between the athlete and the home state. However, under the Due Process Clause, a state is prohibited from the taxing on an unapportioned

basis property that was taxable in other states on an apportioned basis, otherwise taxation by two or more states of the same property would be unconstitutional. Illinois began unconstitutionally taxing nonresident athletes in this manner in 1992., and continued the unconstitutional practice throughout a 12 year plus litigation process.

c. U.S. CONST. art. IV, § 2, cl. 1. **Privileges and Immunities of Citizens.** The Citizens of each State shall be entitled to all Privileges and Immunities of Citizens in the several States.

- Since there is no discrimination against nonresidents in favor of residents under the industry proposal, no privileges and immunities challenge could successfully be made to the proposal.

d. U.S. CONST. amend. XIV, § 1. **The Equal Protection Clause of the Fourteenth Amendment**. …nor deny to any person within it jurisdiction the equal protection of the laws.

- The Equal Protection Clause prohibits the states from making unreasonable classifications. The states enjoy broad leeway, however, in making classifications for tax purposes. The same standard used in evaluating other forms of state economic and commercial regulation will generally determine the validity of a state tax statute. Under modern equal protection doctrine, a state tax classification will pass constitutional muster so long as it is rationally related to a legitimate state purpose. Home state apportionment unquestionably would survive constitutional scrutiny under these standards since the separate classification of athletes is rationally related to the state's legitimate purpose in simplifying the personal income taxation of professional athletes.

e. U.S. CONST. art. I, § 8, cl. 3-What is referred to as the **"Dormant Commerce Clause or the Negative Commerce Clause** works towards banning both discrimination and undue burdening of interstate commerce will be extensively evaluated in a landmark Supreme Court case.

Federal Legislation   REVISIONS TO THIS SECTION

- Rev. Rul. 87-38, 1987-1 C.B. 176 states that income is apportioned according to the ratio of the number of days spent in pre-season training camp, regular season, and the playoff game period in the United States compared to the total number of days during that period. This ruling was drafted by the Internal Revenue Service in response to rejecting the second circuit's holding in Stemkowski that rejected the tax court's conclusion that only regular season days should be included in the apportionment formula. The Internal Revenue Service states that duty days include "all days on which the player's team practices, travels or plays, beginning with the first day of the club's training sessions and extending through the team's last game.

- Solicitation Pub. L. 86-272, Tit. I §102(a), 73 Stat. 556 (Sept. 14, 1959), -restricting imposition of state or local taxes on income derived from interstate commerce where business activities within state consist merely of solicitation of orders. Codified as 15 U.S.C. 381, Imposition of net income tax; Codified as 15 U.S.C. 382, Assessment of income tax.

- The Soldiers and Sailors' Relief Act of 1940, Pub. L. No. 76-861, 54 Stat. 1178, allows active members of the armed services to maintain their original state residency and avoid paying individual income taxes to the states in which they are stationed. Codified as amended at 50 U.S.C. § 574 (1994).

- In addition, there are several illustrations of federal legislation preempting or regulating state taxation among common carriers:
49 U.S.C. § 11503a (1988) prohibition of discriminatory state taxation of motor carrier transportation property; The Federal **Motor Carrier Act** of 1935 (now Part II of Interstate Commerce Act, 54 Stat 919, contains nothing which directly affects the matter of state taxation. Section 302 (b) expressly ..." In general the **act** does not affect the general rules governing state

regulation of motor carriers. Test of whether tax law violates due process clause is whether it bears some fiscal relation to protection.
Legislative History of the "ICC Termination Act of 1995", 109 Stat 803, Pub. L. 104-88, (1994 and Supp.)-with specific prohibited taxation of U.S. employees and instruments
Sec. 14505. State tax. This section prohibits a State or political subdivision of a State from levying a tax on bus tickets for interstate travel. This reverses a recent Supreme Court decision permitting States to do so and conforms taxation of bus tickets to that of airline tickets.
SEC. 11501. TAX DISCRIMINATION AGAINST RAIL TRANSPORTATION PROPERTY.
House provision - This provision (11301) replaces without substantive change former section 11503, which forbids discriminatory State taxation of rail property as an unreasonable burden on interstate commerce.
SEC. 11502. WITHHOLDING STATE AND LOCAL INCOME TAX BY RAIL CARRIERS.
This section (11302) preserves without substantive change the existing protections in former section 11504 against double State or local taxation of the income of railroad employees whose work locations cover more than one State.

- 138 CONG. REC. S3422 (daily ed. Mar. 12, 1992) (Statement of Sen. Harry Reid)(D-Nev.). he submitted amendment number 1719, barring states from taxing nonresidents' pension income; also in the same record is part of the Amtrak reauthorization, the 101st Congress prohibited states from taxing railroad workers and truck drivers who simply passed through their borders. These actions suggest that Congress, when it finds sufficient causes, can and should take action to limit states' ability to tax nonresident income.

- The "Mobile Telecommunications Sourcing Act". 106 Pub. L. 252, 114 Stat. 626; To amend title 4 of the United **States** Code to establish sourcing requirements for **State** and local **taxation** of mobile telecommunication services. 2000 Enacted H.R. 4391; 106 Enacted H.R. 4391 Sourcing rules "(a) Treatment of Charges for Mobile Telecommunications Services.--Notwithstanding the law of any **State** or political subdivision of any **State,** mobile telecommunications services provided in a **taxing** jurisdiction to a customer, the charges for which are billed by or for the customer's home service provider, shall be deemed to be provided by the customer's home service provider.

CONCLUSION

Professor Walter Hellerstein, who was retained by the FTA Task Force for the Home Apportionment evaluation, maintains that the implication of the Equal Protection and Privileges and Immunities Clauses can be remedied through federal legislation or a multi-state compact. With the proposal being a part of the player's team contract "states would be well advised to insist on extremely broad and explicit waiver language to protect them from constitutional challenge to the proposal should they adopt it." Other issue appears to be what could result from requiring athletes to relinquish their constitutional rights regarding the states' taxation via their contract.

The major impasses, continued burdens and complexities are all issues that require Congress to speak in a legislative uniform manner to be used by all jurisdictions.

LITIGATION RISK AND MANAGEMENT EARNINGS FORECASTS: AN EMPIRICAL ANALYSIS OF ACCOUNTING RESTATEMENTS

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ABSTRACT

I examine the association between the likelihood of management earnings forecast and accounting restatements to provide insights into the influence of litigation risk on firm's voluntary disclosure. Specifically, I investigate the likelihood of management earnings forecast during the accounting restatement period under the premise that managers, on average being aware of the aggressive accounting policies employed in this period, are less likely to provide management earnings forecasts so as to decrease litigation exposure. However, I find that firms are more likely to provide management earnings forecasts during the accounting restatement period than the pre-restatement period. The results suggest that the benefit of providing management earnings forecasts may dominate the increased cost of litigation.

INTRODUCTION

I examine the likelihood of management earnings forecast during and after the accounting restatement period compared to a period prior to the accounting restatement period to provide insights into voluntary disclosures and litigation exposure. If on average managers are aware of the aggressive accounting policies during the accounting restatement period, then I hypothesize that managers are likely to provide less earnings forecasts to mitigate the litigation risk. However, I find that firms are more likely to provide management earnings forecasts during the accounting restatement period than the pre-restatement period.

There are extensive studies that investigate the association between the likelihood of voluntary disclosure and litigation exposure (see Lev, 1992; Skinner, 1994 and 1997; Francis et al., 1994). However, as Healy and Palepu (2001) highlight in their survey of the voluntary disclosure literature, there has been the mixed evidence on the relation between voluntary disclosure and litigation risk. Field et al. (2005) try to reconcile the mixed results by considering the endogenous nature between disclosure policy and litigation and find that voluntary disclosures at least do not trigger litigation. However, Brown et al. (2005) find that litigation risks are positively associated with the likelihood of issuing a forecast for both good and bad news firms and conclude that litigation risks are unlikely to explain the observed preponderance of bad news forecasts when they examine the influence of ex ante risk of class action securities litigation on firms' decision to issue management earnings forecasts.

Such mixed evidence on the relation between voluntary disclosure and the likelihood of lawsuits incurred due to earnings disappointments motivates the examination of voluntary disclosure in the context of accounting restatements. In class action lawsuits, plaintiffs allege that they bought the stock at prices that were inflated due to the managers' misrepresentation during the class action period. Many of these lawsuits also allege some form of earnings manipulation that the management was aware of during the class action period. The plaintiff's complaint typically establishes scienter by documenting the managers' sale of stock and provides prima facie evidence of misrepresentation by earnings manipulation. Thus, it is important for plaintiffs to have prima facie evidence of earnings manipulation to bring a lawsuit.

However, prior literature does not consider earnings manipulation to examine the relationship between management earnings forecast and litigation risks. Instead, prior studies assume that managers have private information on "all" ensuing earnings disappointments and that they would make preemptive disclosures to decrease litigation exposure. But earnings disappointments themselves may not provide investors with sufficient grounds to initiate lawsuits. If the poor performance is primarily due to business risks that were unexpected by managers and that investors have to bear as owners of a firm, it is difficult for investors to bring a lawsuit against managers due to earnings disappointment.

Accounting restatements provide a context for examining the link between management earnings forecast and litigation risks under the premise that managers were aware of the aggressive accounting policies employed during the restating period. In effect, it is assumed that the aggressive accounting policy that leads to accounting restatement is due to the "poor" performance of firms with respect to investors' expectation (see Kasznik, 1999). As such, investors could bring lawsuits against restating firms where prima facie evidence exists [1].

I collect all restatement announcements from January 1, 2000 to June 30, 2004 from which I obtain data on the restating period, i.e., the period over which financial statements are restated and compare managements' earnings forecasts during the restating period with those prior to the restating period. I hypothesize that the likelihood of firms providing management earnings forecasts is lower during the restating period, if managers are aware of the aggressive accounting policies which in turn is likely to increase their litigation exposure. Furthermore, issuing management earnings forecasts could lengthen the class action period. As such, I expect firms employing aggressive accounting policies, as measured by accounting restatements, to be less likely to provide management earnings forecasts during the restating period.

Comparing the likelihood of management earnings forecasts for restating firms before, during and after the restating period, I find that while the likelihood of management earnings forecasts are similar before and after the restating period, and the likelihood of management earnings forecasts during the restating period is greater than that before the restating period [2]. This association continues to hold even after controlling for other factors that influence management earnings forecasts. Interestingly, ex ante litigation probability is also positively associated with management earnings forecast, indicating that the litigation risks may not be a deterrent for voluntary disclosures.

These findings extend the litigation based explanation of voluntary disclosures by considering opportunistic earnings management in the context of accounting restatements. The mixed evidence documented in prior research on the effects of litigation risks on firms' disclosure policies could be because not all earnings disappointments are opportunistic. The results also provide insights into opportunistic earnings guidance. Specifically, the results show that an increased litigation risk does not seem to be strong enough to deter firms' opportunistic behavior in earnings guidance game and some firms actively participate in earnings guidance game even when they manage earnings.

My results also contribute toward the growing body of accounting restatements related research. Accounting restatements are significant events for investors and regulators, as well as restating firms. Accordingly, recent studies have examined various issues pertinent to accounting restatements. However, so far, most studies look at the causes and consequences of accounting restatements, not the behavior or policies of restating firms during the restating period. My findings suggest that aggressive accounting policies may be chosen by firms, due to capital market pressures or other incentives, and that managers are willing to bear the additional risk of litigation that may result from providing management earnings forecast on managed earnings.

The paper proceeds as follows. In Section 2, I discuss motivation and hypothesis development and Section 3 describes sample. The research design and empirical analyses are discussed in Section 4 and Section 5 concludes the paper.

MOTIVATION AND HYPOTHESIS DEVELOPMENT

Motivation

Lev (1992) and Skinner (1994) suggest that preemptive disclosures of ensuing large negative earnings surprises, i.e., earnings disappointments could potentially decrease the likelihood of investors' class action lawsuits under Rule 10b-5 of the Securities Exchange Act, 1934 [3]. But the evidence between earnings related disclosures and litigation for earnings disappointments is mixed.

Skinner (1994) argues that preemptive earnings disclosures of earnings disappointments weaken the investors' claim that managers acted improperly by not disclosing bad news in a timely fashion; thereby decreasing the likelihood of a lawsuit. He finds that quarterly earnings announcements that convey large negative earnings surprises are preempted about 25% of the time by voluntary disclosures, while other earnings announcements are preceded by voluntary disclosures less than 10% of the time. He suggests that to avoid such litigation risks and reputation damage, managers provide preemptive earnings warnings. Also, Skinner (1997) argues that preemptive earnings disclosures of earnings disappointments decrease the class action period and thereby decrease the settlement amount, i.e., the direct litigation costs. Consistent with the premise that preemptive earnings disclosures may decrease litigation exposure for bad news, Kasznik and Lev (1995) and Shu (2003) find that firms that experience large negative earnings surprises provide more pre-disclosures of such information compared to firms that experience positive earnings surprises.

Francis et al. (1994) show that litigation risk does not explain managers' earnings forecast behavior. They consider firms sued by investors for alleged misrepresentations of earnings news ("litigation risk" firms) and match firms that are similar to form a control group ("at risk" firms). They find that while "at risk" firms experience greater earnings surprises (20% or greater) than "litigation risk" firms, "litigation risk" firms provide more earnings related disclosures prior to lawsuits. They conclude that the litigation explanation suggested by Skinner (1994) may not be valid. In effect, the evidence is not consistent with managers providing earnings related disclosures for bad news to mitigate the costs of litigation as suggested by Skinner (1994).

Field et al. (2005) reconcile the result of Skinner (1994) and Francis et al. (1994) by considering the endogenous nature between disclosure policy and litigation. Consistent with the findings of Skinner (1994), they find that voluntary disclosures at least do not trigger litigation. However, Brown et al. (2005) find that litigation risks are positively associated with the likelihood of issuing a forecast for both good and bad news firms and conclude that litigation risks are unlikely to explain the observed preponderance of bad news forecasts when they examine the influence of ex ante risk of class action securities litigation on firms' decision to issue management earnings forecasts.

In summary, as Healy and Palepu (2001) point out in their survey of the voluntary disclosure literature, there is the mixed evidence on the relation between voluntary disclosure and litigation risk. This mixed evidence between management earnings forecast and litigation risk motivates me to examine this relationship in the context of accounting restatements.

HYPOTHESIS DEVELOPMENT

In this section, I provide (a) a brief background on accounting restatements, (b) the reasons as to why I consider accounting restatements to examine management earnings forecasts and litigation and (c) a development of the hypothesis that links management earnings forecasts and litigation in the context of accounting restatements.

Accounting Restatements Background

Accounting restatements occur when the firm, its auditors, or the SEC determine that the firm's financial reports filed with the SEC contained "mathematical mistakes, oversight, or misuse of facts at the time the financial statements were originally prepared" (American Institute of Certified Public Accountants Professional Standards, 1998). In general, these include accounting irregularities or fraud [4]. Accounting restatements could arise for reasons such as mergers and acquisitions, stock splits, etc.: such restatements are not opportunistically driven. I focus on potentially opportunistic accounting restatements. As such, I consider restatements that include the early recognition of revenues, the fraudulent recognition of revenues, the omission of cost or expenses, and the overstatement of current and long-term assets. Typically, accounting restatements are opportunistic, involve substantial income-increasing treatments during the restating period, and are often followed by lawsuits by shareholders (see Kinney and McDaniel, 1989; DeFond and Jiambalvo, 1991; Feroz et al., 1991; DeChow et al. 1996; Turner et al., 2001; Wu, 2004; Palmrose et al., 2004). Especially, firms that overstated earnings during the restating period are more likely to be sued by investors than those that understated earnings during the restating period. Although restatements typically result in the decrease

of previously reported income (i.e., originally reported incomes were inflated), some restatements increase previously reported incomes. Since understatements are less likely to face negative market reaction and hence less likely to be subject to litigation, I also eliminate restatements that increase previously reported incomes.

The Context of Accounting Restatements in Management Earnings Forecast

As discussed in Section 2.1, the empirical evidence relating management earnings forecast and litigation is mixed. Investors' class action lawsuits under Rule 10b-5 have to show prima facie evidence that managers had knowledge of poor performance and chose to misrepresent the facts. In other words, the poor performance should not be attributable to business risks that investors have to bear as owners of a firm. Typically, in the case of accounting restatements involving overstatements of accounts receivables and inventories, the managers chose accounting assumptions and policies that have the attribute of inflating current performance, i.e., "covering-up" their poor performance. As such, investors could choose to bring lawsuits against firms where such prima facie evidence exists. To the extent that litigation exposure may not be a consideration in management earnings forecast because earnings disappointments are considered by managers as normal business risks, Skinner's preemptive disclosures may not be applicable (also see Lev, 1992). As such Francis et al.'s (1994) finding may be due to not having considered the earnings manipulation explicitly in their analysis.

Field et al. (2005) consider the simultaneous choice of disclosures and investors' lawsuits and show that for earnings disappointments, disclosures are negatively associated with the likelihood of litigation (the deterrence effect) and litigation risks are positively associated with the likelihood of disclosures (the preemption effect). Thus, Field et al. (2005) reconcile Francis et al.'s (1994) and Skinner's (1994, 1997) findings by considering the endogenous choice of litigation and voluntary disclosures. In this case as well, the failure to consider a prima facie requirement for investors' class action lawsuits may affect the conclusion.

To see how the lack of prima facie evidence on earnings manipulation could influence the results, consider the following. Francis et al. (1994) consider "at risk" firms from the bio-technology, computing, electronics and retail industry sectors with 20% or greater earnings declines. They find that only one of these "at risk" firms was sued by investors. This finding could be because a number of the "at risk" firms have earnings declines due to normal business risks (which come as a surprise even to managers): in effect, the plaintiffs may not possess the prima facie evidence of misrepresentation. As discussed earlier, if accounting restatements are by and large attributable to earnings manipulations, accounting restatements should help to consider cases where the prima facie evidence of misrepresentation exists.

Accounting Restatements and Management Earnings Forecast

The discussion above highlights the following aspects: accounting restatements are generally opportunistic and result in the overstatements of assets and income-such overstatements of income could provide prima facie evidence of management misrepresentations under Rule 10b-5. First, management earnings forecasts during restating periods provide plaintiffs (or lawyers) with more identifiable events by which plaintiffs could claim that they are misled. Thus, the probability of being sued is likely to be higher when firms provide management earnings forecasts. In addition, the class

action periods are also likely to be longer for restating firms that issued management earnings forecasts during restating periods than for restating firms that do not [5].

