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STANDARDS QUALITY, INCENTIVES, AND EARNINGS MANAGEMENT

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ABSTRACT

After the 1997 financial crisis, the financial reform in Korea has strengthened accounting standards and legal environments to improve the transparency of its capital market, but managers, who work under increased pressure to meet performance goals in the flexible labor market, see increased incentives for earnings management. Thus, we examine whether strengthened accounting standards and legal environments are sufficient to deter managers from earnings management or managers would increase their involvement in earnings management for enlarged benefits in the post-financial reform period. Our findings show that managers try to manage earnings using both accruals and real earnings management strategies more often in the post-financial reform period than in the pre-financial reform period. Managers' incentives for earnings management prevail over high-quality accounting standards and strengthened legal environments.

Keywords: Earnings management, Korean financial reform, managerial incentives, accruals, and real earnings management

I. INTRODUCTION AND RESEARCH QUESTIONS

The Korean financial crisis of 1997 triggered a major reform in the Korean financial reporting system resulting in the adoption of foreign accounting standards, primarily International Financial Reporting Standards (IFRSs) and Statements of Financial Accounting Standards (SFASs) from the U.S. These accounting standards, which are heavily influenced by the Anglo-Saxon model, have evolved over a long period by responding to changes in their surrounding cultural, social, and legal environments. Accordingly, these accounting standards are a byproduct of their environments, rather than triggers of changes in their environment. In the case of Korea, however, the adopted accounting standards are expected to reshape cultural and social environments toward a capital market-oriented system. For example, the adopted accounting capital market-oriented system. For example, the adopted accounting standards are designed to improve the credibility of financial statements, which is one of the essential requirements for the expansion of the capital market system. In addition, Korean firms started to adopt performance-based rewards, including stock options, to increase operational efficiency as well as to align managers' incentives with the interests of investors (Sul and Kim 2003). As part of the Korean government's strategic efforts to adopt high-quality standards in accounting, listed Korean firms are required to adopt Korean-IFRSs from 2011. Note that the Korean IFRSs are identical to the IFRSs except for newly published IFRSs that are adapted into the Korean IFRS with an updating delay.

The question is whether the financial reform has produced desirable outcomes in the Korean financial reporting system. Prior studies indicate that accounting properties depend upon many factors, such as the quality of accounting standards, managers' incentives, economic determinants and others (Ball et al. 2003; Ahmed et al. 2013). For example, in the post-financial reform period, jobs are no longer secure in Korea. Rather, retention and promotion are determined based on performance evaluation. In particular, upper-level managers work under stress to meet business goals. Since the ultimate goal of managers is to survive by delivering expected performance outcomes, they would have increased incentives to manage earnings in the post-financial reform period.

Further, the reformed financial systems in Korea are structured to reduce managers' opportunistic choices of accruals in measuring earnings. However, managers could still manage earnings through real business activities, such as the timing of production and sales and adjusting discretionary expenditures (Greenspan 2002; Fuller and Jensen 2002; Graham et al. 2005). Cohen et al. (2008) and Cohen and Zarowin (2010) report empirical findings that support substitution of real earnings management for accruals management after the Sarbanes-Oxley Act was enacted in 2002. As a result, this study examined three research questions: 1) whether improved accounting standards in the post-financial reform period are sufficient enough to deter accruals management, 2) whether real earnings management has been substituted for accruals management in the post- financial reform period because of increases in potential costs associated with accruals

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management, or 3) whether earnings management increases in the post-financial reform period because of enlarged benefits resulting from managed earnings.
We used a sample of publicly-traded manufacturing firms in Korea for the years 1994 to 2012. Data are partitioned into the pre-financial reform period (1994-1996) and the post-financial reform period (2000-2012). The data between 1997 and 1999 are not analyzed as this period represents the transition of regulations, and managers' actions may not have converged to a steady state. We computed raw as well as absolute values of proxy variables for both real and accrual earnings management in the sample periods. Absolute values of proxies for earnings management are computed since managers might be motivated by either increased or decreased earnings during the sample period in the absence of specific events that would trigger upward earnings management.

When means and medians of proxies for real earnings management during the pre-financial reform and post-financial reform periods are compared, there is no evidence that managers were persistently involved in upward or downward earnings management more frequently in the post-financial reform period than in the pre-financial reform period. However, when absolute values of proxies for earnings management are compared, all proxies for earnings management (abnormal production costs, abnormal discretionary expenses, and discretionary accruals) show higher balances in the post-financial reform period than in the pre-financial reform period. Thus, managers of Korean listed firms appear to adopt real earnings and accruals management techniques to smooth earnings more frequently in the post-financial reform period than in the pre-financial reform period. We constructed a multi-variable regression model to control for the effect of firm size, growth, profitability, stock option, and a change in general economic environment on earnings management. The results of the multi-variable regression model confirm those of the univariate analysis by showing higher absolute values of proxies for earnings management in the post-financial reform period than in the pre-financial reform period.

Our study contributes to accounting literature in two ways. First, our empirical findings are consistent with Ball et al. (2003) that high-quality accounting standards alone do not necessarily produce high-quality accounting information using the Korean sample. Rather, improperly-aligned managers' incentives may lessen the effect of high-quality accounting standards. Second, our empirical findings do not support the replacement of real earnings management for accruals management in the post-financial reform period even though accounting standards and legal environments have been tightened. Rather, managers use both real earnings and accrual earnings management techniques to smooth earnings. These findings are different from those of Cohen et al. (2008) in the post-Sarbanes-Oxley Act period.

The remaining paper is organized as follows: Section II includes a literature review and the research hypothesis development. Section III describes the research methodology. Section IV reports empirical results, and Section V concludes the paper and points to its contributions.

II. LITERATURE REVIEW AND HYPOTHESIS

After the 1997 financial crisis in Korea, the Korean government restructured accounting and financial systems to improve the transparency and accountability of corporations and the role of the equity markets in allocating resources by adopting accounting standards from IFRSs and SFASs assuming that high-quality accounting standards would produce high-quality accounting information. Accounting earnings quality is not necessarily determined by accounting standards alone (Ball et al. 2003; Ahmed et al. 2013) since the quality of accounting properties depend upon many factors in addition to the quality of accounting standards, such as reporting managers' incentives, economic environments, and business models.

Ball et al. (2003) examine whether high-quality accounting standards in four East Asian countries, such as Hong Kong, Malaysia, Singapore, and Thailand ensure that firms recognize economic losses on a timely manner. The accounting standards in countries that are influenced by common law are considered as higher quality than those under code law standards. In common law countries, such as the United Kingdom, members of the British Commonwealth, the United States, and others, the accounting profession has evolved as a private and independent organization whose goals are to provide useful financial statements to investors for their investment decisions. On the other hand, in code law countries, such as France, Germany and others, the accounting profession is small and weak in the absence of vibrant activities in capital markets. The accounting standards in these countries have been developed in accordance with legislative orders (Wolk el al. 2013). As a result, accounting standards in common law countries are considered high-quality compared with their counterparts in code law countries.

However, firms in these East Asian countries do not rely heavily on equity markets to raise funds as in common law countries. Rather, they use banks and their affiliated firms as capital providers, which can acquire all needed financial information through their informal communication channel. Thus, a public demand for financial statements is not high. Further, a majority of public firms in these countries are owned by the Chinese. As the national majority population could make political decisions that could negatively affect Chinese minorities, firms have strong incentives to report earnings that would not offend the majority population by hiding a large amount of profits. Ball et al. (2003) evaluated earnings quality as timeliness of loss recognition in accounting income, and their empirical results show that earnings quality in these four countries is not higher than in code law countries.

In a similar vein, Ahmed et al. (2013) examine whether the mandatory adoption of IFRS has improved accounting quality as the goal of IFRS Foundation is "to develop a single set of high-quality, understandable, enforceable and globally accepted International Financial Reporting Standards…" (IFRS 2013). Thus, they compare accounting quality between firms in countries that adopted IFRS with their counterparts in countries that did not adopt IFRS. They found that IFRS firms show an increase in income smoothing and aggressive reporting accruals as well as a

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decrease in timeliness of loss recognition. Thus, the findings of Ball et al. (2003) and Ahmed et al. (2013) show that high quality accounting standards do not necessarily lead to an increase in earnings quality.

After the 1997 financial crisis, the Korean government attempted to improve accounting quality by adopting high-quality accounting standards. For example, the Korean Accounting Standards Board (KASB) was created as a private and independent standard setting body in 1999. The KASB is in charge of setting accounting standard. Also, the financial reform encompasses strengthened oversight of management and financial reporting by establishing U.S.-style audit committees, increases in the number of outsiders on boards of directors, reduced barriers on foreign ownership in Korean corporations, and expanded rights of minority shareholders, who are allowed to file class action lawsuits (Krause 2000; Choi and Cho 2003).

In the pre-financial reform period, most Korean firms adopted a lifetime employment model in conjunction with seniority-based pay and promotion systems, as in Japanese firms (Kotkin and Kishimoto 1986; Sullivan 1992). After the 1997 financial crisis, there was a social consensus on a need for a flexible labor market in Korea since annual economic growths were not high enough to sustain firms' commitment to lifetime employment (Park 2001). The labor law was revised to allow firms to lay off their employees for "managerial reasons" and hire temporary workers in 1998. Nonetheless, Korea was not ready to utilize the benefits of the flexible labor model to the fullest extent because of 1) the low mobility of labor, particularly at the upper level of management across industry and 2) inadequate social welfare programs.