To reiterate, the basic premise in investors' security lawsuit under Rule 10b-5 is that managers were aware of the poor performance, i.e., had private information which they covered up by using aggressive accounting policies, consistent with the evidence on SEC's AAERs and accounting restatements (for instance see Feroz et al., 1991). Under this maintained assumption, by providing management earnings forecast, the managers could increase the class action period and thus the potential settlement amounts, as well as the likelihood of being sued by investors: this is the opposite of Skinner (1997) since I assume that managers have private information on income-increasing accounting choices. Thus, if managers consider the cost of litigation in their management earnings forecast decisions they should provide fewer management earnings forecasts during restating periods. This is stated as a hypothesis in an alternative form.

Hypothesis: The likelihood of management earnings forecast is lower during the restating period.

SAMPLE

The sample consists of firms with accounting restatements. The restatements are based on a keyword search of Lexis-Nexis Business News Database from January 1, 2000 to June 30, 2004 [6]. Restatements pertaining to the adoption of accounting standards such as SFAS 128, 133, 142, 144 and 145 and other non-GAAP violating accounting changes such as changing from LIFO to FIFO or events that require restatements such as stock split, stock dividends, discontinued operation, are eliminated from the sample. For each restatement announcement, the restating period is identified from restatement news releases or SEC filings such as 10-K (K/A), 10-Q (Q/A), and 8-K. To summarize, the following data are obtained using this procedure: (a) the restatement date which is the date on which restatement is announced, and (b) the restating period, which is the period for which financial statements are restated [7]. Overall, this procedure results in 812 restatement announcements from January 1, 2000 to June 30, 2004.

Table 1, Panel A shows the summary of the sample selection procedure. Out of the 812 restatement announcements, I eliminate the following restatements: (a) restatements resulting from inadvertent errors, (b) announcements that had no financial data available in the Compustat database and (c) multiple announcements for the same restating event.

I focus on the restatement sample, because of the maintained assumption that restatements are opportunistic in nature, i.e., restatements are indicative of aggressive accounting policies. Therefore, I eliminate restatements that are likely to have occurred due to inadvertent computational errors. An example of such inadvertent computational errors would be the case of IXYS Corporation (NASDAQ:SYXI): on September 28, 2000, IXYS Corporation announced a restatement resulting from recalculation of diluted earnings per share for the quarter ending June 30, 2000. This correction does not affect the firm's revenue or net income and hence, I classify this type of error as an inadvertent computational error. I also eliminate multiple restatement announcements pertaining to the same event, and restatements where financial data in the Compustat database is unavailable. Overall, the sample contains 685 restatement announcements representing 657 firms.

Table 1, Panel B provides some descriptive details on the 685 restatement announcements. Consistent with Palmrose et al. (2004) and Callen et al. (2006), 46% of the restatements are due to revenue recognition issues and 25% are due to expense recognition issues. Restatements with revenue recognition issues include 93 restatements due to the adoption of SEC's Staff Accountant Bulletin (SAB) 101[8]. Managers of these firms may argue that these restatements are due to the adoption of new accounting standards, and as such are not a violation of GAAP. However, Altamuro et al. (2005) show that firms affected by SAB 101 are more likely to report small negative earnings and are less likely to report small negative earnings change than the control group. Based on this result, they argue that firms that restated revenues because of SAB 101 used aggressive revenue recognition policies. The major reasons for restatements related to expense recognition issues include the improper treatment of inventory and account receivables allowances.

Although restatements typically result in the decrease of previously reported income (i.e., the originally reported income was inflated), some restatements result in an increase of previously reported income. Among 685 restatement announcements, about 71% lead to decreasing previously reported incomes, 17% do not affect previously reported incomes, and 12% lead to increasing previously reported incomes. For the previously reported income, I use the "As First Reported" income from Compustat Unrestated quarterly database [9]. Although decreasing incomes can also be a type of earnings manipulation (see Healy, 1985), such restatements are less likely to be a target for litigation. As such, I eliminate restatements that increase previously reported incomes. The final restatement sample has 603 announcements representing 579 firms and 4,247 firm-quarters.

Further to examine whether there are significant changes in firms' management earnings forecast behavior before, during and after restating periods, I define four periods. PRE is the period before the restating period and is defined as four quarters prior to the restating period. POST is the period after the restating period and is defined as the four quarters immediately after the restatement announcement quarter. TRA is the transient period defined as the period starting from one quarter after the restating period to restatement announcement quarter. EM is the restating period where opportunistic earnings management occurred. Figure 1 provides a graphical illustration of these periods: PRE, EM, TRA and POST. I separate the TRA period because the hypothesis relates opportunistic earnings management in the EM period to management earnings forecasts. Therefore, I do not include the TRA period for testing the hypothesis.

I eliminate restating firms that have multiple restatements and cases where the PRE or POST period of one restatement overlaps with the EM period of another restatement. For example, Flow International Corp. announced a restatement of its financials for fiscal year 2000 and 2001 on May 31, 2002 and then announced another restatement of its financials for the second quarter of fiscal year 2003 on March 24, 2003. In this case, the POST of the first restatement overlaps with the PRE and EM of the second restatement. For this reason, these restatements are eliminated. Among 603 restatements, 47 announcements are eliminated due to overlapping periods. After eliminating these restatements, the sample consists of 4,006 restating firm-quarters (556 firms). Further, to ensure comparability across the four periods, I require firms to have earnings data for the entire period in the Compustat database,

i.e., starting from the PRE up until the POST period. This added restriction reduces the sample to 416 restatements and 3,080 restating firm-quarters.

Table 1, Panel D shows the number of firm-quarters for the four periods before, during, transient and after, i.e., PRE, EM, TRA and POST, respectively. The restating period is 7.4 quarters and the TRA period is about two to three quarters on average: in essence there are some restatements that are announced after substantial time lags.

Table 1, Panel E provides some descriptive characteristics of the firm across the four periods. I obtain financial data from the Compustat database and stock price data from CRSP. Sales growth, market-to-book ratio, and returns on equity (ROE) are lower in the EM, TRA and POST periods when compared to the PRE period when the median difference is considered. Specifically, the sales growth is roughly 2%, 4% and 4% lower in the EM, TRA and POST periods compared to the PRE period. ROE is roughly 0.3%, 1.8% and 1.5% lower in the EM, TRA and POST periods compared to the PRE period: thus showing a slight improvement in the POST period compared to the TRA period. The results when mean difference is considered are qualitatively similar to those of Panel E. Overall, the restating firms' performances deteriorate in the restating period when compared to the prior period and thus, the incentive for opportunistic earnings management could be strong. In other words, the firms could be choosing aggressive accounting policies to cover-up the poor performance in the short-run: in effect utilizing opportunistic earnings management (see Kasznik, 1999).

I also consider a subsample of these restatements that are identifed as "Intentional Misstatement Subsample." Although I eliminate restatements due to inadvertent computational errors and income increasing restatements, some restatements may still result from unintentional accounting errors during the restating period. Hennes et al. (2008) show the importance of distinguishing between intentional and unintentional misstatements. Following the algorithm to identify intentional and unintentional misstatements I consider a subsample of intentional misstatements [10]. Among 416 restatements, 73 (17.6%) are classified as intentional misstatements. Out of 73 intentional misstatements, 65 firms are sued (89.0%), which constitutes a significantly higher likelihood of lawsuits than when all restatements are considered (30.0%). In other words, these intentional misstating firms are highly likely to be sued by investors than unintentional misstating firms. I considered both restatements samples to examine whether there are significant changes in firms' management earnings forecast behaviors before, during and after restating periods.

RESEARCH DESIGN AND EMPIRICAL RESULTS

Univariate Tests

Table 2, Panel A provides a contingency table for the restating periods and management earnings forecasts for the whole sample. The "whole sample" refers to the sample of all 603 restatements. Management earnings forecast data is obtained from First Call's Company Issued Guideline database (the "CIG" file). I consider management earnings forecasts (MEF) for quarterly earnings provided by firms within 90 days surrounding the fiscal quarter end. As I discussed in the previous section, under Rule 10b-5, investors have to show prima facie evidence that the managers had knowledge of poor performance and chose to misrepresent it. Thus, when management earnings forecast is provided long

before the fiscal quarter end (for example, the management earnings forecast was provided a year ago), the investors may find it difficult to claim such management earnings forecasts as the grounds for a lawsuit. However, when managers provide management earnings forecasts within 90 days surrounding the fiscal quarter end, it will be relatively easier for investors to claim that managers had private information regarding quarterly earnings for that quarter. Thus, I define MEF as an indicator variable that takes a value of one if management earnings forecasts are provided for the fiscal quarter within 90 days surrounding the fiscal quarter end and zero otherwise [11].

The 4×2 contingency analysis (four periods $\times$ MEF) shows that firms' management earnings forecast behaviors appear to be significantly different across the periods. Specifically, firms provide more management earning forecasts in the EM periods compared to the PRE periods. During the PRE periods firms provide management earnings forecasts for about 6.0% of quarters while during the EM periods they provide management earnings forecast for about 11.2%: a close to doubling of management earnings forecasts. This result does not support the hypothesis: that is, litigation is not a deterrent for disclosure during the period of opportunistic earnings management. During the TRA periods, firms also provide more management earnings forecasts than during the PRE periods. For POST periods, firms still provide more management earnings forecasts than for PRE periods, but less than for EM periods and TRA periods.

The contingency analysis for intentional misstatements sample in Panel B shows similar results to those with the whole sample in Panel A; intentional misstating firms also provide more management earning forecasts during the EM periods compared to the PRE periods. During the PRE periods firms provide management earnings forecasts for about 6.5% of quarters while during the EM periods they provide management earnings forecast for about 14.2%, more than double of management earnings forecasts during the PRE period.

Overall, Table 2 shows that firms provide more management earnings forecasts during restating periods than before restating periods, and thus does not support the hypothesis.

Multivariate Tests

In this section, I examine the management earnings forecasts in the EM, TRA and POST periods compared to the PRE periods controlling for other factors that influence the likelihood of management earnings forecasts. I augment the management earnings forecast model used in Kasznik and Lev (1995) with LIT_Prob and FD, as well as EM, TRA and POST. Specifically, I estimate the following logistic regression.

Prob (MEF=1) $= b_0 + b_1$ EM $+ b_2$ TRA$+ b_3$ POST $+ b_4$ LIT_Prob$+ b_5$ FD $+ b_6$ NEG $+ b_7$ SIZE $+ b_8$ BM $+ b_9$ HT $+ b_{10}$ REG $+ \varepsilon$ 						(1)

Management earnings forecast variable (MEF) and the classification of before, during and after periods relative to the restatements are defined as described with contingency analysis (see Table 2). LIT_Prob is ex ante litigation probability computed using Atiase et al. (2006). When a firm-quarter's LIT_Prob cannot be computed because any of the variables Ataise et al. (2006) are not available, the LIT_Prob for that firm-quarter is substituted with the LIT_Prob of a firm closest in size (market

capitalization) and operating in the same industry [12]. FD is a dummy variable which equals to one if Regulation Fair Disclosure is in force during the quarter, i.e., fiscal quarter ends after 10/31/2000, and zero otherwise [13]. NEG is an indicator variable that is equal to one if CHEPS <0, and zero otherwise, where CHEPS is the change in earnings per share (basic) including extraordinary items for the same quarter in the previous fiscal year, deflated by the stock price at the beginning of the quarter. SIZE is the natural log of market capitalization in the beginning of the quarter. BM is the natural log of the book to market ratio, computed using the book value of equity divided by the market capitalization at the beginning of the quarter. HT is an indicator variable that takes a value of one if the firm operates in the following SIC codes 2833-2836, 3570-3577, 3600-3674, 7371-7379, 8731-8734, and zero otherwise. REG is an indicator variable that takes a value of one if the firm operates in the following SIC codes: 4812-4813, 4833, 4841, 4891-4899, 4922-4924, 4931, 4941, 6021-6023,6035-6036, 6141, 6311, 6321, 6331, and zero otherwise.

My maintained assumption is that on average managers are aware of the aggressive accounting policies employed during restating periods. If so, managers facing greater ex ante litigation risk are less likely to provide management earnings forecasts- this is because the deterrence effect of litigation threats should affect management earnings forecast decisions as well as earnings management. Thus, I expect LIT_Prob to be negatively associated with management earnings forecasts, i.e., b_4 is expected to be negative. Field et al. (2005) also document a negative association between management earnings forecasts and litigation as the deterrence effect although the association is not statistically significant. Many other prior studies document a positive association between litigation risk and management earnings forecast (see Atiase et al., 2006 and Brown et al., 2005). Notice, however, that the focus of these studies is on the warnings effects of management earnings forecasts to negative earnings surprise. Unlike my maintained assumption, their maintained assumption is that managers have private information on "all" ensuing earnings disappointments and would make preemptive disclosures to mitigate their litigation exposure. Under this assumption, they should expect a positive association between ex ante litigation risks and earnings guidance (or, management earnings forecasts).

Based on Heflin et al. (2003), FD is expected to be positively associated with management earnings forecasts, i.e., b_5 is expected to be positive. Kasznik and Lev (1995) document that firms are more likely to issue earnings forecasts when they have bad news. Thus, NEG is expected to be positively associated with management earnings forecast, i.e., b_6 is expected to be positive. Kasznik and Lev (1995) and Lang and Lundholm (1993) find that larger firms are more likely to provide disclosures: thus, SIZE is expected to be positively associated with management earnings forecasts, i.e., b_7 is expected to be positive. Hutton (2005) argues that high price multiples (i.e., a low BM) measure higher value relevance of earnings, so that firms with a low BM are more likely to have stronger incentives to preempt bad news. Thus, BM is expected to be negatively associated with management earnings forecasts, i.e., b_8 is expected to be negative. However, Lang and Lundholm (1993) argue that firm risk is positively associated with the extent of voluntary disclosures. To the extent that BM is positively associated with firm's systematic risks, BM may be positively associated with management earnings forecasts. HT (REG) is expected to be positively (negatively) associated with management earnings forecasts (see Kasznik and Lev, 1995).

Based on the hypothesis, EM is expected to be negatively associated with management earnings forecasts, i.e., b_1 is expected to be negative. Note that the coefficient b_1 captures the marginal increase

in likelihood of management earnings forecasts during restating period as compared to pre-restating period. As such, in the research design, i.e., estimating equation (1), the management earnings forecasts provided by firms when there are no restatements are controlled. In particular, if the managers choose aggressive accounting policies that lead to subsequent restatements in an opportunistic fashion during restating periods, the management earnings forecasts are expected to be less when comparisons are made to the pre-restating periods, because of the deterrence provided by the cost of litigation (see the hypothesis development in Section 2). In essence, the time-series design embedded in the equation (1) is appropriate for comparing the change in management earnings forecast behavior.

I include transient periods and the periods after the restatement announcements to gain insights into changes in management earnings forecast behaviors. The transient periods, TRAs, are periods when aggressive accounting policies had no impact on core earnings and net incomes. As such, during transient periods there is no opportunistic earnings management. If management earnings forecasts during restating periods are reduced as hypothesized because of opportunistic earnings management, then I should observe that the management earnings forecasts revert back to pre-restatement period levels. Thus, TRAs are expected to be insignificant, i.e., b_2 is expected to be zero, indicating that the management earnings forecasts are similar to pre-restatement period levels.

The restatement announcements may create some uncertainty about the firm's operations, as well as raise doubts regarding the reliability of its accounting information. To mitigate doubts about the reliability of accounting information, firms could commit to providing increased management earnings forecasts after restatement announcements. However, if on average managers feel that the information may still be unreliable, they could then decrease management earnings forecasts after restatement announcements. Thus, the estimate of POST, i.e., b_3 may either be positive or negative: with a positive association indicating the commitment of firms to improve disclosures and information quality, and a negative association indicating that the information quality of the firms may be considered less reliable.

Table 3, Panel A shows the results of estimating equation (1) using logistic regression for both the whole sample and intentional misstatement sample. The first set of columns reports the results using the whole sample, and the last set of columns reports the results using intentional misstatement sample. In the time-series research design there is potential for the standard errors to be biased downwards due to serial correlation. In other words, the observations are not independent. Therefore, the test (Chi-square) statistics are corrected for serial correlation using the Huber-White sandwich procedure with firm-clusters [14]. Estimation with the whole sample, the coefficient estimate on EM (b_1) is 0.51 and significant with a Chi-square of 11.78, which is statistically significant. This is not consistent with the hypothesis. This suggests that litigation may not be a deterrent for providing management earnings forecasts even when there is opportunistic earnings management. Of course, it could also be the case that the maintained assumption of opportunistic earnings management is not valid for the restating period. In other words, the managers choose the aggressive accounting policies either inadvertently or at least not opportunistically. However, if this was the explanation, then one would expect to find no association between EM and management earnings forecasts. The rejection of the hypothesis suggests that the benefits for managers to adopt aggressive accounting policies and provide management earnings forecasts due to factors such as capital market pressures far outweigh

the costs of litigation. Note that as discussed earlier the performance of the firms during restating period is poor on average, and this could motivate the opportunistic choice of aggressive accounting policies [15]. As such, the Litigation Hypothesis of litigation decreasing management earnings forecast does not appear to be substantiated.

The coefficient estimates on TRA and POST are not significant, suggesting that the restating firms revert back to pre-restatement levels of management earnings forecasts after restating periods. This lends some credence to the argument that other factors such as capital market pressures and the poor performances during restating periods may have driven firms to provide additional management earnings forecasts during restating periods.

LIT_Prob is positively associated with management earnings forecasts: the coefficient estimate on LIT_Prob is 2.58. This shows that ex ante litigation risks by themselves are not a deterrent for the issuance of management earnings forecasts even for opportunistic earnings management, and is consistent with the findings of Francis et al. (1994). FD is negatively associated with management earnings forecasts and is insignificant: the coefficient estimates on FD is -0.02, which is inconsistent with the increased management earnings forecasts after the application of Regulation Fair Disclosure, documented in Heflin et al. (2003). This could be due to the nature of our restatement sample based on restatement announcements: the sample only includes firms that announced restatements. Thus the number of restating firm-quarters close to the end of the sample period is smaller than that in the middle of the sample period.

The coefficient estimates on NEG, SIZE, BM and REG are qualitatively similar to those reported in Kasznik and Lev (1995). Specifically, NEG is positively associated with management earnings forecasts indicating that firms preempt bad news; SIZE is positively associated with management earnings forecasts indicating that larger firms are more likely to provide management earnings forecasts; BM is not associated with management earnings forecasts; and REG is negatively associated with management earnings forecasts indicating that the demand of information for regulated industries through voluntary disclosures may be limited. HT is not associated with management earnings forecasts for the restatement sample, but is positively associated with management earnings forecasts in Kasznik and Lev (1995). This could occur because the restatement sample may contain more hi-tech firms and therefore the variation across hi-tech and non-tech firms is not captured by HT.

The last set of columns in Table 3, Panel A provides the estimate of equation (1) when intentional misstatement sample is used. The coefficient estimate on EM (b_1) is positive (0.47) but it is not significant (p-value = 0.16). Once again the results do not support the hypothesis. Unlike the coefficient on FD with the whole sample, the coefficient on FD becomes positive and significant, consistent with the findings of previous RFD studies and the coefficient on LIT_Prob with intentional misstatement sample is positive but insignificant. All other coefficient estimates are qualitatively similar to the case when the whole restatement sample is used.

To test the robustness of the results, I estimate equation (1) using Tobit regression. For this purpose, I use the count data for MEF defined as the number of management earnings forecasts within a 90 day

window surrounding the fiscal quarter end of a quarter. I use the Tobit estimation because the dependent variable is censored at zero, and for such limited dependant variable cases, Tobit provides consistent estimates. Table 3, Panel B reports the results of the Tobit regression. Unlike logit analysis, for both the whole sample and intentional misstatement sample, the coefficients on EM become positive and significant and the coefficient on TRA also becomes marginally significant with the whole sample, indicating more firms provide multiple management earnings forecasts for a quarter falling within TRA periods compared to PRE periods. All other results are qualitatively similar to those discussed in Table 3, Panel A.

To summarize, the hypothesis which is based on the costs of litigation being a deterrent for voluntary disclosures, especially when opportunistic earnings management is employed, is not supported. Firms provide more management earnings forecasts during restating periods, i.e., the periods of opportunistic earnings management, indicating that voluntary disclosures <u>do not lessen,</u> as the cost of litigation would suggest [16].

CONCLUSION

I examine the likelihood of management earnings forecasts of restating firms under litigation cost hypothesis. Specifically, I investigate the likelihood of management earnings forecasts during restating periods under the premise that managers on average are aware of the aggressive accounting policies and hence, are not likely to provide management earnings forecasts in order to reduce litigation exposure. I find that firms provide more management earnings forecasts during restating periods as compared to pre-restating periods. The results suggest that the benefit of providing management earnings forecasts may dominate the cost of providing management earnings forecasts- the increase of litigation exposure and legal costs. In essence, the results do not support the litigation cost hypothesis.

However, it is possible that I do not find support for the litigation hypothesis because I have not considered all the benefits arising from providing management earnings forecasts. In other words, the benefits may be correlated with accounting restatements, leading to the classic correlated omitted variable problem. The bias in correlated omitted variables is determined by 1) the correlation between dependent variables and omitted variables and 2) the covariance between independent variables and omitted variables. If there are omitted variables that are highly positively correlated with management earnings forecast decision and earnings management, as benefits from providing management earnings forecasts are likely to be, the coefficient on earnings management (EM) in equation (1) will be biased upwards. As such, I find a positive association between management earnings forecast likelihood and earnings management represented by accounting restatements. To alleviate the correlated omitted variable problem, I consider various control variables that have been shown in prior studies to be associated with management earnings forecasts.
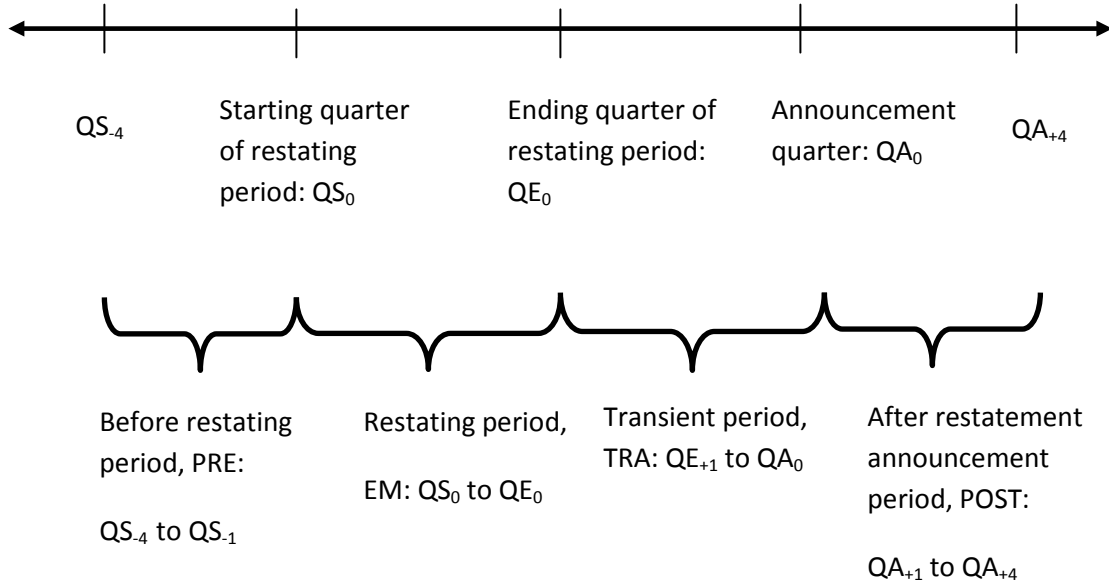
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Figure 1. Time period of before, during, and after the restating period

QS$_{-4}$ Starting quarter of restating period: QS$_0$ Ending quarter of restating period: QE$_0$ Announcement quarter: QA$_0$ QA$_{+4}$

Before restating period, PRE:

QS$_{-4}$ to QS$_{-1}$

Restating period,

EM: QS$_0$ to QE$_0$

Transient period, TRA: QE$_{+1}$ to QA$_0$

After restatement announcement period, POST:

QA$_{+1}$ to QA$_{+4}$

Table 1. Sample

Panel A. Restatements for the period from January 1, 2000 to June 30, 2004

Total announcements:	812
(-) Inadvertent errors	28
(-) Not in Compustat database	46
(-) Multiple announcements for the same restatement	53
Final restatement announcements	685
Number of restating firms	657

Panel B. Nature of restatements

Reasons	Income decreasing	No change in income	Income increasing	Total
	Number of observations (%)	Number of observations (%)	Number of observations (%)	Number of observations (%)
Revenue recognition related	243 (76.42)	46 (14.47)	29 (9.12)	318 (46.42)
Cost and expenses related	119 (70.41)	25 (14.79)	25 (14.79)	169 (24.67)
Mergers and acquisition related	21 (67.74)	5 (16.13)	5 (16.13)	31 (4.53)
All others	105 (62.87)	39 (23.35)	23 (13.77)	167 (24.38)
Total restatements	488 (71.24)	115 (16.79)	82 (11.97)	685 (100.00)

Panel C. Final sample

Total restating firm-quarters	4,939
(-) Income increasing restating firm-quarters	692
Income decreasing restating firm-quarters	4,247
Number of restatement announcements	603
Number of restating firms	579

Panel D. Sample - before, during and after restating period

	Before restating period, PRE	During restating period, EM	After restating period and before restatement announcement, TRA	After restatement announcement POST
Number of firm-quarters	1,664	3,080	1,003	1,664
Number of firms	416	416	416	416
Quarters per firm	4	7.4	2.4	4

Panel E. Comparing median of some firm characteristics

	Before restating period, PRE	During restating period, EM	Difference = EM Minus PRE	After restating period and before restatement announcement, TRA	Difference = TRA Minus PRE	After restating announcement, POST	Difference = POST minus PRE
Sales ($ million)	41	68	27*	43	2*	59	18*
Sales growth (%)	4.3	2.5	-1.8*	0.0	-4.3*	0.8	-3.5*
Assets ($ million)	235	381	146*	365	130*	331	96*
MB	1.9	1.9	0.0	1.7	-0.2	1.5	-0.4*
ROE (%)	2.0	1.7	-0.3*	0.2	-1.8*	0.5	-1.5*
ROA (%)	0.6	0.5	-0.1	0.0	-0.6*	0.2	-0.4*
N	1,252	2,603	-	803	-	1,263	-

Notes:
1. The number of firm- quarters in Panel D is not the same as in Panel E because some data for Panel E variable are not available in *Compustat*.
2. Sales growth, MB, ROE, and ROA are winsorised at bottom and top 1%.
3. * indicates significance at the 0.10 level for two sided Wilcoxon test.
4. PRE is the period before the restating period and is defined as four quarters prior to the restating period. POST is the period after the restating period and is defined as the four quarters immediately after the restatement announcement quarter. TRA is the transient period defined as the period starting from one quarter after the restating period to restatement announcement quarter. EM is the restating period where opportunistic earnings management occurred.

Variable definitions: Sales is quarterly sales (data #2). Sales growth is sales change divided by sales of previous quarter. Asset is total asset (data #44) at the end of quarter. MB is market to book ratio. ROE is net income (data #69) divided by stockholders' Equity (data# 60). ROA is net income (data #69) divided by total asset (data #44).

Table 2. Management earnings forecast, before, during, and after the restating period, Contingency analysis

Panel A. The whole sample

	Management earning forecast = MEF				Total
	Before restating period, PRE	During restating period, EM	After restating period and before restatement announcement, TRA	After restating announcement, POST	
	N (%)	N (%)	N (%)	N (%)	N (%)
No management earnings forecast	1,565 (94.0)	2,735 (88.8)	903 (90.0)	1,541 (92.6)	6,744 (91.0)
Management earnings forecast	99 (6.0)	345 (11.2)	100 (10.0)	123 (7.4)	667 (9.0)
Total	1,664 (100.0)	3,080 (100.0)	1,003 (100.0)	1,664 (100.0)	7,411 (100.0)
Chi-square statistic (p-value)	4 × 2 : 43.53 (p<0.0001) 3 × 2 : 42.85 (p<0.0001) 2 × 2 : 35.12 (p<0.0001)				

Panel B. Intentional misstatement sample

	Management earning forecast = MEF				Total
	Before restating period, PRE	During restating period, EM	After restating period and before restatement announcement, TRA	After restating announcement, POST	
	N (%)	N (%)	N (%)	N (%)	N (%)
No management earnings forecast	273 (93.5)	675 (85.8)	132 (85.7)	266 (91.9)	1,346 (88.3)
Management earnings forecast	19 (6.5)	112 (14.2)	22 (14.3)	26 (8.9)	179 (11.7)
Total	292 (100.0)	787 (100.0)	154 (100.0)	292 (100.0)	1,525 (100.0)
Chi-square statistic (p-value)	4 × 2 : 15.46 (p=0.0013) 3 × 2 : 14.90 (p=0.0006) 2 × 2 : 11.91 (p=0.0006)				

Notes:

1. Chi- square statistic (p-value): 4 × 2 tests the difference across 4 periods (PRE, EM, TRA, and POST) and management earnings forecast. Similarly, 3 × 2 tests the difference across 3 periods (PRE, EM, and POST) and management earnings forecast and 2 × 2 tests the difference across two periods (PRE and EM) and management earnings forecast.

2. MEF is an indicator variable that takes a value of one if firms provide at least one management earnings forecast within 90 days surrounding the fiscal quarter end for quarter q and zero otherwise.

3. PRE, EM, TRA and POST are defined the same as in Table 1.

4. N denotes number of observations

Table 3. Management earnings forecast, before, during, and after the restating period, Multivariate test

Panel A. Logit Analysis

Variable	Expected sign	Whole Sample		Intentional Misstatement Sample	
		Dependent variable = MEF		Dependent variable = MEF	
		Coefficient estimates	Marginal effect	Coefficient estimates	Marginal effect
Intercept		-3.94 (245.04)	NA	-3.81 (69.43)	NA
Test variables					
EM	-	0.51* (11.78)	0.070	0.47 (1.89)	0.058
TRA	?	0.29 (2.18)	0.038	0.11 (0.07)	0.013
POST	+/-	0.21 (0.93)	0.027	-0.08 (0.04)	-0.010
Control variables					
LIT_Prob	-	2.58* (18.90)	0.166	0.45 (0.14)	0.047
FD	+	-0.02 (0.02)	-0.003	0.57* (8.46)	0.069
NEG	+	0.45* (18.82)	0.062	0.43* (4.45)	0.050
SIZE	+	0.20* (34.39)	0.028	0.14* (3.76)	0.017
BM	+/-	0.06 (1.08)	0.008	-0.13 (1.38)	-0.015
HT	+	0.06 (0.13)	0.009	0.43 (2.26)	0.048
REG	-	-1.41* (19.82)	-0.271	-0.99* (5.43)	-0.162
Likelihood ratio (p-value)		250.56 (p<0.001)		54.19 (p<0.001)	
N		5,921		1,241	
Dependent variable =1		614		168	
Dependent variable = 0		5,307		1,073	

Panel B. Tobit Analysis

Variable	Expected sign	Whole Sample		Intentional Misstatement Sample	
		Dependent variable = MEF		Dependent variable = MEF	
		Coefficient estimates	t-value	Coefficient estimates	t-value
Intercept		-3.93	-13.47	-3.71	-8.15
Test variables					
EM	-	0.46*	3.92	0.42*	1.70
TRA	?	0.25*	1.65	0.06	0.19
POST	+/-	0.20	1.35	-0.11	-0.34
Control variables					
LIT_Prob	-	2.70*	5.41	0.53	0.58
FD	+	-0.04	-0.41	0.53*	2.90
NEG	+	0.41*	4.92	0.39*	2.34
SIZE	+	0.19*	7.60	0.14*	2.63
BM	+/-	0.06	1.45	-0.11	-1.32
HT	+	0.04	0.38	0.38*	2.11
REG	-	-1.26*	-6.34	-0.95*	-1.98
N		5,921		1,241	

Notes for Panel A:
1. Equation (1): Prob (MEF=1) = b_0+ b_1 EM + b_2 TRA+ b_3 POST + b_4 LIT_Prob+ b_5 FD + b_6 NEG + b_7 SIZE + b_8 BM +b_9 HT + b_{10} REG + ε
2. Chi-square is reported in parentheses under the coefficient estimates
3. * indicates significance at the 0.10 level one sided chi-square test.
4. Marginal effects for continuous variables are computed as $e^{\beta'X}/(1+ e^{\beta'X})^2*\beta$, where $\beta'X$ is computed at the mean values of X. Marginal effects for dummy variables are computed Prob[Y=1 | Xbar$_{(d)}$, d=1] - Prob[Y=1 | Xbar$_{(d)}$, d=0], where Xbar$_{(d)}$ denotes the means of all the other variables in the model and d denotes a dummy variable (see Greene p.668).

Notes for Panel B:
1. We use the count data for MEF defined as the number of management earnings forecast within 90 days window around the fiscal quarter end for quarter q. Tobit analysis is censored lower bound, management earnings forecast variable = 0.
2. * indicates significance at the 0.10 level (two sided t-test)

Variable definitions: MEF is an indicator variable that takes a value of one if firms provide at least one management earnings forecast within 90 days surrounding the fiscal quarter end for quarter q and zero otherwise. EM, TRA and POST are dummy variables which take a value of one if the quarter is in EM, TRA and POST respectively. The periods are defined the same as in Table 1. LIT_Prob is ex ante litigation probability estimated by using Atiase et al.'s (2006) model. FD is a dummy variable which takes a value of one if Regulation Fair Disclosure is in force during the quarter, and zero otherwise. NEG is an indicator variable that equals to one if CHEPS <0 and zero otherwise, where CHEPS is the change in earnings per share (basic) including extraordinary items for the same quarter in the previous fiscal year, deflated by the stock price at the beginning of the quarter. Size is the natural log of market capitalization at the beginning of the quarter. BM is the natural log of the book to market ratio computed using book value of equity divided by the market capitalization at the beginning of the quarter. HT is an indicator variable that takes a value of one if the firm operates in the following SIC codes 2833-2836, 3570-3577, 3600-3674, 7371-7379, 8731-8734, and zero otherwise; REG is an indicator variable that equals to one if the firm operates in the following SIC codes: 4812-4813, 4833, 4841, 4891-4899, 4922-4924, 4931, 4941, 6021-6023,6035-6036, 6141, 6311, 6321, 6331, and zero otherwise

1. Even though such prima facie evidence would make a strong case for the plaintiffs' bar, I am not suggesting that all investors' lawsuits have such evidence of wrong doing. Other factors such as scienter, typically established through insider selling during the class action period, the magnitude of the price drop and bankruptcy are also important factors [see, Carcello and Palmrose (1994)]. Also, there is a widely held perception that the plaintiffs' bar brings numerous frivolous lawsuits.

2. I consider a sample from 2000 because considering restatements prior to that extends the restatement period to years before the Private Securities Litigation Reform Act of 1995, when the management earnings forecasts were sparse.

3. Management earnings forecast is an important voluntary disclosure mechanism that mitigates information asymmetry. The benefits of providing earnings guidance arises from (a) decreasing information asymmetry and thereby decreasing the cost of capital (Leuz and Verrechia, 2000), (b) reining in wayward analyst forecasts and earning the market premium of meeting or beating analysts' earnings forecasts (Bartov et al., 2002) and (c) earning managerial reputation of being on top of things by providing successful guidance (Tucker, 2005). The costs of providing management earnings forecast arises from (a) higher proprietary costs associated with revealing competitive information to rivals (Verrecchia, 1983; Dye, 1986; Darrough and Stoughton, 1990) and (b) greater litigation exposure associated with investors' class action lawsuits under Rule 10b-5 of the Securities Exchange Act, 1934 for good news (Francis et al., 1994; Johnson et al., 2001): for bad news providing management earnings forecast may help mitigate the cost of litigation (Skinner, 1994). On balance, firms weigh the benefits and costs of voluntary disclosures and choose to disclose when the benefits outweigh the costs.

4. Currently, SAS 99 governs the auditors' responsibilities of detecting and reporting accounting irregularities. SAS 82 applies to the years spanning from 1997 to 2002, and prior to that SAS 53 applied.

5. In unreported analysis I validate the maintained assumption that management earnings forecasts are positively associated with litigation risk. In particular, I find that among the 193 restating firms that provide management earnings forecasts during the restating period, 84 (roughly 44%) were sued; and, among the 410 firms that did not provide management earnings forecasts during the restating period, 96 (roughly 23%). The mean (median) of class action period for firms providing management earnings forecasts is 681 days (629 days) while the mean (median) for firms providing no management earnings forecasts is 498 days (367 days): the difference of the mean and median is significant (t-value = 3.82, z-value = 2.42).

6. The keyword string used is "restat!"

7. The sample includes restatements due to SAB 101 (Staff Accountant Bulletin 101). Not all SAB 101 firms provide information regarding the restating period. In such cases the restating period is defined to include one fiscal year immediately preceding the SAB101 adoption year. For example, when firms adopt SAB 101in the fourth quarter of fiscal year 2001, the restating period would be from first quarter of fiscal year 2000 to third quarter of 2001. Out of total 685 restatement announcements, there are 93 SAB 101

related restatements: 23 of them provide the restating period while 70 of them do not provide the restating period.

8. SEC issued Staff Accountant Bulletin (SAB) 101 in December 1999. SAB 101 is a clarification of existing guidelines for revenue recognition and any resulting restatement would be to correct revenues in previous financial reports. In other words, restatements due to the implementation of SAB 101 are GAAP violation from the SEC's viewpoint.