In particular, Korean governments with insufficiency in social networks and welfare programs could not properly help unemployed workers to have a second chance. For example, public social spending in Korea is 7.6% of gross domestic product (GDP) in 2007, which is the second lowest in the Organization for Economic Co-operation and Development (OECD) member countries and well below the OECD average of 19.20% (Jones and Urasawa 2012). In other words, the financial reform focuses on strengthening the competitiveness of corporations in the global market through the flexible labor market at the expense of individual workers' welfare, in particular, those who are left behind by global competition. As a result, most Korean workers are desperate to meet performance expectations and fear becomes their primary driving force to work in the post-financial reform period. Managers would have increased incentives to meet performance expectations through earnings management in the post-financial reform period. Thus, the financial reform has likely produced two conflicting effects on earnings management in Korea: a disincentive effect arising from high-quality accounting standards and strengthened legal environments or an incentive effect resulting from increased rewards for meeting performance goals and job security fears. Thus, the first hypothesis is stated in an alternative form as follows:

H1.   Korean listed firms report higher earnings management in the post-financial reform period than in the pre-financial reform period.

We adopt discretional accruals as a proxy for earnings management by following previous studies of Korean listed firms (Park and Lee 2003; Choi 2005; and Kim et al. 2012). These studies, however, report mixed findings: decreases in discretionary accruals (Park and Lee 2003; Choi 2005; and Kim et al. 2012) and increases in discretionary accruals (Kim et al. 2012) and also face several methodological concerns. For example, Park and Lee (2003) classified three years (from 1998 to 2000) as the post-financial reform period. The financial reform in accounting was still in progress during this period as the KASB was formed in 1999. Kim et al. (2012) applied the ordinary least squares (OLS) estimator to simultaneous equations and thus the coefficients of their testing models might be biased and inconsistent (Green 1990). Choi (2005) reports a decrease of discretionary accruals in the post-financial reform period (from 2000 to 2002) of which statistical significance barely passes the conventional level of 10%. As a result, further examination of a change in discretionary accruals between the pre- and post-financial reform periods is needed by adopting an appropriate research methodology with an expanded sample size. Managers could also manage earnings through real business activities. They could influence the timing of production and sales or adjust discretionary expenditures, such as R&D, training, maintenance, and others, to manage earnings. Several studies comparatively evaluated the relative use of earnings management techniques—accruals and real earnings management, in particular—in an environment where accounting rules are tightened.

Ewert and Wagenhofer (2005) theoretically assessed a potential substitution of real earnings management for accruals-based earnings management under tightened standards. Under the tightened legal and accounting environment, investors perceive a reduction of noise in earnings numbers or value-irrelevant components in earnings. As a result, the impact of an increment in earnings on stock prices would increase accordingly; therefore, managers would anticipate increased benefits from incremental earnings. Since the cost of accruals-based earnings management is high under tightened standards, managers are expected to apply their management decisions in a discretionary way to influence earnings. Such real earnings management is not clearly distinguishable from a firm's normal business activities. Real earnings management, however, causes long-term negative effects because of such suboptimal operating decisions.

Cohen et al. (2008) and Cohen and Zarowin (2010) empirically examined how firms selectively use real and accruals-based earnings management in the periods before and after the Sarbanes-Oxley Act of 2002. This act requires managers and auditors to assume increased accountability for their professional services and stipulates harsh penalties for accounting frauds. Cohen et al. (2008) reported earnings management to meet or beat the benchmarks (such as the previous

year's earnings and earnings forecasts of analysts) or to avoid losses throughout the sample period. In the post-Sarbanes-Oxley period, the level of accruals-based earnings management has declined, but the level of real earnings management has increased. Cohen and Zarowin (2010) reported similar results, showing that firms tend to use both real and accruals-based earnings management methods around seasoned equity offerings. In the post-Sarbanes-Oxley period, managers substituted real earnings management for accruals-based earnings management. Thus, empirical results support the analytical prediction of Ewert and Wagenhofer (2005) and the survey results of Graham et al. (2005) with respect to substituting real earnings management for accruals management when accounting standards and accountability for financial statement disclosures are tightened.

The post-financial reform period in Korea is comparable with the post-Sarbanes-Oxley period in the U.S. as accounting rules and their enforcement are tightened in conjunction with harsh penalties for violators. Also, earnings information would have assumed an increased role in the capital market because the primary purpose of the financial reform in Korea is to embrace the market-oriented system. For example, Korean firms introduced stock option plans for the first time in 1997 (Sul and Kim 2003). Since managers' compensation is tied to stock prices, managers would have increased incentives to influence stock prices through earnings management in the post-financial reform period (Greenspan 2002; Fuller and Jensen 2002). In addition, as discussed above, managers need to meet performance expectations in order to secure their position.

Kim et al. (2012) examined a change in earnings management techniques of Korean listed firms around the 1997 financial crisis and report a substitution of real earnings management for accruals management in the post-financial reform period. However, their findings have a couple of methodological shortcomings. First, they created simultaneous equations by including proxies for real earnings and accruals management as a dependent as well as an independent variable. Thus, a proxy for earnings management, an independent variable in the testing equation is endogenous and correlated to an error term, but Kim et al. (2012) estimate parameters of both equations, using the ordinary least squares estimator. As a result, the parameters are biased and inconsistent. Second, Kim et al. (2012) model that $|DACC|$ determines the level of real earnings management. As discussed in Zang (2012), all real earnings management should be completed by the end of a fiscal year while selected items in accruals would be available to managers for discretionary use. Accordingly, at the end of a fiscal year, manager would evaluate what the firm has earned and what the firm needs to report and then determine the amount of discretionary accruals. However, its reverse causal effect is not conceptually and empirically supported.

Thus, the paper revisits the substitution effect of real earnings management for accruals management in the post-financial reform period. The second hypothesis is stated in an alternative form as follows:

H2.	Korean listed firms adopt the strategy of real earnings management more often in the post-financial reform period than in the pre-financial reform period.

III. RESEARCH METHODOLOGY

III. 1. Sample Description

We collected data from the KisValue financial statement database, compiled by the Korea Information Service (KIS) for the years 1992 to 2012. Korean firms are classified into 15 major industries from A to T (KISC); the manufacturing industry (C) includes 63.3% of the Korean listed firms. The remaining firms belong to the publication and print industry (J), 9.9%; the trade industry (G), 6.8%; service industry (M), 5.7%; or others. As discussed below, the production activity is one of the three key indicators to evaluate a firm's real earnings management and thus we examined only firms in the manufacturing industry. Within the manufacturing industry, firms are classified by the first two digits of KISC, equivalent to SIC2 digits in the U.S. Each year-industry (KISC 2 digits) requires at least 15 observations to estimate discretionary accruals and abnormal balances of proxies for real earnings management.

III. 2. Earnings Management Measures

Real earnings management is measured by following the method used in Roychowdhury (2006), Cohen et al. (2008), Cohen and Zarowin (2010), and Zang (2012). We measure real earnings management in two areas: production costs (*PROD*) and discretionary expenses (*DExp*). We do not include cash flow from operations (*CFO*) because of the confounding effect from credit sales and discretionary expenses. For example, a reduction of discretionary expense (an increase in credit sales) increases (decreases) *CFO*.

We constructed the normal level of *PROD* as follows:

$$\frac{PROD_{it}}{TA_{it-1}} = b_0 + b_1 \frac{1}{TA_{it-1}} + b_2 \frac{Nsale_{it}}{TA_{it-1}} + b_3 \frac{\Delta Nsale_{it}}{TA_{it-1}} + b_4 \frac{\Delta Nsale_{it-1}}{TA_{it-1}} + \varepsilon_{it}. \tag{1}$$

PROD$_t$ for firm *i* is determined as cost of goods sold (*COGS*) in year *t* and a change in inventory during year *t*. Then, *COGS$_{it}$* is a function of net sales (*Nsale$_{it}$*); a change in inventory is a linear function of changes in current as well as lagged period sales. Thus, *PROD$_{it}$* is assumed to be a linear function of *Nsale$_{it}$*, a change in *Nsale$_i$* during year *t*, and a change in *Nsale$_i$* during year *t-1*. We ran Equation (1), using total assets (*TA*, KisValue data no. 115000), *Nsale* (KisValue data no. 121000), *COGS* (KisValue data no. 122000), and inventory (KisValue data no. 111400) and chose the residual as the abnormal balance of *PROD$_{it}$* (hereafter, *abnPROD$_{it}$*).

Real earnings management is measured using two proxy variables:

abnPROD and *abnDExp*. If real earnings management is present, then we expect increased production costs (i.e., high *abnPROD*) and reduced discretionary expenses (i.e.,
low *abnDExp*) at a given level of sales. Thus, we multiply *abnDExp* by -1 in order to have a consistent sign among the two variables. In addition, as managers could use one or more real earnings management techniques to improve their reported earnings, we combine the two proxies (*abnPROD* and *abnDExp*) to compute a single, comprehensive measure, *abnCOMP* (Zang 2012; Cohen and Zarowin 2010; Kim and Sohn 2012).

Further, we compute discretionary accruals to document their changes between the two observation periods by referring to the cross-sectional Jones model (Jones 1991; Dechow et al. 1995) as follows:

$$\frac{ACC_{it}}{TA_{it-1}} = b_0 + b_1 \frac{1}{TA_{it-1}} + b_2 \frac{\Delta Nsale_{it}}{TA_{it-1}} + b_3 \frac{PPE_{it}}{TA_{it-1}} + \varepsilon_{it,} \qquad (3)$$

where ACC_{it} represents total accruals for firm i in year t that are computed by subtracting *CFO* (KisValue data no. 161000) from net income from continuing operations (KisValue data no. 128160). PPE_{it} indicates the gross value of property, plant, and equipment for firm i in year t (from KisValue data no. 113200 except Land, data no. 113110 and Construction in Progress, data no. 113199). We ran Equation (3) and chose the residual value as discretionary accruals ($DACC_{it}$). Untabulated results contain $DACC_{it}$ that are computed using the modified Jones model, which includes a change of accounts receivable in computing the balance of normal accruals (Dechow et al. 1995) and the performance-adjusted measure of accruals model (Kothari et al. 2005). There is no material qualitative change in the findings when these alternate measures are used.