9. If a firm has multiple restatements because of M&A or discontinued operations, comparing "Restated" and "As First Reported" incomes from Compustat quarterly database is not adequate. In such cases, I collected data on net income for firms who have subsequently experienced M&A or discontinued operations after restatements through news releases and SEC filings such as 10-K (K/A), 10-Q(Q/A), and 8-K.

10. Hennes et al (2008) classify restatements as irregularities when 1) firms use variants of the words "irregularity" or "fraud" in describing the misstatements 2) SEC or Department of Justice investigates or charges companies or parties related to the restatements and 3) firms launch independent investigation related to the restatements.

11. I consider all management earnings forecasts provided for the fiscal quarter at any time and obtain qualitatively similar results.

12. I obtain litigation data from January 1, 2000 to December 31, 2004 from the Stanford Law School Securities Class Action Clearinghouse website (http://securities.stanford.edu) for all class action lawsuits filed along with their respective class action periods. I only consider class action lawsuits due to accounting restatements. Also, I eliminate lawsuits that do not have either firms or managers as the defendants. Among 603 final restatements, 180 restatements (30%) are followed by class action lawsuits.

13. Regulation Fair Disclosure promulgated by the SEC on August 10, 2000 requires that firms do not reveal material information to a select few investors (analysts) alone, starting from October 23, 2000. Bailey et al. (2003) and Heflin et al. (2003) find that firms significantly increased their management earnings forecasts after RFD. As such, to the extent that the restating periods fall after RFD while the pre-restating period falls before RFD, this could affect the relationship between the management earnings forecasts before and during the restating period.

14. In panel data there could be two sources of dependence (see Petersen, 2005). The residuals of a given firm can be correlated across time periods, i.e., the firm effect; and/or, the residuals of a given time period can be correlated across firms, i.e., the time effect. The standard errors are biased downwards in both those cases. In the time-series design for a stratified sample such as the restatement sample, the serial correlation across firms, i.e., the firm effect, potentially creates more bias.

15. Firms may disclose voluntarily to preempt poor performance during the restating period as Skinner (1994) and Kasznik and Lev (1995) document. I run ordered logit regression of direction of management earnings forecast on independent variables in equation 1. There is no significant association between periods and direction of management earnings forecasts. The direction of management earnings forecast is classified based on Firstcall's Company Issued Guidelines (CIG) database code: Firstcall codes "D" for negative news, "E" for positive news, "M" for in-line guidance, and "A" for N/A for classification. I

code "M" and "A" as "Neutral" and follow Firstcall's classification for positive and negative management earnings forecast.

16. I ran a logistic regression model similar to equation (1) in cross sectional setting and found that restating firms provide significantly more management earnings forecasts than non-restating firms do (results are not reported here).

A GROUP STUDY STRATEGY FOR FINANCE CASES

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ABSTRACT

This paper presents a teaching strategy involving group study in conjunction with cases in a senior level finance course. The course is a 'capstone' type course, involving applications of financial theory and concepts toward real-world scenarios.

An interesting strategy for setting up the workgroups is presented. The observed results from implementation of the strategy are summarized and presented in comparison to non-structured groupwork in the same course from the preceding year. Several conclusions are presented concerning the strategy and its potential for enriching the learning experience in technical and business courses.

USE OF TEAMS FOR DECISION MAKING AND FOR BUSINESS EDUCATION

The use of teams for corporate decision-making and for business education is not a new concept (see Nahavandi). Corporations have created teams of employees to improve internal processes, teams to work on product development (Farnham, 1994) teams for implementing joint ventures, teams for quality control (Cole, 1982), and teams for coordinating suppliers. The ability of individuals to perform well in teams is often a criterion for promotion in many corporations as well as in the military.

Assembling students into team projects is common in MBA and undergraduate business programs. However, less well understood is the difference between forming a group and forming a team. Members of groups work on a common goal, are accountable to a manager, often conflict with one another, and leadership is assigned to a single person. Teams consist of members who are fully committed to common goals and mission that they have taken a part in development, are mutually accountable to one another, enjoy a collaborative culture, and share in leadership and achieve synergy (Hackman, 1990).

The challenge for educators is to find the right set of policies and practices to enhance learning through participation in project teams. The University of Phoenix class-based instruction relies heavily on team projects and assignments. All faculty are provided with a text titled *Tools for Teams* (Swenson, 2000) which is a custom publication consisting of portions of textbooks and articles on effective teaching

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strategies based on putting students to work in teams.   Their theory is that students who learn through participation in teams will be more likely to be effective team members at their workplace (Sampson interview). Their text devotes an entire chapter to the notion that companies employing teams are no more effective than those that do not. However, the text traces through organizational behavioral literature which suggests that with the right size, policies and training, employees or team members can develop the skills to work or learn together effectively. The motivation behind University of Phoenix's extensive use of team projects is that when they surveyed businesses, the ability of graduates to work effectively in diverse teams was a highly desired skill.

The creator of the term "adult learners," Malcolm Knowles, has written that "self-direction has become a keystone in the methodology of andragogy. (Knowles, 1984).   In designing course policies or strategies for adult education, Gabo cites research that alleges that adults need real-world applications, constructive feedback, coaching, and opportunities to participate in small groups (Gabo, 1998).

Adult learning theory or what has been described as "andragogy" suggests that the simple lecture and listen format for corporate training sessions bores most adults (Galbo, 1998). Most college professors instinctively know that this is also true for their adult learners. Galbo notes that "research by Bruce Joyce and Beverly Showers (1998) showed:

- only 5 percent of learners will transfer a new skill into practice as a result of theory.
- ten percent will transfer new skills into practice as a result of theory and the demonstration of the new learning.
- twenty percent will transfer a new skill into applied practice if theory, demonstration and practice of new learning are conducted within the training.
- twenty five percent will transfer a new skill into practice if the use of theory, demonstration, practice and feedback are provided during the training.
- ninety percent will transfer a new skill into use if theory, demonstration, practice and feedback and ongoing coaching are provided as elements of the professional development program." (Gabo, 1998).

The premise of this paper is to present one grouping technique that seems to have solved some of the difficulties with traditional classroom pedagogy, and provides students with a rich learning experience. This paper presents instructors with policies aimed at helping students maximize their learning from team activities along with a structure for resolving some of the inevitable conflicts among group members.

BACKGROUND FOR THE STUDY

This comparative study was carried out in a capstone course in finance at a private university. The first part of the course involves a comprehensive review of the breadth of managerial finance in the first six weeks of the course, followed by a two-day examination covering selected topics. This portion of the course is very rigorous, and involves traditional lectures, website instruction, exercises and assignments on the review material, and several case studies that directly enhance the topical coverage. All of the solutions are presented during class time, with the objective of preparing students for the examination. It also establishes an approach to problem solving that is direct and quick, and one that weeds out information that may not be pertinent to the issue at hand.

The remainder of the course is dedicated to groupwork with the objective of developing solutions to business problems and issues. The material for the course is provided using a variety of cases in finance. The capstone course is typically taken in the final semester of the undergraduate experience for finance majors.

Hampton University is somewhat unique in terms of the student population. Most are of traditional college age, and camaraderie is easily established in the typical finance graduating class of twenty-five to thirty students. In much of the required coursework, a practical and real-world approach is stressed. Through substantial interaction with corporate and workplace representatives during their business education experience, students tend to realize the importance of working in groups, communicating effectively, and presenting work effectively.

The environment is also fairly consistent from year to year. Some of the findings of the study may be subject to an argument that two different sets of students should always result in differences between the sets. It has been informally observed, however, that fairly consistent results accompany one strategy or the other. Both strategies have been employed three times each. The authors acknowledge that the results presented are anecdotal in nature. Regardless of this, the structured grouping technique produced such substantially different (and positive) results when compared to the unstructured group strategy. Another noteworthy detail is that the study was made possible as a result of the consistency of course teaching assignments in the Banking and Finance department at Hampton University. The primary author taught the single required section of the course every spring for many years. Every finance major had to take the course, and the course sometimes attracted other business majors by word-of-mouth.

DESCRIPTION OF THE TWO GROUPING STRATEGIES

Non- Structured Groups

For spring 1997, spring 1998, and spring 1999, groups were established with four to five members per group, depending on class enrollment. The group assignments did not involve any specific reasons for the combining of students. In fact, they were determined randomly, using a random number generator in Excel. The groups were formed using quintiles (sextiles for spring 1998) for the random numbers. Group members, through interacting with one another, came to some decision about how the group would work together. No direction concerning how this would be accomplished was given by the professor. For every case analyzed, some form of presentation of the analysis was required, either in written communication, or by oral presentation (in front of the class and professor), or both.

No direction concerning responsibility for the presentation of the group's work was given. The group decided who would present. Students were given instruction about length requirements for the reports, and about the structure of the report and presentation. Groups were evaluated based on the report, the presentation, or both. All group members received the same grade. Students had at their disposal the same resources described for structured groups (see item 6, below).

Structured Groups

For spring 2000 and spring 2001, groups were established with seven members per group, and six members per group in 2002. Interestingly, the enrollment in 2000 and 2001 was 28 students, and the

enrollment in 2002 was 24 students. This allowed for four groups each time the strategy was used. Groupings were again determined by random numbers, but using quartiles. Students were given the following guidance as to how the group members would interact with one another and with the professor.

1. A "Leader" was assigned randomly as the group member with the highest random number in the quartile. The class was informed in writing that the leader's task was to be the communicator for the group. The leader was responsible for asking all questions directed to the "expert" (the professor). The leader was responsible for delegating ALL responsibility for analysis of the case and reporting of findings to other group members. The leader was prohibited from taking part in the work tasks of the group, either in analyzing or reporting. The leader's responsibility was to lead, to organize the group meetings and work schedules, and to inspire the group's motivation to complete the tasks in a correct, concise, and professional manner. The single production responsibility for the leader was to create a progress report in professional memo form, due at the beginning of each of four class periods during the time the group analysis was to be carried out. The leader would be evaluated by the six group members as to the effectiveness of his leadership. The leader would also be evaluated by the instructor for leadership effectiveness.

2. An "Auditor" was assigned randomly as the group member with the lowest random number in the quartile. The class was informed in writing that the auditor's task was to be the recorder for the group. The auditor was responsible for reporting the tasks assigned to each group member, the time allotted for the task, and whether or not the task was completed by the group member on time. The auditor was prohibited from taking part in the work tasks for the group, either in analyzing or reporting. The single production responsibility for the auditor was to create two copies of a report of specific activities to be distributed to the leader and to the professor at the beginning of each of the four class sessions. This created a somewhat sensitive position for the auditor, since the report could essentially contain negative feedback about group members' participation. The auditor's position was therefore made autonomous of evaluation by the group members. Instead, the auditor was evaluated strictly by the professor, and strictly on the basis of the clarity, honesty, and accuracy of the report.

3. Five (four in 2002) "Analysts" were assigned randomly as the group members without the lowest or highest random numbers in the quartile. The class was informed in writing that the analyst's task was to carry out the work required for analysis of the case, preparation of a report of findings and presentation of the findings. Analysts were prohibited from involving the leader or the auditor in the working tasks. It was reiterated (for emphasis) that "the analysts do all the work," except for the leader's and auditor's reports, which were to be done by them.

4. Evaluation of students was done according to the role each one played in the assignment. Students were informed in writing that the leader would be evaluated by the other group members, and by the professor, based on his effectiveness as the leader. The auditor would be evaluated strictly by the professor, based on the accuracy, honesty, and clarity of the auditor's reports. The group members would be evaluated by the professor based on the quality of their work, and on the quality of the output produced by the group, whether in the form of a report, presentation, or both.

5. Miscellaneous information: for the structured groups, the expected output was specified for each assignment (report, presentation, or both). Instructions regarding reports and presentations included: no

fancy bindings or covers - just stapled in the upper left corner, the report or presentation should be neat and well-organized, reports should be typed in laser or sharp inkjet output, the report or presentation should appear professional, the report or presentation should contain no irrelevant content (no 'bull' or 'fluff'), there was no length requirement - it was the leader's responsibility to determine what due diligence was required and what 'adequate' was, no visual aids in either a report or a presentation unless they contributed significantly to the analysis, and the report had to be segmented and organized.

6. Resources: All students had a detailed guide to analysis, reporting, and presentation of case reports (Stretcher-Makamson 1997, 2001) The sections of the guide included an introduction to the case method and the philosophy of cases, organization of thought concerning cases, strategic concerns for the enterprise and its environment, financial analysis (including analysis if leverage, capital budgeting and other quantitative methods), financial concepts (including business structure, agency, market characteristics, etc), analytical process, reporting guide, and a large guide to sources of outside information. Additionally, most of the students still had textbooks and other resources from prior business courses.

DETERMINING MEAN DIFFERENCES BETWEEN HBCU AND AACSB FACULTY CONCERNING DISRESPECTFUL STUDENT BEHAVIOR

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ABSTRACT

Faculty from 14 randomly selected Historically Black Colleges and Universities (HBCU) were statistically different than faculty surveyed from a directory of the Association for the Advancement of Collegiate Schools of Business-International (AACSB) regarding their perceptions of disrespectful student behavior. Data were collected via a Survey Monkey Instrument. Demographic variables, with variables reduced by factor analysis, using One-Way ANOVA tests, revealed significant differences between and among means, with $p < .000$ in some comparisons, when the construct was measured on two different scales. Recommendations to improve the class learning environment are offered to educators who perceive they are encountering disrespect from their students.

INTRODUCTION

Student disrespect was evident as early as the nineteenth century when colleges experienced student riots and disorderly behavior (Hessinger, 1999). Elite colleges and universities such as Harvard, Yale, Johns Hopkins, Princeton, and the University of Pennsylvania suffered from disruptive student behavior (Hessinger, 1999; Brubacher & Rudy, 1997). College officials struggled to solve the disorderly conduct as they moved from pre-Colonial institutions that prided themselves on the patriarchal authority of college faculty and administration to the post-Revolution institutions where students abhorred such authority. During this period, Hessinger (1999) reported that school authorities believed that the student disorderly conduct was caused by students' loyalty to their peers over loyalty to their superiors. Officials at the University of Pennsylvania invoked a structure of college governance that included a system of meritocracy by rewarding both good scholarship and good behavior. This system, known today as grading, was originally developed at Yale in 1783. The merit scales adopted by many colleges in the early nineteenth century also included demerits, the loss of merit points for disorderly behavior (Hessinger, 1999).

There is a paucity of research on faculty perceptions of student disrespectful behavior at Historically Black Colleges and Universities (HBCU). These institutions were founded prior to 1964 to provide collegiate education to African Americans (Brown II & Davis, 2001). They have a unique history as compared to many of the colleges that are members of the Association to Advance Collegiate Schools of Business International (AACSB). [It should be noted that some HBCUs are currently members of the AACSB]

Up to the mid 20th century, more than 90% of African-American students enrolled in post secondary programs attended HBCUs. There were reports of significant student disrespect and unrest at Talladega College during the period of 1887-1914. The college, founded in 1867 by local African Americans and the American Missionary Association, was the site of a student rebellion in 1889, with students claiming that they were subjected to tyranny and outrage by the faculty. In 1895, the leader of a group of female protestors was suspended and sent home for disrespectful behavior. In 1914, a group of female students went on strike against the disciplinary action taken by the faculty. By the 1920's, African American students challenged white faculty and college administrators. This led to student unrest on black college campuses across the country (Jones, 1985).

The unrest on the HBCU campuses continued into the early 1960's. Harrison (1972) noted that student unrest on Black college campuses resulted in the resignation of presidents and other administrators, as well as, faculty turnover. During this period, student grievances were related to several causes including disciplinary practices, social privileges, student personnel services, and food services.

By 1968, a good number of African American students were enrolled in predominantly white colleges and universities, in part because of desegregation in higher education, and a dramatic increase in the number of African Americans enrolled in college (Kim & Conrad, 2006; Willie & Cunnigen, 1981). However, HBCUs continued to attract primarily African American students. In 2005, at the approximately 100 HBCUs, 83% of the students enrolled were African Americans, with a wide variation in the ethnic population of the individual school. In 2005, student enrollment in all degree-granting institutions (approximately 4,300 two-and four-year institutions) was 17.5 million, while enrollment at the HBCUs was approximately 312,000. This was 1.8% of all college students and 14% of all African American

college students (National Center for Education Statistics, 2007). Since the early 1970's, there has been no empirical research on disrespectful student behavior that exclusively applied to HBCUs. As shown in our review of the literature, the research was related to students at all institutions, or to particular ethnicities at these institutions. There is a gap in the literature needing to be filled.

College faculty members today encounter many types of disruptive student behavior in the classroom. The behavior may be overt such as talking on a cell phone, or talking during class; or covert such as sleeping in class, arriving late, and eating noisily (Meyers, 2003; Seidman, 2005). Charles (1999) defined these disruptive behaviors as *misbehavior,* while Hendrix (2007) referred to such behaviors as *incivility*, *resistance*, or *reactive behavior*. The disruptive student may negatively affect the intellectual and academic progress of other students. Such behavior can also impact the learning environment (Seidman, 2005). Faculty members exposed to such behavior have experienced higher incidence of apathy, frustration, and teacher burnout (Evers, Tomic, & Brouwers, 2004).

The behavior of college students has changed because of changes in the ethnic and social class diversity, cultural norms, age, and lifestyle. Faculty members who possess pre-conceived ideas about proper classroom etiquette will need to modify their expectations to reflect these changes (Boice, 1986:1993; Emerick, 1994; & Williams, 1994). For example, some faculty members may assume that a student who wears a baseball hat indoors is inappropriately dressed, while other faculty members may not notice (Tom, 1998). In some cases, the manner in which a student dresses may be viewed as an incivility, or insubordinate act, while the student's behavior is based on ignorance or what they perceive as current acceptable norms. Hendrix (2007) noted that one form of incivility involves the behavior of students of color toward professors of the same race at HBCUs or at predominantly white universities.

Buttner (2004) studied business students' opinions on respectful and disrespectful behavior of business faculty. She found significant differences in expectations between female and male students in their opinions about how a faculty member conveys respect in the classroom. Buttner (2004) noted that the differences could be based on the differing views of female and male students of interactional justice, interpersonal relationships and interactions. Similarly, the perceptions of male and female faculty members may be affected by these same views.

In a recent survey of the members of the AACSB, the perceptions of faculty about disrespectful student behavior revealed that male and female business professors' perceptions of students' disrespectful behavior were the same (Quddus, Bell, Bodie, Dyck, Rahman, Holloway, Desselle, & Till, 2009). They reported that student behavior that violated prudence (such as arriving to class late, or answering a cell phone), to be more disrespectful than behaviors associated with youthful self-expressions (wearing a baseball hat, or arguing about an assignment or grade).

This current research effort is based on the work of Quddus, et al. (2009). The purpose of this research is to measure differences among faculty members at AACSB and HBCU schools, regarding their perceptions and actual encounters with disrespectful student behavior in the classroom. The primary research questions more specifically asks: are college professors' demographic characteristics significantly related to their perceptions and actual encounters with students' disrespectful classroom behavior? And, do faculty who are from AACSB accredited business programs differ from faculty whose

affiliations were with HBCU organizations? To investigate further, the following methods were used to test the research questions.

METHOD

Ethical guidelines were followed and institutional permission was granted to collect data. A survey and a separate list of questions that pertain to assessment of demographic variables were administered electronically, via Survey Monkey, to a list of 400 of 1,370 members of the Association to Advance Collegiate Schools of Business-International (AACSB). The sample consisted of professors and academic administrators representing collegiate schools of business throughout the world. The contacts were randomly selected, using systematic sampling from the AACSB population.

A list of 400 faculty members listed in the online directories of 14 randomly selected Historic Black Colleges and Universities (HBCU) were surveyed in spring 2008. Community colleges were excluded from the sampling pool. A random sample of 14 of the 100 HBCUs was selected. A sample of 400 HBCU email addresses was generated and email addresses verified prior to sending the survey. The sample was assumed to be normally distributed and all survey responses deemed representative of the AACSB and HBCU population.

A total of 147 out of 400 AACSB surveys were returned. Since some respondents completed only the demographic portion of the survey, 36 surveys could not be used for data analysis from the AACSB responses. Among the 400 HBCU emailed surveys, 61 responded and these were all useable. The 172 useable returns represent 21.5 percent of those surveyed; 400 names from the AACSB directory and 400 names from 14 HBCU.

Analysis of the demographic data revealed 109 male professors and 61 female professors completed the survey; two professors did not indicate their gender. The rank was represented by 13 instructors, 20 assistant professors, 38 associate professors, 49 full professors, and 52 other faculty types. Among the respondents, there were 16 part-time and 155 full-time faculty, and 100 men and 53 women on full-time status. There were 61 HBCU and 109 AACSB faculty reporting. Females and males from AACSB represented 40 and 69 respectively, while HBCU females and males were 21 and 40 respectively. The average part-time and full-time experience was 4.57 years and 15.2 years respectively, with one person teaching for 45 years. There were 116 born in the United States, as opposed to 50 born elsewhere. Of those responding, 35 were from liberal arts colleges, 97 from comprehensive universities, and 39 were from research institutions. The contract status for males and females combined was 43 non-tenure track (which comprised 25.4% of the respondents), 49 tenure track (29%), and 77 were tenured (45.6%). And, finally, 110 White, 26 Black, 17 Hispanic, 10 Asian and 4 other races of faculty members responded. With analysis of the descriptive data, Chi-Square tests are routine, especially when differences in the relative frequency of nominally grouped variables can be meaningful.

Chi-Square is typically used to test for significant differences in the relative frequencies among groups of nominal data: a classic textbook example of Chi-Square usage is determining the weapon of choice between men and women who commit murder. In this study, Chi-Square suggested male and female faculty did not differ significantly by their contract status as non-tenure track, tenure track and tenured, with a critical value of 4.713 being smaller than the 5.991 critical value in the Chi-Square Table, with df = 2, the p= .095. Nor did relative frequencies differ between part-time or full-time faculty, with p= .321.

However, male and female faculty members differ significantly according to their rank as instructor, assistant professor, associate professor, full professor, or other types of faculty with a critical value of 13.555 being larger than the 13.277 critical value in the Chi-Square Table, with df = 4, the p= .05. Although male and female faculty differed in the expected relative frequency concerning their professorial rank, with the title "other types of faculty," we needed further testing to know if mean differences were significantly correlated to their perceptions and encounters of students' disrespectful behavior. See Table 1 for details.

Table 1: Descriptive Statistics with Chi-Square by Gender on Contract Status and Rank

Gender	Non-Tenure Track	Tenure Track	Tenured	Instructor	Assistant professor	Associate Professor	Full Professor	Other Faculty Types
Male	22(27.3)	30(30.5)	54(48.2)	5(8.3)	10(12.8)	27(30.8)	25(23.7)	42(33.3)**
Female	21(15.7)	18(17.5)	22(27.8)	8(4.7)	10(7.2)	21(17.2)	12(13.3)	10(18.7)
Total	*43*	*48*	*76*	*13*	*20*	*48*	*37*	52

**Denotes Chi-Square statistics of p<.01; Expected count is indicated with ( ).

DEVELOPMENT OF TWO SCALES

Items were developed based on a series of focus group meetings among seven business faculty members. Those faculty members evaluated and modified items until a unanimous decision was made on the acceptability of each of the 32 items included on the survey instrument. An alpha scale reliability test (Cronbach, 1951; 1984) was performed on the instrument's two separate scales. Scale one, hereafter referred to as the Perception Scale (PS), consisted of 16 items (Likert-type) represented by "1 = strongly disagree" to "7 = strongly agree." Scale two, hereafter referred to as the Memory Encounters Scale (MES), consisted of 16 items (semantic differential) represented by anchors "1 = never" and "7 = all the time."

The standardized Cronbach's alpha reliability coefficient for the PS is .911 and MES is .906, which exceeds the Nunnally (1978) criteria of 0.70, is acceptable. Lance, Butts, and Michels (2006, p. 206) argue "Thus, our second point is that .80, and not .70 as has been attributed, appears to be Nunnally's recommended reliability standard for the majority of purposes cited in the organizational literature." This study meets the criteria for alpha; furthermore, a scale "between .80 and .90 is very good" (Devellis, 1991, p. 85).

Neither the PS nor the MES improved with the removal of an item, a good indication of internal consistency. Both the PS and the MES appear to be "very good" measures of two constructs: 1) professors' perceptions on the students' disrespectful behaviors and 2) professors' memory encounters with students' disrespectful behaviors. The PS is a Likert-type scale measuring perceptual range of the disrespect construct and MES is a semantic differential scale measuring professors' memory encounters with the disrespect construct. A principal component factor analysis was run on both scales, separately, as a data reduction technique making fewer variables more suitable for multivariate statistical analysis. Rather than 32 variables, eight can explain most of the variance for both scales.

PRINCIPAL COMPONENT FACTOR ANALYSIS

Factor analysis is perfectly suited for data reduction purposes because the derived factors explain most of the variance; for example, researchers might be able to reduce 80 continuous response items on a questionnaire to perhaps four or five factors that explain 60 percent of the total variance. Ferrando (1999) compared Likert scaling using continuous, censored, and graded response models and found no significantly different effects on criterion-related validity, including a multiple linear factor analysis model; in addition, more complex models in that study did not improve predictive validity of the models. Another issue with factor analysis is adequacy of sample size.

Comparability between sample and population patterns could be a limitation concerning the adequacy of this study's sample size. Given the sample size of 172 was derived from two independent populations, a 21.5% response rate (a typical rule-of-thumb bias for acceptable response rate reported in the literature is 70%) from the sample of 800, population of 1370 AACSB members and 100 HBCUs, evidence was found to support the use of factor analysis in this case.

Principal Component Factor Analysis, using Varimax with Kaiser Normalization as a rotation method, revealed variable several loadings above .60 on both PS and MES derived factors. In the initial solution, four un-rotated factors account for 68 percent of the variance on the PS and four un-rotated factors account for 68 percent of the variance on the MES. After rotation, the Sum of Squared Loadings for the PS was 23.046, 15.673, 14.774 and 14.670 respectively and the Sum of Squared Loadings for the MES was 24.417, 19.000, 16.500, and 8.108 respectively. In interpreting the rotated factor pattern, an item is said to load on a given factor if the factor loading was .50 or greater for that factor (Devellis, 1991; Hatcher, 1994; Kachigan, 1991) and was less than .50 for the others. The PS and MES component saturation was very high.

Guadagnoli and Velicer (1988) dealt directly with the relation of sample size to the stability of component patterns. The authors used a Monte Carlo procedure to vary sample size, number of variables, number of components, and component saturation in order to examine systematically the condition under which a sample component pattern becomes stable relative to the population. They determined that factor loadings of .60 or higher with at least four variable loadings per factor permit stability of the factor pattern regardless of sample size. Summaries of factor analysis results are shown in Table 2 and Table 3.

Table 2: Rotated Component Matrix for Four Derived Factors on the Perception Scale (PS)

PS Alpha Reliability = .911 On Survey Items	*Component Loadings for Four Factors on the Perception Scale*			
Four Factors explain 68% of the Variance in PS	*F1: Rudeness*	*F2: Argues*	*F3: Apathy*	*F4: Discourteous*
Q11: A student who talks to other students during the lecture is…	**.834**	.122	.166	.188
Q10: A student who treats faculty or other students discourteously (interrupting, horse laughing, bad mouthing, etc.) is…	**.775**	.182	.123	.418
Q13: A student who answers a cell phone in class is…	**.762**	.158	.193	.300
Q14: A student who storms out of class in anger is…	**.643**	.403	.101	.405
Q7: Students are not attentive during the lecture (sleeping, reading unrelated material, talking,	**.594**	.041	.476	.298

Survey Items				
browsing the Web, email of text messaging, etc.) is…				
Q12: A student who wears improper dress in my class (baseball hat, t-shirt with profanity, loud-jingling jewelry, etc.)is ...	**.574**	.431	.285	-.341
Q16: A student who openly challenges a professor's knowledge is…	-.031	**.832**	.106	.286
Q15: A student who argues about an assignment or grade is…	.259	**.798**	.195	-.014
Q4: A student who is argumentative with faculty or fellow students is…	.334	**.628**	.134	.353
Q6: A student who has come to class unprepared (not reading required materials, having school supplies, and submitting required work on time) is…	.151	.183	**.849**	.012
Q5: A student who chooses not to participate in mandatory class assignments or activities is…	.115	.330	**.776**	.112
Q2: A student who misses several days of class without prior notice is…	.195	-.035	**.523**	.298
Q9: A student who does not respond to faculty questions when called upon is…	.272	.194	.317	**.642**
Q3: A student who walks out of class without permission is …	.390	.175	.152	**.603**
Q8: A student who addresses a faculty by first name is…	.190	.380	.013	**.574**
Q1: A student who repeatedly comes to class late without prior notice is…	.446	-.078	.421	**.514**

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization; a rotation converged in 9 iterations.

Table 3: Rotated Component Matrix for Four Derived Factors on the Memory Encounters Scale (MES)

MES Alpha Reliability = .906 Survey Items	*Component Loadings for Four Factors on the Memory Encounters Scale*			
Four Factors explain 68% of the Variance in the MES	*F1: Disagreeable*	*F2: Attendance*	*F3: Uninvolved*	*F4: Laxness*
S15: At least two students have argued vehemently with me about an assignment or grade.	**.837**	.138	.184	-.046
S16: At least two students have openly challenged my knowledge.	**.827**	-.007	.154	-.011
S14: At least two students have stormed out of class in anger.	**.805**	.170	.091	.105
S4: At least two students in my class are argumentative with me and other students.	**.667**	.415	.116	.240
S10: At least two students treat me and other students discourteously (interrupting, horse laughing, bad mouthing, etc.).	**.616**	.442	.237	.173

S13: At least two students have answered cell phones while class was in session.	**.571**	.363	.151	.167
S3: At least two students have walked out of the class without permission.	.214	**.821**	.185	.163
S2: At least two students have missed several days of class without prior notice.	.101	**.765**	.345	-.105
S1: At least two students have repeatedly come to class late without prior notice.	.123	**.715**	.448	-.105
S12: At least two students wear improper dress in my class (baseball hat, t-shirt with profanity, loud-jingling jewelry, etc.).	.417	**.630**	.125	.002
S6: At least two students have come to class unprepared (not reading required materials, having school supplies, and submitting required work on time).	.087	.206	**.848**	-.031
S7: At least two students are not attentive during the lecture (sleeping, reading unrelated material, talking, browsing the Web, email of text messaging, etc.).	.249	.280	**.783**	.077
S5: At least two students choose not to participate in mandatory class assignments or activities.	.183	.240	**.617**	.408
S11: At least two students talk to other students during my lectures.	.422	.346	**.559**	-.072
S8: At least two students address me by my first name in class.	.032	-.084	-.032	**.851**
S9: At least two students do not respond to my questions when I call on them.	.442	.145	.293	.466

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. A rotation converged in 6 iterations.

HYPOTHESES TESTING

One-Way Analysis of Variance (ANOVA) was used to test for mean differences among dependent variables (four derived factors on two separate scales) and independent demographic variables (1) gender, (2) rank, (3) employment status, (4) contract status, (5) U.S. born, (6) code-of-conduct usage, (7) ethnicity, and (8) HBCU vis-à-vis AACSB affiliation regarding perceptions of disrespectful student behavior on two scales. The null hypotheses were stated as follows:

Hypothesis $_1$: There is no significant difference between the means of male and female professors regarding their perceptions of disrespectful student behavior on either the PS or the MES.

Hypothesis $_2$: There is no significant difference between the means of professors' rank (as instructor, assistant professor, associate professor, full professor or other) and their perceptions of disrespectful student behavior on either the PS or the MES.

Hypothesis $_3$: There is no significant difference between the means for professors' employment status (as part-time or full-time) regarding their perceptions of disrespectful student behavior on either the PS or the MES.

Hypothesis 4: There is no significant difference between the means of professors' contract status (non tenure track, tenure track, or tenured) and their perceptions of disrespectful student behavior on either the PS or the MES.

Hypothesis 5: There is no significant difference between the means of professors born in the United States and the foreign born professors regarding their perceptions of disrespectful student behavior on either the PS or the MES.

Hypothesis 6: There is no significant difference between the means of professors teaching at institutions with a mandatory code-of-conduct and those not using a code-of-conduct regarding their perceptions of disrespectful student behavior on either the PS or the MES.

Hypothesis 7: There is no significant difference between the means for professors' ethnicity regarding perceptions of disrespectful student behavior on either the PS or the MES.

Hypothesis 8: There is no significant difference between the means of HBCU and AACSB professors regarding their perceptions of disrespectful student behavior on either the PS or the MES.

RESULTS

"Statistical theory also shows the standard deviation of a sampling distribution is inversely related to the sample size. That is, the larger the sample size, the smaller the standard deviation of the sampling distribution" (Henry, 1990, p. 39). Also, "For a sample size of 100, 95% of the sample means fall within $\pm$ 1.96 standard deviation units. A sample size of 10 (9 degrees of freedom) would require $\pm$ 2.26 standard deviation units" (Henry, 1990, p. 40.). Confidence intervals are larger for smaller samples. This study's sample size of 172 can be considered adequate because it approaches the properties of a normal distribution, and a systematic random sampling method was used. Eight null hypotheses were tested.

To test the null hypotheses, we used responses from 172 completed surveys. One-Way ANOVA tests are presented in Tables 4, 5, 6, 7a, and 7b for the eight null hypotheses tested at a significance level of .05. All statistical analyses were performed using SPSS 15.0.

With factor analysis, used here as a data reduction technique, data transformed during rotation and variable loadings in some cases can be negative. Negative variable loadings simply mean that the variable is inversely related to the factor on which it loads. One example, such as a "stealing" variable would load negatively on an "honesty" factor (Kachigan, 1991). Derived factors represent a "hypothetical" construct (Hatcher, 1994); in this study, the two hypothetical constructs measured are faculty perceptions and their memory encounters with students' disrespectful behavior. The means reported here are not those from raw score responses on the PS or MES, but means of summed variable loadings on said factors.

Hypothesis 1 was tested using One-Way ANOVA, and no significant mean difference between male and female professors existed regarding their perceptions of disrespectful student behavior on either the PS or the MES and the derived factors on each scale; therefore, we did not reject hypothesis 1.

Hypothesis 2 was tested using One-Way ANOVA, and a significant difference among the means for professors' rank (as instructor, assistant professor, associate professor, full professor, or other) and their perceptions of disrespectful student behavior on either the PS or the MES and the derived factors on each scale was revealed; therefore, we rejected null hypothesis 2. A significant difference was found to exist among the factor means of professors on the MES with a p=.007. A Tukey's post hoc comparison revealed the difference to exist on factor four (laxness) between instructors and associate professors with

a p = .006. Instructors and "other" faculty differed with a p= .042. The means were -.40 and .26 and -.40 and -.12 respectively. Instructors and associate professors have inverse perceptions of students' laxness, and instructors perceived significantly less laxness among students than faculty members coded as "other": Adjunct, lecturers, etc. Please see Table 4 for an ANOVA summary.

Table 4: ANOVA Test for Four Factors of the MES on Faculty Members' Professorial Rank

Rank and MES Derived Factors		Sum of Squares	Df	Mean Square	F	Sig.
Disagreeable	Between Groups	5.997	4	1.499	1.519	.199
	Within Groups	151.003	153	.987		
	Total	157.000	157			
Attendance	Between Groups	2.959	4	.740	.735	.570
	Within Groups	154.041	153	1.007		
	Total	157.000	157			
Uninvolved	Between Groups	2.578	4	.644	.638	.636
	Within Groups	154.422	153	1.009		
	Total	157.000	157			
Laxness	Between Groups	13.621	4	3.405	3.634	.007**
	Within Groups	143.379	153	.937		
	Total	157.000	157			

Hypothesis 3 was tested using One-Way ANOVA, and a significant difference between means for college teachers' employment status, as part-time or full-time, and their perceptions of disrespectful student behavior on either the PS or the MES and the derived factors on each scale was revealed; therefore, we rejected null hypothesis 3. A significant difference was found to exist between the means of professors on the MES with a p=.000. The mean for 15 part-timers on factor three was -1.03 and the 142 full-time professor's factor mean was .11. The two groups have inverse perceptions of student lack of involvement, or factor three. Please see Table 5 for an ANOVA summary.

Hypothesis 4 was tested using One-Way ANOVA, and no significant difference among means for college teachers' contract status (as non-tenure track, tenure track, or tenured) and their perceptions of disrespectful student behavior on either the PS or the MES and the derived factors on each scale was revealed; therefore, we did not reject null hypothesis 3. Please see Table 4 for an ANOVA summary.

Hypothesis 5 was tested using One-Way ANOVA, and no significant difference between the means for those 160 born in the United States and 50 who were born elsewhere and their perceptions of disrespectful student behavior on either the PS or the MES and the derived factors on each scale was revealed; therefore, we did not reject null hypothesis 5.