Table 1, Panel A reports estimation results of three equations and descriptive statistics of *abnPROD*, *abnDExp*, *abnCOMP*, and *DACC*. We ran each equation for each year-industry with at least 15 observations. During the sample period, 1994 to 2012, there are 192 year-industries available for the coefficient estimation of three equations. Each equation includes on average 35 observations. The mean of adjusted R^2s varies from .21 to .92 for Equations (3) and (1), respectively. Not all mean parameters are statistically significant compared with those reported in prior studies using U.S. data (Roychowdhury 2006 and Zang 2012). For example, mean parameters on 1/TA_{it-1} in three equations are statistically insignificant while Roychowdhury (2006) and Zang (2012) report significant parameters on the variable in three equations. Also, the magnitude of the parameters on 1/TA_{it-1} is astronomically large compared with those reported by Roychowdhury (2006) and Zang (2012). The differences might be due to the small number of observations in each year-industry as well as the small number of year-industry estimation models from the Korean sample. For example, Zang (2012) report that each regression model includes more than 150 observations and that there are more than 800 year-industries.

Table 1

Measurement of Proxies for Real and Accruals Earnings Management
(1994-2012)

Panel A: **Mean Parameters of the Estimation Models for Abnormal Production Costs, Abnormal Discretionary Expenses and Discretionary Accruals[a]**

	$PROD_{it}/TA_{it-1}$		$DExp_{it}/TA_{it-1}$		ACC_{it}/TA_{it-1}
Intercept	-.0433***	Intercept	.0222***	Intercept	-.0094
$1/TA_{it-1}$	241	$1/TA_{it-1}$	-115	$1/TA_{it-1}$	160
$Nsale_{it}/TA_{it-1}$	.8488***	$Nsale_{it}/TA_{it-1}$	.0692***	$\Delta Nsale_{it}/TA_{it-1}$	.0550***
$\Delta Nsale_{it}/TA_{it-1}$	.0156			PPE_{it}/TA_{it-1}	-.1127***
$\Delta Nsale_{it-1}/TA_{it-1}$	-.0168				
Average Adj R^2	.92		.29		.21
Average number of observations	35		35		35
The number of year-industries	192		192		192

Panel B: Descriptive Statistics of Proxies for Earnings Management[b]

Variable	No	25%	Median	Mean	75%	STD DEV
$DACC_{it}$	6,658	-.0446	.0007	0	.0452	.1069
$abnCOMP_{it}$	6,658	-.0588	.0117	0	.0769	.1569
$abnPROD_{it}$	6,658	-.0453	.0057	0	.0539	.1037
$abnDExp_{it}$	6,658	-.0195	.0079	0	.0311	.0675

Panel C: Pearson (Upper Triangle) and Spearman (Lower Triangle) Correlations

	$DACC_{it}$	$abnCOMP_{it}$	$abnPROD_{it}$	$abnDExp_{it}$
$DACC_{it}$		.0688***	.0773***	.0412***
$abnCOMP_{it}$	.1100***		.9472***	.8705***
$abnPROD_{it}$	.1098***	.9430***		.6668***
$abnDExp_{it}$	.0565***	.7635***	.5406***	

Notes:

a.

Parameters are computed from the estimation models:

$$\frac{PROD_{it}}{TA_{it-1}} = b_0 + b_1 \frac{1}{TA_{it-1}} + b_2 \frac{Nsale_{it}}{TA_{it-1}} + b_3 \frac{\Delta Nsale_{it}}{TA_{it-1}} + b_4 \frac{\Delta Nsale_{it-1}}{TA_{it-1}} + \varepsilon_{it}. \qquad (1)$$

$$\frac{DExp_{it}}{TA_{it-1}} = b_0 + b_1 \frac{1}{TA_{it-1}} + b_2 \frac{Nsale_{it}}{TA_{it-1}} + \varepsilon_{it}. \qquad (2)$$

$$\frac{ACC_{it}}{TA_{it-1}} = b_0 + b_1 \frac{1}{TA_{it-1}} + b_2 \frac{\Delta Nsale_{it}}{TA_{it-1}} + b_3 \frac{PPE_{it}}{TA_{it-1}} + \varepsilon_{it,} \qquad (3)$$

$PROD_{it}$: a sum of cost of goods sold ($COGS$) (KisValue data no. 122000) and a change in inventory (KisValue data no. 111400) for firm i in year t.
TA_{it-1}: total assets (KisValue data no. 115000) for firm i in year t-1.
$Nsale_{it}$: net sales (KisValue data no. 121000) for firm i in year t.
$\Delta Nsale_{it}$: a change in $Nsale_i$ for firm i in year t.
$DExp_{it}$: discretionary expenses as a sum of general administrative expenses (KisValue data no. 124200), selling expenses (KisValue data no. 124300), and others (KisValue data no. 124400) for firm i in year t.
ACC_{it}: total accruals for firm i in year t that are computed by subtracting cash flow from operations (CFO) (KisValue data no. 161000) from net income (KisValue data no. 128160).
PPE_{it}: property, plant, and equipment (from KisValue data no. 113200 except for Land, no. 113110 and Construction in Progress, no. 113199) for firm i in year t.

Sample firms were selected from the manufacturing industry only because manufacturing firms could reduce the cost of goods sold by producing more units. Each model requires at least 15 year-industry observations to estimate its parameters. The sample was partitioned into 192 year-industries based on first two digits of KISC, equivalent to SIC 2 in the U.S. The reported parameters represent their average values across year-industries; $1/TA_{it-1}$ includes its parameters (000,000s omitted). We include the average adjusted R^2 and the average number of observations across the 192 year-industries.

b.

We use the residuals from Equations (1) and (3) as abnormal $PROD$ ($abnPROD$) and discretionary accruals ($DACC$), respectively; abnormal $DExp$ ($abnDExp$) is the residual from Equation (2) multiplied by -1; and $abnCOMP$ is a sum of $abnPROD$ and $abnDExp$. STD DEV stands for standard deviation.

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Table 1, Panel B reports descriptive statistics of 6,658 firm-year observations. All four proxies of earnings management have zero mean values. The Pearson and Spearman correlations are reported in Table 1, Panel C. All variables are positively correlated to each other. Positive correlations between *abnPROD* and *abnCOMP* and between *abnDExp* and *abnCOMP* exist because *abnCOMP* is a sum of these two variables. Also, *abnPROD* and *abnDExp* are highly correlated to each other. The positive correlation between *abnCOMP* and *DACC* suggests that firms might use both accruals and real earnings management techniques to manage earnings.

Earnings management is evaluated in two ways: a change in an abnormal balance of each variable and a change in its absolute value. The former is an effective measurement of earnings management in the presence of an observable event that would motivate managers to improve earnings (Healy 1985; Jones 1991; Guidry et al. 1999). For example, Healy (1985) and Guidry et al. (1999) examined how managers managed discretionary accruals to maximize their bonuses; Jones (1991) examined a decrease in earnings during import relief investigations. Nonetheless, as no firm may be able to continuously improve accounting variables indefinitely, managers would utilize both increases and decreases in the discretionary portion of accounting variables by taking into consideration their resources and anticipated firm performances (Defond and Park 1997). Thus, we evaluated changes in abnormal balances of the four proxies for earnings management as well as their absolute values between the pre- and post-financial reform periods (Warfield et al. 1995; Becker et al. 1998; Cohen et al. 2008). To mitigate the potential effect of outliers on the comparison, we winsorized the abnormal balances of the four proxies at the top and bottom 1% and also used the absolute value of the winsorized variables.

IV. EMPIRICAL RESULTS

Figure 1, Panel A shows the annual means of the four proxies for earnings management, *abnPROD*, *abnDExp*, *abnCOMP* and *DACC*. The annual means of *DACC* oscillate the zero horizontal axis while the annual means of proxies for real earnings management show higher balances in the post-financial reform period than in the pre-financial reform period. In the post-financial reform period, balances of *abnPROD*, *abnDExp*, and *abnCOMP* reach a plateau in 2004 and onward. Figure 1, Panel B shows the annual medians of the four proxies. The annual medians of *DACC* oscillate the zero horizontal axis as do its means. Medians of *abnPROD*, *abnDExp*, and *abnCOMP* are higher in the post-financial reform period than in the pre-financial reform period.

Figure 1
Proxies for Earnings Management over Time (1994-2012)

Panel A: Annual Mean Values of the Four Proxies for Earnings Management
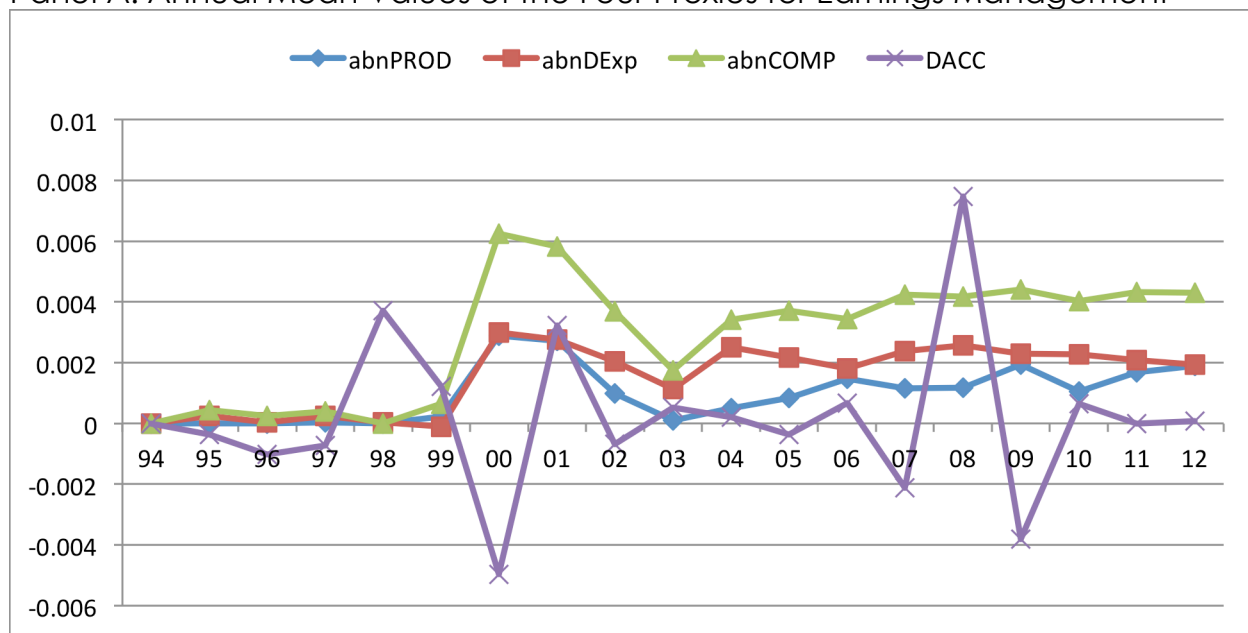
Panel B: Annual Median Values of the Four Proxies for Earnings Management
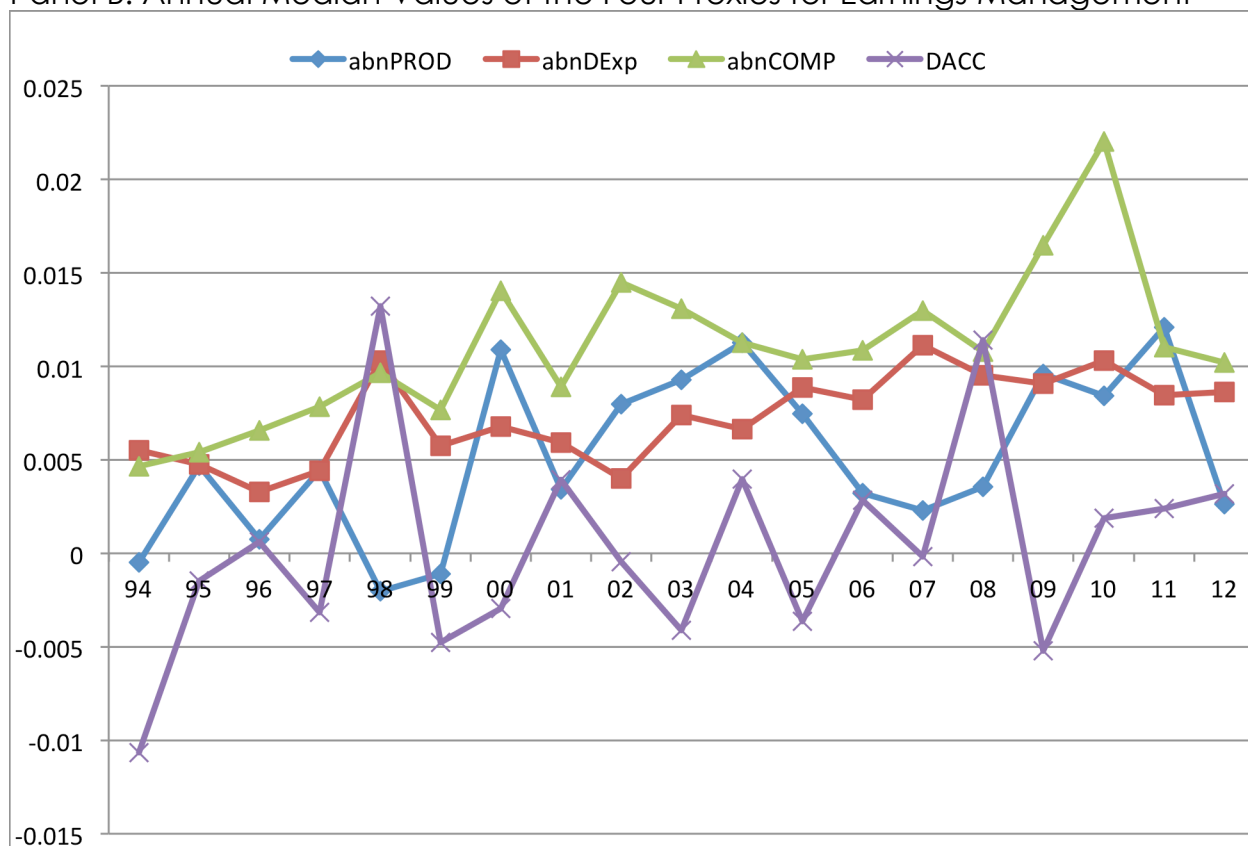
Figure 1, Panel C shows the annual mean absolute values of the four proxies for earnings management, (|*abnPROD*|, |*abnDExp*|, |*abnCOMP*|, and |*DACC*|). Even though there are ups and downs during the reform period (between 1997 and 2000), there is a gradual increase of |*abnPROD*|, |*abnDExp*|, and |*abnCOMP*| in the post-financial reform period. A sharp decline is noted in 2008. Annual means of |*DACC*| also show a gradual increase over time and reach a plateau in 2003 and onward. Figure 1, Panel D shows annual medians of |*abnPROD*|, |*abnDExp*|, |*abnCOMP*| and |*DACC*|. Their trend over time is comparable with what is observed in their annual means in Figure 1, Panel C.

Table 2 reports differences in means and medians of each proxy for earnings management between the pre- and the post-financial reform periods. We included 411 firm-year observations from 1994 to 1996 in the pre-financial reform period and 5,439 firm-year observations from 2000 to 2012 in the post-financial reform period by eliminating 808 firm-year observations between 1997 and 1999.

Table 2

Means and Medians of the Proxies for Earnings Management
(1994-96 and 2000-12)

Variable	Mean			Median		
	Pre-Financial Reform	Post-Financial Reform	Difference	Pre-Financial Reform	Post-Financial Reform	Difference
abnPROD	.0000	.0013	-.0013	.0019	.0066	-.0047
abnDExp	.0001	.0022	-.0021	.0045	.0086	-.0041**
abnCOMP	.0002	.0040	-.0038	.0049	.0126	-.0077
DACC	−.0005	.0004	-.0009	-.0029	.0013	-.0042
|*abnPROD*|	.0495	.0723	-.0228***	.0397	.0536	-.0139***
|*abnDExp*|	.0257	.0385	-.0128***	.0170	.0278	-.0108***
|*abnCOMP*|	.0691	.0997	-.0306***	.0531	.0740	-.0209***
|*DACC*|	.0505	.0624	-.0119***	.0375	.0447	-.0072***

Notes:
1. The pre-financial reform period: 411 firm-year observations from 1994 to 1996.
2. The post-financial reform period: 5,439 firm-year observations from 2000 to 2012.
3. Difference: the value in the post-financial reform period is subtracted from the value in the pre-financial reform period.
4. *abnPROD*, *abnDExp*, *abnCOMP*, and *DACC* are winsorized at the top and bottom 1%.
5. \|*abnPROD*\|, \|*abnDExp*\|, \|*abnCOMP*\|, and \|*DACC*\| are absolute values of the winsorized *abnPROD*, *abnDExp*, *abnCOMP*, and *DACC*, respectively.
6. *statistically significant at .1 level (two-tailed); **statistically significant at .05 level (two-tailed); ***statistically significant at .01 level (two-tailed).

Means of all proxies for earnings management are greater in the post-financial reform period than in the pre-financial reform period. However, the differences are statistically significant at the .01 level for absolute values only. Medians of all proxies for earnings management are greater in the post-financial reform period than in the pre-financial reform period. The difference in *abnDExp* between the pre- and post-financial reform periods is statistically significant at the .05 level. Also, differences in median absolute values of the four proxies for earnings management are statistically significant at the .01 level. As a result, firms in the post-financial reform period report higher amounts of abnormal balances of the four proxies for earnings management than in the pre-financial reform period. In particular, significant differences in absolute values of the four proxies for earnings management indicate that managers would use these proxies to smooth earnings. Further, we could not find the substitution effect of real earnings management for accrual management in the post-financial reform period.

We constructed a regression model to control other factors that would affect a firm's earnings management:

$$Proxy_{jit} = \alpha + \beta_0 \, D_{it} + \beta_1 MV_{it-1} + \beta_2 MTB_{it-1} + \beta_3 ROA_{it} + \beta_4 Option_i + \beta_5 \, \Delta GDP_t + \varepsilon_{jit}, \quad (4)$$

Where *Proxy$_{jit}$* represents one (*j*) of the eight metrics of earnings management: *abnPROD, abnDExp, abnCOMP, DACC, |abnPROD|, |abnDExp|, |abnCOMP|,* and *|DACC|* for firm *i* in year *t*. *D$_{it}$* indicates a dummy variable of firm *i* that is set to 0 in the pre-financial reform period (1994-1996) and a unit value in the post-financial reform period (2000-2012). We include the natural logarithm of firm *i*'s market value (*MV*) (KisValue data no. OD1111), the market-to-book (KisValue data no. 118900) ratio (*MTB*), the return on assets (*ROA*), and an annual change in the general domestic product (*ΔGDP*). Earnings management is influenced by firm size, growth opportunities, and firm performance (Burgstahler and Dichev 1997; Becker et al. 1998; Zang 2012). Option is a dummy variable by assigning a unit variable to firms with a stock option plan. Otherwise, it is set to 0 for other firms. *ΔGDP* is used to control for the change in the economic environment since managers could respond to their surrounding economic conditions rather than managing earnings (Cohen et al. 2008).

Table 3 reports descriptive statistics of the variables in Equation (4). As proxies for earnings management are winsorized at the top and bottom 1%, their mean values are no longer zero. Overall, investors undervalue Korean firms as the mean and median of their *MTB* are 1.21 and .88, respectively. In other words, more than 50% of the sample firm-year observations report that their market value is lower than their equity value. On the other hand, Cohen et al. (2008) report the mean and median of the *MTB* as 4.94 and 1.92, respectively, for their pooled U.S. sample from 1987 to 2005. Even the 25th percentile of their sample firm-year observations reports the *MTB* as 1.11. Thus, investors appear to undervalue Korean firms.