Table 5: ANOVA Test for Four Factors of the MES on Faculty Members' Employment Status

Status and MES Derived Factors		Sum of Squares	Df	Mean Square	F	Sig.
Disagreeable	Between Groups	.592	1	.592	.591	.443
	Within Groups	155.453	155	1.003		
	Total	156.045	156			
Attendance	Between Groups	1.471	1	1.471	1.471	.227
	Within Groups	155.056	155	1.000		
	Total	156.527	156			
Uninvolved	Between Groups	17.933	1	17.933	20.071	.000***
	Within Groups	138.491	155	.893		
	Total	156.424	156			
Laxness	Between Groups	.123	1	.123	.122	.728
	Within Groups	156.443	155	1.009		
	Total	156.565	156			

***Denotes p< .001.

Hypothesis 6 was tested using One-Way ANOVA, and a significant difference between the means of professors teaching at institutions where a code-of-conduct was required versus those without a required code-of-conduct regarding their perceptions of disrespectful student behavior on the PS and the MES scales was revealed; therefore, we rejected null hypothesis 6. A significant difference was found to exist between the means of professors who used a mandatory code-of-ethics versus those professors not using a mandatory code-of-ethics on the MES with significant p=.044 and p= .006 on students' attendance and being uninvolved in classroom activities. Please see Table 6 for an ANOVA summary.

Hypothesis 7 was tested using One-Way ANOVA, and no significant difference among the means for college teachers' ethnicity (White, Black, Hispanic, Asian, or Other) and their perceptions of disrespectful student behavior on either the PS or the MES and the derived factors was revealed; therefore, we did not reject null hypothesis 7. In this case, the sample of 110 White, 26 Black, 17 Hispanic, 10 Asian and 4 other, representative minority groups were possibly much too small (especially Asian and other minority groups) to detect true differences.

Hypothesis 8 was tested using One-Way ANOVA, and a significant difference between the means for HBCU and AACSB faculty and their perceptions of disrespectful student behavior on both the PS and the MES and the derived factors was revealed; therefore, we rejected null hypothesis 8. On the PS factor two (argues), AACSB had a mean of -.35 and HBCU had a mean of .65 with p= .044; on factor three (apathy) of the PS, AACSB had a mean of -.01 and HBCU had a mean of .01 with a p= .013 respectively. AACSB and HBCU faculty members have inverse perceptions of students on arguing and engaging in apathy behaviors as being disrespectful. On the MES factor two (attendance), AACSB had a mean of -.35 and HBCU had a mean of .65 with p= .000; AACSB and HBCU faculty members have inverse perceptions on students' attendance as being disrespectful. Please see Table 7a and 7b for ANOVA summaries.

Table 6: ANOVA Test for Four Factors of the MES on Faculty Members' Using a Code-of-Conduct

Factors on Code of Conduct and MES		Sum of Squares	Df	Mean Square	F	Sig.
Disagreeable	Between Groups	2.897	2	1.449	1.467	.234
	Within Groups	150.062	152	.987		
	Total	152.959	154			
Attendance	Between Groups	6.119	2	3.060	3.132	.046
	Within Groups	148.475	152	.977		
	Total	154.594	154			
Uninvolved	Between Groups	9.943	2	4.972	5.324	.006**
	Within Groups	141.942	152	.934		
	Total	151.885	154			
Laxness	Between Groups	.632	2	.316	.310	.734
	Within Groups	154.842	152	1.019		
	Total	155.474	154			

**denotes p< .01.

Table 7a: ANOVA Test for Four Derived Factors of the PS on AACSB and HBCU Faculty

AACSB-HBCU on PS Derived Factors		Sum of Squares	Df	Mean Square	F	Sig.
Rudeness	Between Groups	3.474	1	3.474	3.530	.062
	Within Groups	153.526	156	.984		
	Total	157.000	157			
Argues	Between Groups	4.059	1	4.059	4.141	.044*
	Within Groups	152.941	156	.980		
	Total	157.000	157			
Apathy	Between Groups	6.077	1	6.077	6.281	.013*
	Within Groups	150.923	156	.967		
	Total	157.000	157			
Discourteous	Between Groups	.574	1	.574	.572	.450
	Within Groups	156.426	156	1.003		
	Total	157.000	157			

*Denotes p< .05.

Table 7b: ANOVA Test for Four Derived Factors of the MES on AACSB and HBCU Faculty

AACSB-HBCU on MES Derived Factors		Sum of Squares	Df	Mean Square	F	Sig.
Disagreeable	Between Groups	.004	1	.004	.004	.953
	Within Groups	156.996	156	1.006		
	Total	157.000	157			
Attendance	Between Groups	35.743	1	35.743	45.983	.000***
	Within Groups	121.257	156	.777		
	Total	157.000	157			
Uninvolved	Between Groups	.007	1	.007	.007	.934
	Within Groups	156.993	156	1.006		
	Total	157.000	157			
Laxness	Between Groups	.081	1	.081	.080	.777
	Within Groups	156.919	156	1.006		
	Total	157.000	157			

*** denotes $p < .001$.

DISCUSSION

Student behavior faculty members found disrespectful are discussed in this section. Some of the findings are what one would expect. Others are somewhat surprising. See Appendix A for a full listing of the item and its mean rank on both the PS and MES. The faculty in the sample on the PS find "A student who treats faculty or other students discourteously" to be highly disrespectful. The faculty in the sample on the MES find "At least two students have come to class unprepared (not reading required materials, having school supplies, and submitting required work on time)" to be the highest encounters of disrespect they perceived. In fact, this behavior topped the list as the most disrespectful classroom behavior.

The behavior that received the second highest vote as disrespectful on the PS was a "student who answers a cell phone in class." Similarly, a "student who storms out of class in anger" was ranked third on the list. None of these findings are surprising since each of them would potentially be disruptive in a class setting and contradict the fundamentals of civil social behavior. Somewhat surprisingly, actions such as Q6: A student who has come to class unprepared (not reading required materials, having school supplies, and submitting required work on time) is…Q16: A student who openly challenges a professor's knowledge is…Q12: A student who wears improper dress in my class (baseball hat, t-shirt with profanity, loud-jingling jewelry, etc.) ranked lowest on the PS. (See the Appendix for a detail listing of the questionnaire items on the PS and MES as they are ranked by means)

RECOMMENDATIONS

To create a healthy learning environment in the classroom, we believe the faculty should be in charge in the classroom. For this to happen, we encourage faculty to make their expectations of classroom etiquette known to the students and discuss these expectations from time to time for emphasis. If a faculty

considers tardiness to be disruptive, the students should be made aware of this. Poor behavior should be consistently penalized and good behavior rewarded. Any college of business could adopt a set of "Expectations for Classroom Behavior," that faculty members share on the first day of class. The form explains the faculty expectations of what is considered acceptable and unacceptable behavior, and provides the instructor latitude to penalize poor behavior.

Finally, at the first sign of poor student behavior, the instructor should note the misconduct, and reinforce displeasure in a private meeting. The faculty is also advised to seek the assistance of the department head or the Dean's office in case of extreme disruptive behavior. At the University level, the administrator in charge of disciplinary action should also be contacted. Given these steps, there should be improvement in the general student behavior in the classroom.

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APPENDIX A
Descriptive Statistics for the PS

Questionnaire Items for the PS Ranked by Mean Responses	Mean	SD
Q10: A student who treats faculty or other students discourteously…	6.28	1.480
Q13: A student who answers a cell phone in class is…	6.04	1.594
Q14: A student who storms out of class in anger is…	5.80	1.715
Q7: Students are not attentive during the lecture (sleeping, reading unrelated material, talking, browsing the Web, email of text messaging, etc.) is…	5.71	1.537
Q11: A student who talks to other students during the lecture is…	5.65	1.452
Q3: A student who walks out of class without permission is …	5.64	1.482
Q1: A student who repeatedly comes to class late without prior notice is…	5.42	1.466
Q4: A student who is argumentative with faculty or fellow students is…	5.35	1.768
Q9: A student who does not respond to faculty questions when called upon is…	5.06	1.653
Q5: A student who chooses not to participate in mandatory class assignments or activities is…	4.88	1.783
Q2: A student who misses several days of class without prior notice is…	4.79	1.556
Q15: A student who argues about an assignment or grade is…	4.65	1.780
Q8: A student who addresses a faculty by first name is…	4.62	2.061
Q6: A student who has come to class unprepared (not reading required materials, having school supplies, and submitting required work on time) is…	4.62	1.483
Q16: A student who openly challenges a professor's knowledge is…	4.53	1.957
Q12: A student who wears improper dress in my class (baseball hat, t-shirt with profanity, loud-jingling jewelry, etc.)is ...	4.37	1.597

BUSINESS APPLICATIONS OF GEO-SPATIAL TECHNOLOGIES

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ABSTRACT

This paper presents information on a multi-disciplinary range of business applications of Geographic Information Systems (GIS) and related Geo-Spatial Technologies (GST) such as digital remotely sensed imagery and global positioning systems (GPS). Applications in marketing, economics/general business, logistics/operations research, finance, accounting, human resources and legal facets of business will be discussed. Definition and discussion of what constitutes GIS and GST will introduce the topic. Examples of current methodologies and outstanding instances of companies utilizing GST will be featured. In particular, the future potentialities of these technologies in business disciplines outside well established applications in marketing and logistics will be emphasized. Lastly, resources for obtaining additional information about GST including location and status of leading software vendors, availability and characteristics of data-sets and sources of specialized hardware will be summarized.

INTRODUCTION

Geographic Information Systems (GIS) and related Geo-Spatial Technologies (GST) such as digital remotely sensed imagery, global positioning systems (GPS), vehicle navigation and tracking systems and the availability of interactive web-based maps constitute a revolutionary and powerful set of tools for business decision makers and academics in business related disciplines to use to better understand the spatial issues surrounding their firms and fields. GST particularly those technologies like Web-based Mapping and vehicle navigation Systems and mobile cell phone mapping applications allows consumers to visualize and analyze issues that have a spatial component. In the past, spatial aspects of many businesses related situations and decisions were ignored or at least neglected because of the difficulty of creating cartographic products like *choropleth maps* (maps that use a spectrum of color fills to convey numerical or categorical information), graduated and proportional dot distribution maps, flow maps and/or cartograms. However, the advent of GIS starting in the 1960's and the development of business and market research applications of GIS starting in the 1980's allowed large business organizations to see and understand the spatial aspects of issues like location of retail units, and the demographics of *trade areas* (areas where potential or actual customers resided, and to a lesser extent were employed) (Goodchild, 1989). More recently, geospatial technologies, principally GPS and remote sensing have added new dimensions to both gathering spatial data as well as helping with the process of visualizing

spatial relationships important in business and small and medium sized business have increasingly embraced the greater functionality, increasing ease of use and progressively falling costs of GST (Leipnik, Mehta, and Maniam, 1999).

The development of numerous interactive web-based mapping tools, most notably Google Maps/Google Earth and related Google Map *mash-ups* are making spatial data available to consumers (Mehta, Maniam, and Leipnik, 2004). Likewise, the proliferation of mobile devices capable of displaying maps (typically road or more properly "*street centerline*" maps) and very recent hybrids of maps and imagery such as Google *Streetview* are bringing geospatial data into mobile and Internet environments and opening up new ways of understanding space and reaching consumers with product and unit location, availability and other information.

While GIS and geo-spatial technologies have long been used in businesses with complex and spatially extensive assets such as public utilities and for management of the extensive land holdings of railroads and of natural resource extraction industries like forestry and mining, it has only been within the last two decades that these technologies have found widespread use in many aspects of the marketing discipline, including market research, location of units, allocation of sales territories and the expanding sub-discipline of *geo-demographics*, a solid understytanding of which plays an important role in the success of all of these business application areas (Leipnik, Mehta, and Maniam, 2004). Logistics and related areas of operations research have incorporated some geospatial technologies, notably routing and GPS-tracking of shipments and mobile assets. Other areas of business have either used geospatial technologies (GST) (including GIS) to a lesser extent or only in the most cursory manner (such as to generate a thematic map to accompany an annual report or enhance a sales presentation). In this paper, the authors will examine the use of geospatial technologies in a wide range of business disciplines, including those such as finance, accounting, human resources and business law where the current uses of GST are limited, but we would argue that potential applications are quite promising.

DEFINITION, ORIGIN AND FUNCTIONALITY OF GST COMPONENTS

Note that the following definitions are adapted from either Internet sources or The Dictionary of GIS Terminology edited by Helen Kennedy and published in 2001 by ESRI Press, Redlands, California.

GIS

A geographic information system (GIS) is an organized collection of computer hardware, software, geographic data and personnel designed to efficiently capture, store, update, manipulate, analyze and display geographically referenced information stored in multiple co-referenced layers linked to descriptive attribute information stored in database tables. In a broader generic sense, GIS applications are tools that allow users to create interactive queries (user created searches), analyze spatial information, edit data, create and plot maps, and present the results of all these operations.

GPS

The GPS (Global Positioning System) is a "constellation" of 24-30 orbiting satellites that make it possible for people with ground receivers to pinpoint their geographic location (longitude, latitude and altitude). The GPS is operated by the U.S. Department of Defense but is available for general use around the world. GPS equipment is widely used in science and commerce. When the receiver is equipped with a display

screen that shows a map, the position can be shown on the map. If you are moving, your receiver may also be able to calculate your speed and direction of travel and give you estimated times of arrival to specified destinations. GPS has been built into an array of mobile devices like vehicle navigation systems as well as all 3rd generation cellular phones.

GST

Geo-Spatial Technology (GST), is the discipline and related technologies involved in gathering, storing, processing, and delivery of geographic information, or spatially referenced information. Geo-Spatial technology includes three main technologies that are all related to mapping features on, under or above the surface of the earth. These three technology systems are GIS (Geographical Information Systems), GPS (Global Positioning Systems) and RS (Remote Sensing). In addition vehicle navigation and tracking systems and digital aerial photography and street level photography and use of interactive web-based maps and imagery are all variants and combinations of these three main Geo-Spatial Technologies.

Remote Sensing

Remote sensing is the science, technology, and art of obtaining information about objects from a distance. More specifically, it refers to the gathering of information about the environment by measuring the interaction between electromagnetic energy and the materials of which the environment is composed. The principle forms of remote sensing are satellite-based remote sensing, aerial photography, aerial videography, pictometry (an oblique aerial imaging method) and LIDAR (Laser Detection and Ranging) an airborne laser-based system to map terrain.

Aerial Photography

Aerial photography is the taking of photographs of the ground from an elevated platform, usually a fixed or rotary wing aircraft. Other platforms that have been used for aerial photography include pigeons, balloons, kites, and rockets. Aerial photography is used in cartography, land-use planning, surveying, archaeology, movie production, environmental studies, surveillance, commercial advertising, property appraisal and civil engineering. A very common application of aerial photography is the creation of orthophotos – photographs which have been "corrected" to remove several types of distortion so as to be usable as a scaled map or basis for mapping. Orthophotos have been widely used in online map systems such as Google Maps. Google Earth lays orthophotos onto a GIS-based representation of the earth called a *geoid* and uses digital elevation models to simulate 3D landscapes.

Interactive Web-Based Mapping

Web-mapping is the process of designing, implementing, generating and delivering maps on the World Wide Web. Interactive web-based mapping welcomes map users' participation in the map-making process by allowing various inputs such as extent, choice of layers, and sometimes choice of symbols and colors from on-line users. Interactivity helps to explore maps, change map parameters, navigate and interact with the map, reveal additional information, link to other resources, and much more. Web-based maps are increasingly conveying information to consumers and business decision makers. A wide variety of information is available on web-based mapping sites including business locations (Google Maps), Travel information (Visit Britain and Visit Norway), geodemographic information (American Fact Finder) and real-estate related information (Realtor.com & Propertyshark.com) (Barbero, 1999).

Google Map "Mashup"

In web development, a *mashup* is a web application that combines data from more than one source into a single integrated tool. The term mashup implies easy, fast integration, frequently done by access to open APIs and data sources to produce freely available results that were not the original goal of the data owners. Google has made its Google Maps and Google Earth geospatial data freely available to web developers who wish to use that vast and constantly updated data source as a base map for mapping features of interest to the developer. This includes many types of consumer, social networking and special interest data. An example of a business application of a Google Maps mashup would be the use of cartographic data from Google Maps to add location information to real-estate data, thereby creating a new and distinct web service that was not originally provided by either source.

Geocoding

Geocoding is the process of finding associated geographic coordinates (often expressed as latitude and longitude) from other geographic data, such as street addresses, or zip codes (postal codes). With geographic coordinates the features such as the home location of a consumer or the location of a firms units and competitors can be mapped (usually as a point represented by a connotative or geometric symbol) and entered into Geographic Information Systems or displayed in a Google maps mashup, or the coordinates can be embedded into media such as digital photographs via *geotagging*. Reverse Geocoding is the opposite: finding an associated textual location such as a street address, from geographic coordinates. The Geocoding function is provided by most GIS software packages as well as by commercial consulting firms.

Geotagging

Geotagging is the process of adding geographical identification metadata (data about the data such as its coordinates) to various media such as photographs, video, or websites. This data usually consists of latitude and longitude (or some other coordinate system) coordinates, though it can also include altitude, bearing, accuracy and place names data. Geotagging can help users find a wide variety of location-specific information. Examples of sites with geotagging capabilities include Picasa, Panaramio, Locr and Smugmug. For instance, one can find images taken near a given location by entering place name and/or latitude and longitude coordinates into a Geotagging-enabled image search engine like Picasa. Geotagging-enabled information services can also potentially be used to find location-based info on businesses, news, websites, or other resources

Life Style Segmentation Profile

A lifestyle segment profile (LSP) is a subgroup of people sharing one or more demographic or economic characteristics that cause them to have similar product and/or service needs. LSP data is available in a format for use in a GIS in order to analyze decisions like siting a new unit in an area where the dominant segment is similar to those predominant in successful trade areas elsewhere. LSP data can also be used to target advertising. Market segmentation is the process of classifying a market into distinct market segments. Lifestyle segmentation is the division of a total heterogeneous market into relatively homogeneous groups, based on their race, income, educational attainment, housing characteristics, the number of children, marital status, service in the armed forces and other aspects of their lifestyles. A number of market segmentation systems exist. ESRI of Redlands, California has a lifestyle segmentation profile (LSP) classification system, known as Tapestry that classifies U.S. neighborhoods into 65 segments based on their socioeconomic and demographic composition and is mapped by zip code and census tract boundaries as well as being available by state, for metropolitan statistical areas (MSAs) and "Micropolitan" areas. The competing Prizm system from Claritas (A division of AC Nielsen, San Diego, CA) provides 59 somewhat similar categories mapped by state and zip code.

Vehicle Navigation Systems

A vehicle navigation system is a satellite navigation system designed for use in various types of vehicles. It contains a specialized GIS with street centerline and *point of interest* data layers and it has the ability to estimate travel times and determine shortest paths and shortest time through a connected road network. Some units can use Bluetooth technology to download additional information such query on-line databases about destinations and businesses like restaurants and gas stations and get real-time traffic and weather updates. The leading manufacturers of *after market* vehicle navigation systems are Tom Tom and Garmin, vehicle navigation systems are standard equipment on BMW and Acura automobiles and optional on many other makes and models (like GM vechicles with the ON-STAR variation on this approach which uses a GPS along with a cellular phone to optain geospatial guidance from a call center with GIS support.