Table 4 reports results of Equation (4). The adjusted R^2s vary from 1.9% to 12.9% and are comparable to those that are reported by Cohen et al. (2008), which report adjusted R^2s in the neighborhood of 8%. All coefficients on MV_{it-1} and MTB_{it-1} are statistically significant but their signs are not consistent. Most coefficients on absolute proxies for earnings management are positive while most coefficients on raw proxies are negative. The key coefficient, $\widehat{\beta_0}$ is positive and statistically significant only for the absolute values of the four proxies for earnings management.

In addition, untabulated results include each of the raw (absolute value) proxies for real earnings management as an independent variable in the testing model with $DACC$ ($|DACC|$) as a dependent variable. For example, when the $DACC$ ($|DACC|$) testing model includes $abnCOMP$ ($|abnCOMP|$) as an additional independent variable, the coefficient on $abnCOMP$ ($|abnCOMP|$) is .0931 (.0394), which is statistically significant at the .01 level. The inclusion of $abnCOMP$ ($|abnCOMP|$) as an additional independent variable does not affect the sign and statistical significance of the key coefficient, $\widehat{\beta_0}$.

As a result, Hypothesis 1 and Hypothesis 2 are confirmed, supporting the finding that the increased incentives of managers for earnings manipulation prevail over increased quality of accounting standards and strengthened legal environments in the post-financial reform period. In the post-financial reform periods, Korean firms have smoothed earnings using both real earnings and accruals management techniques. Thus, the substitution effect of real earnings management for accrual management, is not observed.

Table 3
Descriptive Statistics of Variables in Multi-Variable Regression Models
(1994-96 and 2000-12)

Variable	25%	Median	Mean	75%	STD DEV
abnPROD	-0.0472	0.0063	0.0012	0.0557	0.0950
abnDExp	-0.0200	0.0082	0.0020	0.0321	0.0529
abnCOMP	-0.0606	0.0121	0.0037	0.0799	0.1328
DACC	-0.0443	0.0009	0.0003	0.0440	0.0842
|abnPROD|	0.0246	0.0524	0.0707	0.0974	0.0635
|abnDExp|	0.0127	0.0270	0.0376	0.0488	0.0372
|abnCOMP|	0.0333	0.0718	0.0975	0.1331	0.0903
|DACC|	0.0207	0.0441	0.0616	0.0840	0.0575
MV	24.0304	24.8043	25.0426	25.7832	1.4923
MTB	0.5394	0.8849	1.2158	1.4702	1.4178
ROA	0.0072	0.0352	0.0283	0.0713	0.1116
ΔGDP	0.0136	0.1024	0.0733	0.1414	0.1067

Notes:

MV_{it-1} A natural logarithm of market value (KisValue data no. OD1111) for firm *i* in year *t-1*.

MTB_{it-1} A market to book value (KisValue data no. 118900) ratio for firm *i* in year *t-1*.

ROA_{it} A net income to assets ratio for firm *i* in year *t*.

ΔGDP_t A change in the gross domestic product (GDP) in year *t*.

Other variables are defined in tables above.

Table 4

Results from Regressing Proxies for Earnings Management on Explanatory Variables
(1994-96 and 2000-12)

$$Proxy_{jit} = \alpha + \beta_0\, D_{it} + \beta_1 MV_{it-1} + \beta_2 MTB_{it-1} + \beta_3 ROA_{it} + \beta_4 Option_i + \beta_5\, \Delta GDP_t + \varepsilon_{jit}, \qquad (4)$$

Proxy	$\hat{\alpha}$ (t-stat)	$\hat{\beta}_0$ (t-stat)	$\hat{\beta}_1$ (t-stat)	$\hat{\beta}_2$ (t-stat)	$\hat{\beta}_3$ (t-stat)	$\hat{\beta}_4$ (t-stat)	$\hat{\beta}_5$ (t-stat)	Adj. R^2
abnPROD	.1532 (6.86)***	.0042 (0.86)	-.0058 (-6.52)***	-.0036 (-4.11)***	-.1980 (-18.27)***	-.0044 (-1.12)	.0118 (1.03)	.073
abnDExp	.0723 (5.66)***	.0007 (0.26)	-.0027 (-5.33)***	-.0022 (4.30)***	.0394 (6.35)***	-.0063 (-2.81)***	-.0044 (-0.67)	.020
abnCOMP	.0621 (3.24)***	-.0038 (-0.92)	-.0027 (-3.48)***	.0024 (3.20)***	.2742 (29.45)***	.0011 (0.31)	-.0289 (-2.93)***	.129
DACC	.2202 (6.92)***	.0053 (0.77)	-.0084 (-6.56)***	-.0055 (-4.34)***	-.1600 (-10.37)***	-.0111 (-1.98)**	.0085 (0.60)	.038
|abnPROD|	.0076 (0.50)	.0218 (6.64)***	.0014 (2.35)**	.0053 (-8.86)***	.0457 (6.18)***	-.0012 (-0.43)	-.0099 (-1.26)	.032
|abnDExp|	-.0231 (-2.57)**	.0124 (6.39)***	.0019 (5.30)***	.0016 (4.50)***	.0027 (0.63)	-.0026 (-1.65)*	-.0028 (-0.61)	.019
|abnCOMP|	.1367 (10.09)***	.0099 (3.41)***	-.0034 (-6.22)***	.0051 (9.45)***	-.0991 (-15.07)***	.0016 (0.66)	-.0453 (-6.50)***	.068
|DACC|	-.0355 (-1.63)	.0285 (6.08)***	.0040 (4.62)***	.0046 (5.38)***	.0579 (5.48)***	-.0034 (-0.89)	-.0149 (-1.33)	.025

Notes:

$Proxy_{jit}$ An earnings management proxy j for firm i in year t.

D_{it} A dummy variable that is set 0 for firm i in the pre-financial reform period (1994-96) and 1 for firm i in the post-financial reform period (2000-12).

$Option_i$ A dummy variable that is set for 1 for firm i with a stock option plan; but it is set to 0 for other firms.

α, β Parameters.

ε An error term.

Other variables are defined in Tables above.

*statistically significant at .1 level (two-tailed); **statistically significant at .05 level (two-tailed); ***statistically significant at .01 level (two-tailed).

V. CONCLUSION

The 1997 financial reform led to revolutionary changes in the accounting and financial reporting systems in Korea. The Korean government believed that the implementation of the current accounting standards and financial regulations would provide an effective solution to the 1997 financial crisis and help South Korea avoid similar crises in the future. Nonetheless, it is not clear whether the imported standards and regulations would achieve their intended purpose in Korea, where social and cultural environments are different from those of the U.S. Also, high-quality accounting standards alone are not sufficient to produce high-quality accounting information, which is also influenced by managers' incentives, economic determinants, and other factors. Further, a number of studies in the U.S. suggest that additional regulations, such as the Sarbanes-Oxley Act of 2002, do not necessarily reduce the level of earnings management. Rather, tightened accounting standards have motivated managers to substitute real earnings management for accruals management. Thus, this study is motivated to examine whether high-quality accounting standards in conjunction with the strengthened legal environment deter earnings management and also whether managers substitute real earnings management for accrual management in the post-financial reform period.

We examined the earnings management of Korean listed firms in the periods before and after the financial reform in order to document changes in earnings management as accounting rules and legal environments were tightened in the post-financial reform period. Our empirical results show that Korean firms do not demonstrate a noticeable directional trend in real earnings management and accruals management in the pre- and post-financial reform periods as Cohen et al. (2008) have reported in the U.S. Rather, we do find that Korean managers tended to use both real earnings and accruals earnings management to smooth earnings more frequently in the post-financial reform period than in the pre-financial reform period. Thus, our empirical findings are consistent with Ball et al. (2003) and Ahmed et al. (2013) that the quality of accounting earnings is not necessarily determined only by high-quality accounting standards and the strengthened legal environments. Rather it is affected by other factors, in particular, managers' incentives.

Further, we could not find the substitution of real earnings management for accruals management in the post-financial reform as Cohen et al. (2008) report around the enactment of the Sarbanes-Oxley Act in 2002. Rather, managers of Korean listed firms employ both earnings management techniques more frequently in the post-financial reform period than in the pre-financial reform period. Even though both the financial reform in Korea and the Sarbanes-Oxley Act are designed to strengthen legal environments and to improve the transparency of firms' accounting reports, surrounding environments would not be the same between the two countries. In the U.S., there is not much change in terms of managers' incentives for earnings management around the enactment of the Sarbanes-Oxley Act. On

the other hand, the financial reform in Korea is considered to be a kind of revolution in the economic field that includes the transformation of the secured, life-time employment labor market into the performance-based labor market. Thus, there is a drastic change in the level of managers' incentives for earnings management between the pre- and post-financial reform periods. Korean managers need to meet performance expectations to continue to hold their positions and for further promotion onward. Otherwise, they are forced to take early retirements or take positions at small firms where their responsibility and compensation are substantially reduced. Once they are transferred to such a position, it is almost impossible for them to return to their previous position. As Jablow coined the term, "Theory F" to represent the Japanese human relationship within a firm, fear should be one of the primary driving forces for managers of Korean firms as well (Kotkin and Kishimoto 1986). In other words, managers might do anything to secure their positions.

It is not clear why managers of Korean firms use accruals management more often in the post-financial reform period than in the pre-financial reform period even though the potential costs associated with the accruals management increase in the post-financial reform period. One explanation would be the testing model might not be sophisticated enough to capture the substitution of real earnings management for accruals management. For example, Jang (2012) computes "unexpected real earnings management" after controlling over costs associated with real earnings management and accruals earnings management rather than the abnormal balance of proxies for real earnings management. Thus, we would like to leave this issue for future research.

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Invited Article

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DOES OVER-REGULATION LEAD TO CORRUPTION? EVIDENCE FROM A MULTI-COUNTRY FIRM SURVEY

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ABSTRACT

Cross-country studies have shown corrupt countries have more burdensome regulations than other countries do. Some of these studies argue heavy regulation leads to corruption. In countries where regulations are onerous, firms might bribe government officials to avoid having to comply with the regulations. Other studies argue the opposite is true; rather than causing corruption, heavy regulation might be the result of corruption. When corruption is high, policymakers might impose regulations so they, or their supporters, can demand bribes from managers trying to avoid the regulations. This paper uses data from over 30,000 firms in over 100 low and middle-income countries to show that firms that spend more time dealing with regulations are more likely to pay bribes and pay more when they do. This paper shows that regulation has an important and causal effect on corruption. Increasing the time managers spend dealing with regulation from the amount they spend at the 25th percentile to the amount they spend at the 75th percentile increases the likelihood the average firm will pay bribes by 42 percentage points. The results, therefore, strongly suggest that removing burdensome regulations would cut corruption.

I. INTRODUCTION

Regulation is more onerous in corrupt countries than it is in less corrupt countries (Knack and Keefer, 1995; Mauro, 1995). Using country-level data, Langbein and Knack (2010), for example, show experts report high corruption in countries where they report burdensome regulation. This is not, however, just because experts' opinions about different areas of governance are highly correlated. Experts also report high corruption in countries where registering a business takes a long time (Djankov and others, 2002; Svensson, 2005).

Regulation and corruption are also linked at the firm level. Studies using firm-level data from single countries have found managers who spend more time with government officials are more likely to say they pay bribes than managers who spend less time with officials (Clarke, 2012; Malomo, 2013). Similarly, Clarke (2014) shows managers who report paying bribes are more likely to say regulation is a serious problem than managers who do not report paying bribes.

The studies discussed above suggest corruption and regulation are related. This might be because heavy regulation leads to corruption. Managers might bribe government officials either to avoid complying with regulations or to speed up license approvals. Managers might, however, be more likely to do this when regulation is heavy and approvals are slow than when they are not. This could explain why corruption and regulation are linked at the firm and country levels.

Although regulation might lead to corruption, the reverse is also possible: corruption might lead to more regulation. Government officials in corrupt countries might create regulations so they can extract bribes from firms that want to avoid complying with the regulations. Shleifer and Vishny (1993: 601) argue many regulations exist "to give officials the power to deny them and to collect bribes in return for providing the permits." Corruption might also encourage officials to work slowly if they believe managers will pay higher bribes when delays are greater than they would delays are short. Heavy regulation in corrupt countries might, therefore, be caused by officials in these countries imposing regulations and carrying out their duties slowly to extract bribes.

Firms with managers who are willing to pay bribes might also find they are more heavily regulated than firms with managers who refuse to do so. The main reason for this is managers who are willing to pay bribes might choose to interact more often with government officials than would managers who refuse to pay bribes. That is, managers who refuse to pay bribes, anticipating slow procedures and possible rejection, might try to avoid government officials when they can. Managers who are willing to pay bribes might, for example, construct new buildings that need water and power connections and construction licenses when they want to expand. Managers who refuse to pay bribes could avoid doing this by either not expanding or by leasing or buying existing buildings that already have utility

connections. Similarly, managers who are willing to pay bribes might buy new equipment from abroad that need import licenses. To avoid having to get import licenses, managers who refuse to pay bribes could buy used equipment or new equipment produced domestically instead. The second possible reason is corrupt officials might target firms known to pay bribes. Demanding bribes—and creating delays—is costly for corrupt officials. They could spend the time they spend negotiating bribe payments with difficult managers extracting bribes from other managers who are more willing to pay. The officials might, therefore, focus on managers with a reputation for paying bribes. The second reason, however, is less likely than the first; it is not clear whether firms will easily develop reputations given neither the firm nor the corrupt official is likely to advertise bribe payments.

Third, it might be that corruption does not lead to overregulation and that overregulation does not lead to corruption; instead, both might be the result of weak governance. Regulation is more time-consuming when the government is ineffective than when it is not. Similarly, when the government is ineffective, officials might be more likely to demand bribes. Many studies have noted the strong negative relationship between corruption and regulation, and bureaucratic quality (Knack and Keefer, 1995; Mauro, 1995). Langbein and Knack (2010), for example, argue corruption, regulation, and government effectiveness measures are so correlated that it is not clear they measure distinct concepts.[1]

It is important for policymakers to know whether regulation causes corruption. If regulation causes corruption, then corruption will fall when the government removes regulations and enforces them more efficiently. If, in contrast, corruption causes overregulation or weak governance results in corruption and overregulation, then improving regulation might not cut corruption.

This paper looks at whether regulation causes corruption using firm data from the World Bank's *Enterprise Surveys*. It contributes to the literature on corruption and regulation in three ways. First, using data on over 30,000 firms from over 100 countries, it confirms that regulation is related to firms' decisions to pay bribes. Previous firm-level studies have used smaller samples from single countries (Clarke, 2012; Malomo, 2013). The results confirm the relationship holds across many countries.

As discussed above, although regulation is linked to corruption, it might not cause corruption. The paper's second contribution is to show that it does: overregulation encourages firms to pay bribes and to pay more in bribes when they do. This does not imply that corruption does not also result in more regulation. It does, however, suggest that cutting red-tape would lower corruption.

Third, it shows regulation affects corruption more after controlling for endogeneity. Before controlling for endogeneity, the results suggest that increasing

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[1] They focus on measures from the in the Worldwide Governance Indicators (Kaufmann and others, 2010b). Kaufmann and others (2010a) respond in detail to Langbein and Knack (2010).

the time managers spend dealing with regulation from the amount the manager at the 25th percentile spends to the amount the manager at the 75th percentile spends would increase the likelihood the average firm would pay bribes by 10 percentage points. After controlling for endogeneity, increasing the time managers spend dealing with regulation by the same amount increases the likelihood the average firm will pay bribes by 42 percentage points.

II. Measuring Corruption and Regulation

This paper looks at the relationship between corruption and regulation using firm data from the World Bank's *Enterprise Surveys* (http://www.enterprisesurveys.org).[2] The World Bank has conducted over 100 of these surveys in low and middle-income countries. The survey covers retail and wholesale trade, construction, hotels and restaurants, manufacturing, transportation and communications, and information technology in between two and six large cities in each country. The paper only uses surveys conducted after 2006; the questionnaire and survey design changed significantly in 2006 meaning the earlier surveys cannot be compared with the surveys conducted after 2006.[3]

Corruption.

The paper's measure of corruption comes from a general question about how much firms spend bribing government officials. The question is:

(j.7) We've heard that establishments are sometimes required to make gifts or informal payments to public officials to "get things done" with regard to customs, taxes, licenses, regulations, services etc. On average, what percent of total annual sales, or estimated total annual value, do establishments like this one pay in informal payments or gifts to public officials for this purpose? (World Bank, 2007b: 15)

The question asks managers what they think other firms do rather than asking them directly about their experience. This allows managers to report bribes without incriminating themselves. Because the question asks about what other firms do, the coefficient on regulation, therefore, technically describes how regulation affects managers' beliefs about other firms' bribes not how regulation affects the firms' own bribes.

When researchers use indirect questions like this one, however, they usually assume the manager is talking about what they do rather than about what they

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[2] World Bank (2007a, 2009) discusses how the survey was implemented and the questionnaire in more detail.
[3] The survey instrument and sampling methodology were standardized in 2006. The question on government sales was added in 2007 (i.e., after the 2006 surveys).

believe others do.[4] This can be justified in two ways. The first is to assume managers recognize the question is asking about their firm rather than about other firms. Johnson and others (2002: 1337-1338), for example, note a manager in their survey told the interviewers he knew they were asking about his firm rather than some other firm. The second way is to argue that managers who pay bribes are more likely to think other firms pay bribes than managers who don't pay bribes. Managers who pay bribes would, therefore, be more likely to respond others pay bribes than would managers who do not pay bribes even if they think about other firms when they answer the question. Ross and others (1977) call the idea that people believe others behave like they do as the 'false consensus effect.' For brevity, this paper sticks with the convention that managers answer the question thinking about their behavior rather than others' behavior. So if, for example, exporting firms' managers report firms like theirs are more likely to pay bribes than non-exporting firms' managers are, the paper will describe this as exporting firms' managers being more likely to report paying bribes than non-exporting firms' managers.

Another issue is that managers can answer the question either in local currency or as a percent of sales. In principle, this should not matter. If managers accurately report bribes and sales and divide bribes by sales correctly, then it would not matter whether they answer in local currency or as a percent of sales. In practice, however, the way they answer the question affects how much they report. Using data on African firms, Clarke (2011) shows firms report bribes between four and fifteen times higher when they report amounts as a percent of sales.[5] The regressions, therefore, include a dummy variable indicating whether the manager answered the question in local currency or as a percent of sales to control for this.

Regulation.

The most important independent variable is a measure of the burden of regulation. Although the survey asks several questions about regulation, the paper uses the most comprehensive objective measure—the percent of their time that senior managers devote to dealing with regulations. The question is:

> *(j2) In a typical week over the last 12 months, what percentage of total senior management's time was spent in dealing with requirements imposed by government regulations?* (World Bank, 2007b: 14)

Although the survey asks several questions about regulation, the question above is the best measure for this study. First, many of the other questions are subjective; rather than asking about managers' experiences, they ask for the

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[4] Clarke and Xu (2004), Johnson et al. (2000; 2002), Malomo (2013) and Svensson (2003), for example, explicitly make this assumption. Treisman (2007) notes this is common

[5] Clarke (2011) shows this is not due to observable differences between firms that report amounts in local currency and firms that report amounts as a percent of sales. Malomo (2013) finds similar results for Nigeria.

managers' opinions about regulation. If different managers interpret phrases like 'major obstacle' and 'minor obstacle' differently, then it will be difficult to compare their answers.[6] Second, the other objective questions are narrow; for example, the survey includes questions asking whether the firm had applied for an import license or had been inspected by the tax authorities. Although these questions are objective, they are not comprehensive.

One concern about the measure of regulation is that it might be endogenous. Rather than excessive regulation causing firms to pay bribes, firms' willingness to pay bribes might affect how they deal with regulators. As discussed above, managers who refuse to pay bribes might try to avoid government officials when possible. The regressions are, therefore, estimated using instrumental variable (IV) estimation to allow regulation to be endogenous. An instrument that is not correlated with corruption is, therefore, needed.