Vehicle Tracking System

A vehicle tracking system is an electronic device installed in a vehicle to enable the owner or a third party to track the vehicle's location. Vehicle tracking systems use Global Positioning System (GPS). Many systems also combine a communications component such as cellular or satellite transmitters to communicate the vehicle's location to a remote user. Vehicle information can be viewed using GIS on maps and/or via the Internet. Vehicle tracking systems have been widely used in the shipping industry and now can also be found in consumers' vehicles as a theft prevention and retrieval devices. Increasingly firms and local governments are tracking fleet vehicles to deter misuse, such "slacker trackers" and tracking of the vehicles of teenagers by parents is often resented. Tracking can also determine instances of speeding, avoidance of scales, over-long shifts and determine location of accidents by being linked to airbag deployment.

Radio Frequency Devices

Radio Frequency (RF) is a frequency in the range of about 3 Hz to 300 GHz. A radio frequency device comprises a radio frequency transponder having a radio frequency circuit and antenna, and a sensor conductively connected to the radio frequency antenna so that a measurement can be retrieved from the sensor by communicating with the transponder. One example of such radio frequency device is a radio-frequency identification (RFID) tag or label commonly used for identification of persons, animals or goods, tracking or theft protection of goods, access control for restricted areas, electronic payment systems, etc. Some RF receivers and RF devices are being equipped with GPS receivers to allow tracking inside and outside structures. RF tags built into name badges are becoming more common in the workplace. Data retrieved from RF tags can be downloaded into a GIS to study the movement of RF tagged products and/or personnel.

APPLICATION OF GST IN MARKETING

Marketing and market research, while not the longest duration application of GST in business, are the most important, well documented and significant in terms of the impact of these technologies on the global business environment. The primary applications of GST in marketing can be broken down into

three important categories 1) unit location 2) territory allocation and 3) targeting of advertising (Goodchild, 1982). However, all these applications depend on two important techniques. One is the ability to understand and analyze customer and potential consumer demographics at the residence (household), census block, block group, tract, county, MSA and state levels as well as at zip code and zip code plus 4 levels of geographic subdivision. In international applications understanding demographics at the national level for multiple countries as well as potentially at a finer level of geographic subdivision such as province, canton, commune, etc as with the European Community's NUTS (National Territorial Units) system with its NUTS II (Province, County, Canton), NUTS III (District, Prefecture) and NUTS IV (Commune, City, Town, Village) level of subdivision. The second technique is the ability to geocode customer and unit and (occasionally) competitor locations based on street address, zip code or possibly GPS coordinates to put those features literally on the map.

In unit location studies, retail firms and those with spatially extensive processing and distribution facilities can use GIS to determine various aspects of potential locations relevant to business success. Thus cost of land, construction costs, zoning, infrastructure availability and locations of existing customers and competitors can all be analyzed in a series of co-registered layers with appropriate attribute data. Tools such as *buffer zone generation*, travel time (*isocrone*) determination and other types of spatial analysis can be performed to identify potential sites and select the best locations from among those sites. In addition, geodemographics is likely to be an important consideration, so the number and characteristics of residents (and possibly workers) located in proximity to potential sites will need to be evaluated.

An example of a firm using all these methods along with site selection teams in the field is Starbucks, Inc. of Seattle, Washington. The ESRI ArcGIS software suite is used by Starbucks in site selection studies and GPS determined unit locations are evaluated against a variety of geospatial layers which can include, appraised valuation, cost of land, zoning, flood zones, streets, traffic counts, travel times, population demographics by zip code zone, and lifestyle segments that have been identified as most likely to consume coffee products and other factors (Leipnik and Mehta, 2004). Recently Starbucks has been using spatial analysis to help determine which units to close. Taking into account changing demographics, falling sales and the duration of the units operation (recently opened units will be given more time to raise low sales and/or reverse falling sales). Close proximity of units inside trade areas is another factor in the decision to close poorly performing units which may be cannibalizing each other unacceptably today.

This shows that methods of spatial analysis and the use of GST can be equally valuable during a contraction. In point of fact, they may be more valid, since established stores have a track record that can be compared with other factors such as potential for growth in a community and trends in sales in similar areas to make decisions on closing a unit. The fact that Starbucks has opened new units directly adjacent to existing stores (such as in downtown Vancouver, Canada) indicates that what was an easy option in the past in the case of the over-capacity of a unit, will now likely force the closure of one of the units. Many business undergoing consolidation due to mergers and acquisitions or technological change such as in the case of the banking industry, can benefit from using GIS to make decisions about which branches to retain as well as where to open new ATM machines and how to use customer relationship marketing techniques to support access over the Internet and through affiliated banks for customers served by closed branches.

In territory allocation applications of geospatial technologies, spatial optimization can be used to optimally allocate sales territories between competing sales representatives taking into account such factors as spatial extent of the territory, minimizing travel costs over all salespersons, matching and retaining as many existing customers with their current salesperson as possible, keeping as many sales persons in their current sales territory and balancing work loads and potential customers numbers among an existing or a rationalized sales forces. Just as with unit location studies, allocation studies can be constructed so as to account for falling sales volumes or loss of territories due to consolidation. As an illustration of the value of taking spatial factors into account in design of sales territories, the situation of the sales person whose territory covers all of Texas in a state by state territory allocation scheme is instructive. This sales person, if he is hypothetically making a sales call in Brownsville is farther away from his next assigned client in Texarkana, than a sales person based in Chicago would be. Taking spatial factors such as distance, travel time and cost and proximity into account can help rationalize the size and balance the work load of sales persons. A related allocation issues is the determination of the degree of cannibalization that may occur in a franchise operation when a new unit with a different franchisee enters a given market (trade) area (Goodchild, 1987). In this case, the locations of existing customers should be used to determine the approximate trade area from which existing units of the franchise are drawing customers. New units proposed by investors need to be evaluated both with respect to the degree to which they can obtain adequate sales from their probable trade area, but perhaps more importantly whether are they going to obtain those sales by cannibalizing existing units of the same franchise owned by other franchisees. If all the units proposed and existing are owned by the same franchisee then it may a matter of indifference to the franchisor, if an additional unit is added into a given market. However, if the existing units are owned by other investors it is a matter of supreme importance whether a new unit is allowed in the same trade area. This situation can be resolved by application of several types of GIS-based spatial analysis to determine the size of trade areas, to conduct analysis to determine if the terms of exclusivity agreements are being adhered to and to determine the potential success of new units of a franchise *a priori*. Examples of firms using GIS for these types of analysis include Yum Brands, Gold's Gym, Ace Hardware Stores, Inkjet Inc of Chicago and Best Western Motels (Mehta, Leipnik, and Maniam, 1999).

LOGISTICS AND OPERATIONS RESEARCH APPLICATIONS OF GST

The full range of GST is not used in logistics. However, the special combination of use of GPS-based vehicle tracking units generally with real-time communication links through cellular or wireless Internet devices to track mobile assets (most frequently trucks) and the analysis of that data at a dispatching center using GIS-based maps of street centerlines and other relevant features such as warehouses, delivery points, etc is a extremely powerful tool for optimizing delivery routing and logistics. The spatial optimization algorithms used include variations on the *simplex* algorithm and shortest path determination methods. Development and enhancement of these spatial optimization techniques is a branch of operations research. In order for these applications to work, highly specialized software such as ArcLogistics Route from ESRI and a specially structured set of street centerline data with interconnectivity and attributes such as speed limits, street names, address ranges and mobility limitations such as low bridge locations is essential. These data sets are available in the U.S. from two competing vendors: Teleatlas (owned by Dutch GPS maker Tom Tom) and Navteq (owned by Finnish telecommunications giant Nokia) Examples of firms utilizing spatial optimization and real-time tracking include package delivery firms like FedEx and UPS and the U.S. Postal Service and firms with extensive delivery commitments such as Frito Lay, Inc.

One of the best examples of a company profiting from geospatial technologies is E & J Gallo, Inc., the Modesto, California wine maker. Gallo has to constantly vary the size and quantity and type of deliveries to over 23,000 grocery and liquor stores and manage distribution from numerous wineries, breweries, ports and regional distribution centers. It utilizes tracking systems in delivery trucks and ArcLogistic Route to optimize the logistics of this complex and ever changing delivery side of its business (Arends, 2004). Also the major interstate trucking firms such as JD Hunt and Schneider National employ Arc Logistics Route or variations of the approach such as QUALCOMM's V-Tracks hardware and software. Another example of a firm that is utilizing GST in many aspects of its extensive businesses is Archer, Daniel, Midlands Corporation (ADM). ADM uses spatial optimization to determine where to establish processing facilities for agricultural commodities, which transportation modalities to employ given distances and relative costs and where to source agricultural commodities given prices, production and demand on a global basis. The main goal of the optimization is cost minimization while meeting demand and input/output and processing and logistical constraints (Clevenger, 2008). Recently, Caterpillar, Inc. has developed systems for tracking its equipment on and around job sites that utilizes a variety of geospatial technologies. Some firms have also taken to using GPS to map the locations of customers (or at least those customers whose locations do not geocode readily using street address data and street centerline data sets that contain address ranges and street names). These firms include Sears Home Central and John Deere, Inc. John Deere has found having locations of farm machinery mapped with GPS to be very helpful, as many of their tractors, etc are located at places that do not have valid street addresses, either because they are in tractor barns or the residences in question have rural delivery route or P.O. boxes for mailing addresses. Having vehicle navigation systems in service vehicles with drivers being able to view and update GPS waypoints for customer locations greatly facilitates reaching and returning to customers in the fastest and most economical manner, once a customer residence is arrived at by whatever means, the system can add that location as a waypoint in a GIS database that will contain the customer information along with the service call details. This evolving database can then be used to relocate the customer, but also can be used in studying trade area characteristics, locate new service centers and target advertising in radio and TV and direct mail media based on reaching customers and understanding customer demographics such as which LSP groups cover the areas where a large number of customers reside.

GENERAL BUSINESS & ECONOMICS APPLICATIONS OF GST

A map is a powerful tool to augment PowerPoint and print presentations for annual meetings, quarterly sales updates and presentation of any data from a firm that has facilities, units and/or customers in spatially extensive areas. Thus any major firm is certain to gain valuable insights and to present data in more dramatic and accessible manner by mapping that data using GIS and then exporting those maps to presentations and hard copy annual or quarterly reports and making the maps available on corporate web sites.. Firms can often benefit by adding data from outside sources such as demographic and economic data from the Census Bureau, Bureau of Labor Statistics, U.S. Department of Agriculture, etc. Many businesses are incorporation GIS generated web-based maps into their web sites to help customers find the location of the nearest store. In the discipline of economics, presenting data to students and collogues in the form of choropleth and other maps can easily convey the spatial distribution of economic phenomena such as unemployment, productivity per worker, cost of living, etc. While in the past it was a challenge to create a state by state map, GIS can allow quick and easy generation of county level maps or more detailed maps by place, zip code, census tract, etc for regions that present economic data in a easy to grasp manner. Also geodemographic data such as population growth and educational attainment and race, gender and age all can be studied by economists using GIS to analyze and disaggregate the data (Clapp, Rodriguez, and Thrall, 1997).
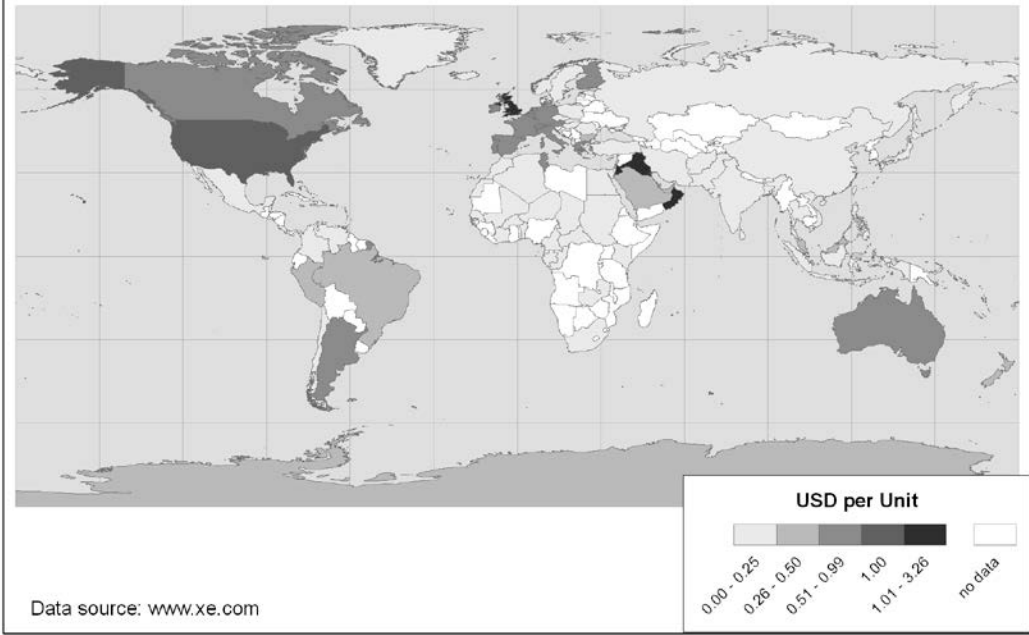
APPLICATIONS OF GST IN FINANCE

At present the most common applications of GST in finance is in the banking sector, where the location of customers may be mapped to determine if lending patterns comply with Community Reinvestment Act (CRA) requirements to avoid the appearance of "redlining" (that is not lending in disadvantaged minority communities). More recently, banks and other firms engaged in mortgage lending have been studying patterns of foreclosure and late payment activity at the census tract, zip code and county and MSA levels. This analysis along with estimates of drops in property values, can alert financial institutions to serious losses months in advance of when they will formally recognize those losses. Factors such as geodemographics can be added to create predictive models of the segments of the population and the regions and local economies most likely to suffer major problems. JP Morgan Chase is using GIS for this purpose (Zhang, 2008). Other financial industry firms that have used GIS for unit location studies, CRA compliance and other applications include Charles Schwab, Edward Jones, Wells Fargo and Bank of America.
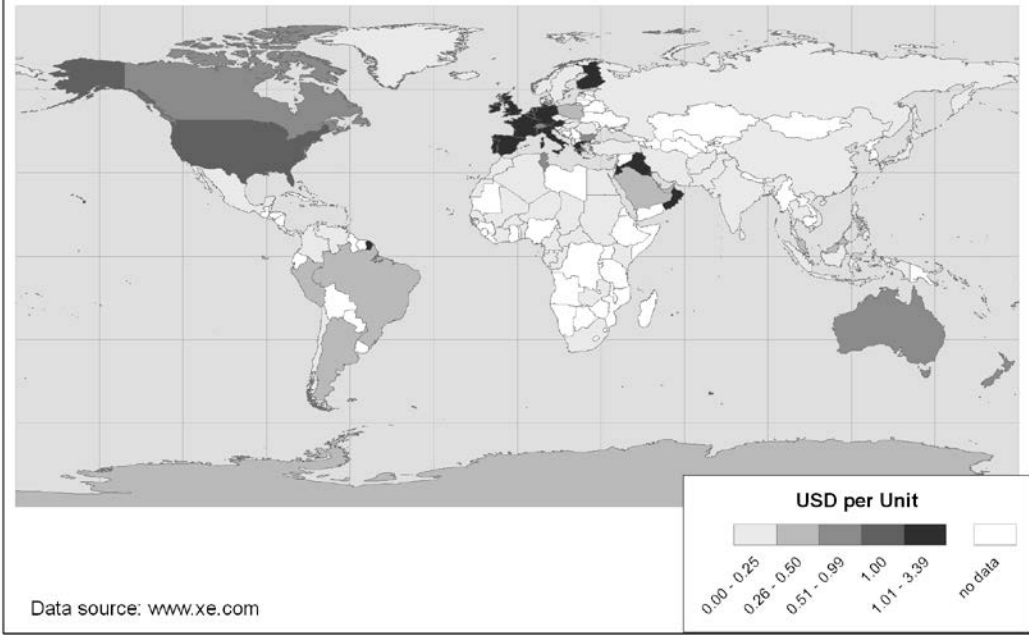
However, an entirely different and new potential application of GIS exists in the field of finance with respect to visualization of financial data. Many methods are used to visualize financial flows and structure. However, spatial factors are largely neglected by these methods. Spatial factors can be significant in understanding such issues as investment flows from one country to another or one region to another. Choropleth maps, cartograms and flow maps can all give valuable insights into the movement of funds and investments spatially and temporally. Also, the relative value of currencies involved in the vast volume of currency trading and exchanges can be view in a spatial context, with use of both continuous and exploded cartograms and with flow maps. Graduated dot distribution maps might also be a feasible tool to visualize the relative importance of financial trading centers (London, Frankfurt, Tokyo, New York, Chicago, Zurich, etc) rather than see them as entire whole countries.