The study uses the number of times the tax authorities inspected the firms as an instrument for the burden of regulation. As discussed above, the main way that corruption affects how much individual firms are regulated is that firms that refuse to pay bribes might avoid government officials when they can. A firm can avoid getting a construction permit, for example, by buying or leasing an existing building rather than building a new one. Firms, however, do not choose whether tax inspectors visit them; the number of times tax inspectors visit the firm might, therefore, be a good instrument.

An alternative instrument, the average regulation other firms' managers in the same city, sector, and size group report, is used as a robustness check. Because the average omits the manager's own response many people refer to it as a leave-one-out average.[7] If similar firms have similar regulatory burdens, the leave-one-out average will be correlated with the manager's own response. Because the average only includes other firms' responses, it should, however, be uncorrelated with the manager's own experience with corruption. Many papers using firm-level data, including several papers on corruption, use averages or leave-one-out averages to reduce endogeneity problems.[8] Because there are two leave-one-out averages, the average number of tax inspections and the average time spent with regulators, the over-identifying assumption can be tested to confirm the leave-one-out averages are uncorrelated with corruption.

III. Empirical Results

Following previous studies, the decision of whether to pay a bribe and how much to pay are modelled separately with a decision regression and an extent

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[6] Bertrand and Mullainathan (2001) discuss subjective questions in economics.

[7] Angrist (2014) discusses the advantages of leave-one-out averages over simple averages.

[8] For studies of corruption see, for example, Svensson (2003), Fisman and Svensson (2007), and Clarke (2014).Xu (2011) discusses the use of these averages using firm level data in a broader context.

regression (Malomo, 2013; Svensson, 2003). The decision regression looks at whether the firm pays any bribes, while the extent regression looks at how much the firm pays. Firms that do not pay bribes are omitted from the extent regression. Although the decision and extent regressions could be estimated with one Tobit regression, the Tobit model assumes the coefficients in the decision and extent regressions are the same. Malomo (2013) and Svensson (2003), however, show this is not the case. The Tobit model is, therefore, not appropriate.

The first question is how regulation affects the decision to pay bribes. The model is the following:

$$Propensity\ to\ pay\ bribes_{ij} = \alpha_j + \beta \ln\left(regulation_{ij}\right) + \gamma x_{ij} + \varepsilon_{ij} \tag{1}$$

Firm i in country j's propensity to pay bribes depends on the regulatory burden ($regulation_{ij}$), firm-level characteristics (x_{ij}), and an error term (ε_{ij}). The regulatory burden is the natural log of the percent of senior management's time spent dealing with government regulations.

The regression includes country-time dummies (α_j) to control for omitted country characteristics that affect corruption and regulation. The strength of the government bureaucracy is one such omitted characteristic; as discussed earlier, countries with weak bureaucracies often have burdensome regulation and high corruption. The country dummies can control for this and other omitted country characteristics. Because the same country has separate dummies for different years, the dummies also allow the omitted characteristics to change over time within countries.

The regressions also include several standard control variables to control for firm characteristics such as size, ownership, age, and performance.

The firm's propensity to pay bribes cannot be observed. The dependent variable is, therefore, a dummy variable equal to one if the firm reports paying bribes rather than the firm's propensity to pay bribes. The firm pays bribes when its propensity to pay exceeds some level, which is normalized to 0. This implies:

$$Firm\ pays\ bribes_{ij} = \begin{cases} 1 & if & Propensity_{ij} > 0 \\ 0 & if & Propensity_{ij} < 0 \end{cases} \tag{2}$$

Because the error term, ε_{ij}, is assumed to be normally distributed, the model is a Probit model.

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[9] To avoid dropping observations where managers report spending no time dealing with regulation, 1 is added to the percent of time.

The next question is whether regulation affects how much firms pay in bribes. A second regression is, therefore, estimated with the amount the firm pays in bribes as a percent of sales as the dependent variable. The model is:

$$\ln\left(bribe_{ij}\right) = \alpha_j + \beta \ln\left(regulation_{ij}\right) + \gamma x_{ij} + \varepsilon_{ij} \tag{3}$$

Because the dependent variable is the natural log of bribes paid, the regression automatically excludes firms that do not pay bribes. This model shows how the independent variables affect how much firm i in country j pays in bribes when it pays bribes.

Table 1: Effect of regulation on probability that firm pays bribe and amount of bribes.

Model	Probit	OLS	IV Probit (Two-step)	2SLS
Dependent Variable	Firm paid bribe (dummy)	Amount of bribe (nat. log)	Firm paid bribe (dummy)	Amount of bribe (nat. log)
Observations	35,575	6,548	33,818	6,104
Country Dummies	Yes	Yes	Yes	Yes
Regulation				
% of time with regulators (nat. log)	0.169***	0.103***	0.705***	0.543**
	(22.23)	(6.11)	(16.55)	(2.06)
Firm Characteristics				
Number of Workers (nat. log)	-0.014*	-0.229***	-0.057***	-0.276***
	(-1.78)	(-13.45)	(-7.57)	(-9.99)
Firm Age (nat. log)	-0.036**	0.001	-0.009	0.004
	(-2.52)	(0.02)	(-0.69)	(0.11)
Female owner (dummy)	0.003	-0.050	-0.048***	-0.080*
	(0.16)	(-1.25)	(-2.85)	(-1.72)
Firm exports (dummy)	0.154***	-0.134***	0.066***	-0.157***
	(6.78)	(-2.77)	(2.85)	(-2.81)
Firm is foreign-owned (dummy)	-0.076**	-0.052	-0.055*	-0.028
	(-2.25)	(-0.68)	(-1.84)	(-0.32)
Firm is partly government owned (dummy)	-0.146**	-0.084	-0.107*	-0.015
	(-2.19)	(-0.59)	(-1.80)	(-0.10)
Growth of Sales (percent)	0.001**	-0.003***	0.000	-0.004***
	(2.08)	(-5.09)	(0.86)	(-4.97)
Firm has audited accounts (dummy)	-0.036*	-0.174***	-0.108***	-0.254***
	(-1.75)	(-4.01)	(-5.69)	(-3.83)
Firm sells to government (dummy)	0.338***	0.216***	0.167***	0.163***
	(15.47)	(4.89)	(5.20)	(2.66)
Firm in manufacturing sector [a]	-0.073***	-0.086	-0.024	-0.055
	(-2.90)	(-1.61)	(-1.05)	(-0.95)
Firm in retail trade sector [a]	-0.056**	-0.449***	0.013	-0.420***
	(-2.08)	(-7.66)	(0.54)	(-6.39)
Answered bribe question in currency (dummy)		-2.901***		-2.853***
		(-63.74)		(-54.13)
R Squared/Pseudo R-Squared	0.20	0.54	---	0.49

Source: Authors' calculations based on data from the World Bank Enterprise Surveys.
[a] Omitted sector is other services. ***, **, * means statistically significant at a 10%, 5%, and 1% level.
Note: T-statistics in parentheses. All regressions include a full set of country-year dummies. Instrument is the number of tax inspections in previous year.

The independent variables are the same as in the first equation with one difference; the regression includes an extra variable showing whether the manager answered the question in local currency or as a percent of sales. As discussed earlier, managers who answer the question about how much they pay in local currency report paying much less in bribes than managers who answer the question as a percent of sales (Clarke, 2011; Malomo, 2013).[10] The extra variable controls for this.

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[10] All amounts are converted to percent of sales by dividing bribes by sales for firms that reported the amounts in local currency.

Regulation. The models are first estimated assuming regulation is exogenous (see columns 1 and 2 in Table 1). As in previous studies (Clarke, 2012; Malomo, 2013), managers who spend more time dealing with regulation are more likely to pay bribes (i.e., in the decision regression) and pay more in bribes when they do (i.e., in the extent regression) than managers who spend less time. This confirms that the earlier results from single country studies also hold for the larger cross-country sample in this study. On average, managers would have about a 13 percent chance of paying a bribe if they were at the 25th percentile in terms of the time they spend dealing with regulation.[11] In contrast, they would have about a 23 percent chance of paying a bribe if they were at the 75th percentile. In the extent regression, a 1 percent increase in time spent dealing with regulation is associated with a 0.1 percent increase in how much the manager pays in bribes.

As discussed above, however, regulation might be endogenous. Managers who pay bribes might be more willing to interact with corrupt government officials (i.e., if it allows them to get what they want) than managers who refuse to pay bribes. In addition, corrupt officials might target managers whom the officials suspect of paying bribes.

The models are re-estimated using IV methods to control for endogeneity. The instrument is the number of times tax inspectors inspected the firm. The previous section discusses the identification strategy and the next subsection presents robustness checks with different instruments.

Controlling for endogeneity results in the coefficients on the regulation variable remaining statistically significant and becoming larger (see columns 3 and 4 in Table 1). The average manager would have about a 6 percent chance of paying a bribe if he or she were at the 25th percentile in terms of the time he or she spent dealing with regulation. The same manager would have about a 48 percent chance of paying a bribe if he or she were at the 75th percentile. Moving from the 25th to 75th percentile, therefore, increases the average likelihood a manager would pay a bribe by 42 percentage points. The effect is also larger in the extent regression after controlling for endogeneity: a 1 percent increase in time spent dealing with regulation leads to a 0.5 percent increase in how much the manager pays in bribes.

The results suggest regulation is endogenous. The null hypothesis that regulation is exogenous is rejected in both the decision and extent regressions (see

Table 2). This favors the larger coefficients from the IV estimation. Because

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[11]Probabilities are calculated for all managers in the sample replaced their actual time spent dealing with regulation at the level for the manager at the 25 percentile in terms of time spend with government officials. The probabilities are then averaged across the sample.

the system is only just identified, it is not possible to test over-identifying assumptions.