Figure 1 a-e. Change in Foreign Currency Exchange Rates, Sample years from 2002-2009.
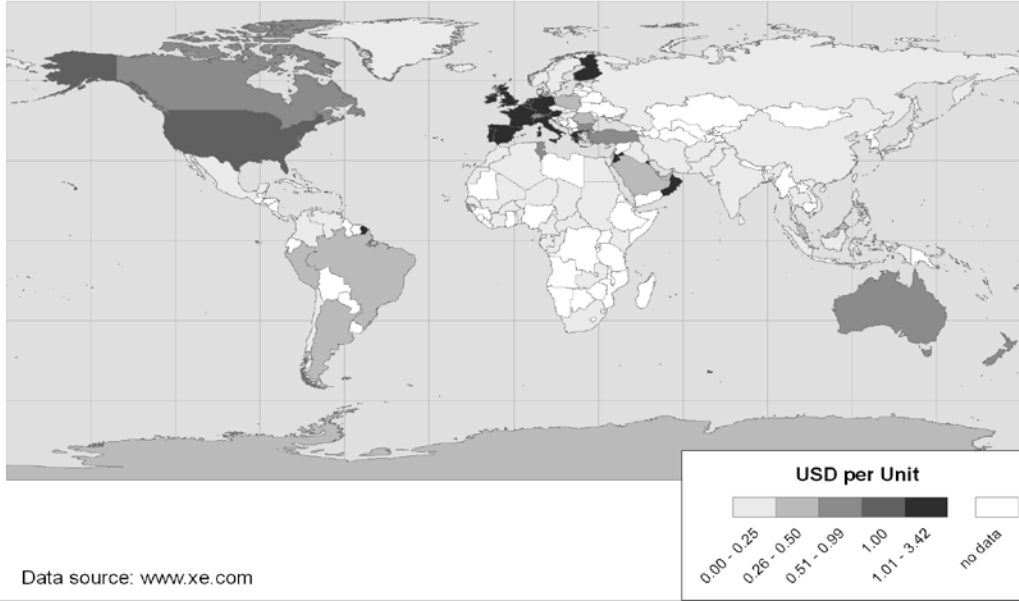
Foreign Currency Exchange Rates on Feb. 12, 2002

USD per Unit

0.00 - 0.25   0.26 - 0.50   0.51 - 0.99   1.00   1.01 - 3.26   no data

Data source: www.xe.com

Foreign Currency Exchange Rates on Feb. 12, 2004

USD per Unit

0.00 - 0.25
0.26 - 0.50
0.51 - 0.99
1.00
1.01 - 3.39
no data

Data source: www.xe.com

Foreign Currency Exchange Rates on Feb. 12, 2006

USD per Unit

0.00 - 0.25 0.26 - 0.50 0.51 - 0.99 1.00 1.01 - 3.42 no data

Data source: www.xe.com

Foreign Currency Exchange Rates on Feb. 12, 2008

USD per Unit

0.00 - 0.25 | 0.26 - 0.50 | 0.51 - 0.99 | 1.00 | 1.01 - 3.65 | no data

Data source: www.xe.com

Foreign Currency Exchange Rates on Feb. 12, 2009

USD per Unit

0.00 - 0.25 | 0.26 - 0.50 | 0.51 - 0.99 | 1.00 | 1.01 - 3.41 | no data

Data source: www.xe.com
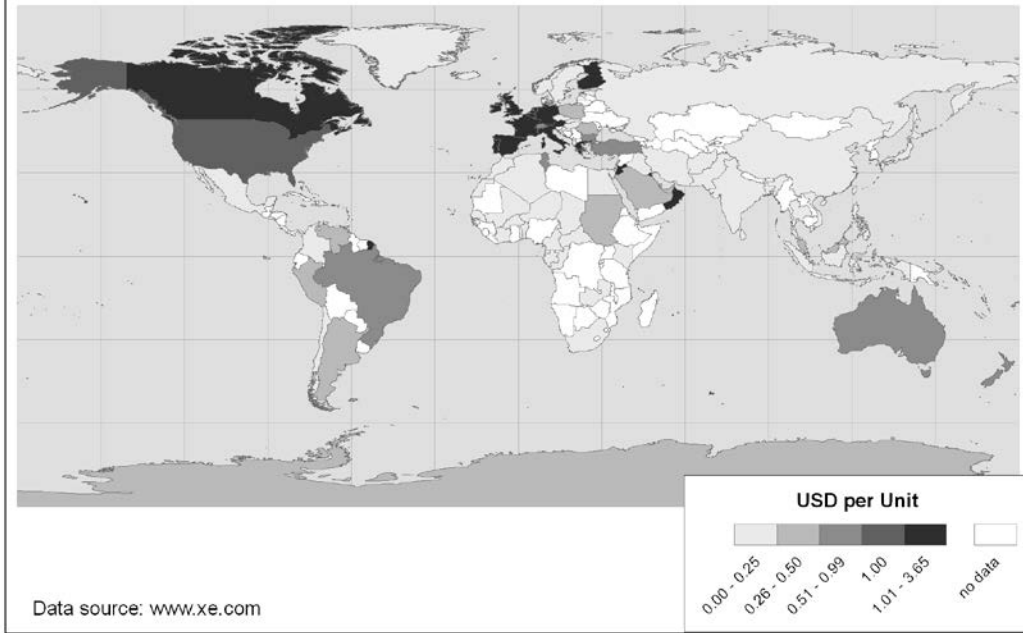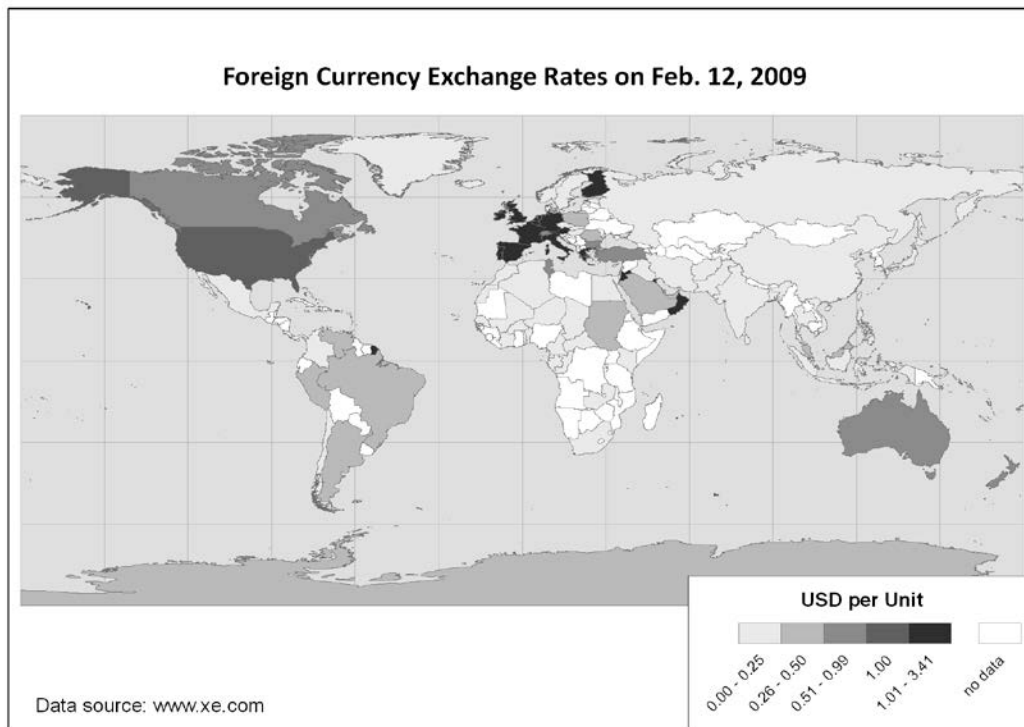
One example of using choropleth map to show the relative value of world major currencies is illustrated in Figure 1 a-e, which shows the changing exchange rates of world major currencies against the U.S. Dollar for selected years from 2002 to 2009. The exchange rates were obtained from www.xe.com and sampled on February 12 yearly from 2002 to 2009. The value of foreign currencies were all converted to U.S. Dollars and then classified into five groups with each represented by a specific color/shade. Comparing those maps across years it is clear to see the spatial and temporal variation in the value of foreign currencies. The relative strength of the euro and later the Canadian Dollar is highlighted as well as the status of some Middle Eastern Currencies that have pegged their value to dollars is apparent. This series of maps can be created for any day in the past as long as historical data is available for that date. The number of classes used in the map can also be increased easily to show the difference in currency value at a finer scale and a different basis currency such as Euros, Yen, Pounds, etc. can also be used. The maps highlight the relative strength of the Euro and Canadian Dollar to the U.S. Dollar.

Lastly the authors wish to propose the concept of *spatial diversification*. In spatial diversification, the degree to which investments in a portfolio are tightly clustered in space versus widely distributed could be measured quantitatively and qualitatively. This would be a proxy for risk of natural disaster, political upheaval or economic collapse adversely affecting what might otherwise appear to be a diversified investment portfolio. So for example, if an analysis of the spatial diversification of a children's toy firm with respect to potential or current suppliers were to indicate that there were dozens of potential and actual suppliers, but all were located in Southern China, Hong Kong or Taiwan then the firm would lack spatial diversification. That would imply that the firm would be subject to risks of a disaster or political upheaval affecting that region. Thus a war between China and Taiwan, a flood affecting Guangdong Province, an earthquake impacting Hong Kong and Shenzhen, etc. could all impact the ability of the firm

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to meet the demand for Christmas toys. To take another hypothetical case of spatial diversification of an investment portfolio: assume a wealthily retired investor purchased shares in a chocolate factory, shares in a gaming company, owned a car dealership, owned extensive acreage of raw land, owned a share in several apartment buildings, owned a share in an outlet mall, owned a motel and owned an expensive primary and vacation home. That would seem to be a diversified series of investments. However, if the chocolate factory was Ethel M Chocolates, the gaming company was Mirage Resorts, the car dealership was Las Vegas Chrysler Jeep, the land was in Henderson, Nevada, the outlet mall was in Barstow, California (on Interstate 15 on the way to Las Vegas), the apartment buildings were all in Las Vegas, the home was in Summerlin, Nevada and the vacation home was on Mount Charleston, Nevada, these apparently diversified investments would all be linked to one central place. That would be Las Vegas, Nevada, and as the economy of that metropolitan area faired so would all of the investments to a greater or lesser extent. Such a tightly spatially clustered series of investments is not unreasonable given that travel takes time and money and people are more comfortable investing in places they know well. Some of these investments would be less subject to a downturn in gaming related tourism or retirement home buying, but all would suffer greatly in the current economic slump. Conversely, if the chocolate factory was in Switzerland, the casino in Macau, the car dealership in Edmonton, Alberta, the raw land in Eastern Washington State, the apartments in Huntsville, Texas, the vacation home in Jackson Hole, Wyoming and the primary home was in Summerlin, Nevada, the spatially diversified investor would be less likely to suffer volatility in his investment portfolio. Actually constructing a measure of spatial diversification is somewhat complex, since one may need to take into account for a given business where its manufacturing facilities, suppliers and customers are as well as where the headquarters are located. However, in many cases for investments in real estate, in franchise units and in smaller businesses, the location of the centroid of the polygon defining the footprint of the parcel of the unit or home, etc is a good approximation of location. This location can be precisely determined using GIS. The distances between many such locations can be determined using GIS highly precisely as well as long as an appropriate equidistant projection is used on the data. And the aggregate distances summed and compared. A spatially diversified investment portfolio would have a greater aggregate distance and average distance than one that was not spatially diversified. The distance measure itself may be *Euclidean* distances (straight line), shortest path through a connected road network (the *Manhattan distance*) or some other measure, which over longer distances might be a great circle distance or a travel time estimate rather than a travel distance may be more relevant.

THE BUSINESS LEGAL ENVIRONMENT AND GST

Geospatial technologies are finding applications in one significant aspect of the myriad issues that constitute the business legal environment. This is the use of GIS, aerial imagery and computer aided design (CAD) and computer generated imagery (CGI) techniques in preparation of materials for presentations to juries. Maps and visualizations are powerful tools for presenting complex information that has a spatial dimension to disinterested laymen. Top-notch legal firms have increasingly realized the value of arming expert witnesses and others testifying at trials and administrative law procedures with graphical materials and sometimes are providing them the results of spatial analysis that use GST in their creation. That the jury members, lawyers and frequently the expert witnesses themselves are ignorant of the source of the materials they are evaluating and presentation is ironic but irrelevant. An example of the type of case where a map created with GIS would be valuable would be a pipeline explosion related law suit such as the one involving the deaths of 10 fishermen near the El Paso Gas Company pipeline crossing the Pecos River in Texas. GIS staff at El Paso Gas worked with the company's law firm to analyze the location and impacts of the explosion and the proximity of the plaintiffs to the pipeline. Many automobile accident related personal injury and defective product cases involve GIS and visualization, such as the suit against the interstate trucking firm whose truck collided with a van in Weatherford, Texas killing 17

passengers. Visualization of the accident used a host of geospatial technologies including laser total station surveying; computer aided design, GIS, GPS, aerial imagery and CGI to create a brief spatio-temporal "movie" of the accident which had a powerful impact on observers and showed how the truck drifted onto the shoulder of the road and ran up on the disabled van parked on the side of the road before slamming it into the side of a freeway overpass. The potential to change the perception of untrained observers by various manipulations of the data such as choice of scale, extent, projection, color and use of vertical exaggeration factors has a profound potential to influence the outcome of litigation. So it behooves the wise corporate citizen to work closely with knowledgeable experts to both produce realistic and high impact maps and graphical materials as well as be forewarned against the manipulations of such graphical and cartographic products by adversaries in legal disputes.

APPLICATION OF GST IN ACCOUNTING

Accounting and audit/control applications of GST are largely theoretical at this point in time. Accountants are often conservative in adopting new methods. However, in theory, an accountant or auditor could use GST to augment audits, particularly for mobile and/or far-flung assets. So for example, an oil field services firm like Baker Hughes could use GPS & GIS to track locations of its assets and determine issues like taxation, depreciation and value which may be a function of physical location of specific asset classes at a given point in time. Likewise, firms like Wal-Mart which is using GIS and radio frequency ID tags (RFID) for tracking pallets and individual high value products can incorporate that data into inventory valuation systems and somewhat indirectly into accounting information. As location becomes easier to track and high resolution aerial imagery becomes easier to obtain, manipulate, view and query, accountants may start to use on-line versions of such information in intranets or from mashups with sites like Google Maps/ Google Earth to audit the existence and status of corporate assets. Thus if Enron Corporation claimed in the year 2000 that one of its special purpose entities has completed 95% of the construction of the Dabhol, India gas fired $2.9 billion, two thousand megawatt power plant project, but a look at then current 5 meter resolution SPOT imagery or 1 meter resolution digital globe imagery showed only limited groundbreaking at the site, the auditor would be able to question the accuracy of materials presented in financial statements without the difficulty of making an arduous trip to Maharashtra State in India. Of course, the other edge of that sword is that imagery and maps can be manipulated to render a false picture of the status of projects to mislead auditors and investors. Once again Enron is a prime example of this possibility. Enron created a "Potemkin" trading floor in its new headquarters building in Houston outfitted with black granite surfaces and multiple plasma displays (IBS, 2002). On those displays ESRI ArcGIS generated maps were presented to visiting investors. These *faux* maps included "real time" maps of power demand and "lit-up" broadband network infrastructure. Traders had scripts and talked into dead phone lines about power sales and fiber optic capacity trades. While the natural gas pipeline data and maps from the former InterNorth Gas Pipeline Company portion of Enron were accurate, as were the GIS data that Portland General public utility Enron subsidiary created using GIS, the other maps that Enron created from its large investment in GST were partially, or in the case of the broadband division, largely fabricated (Thomas, 2002). A savvy investor or auditor could have mined the data to discover the lack of the expected associated attributes, lack of corresponding facilities visible in aerial imagery and the poor overall quality of these (highly generalized) maps and used that information as an indication of their falsity.

APPLICATION OF GST IN HUMAN RESOURCES

As with accounting, human resources is an area where GST have essentially only theoretical applications at this point in time. A human resources department could use a resource like American Fact Finder to

create on-line customized maps of gender, age and race and national origin for various regions of the country where the firm has offices, investments, etc. Attainment of affirmative action and diversity goals could be adjusted to reflect the reality of the diversity of those areas. Thus for an office in the Bronx, New York (the county with the greatest racial and ethnic diversity in the U.S.) diversity goals are not only easier to achieve, but diversity sensitivity training and goals are essential to fitting into a community which is in a "minority-majority" area. Conversely, for a corporate facility in North or South Dakota or Wyoming, lack of diversity in the workplace is predictable unless workers are hired from outside the State and relocated. For minority employees who are relocated into areas like the upper Great Plains there is likely to be profound culture shock and poor retention. For example, consider the situation of an employee who is a member of the second or third African American family in Sublette County, Wyoming (where gas development is actively underway, but the population of 4,000 is limited to whites and a small Hispanic minority) or the second Hispanic family in Slope County, North Dakota (Population 800, with only a single Hispanic resident and no other minorities living there in 2000). Geodemographic maps of specific counties, states or other areas can be generated with only a few hours of training and at no cost, using the best available nationwide decennial census data and ACS (American Community Survey) data (ACS is an ongoing survey of 300,000 households per month begun in 2005 and designed to supplant the use of the long form in the decennial census of 2010). Both these sources of data are available to create customized on-line maps and to generate tables using the American Fact Finder web site (U.S. Census Bureau, 2008). This means that human resource professionals should consider using these tools to study the demographics of areas where facilities are located. GIS is used by some firms to provide employees information about real-estate availability (sites like realtor.com or the more powerful propertyshark.com have web-based maps of listings and other relevant factors). Information about school districts and schools and crime data is also valuable to staff in order to make an informed choice about where to live. In the age of two income families and home price volatility, these sites become a greater resource for workers and the human resource professionals who are assisting them. An example of a firm doing this for new hires and relocated employees is Exxon Mobil in Houston. They have found problems related to its Greenway Plaza and downtown Dallas office buildings being located in two of the highest crime areas in those respective cities. Employees who choose to rent temporarily within walking distance of those buildings are liable to have a rude awakening when they are mugged, car jacked or otherwise victimized. Exxon Mobil has therefore disseminated crime maps to employees that they obtained from local police departments. Some locations such as Las Vegas have on-line crime maps provided by the Las Vegas Metropolitan Police Department and as an alternative SpotCrime.Com is a Google maps mashup of media reports of crime data (Leipnik, 2003) Many law enforcement agencies have better crime data than that available on-line and human resources people at a caring corporation could obtain and disseminate this data periodically as part of the process of helping employees relocate wisely and commute to and from work in safety.

CONCLUSION

The use of geo-spatial technologies like GIS and GPS is well established in many areas of business today. In particular, applications in market research and logistics are widespread and in many progressive organization are essential to daily operations and are deeply integrated into the decision making process. However, geo-spatial technologies are becoming far more accessible as a result of innovations in web-based mapping, the advent of more powerful mobile devices with GPS capabilities and the ability to display and analyze spatial data and new higher resolution aerial imagery that is available for viewing and downloading at little or no cost to end users. These innovations are making geospatial technologies accessible to many new users including consumers throughout the world. There is therefore an opportunity for business professionals in fields like general business, economics, business law, finance, accounting and human resources to join with their brethren in marketing and operations research/logistics

and now embrace these evolving technologies and put them to work helping to solve, or at least to visualize the spatial aspects of issues relevant to those specific business disciplines. The authors hope that by describing well established applications of geospatial technologies and by proposing some new or at least infrequent uses of the technology, that the use of the many inter-related geospatial technologies we have discussed will be encouraged and disseminated.

RESOURCES

The following are web addresses of sources of useful information about GIS software, geospatial data, GPS and other valuable information for the academic or business person interested in learning more about geospatial technologies.

ESRI (the world leader in GIS software): www.esri.com

MapInfo (an affordable desktop GIS used in many businesses): www.mapinfo.com

Intergraph (specialized GIS and CAD provider): www.intergraph.com

American Fact Finder (on-line maps and data about demographics): www.census.gov

Geolytics (provider of geodemographic data): www.geolytics.com

Claritas (provider of LSP data and geodemographic consulting services): www.claritas.com

Teleatlas (provider of street centerline and other geospatial data for the USA and worldwide): www.teleatlas.com

Navteq (provider of street centerline and other geospatial data for the USA, Canada, and some other countries): www.navteq.com

TomTom (leading manufacturer of vehicle navigation systems): www.tomtom.com

Garmin (leading manufacturer of GPS receivers): www.garmin.com

Trimble (leader in high end GPS and global navigation satellite system hardware and software): www.trimble.com

Pictometry, Inc. (leader in oblique digital aerial imagery): www.pictometry.com

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