The instruments appear strong in both regressions (see Table 2). This is important because IV estimates are biased when the instruments are weak (Staiger and Stock, 1997). Although instrument strength cannot be tested decision regression when using maximum likelihood estimation (MLE), it can be tested when using a two-step Newey estimator (Newey, 1987) or a linear probability model.[12] The null hypothesis of weak instruments is rejected at a 1 percent significance level in both cases. In the extent regression, the null hypothesis of weak instruments is rejected even though the sample is much smaller after omitting firms that do not pay bribes.

Table 2: Test for instrument strength and exogeneity

	Firm paid bribe			Amount of Bribe
Model	Linear Prob. Model	Two-Step (Newey)	IV Probit (MLE)	2SLS
AR test for weak instruments (χ^2[1]) AR test (p-value)	96.07*** (0.00)	80.64*** (0.00)	--- ---	4.67** (0.03)
Exogeneity test (χ^2 [1]) Exogeneity test (p-value)	70.29*** (0.00)	56.56*** (0.00)	61.29*** (0.00)	3.21* (0.07)

Source: Authors' calculations based on data from the World Bank Enterprise Surveys.
***, **, * means statistically significant at a 10%, 5%, and 1% level.
Note: Weak instrument tests are Anderson-Rubin test (Anderson and Rubin, 1949) calculated using the weakiv package in Stata (Finlay and others, 2013)

Other Variables. Many of the coefficients on the other control variables are statistically significant in one or both regressions. The coefficients, however, are often different in the two regressions; for example, although exporters are more likely to say they pay bribes than non-exporters are, they say they pay less than non-exporters do. This supports the decision to estimate the decision and extent regressions separately. Tobit estimation, which would force the coefficients to be the same in the two regressions, is, therefore, not appropriate.

Large firms are less likely to pay bribes than small firms and report paying lower bribes when they do. Corruption might, therefore, disadvantage small firms especially. In contrast, firm age does not affect either the likelihood the firm pays bribes or how much they pay after controlling for other things.

Ownership also matters. Firms with female owners are less likely to pay bribes and pay less when then do than firms without any female owners. Foreign-owned firms are also less likely to pay bribes than domestic firms. This might be because they risk prosecution in their home countries if they pay bribes. Interestingly, however, foreign firms do not pay less in bribes than domestic firms when they pay bribes. The results are similar for government-owned firms.

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[12] Results from the two-step Newey estimator are almost identical to results from MLE. Results from the linear probability model are similar in terms of statistical significance.

Firm performance affects bribe payments. Firms that are growing quickly and exporters are more likely to pay bribes than other firms. They do not, however, pay more in bribes when they do. The coefficients on exporting and firm growth are negative and statistically significant in the extent regression, suggesting they pay less, not more, in bribes.

Firms that sell goods to the government are more likely to pay bribes than other firms. This might be because even though the question does not specifically ask about contracts, managers might not distinguish between bribes paid for licenses and government services and bribes paid to win contracts when they answer the question. They might, therefore, include bribes for contracts in the amount they report. An alternative explanation is firms that do business with the government might need to comply more fully with other government regulations meaning that they interact more with government officials. This might be because they need to remain formal to compete for government contracts or might be because they are more visible to government regulators. Consistent with the second explanation, Clarke (2014) finds these same firms report regulations are more visible to government regulators. Consistent with the second explanation, Clarke (2014) finds these same firms report regulations are more burdensome than firms that do not compete for government contracts.

Finally, consistent with Clarke (2011), firms that report amounts in local currency report far lower bribes than firms that report bribes as a percent of sales. This suggests that it is important to control for this in the extent regression.

Robustness Check—Alternative Instruments

One concern is the instrument, the number of times that tax inspectors visit the firm, might itself be endogenous. Measures of regulation might be endogenous for two reasons. The first, and most important reason, is that managers who are willing to pay bribes might be more willing to have voluntary transactions with government officials than managers who refuse to do so. This, however, is not a major concern for tax inspections: managers who refuse to pay bribes cannot easily avoid them. The instrument, therefore, deals with the most important source of endogeneity. It does not, however, deal with another possible source: corrupt tax officials might target firms if the officials think the firm pays bribes. Although the second reason for endogeneity is a lesser concern than the first—officials might not know which firms pay bribes because few managers will admit to doing so—it might remain a concern.

A different instrument, the average percent of their time that managers of other similar firms report that they spend dealing with regulation, is, therefore, used as a robustness check. The leave-one-out average is the average for other similar sized firms in the same city and sector omitting the firm's own response. A leave-one-out average is used rather than a simple average because if the firm's

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own response is endogenous, then the simple average including the firm's own response will also be endogenous.[13]

The leave-one-out average needs to be strongly correlated with the firm's own response to be a good instrument. Firms' responses could be correlated for two reasons. First, if omitted variables affect the regulatory burden for all firms in each city and sector then the leave-one-out average will be correlated with the firm's own response. This might be the case if, for example, the local government's administrative capacity affects the regulatory burden facing all similar firms. Firms' responses might also be correlated if peer effects are important: that is, if firms decide how to deal with regulation after considering how other similar firms behave.

The leave-one-out average is a strong instrument in the decision regression. The null hypothesis that the instrument is weak is rejected at a 0 percent level.[14] The instrument performs less well, however, in the extent regression. This might be because the sample in the extent regression, which excludes firms that do not pay bribes, is much smaller (6,204 compared with 35,576 observations). Perhaps because of the smaller sample size, the null hypothesis that the instruments are weak cannot be rejected at even a 10 percent level in the extent regression.

The results in the decision (IV Probit) regression are robust. The coefficient on time spent dealing with regulation remains positive and statistically significant in the two-step and MLE regressions (see Table 3).[15] This provides further evidence that firms that spend more time dealing with regulation are more likely to pay bribes than those that spend less time. The coefficient is, however, smaller than it was in the previous IV regressions. Regulation might, therefore, affect corruption less than the previous IV results suggest; it still, however, affects it more than the results that do not control for endogeneity suggest.

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[13] In addition, as discussed in Angrist (2014), the simple average (i.e., including the firm's response) is mechanically correlated with the firms' own response.

[14] As before, the weak IV test is for the two-step estimator.

Table 3: Coefficients on regulation variables, robustness checks

Model	Dependent Variable	Instruments	Obs.	% of time with regulators	
				Coef.	T-stat
IV Probit (two-step)	Firm paid bribe	Leave-one-out average (% of time)	35,576	0.279***	(4.94)
IV Probit (MLE)	Firm paid bribe		33,209	0.277***	(5.14)
2SLS	Amount of bribe		6,204	0.070	(0.35)
IV Probit (two-step)	Firm paid bribe	Leave-one-out averages (% of time, # of tax insp.)	35,576	0.297***	(5.18)
IV Probit (MLE)	Firm paid bribe		31,458	0.294***	(5.46)
2SLS	Amount of bribe		5,761	0.136	(0.66)

Source: Authors' calculations based on data from the World Bank Enterprise Surveys.
***, **, * means statistically significant at a 10%, 5%, and 1% level.
Note: Regressions include country dummies and independent variables from Table 1. Weak instrument tests are Anderson-Rubin test (Anderson and Rubin, 1949) calculated using the weakiv package in Stata (Finlay and others, 2013).

In contrast, the results for the extent regressions, which look at how much the firm pays in bribes, are less robust than the results from the decision regression. Although the coefficient remains positive, it is statistically insignificant at even a 10 percent level and is close to the ordinary least squares (OLS) estimate in size (see Table 3 and Table 1). This could be because the instrument in the smaller second stage regression is weak; two-stage least squares (2SLS) results are biased in the same direction as OLS when this is the case.

As a final exercise, leave-one-out averages for both instruments are used. One advantage of using two instruments rather than one is the over-identifying assumptions can now be tested. The null hypothesis that the over-identifying assumptions are valid cannot be rejected at even a 10 percent significance level.[16] The results using both instruments are similar to the results using only the leave-one-out average of the percent of time spent dealing with regulations. The coefficient on the regulation variable remains positive, statistically significant and about the same size in the decision regression. Similarly, it remains positive but statistically insignificant in the extent regression.

IV. Conclusions

Using a large cross-country data set, this paper confirms there is a link

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[15] For presentational purposes, Table 3 only includes the coefficients on the regulation variable. As noted in the table, the regressions include all the independent variables included in Table 1. Full results are available on request.

[16] In the decision regression, the over-identifying assumptions cannot be rejected at a 28 percent significance level. In the extent regression, the over-identifying assumptions cannot be rejected at an 11 percent significance level

between regulation and corruption. Managers who spend more time dealing with regulations, inspections, and licenses are more likely to report firms like theirs pay bribes and report they pay more in bribes when they do than managers who spend less time. This result is consistent with previous results from single country studies (Clarke, 2012; Malomo, 2013).

Previous empirical studies have assumed regulation affects corruption, but corruption does not affect regulation. This, however, might not true. Knowing it is difficult to get optional licenses and services without paying bribes, managers who refuse to pay bribes might avoid having to do so by not trying to get the optional licenses or services. The results in this paper confirm that this is the case: regulation is endogenous to corruption.

The paper shows that after controlling for endogeneity, heavily regulated firms are more likely to pay bribes than less regulated firms and that they pay more in bribes when they do. The coefficients on regulation are larger in the IV regressions than in the regressions where regulation is exogenous. The results controlling for endogeneity imply increasing the time managers spend dealing with regulation from the 25th to the 75th percentile would increase the likelihood the average firm would pay a bribe by 42 percentage points. The results assuming regulation is exogenous suggest a similar increase in the regulatory burden would increase the likelihood the firm pays a bribe by much less: only ten percentage points. The impact is also greater in the extent regressions. IV regressions suggest that increasing the time the average manager spends dealing with regulation by 1 percent increases how much the manager pays in bribes by 0.5 percent. In comparison, the results from the regressions that assume regulation is exogenous suggest the increase would only be 0.1 percent.

The results suggest that cutting the regulatory burden would reduce corruption; this would not be true if causation only went from corruption to regulation. In countries with weak institutions, cutting red-tape is likely to be especially useful because other methods, such as relying on the courts or an anti-corruption agency, work less well in these countries. When firms can bribe judges, prosecutors, and anti-corruption agency officials—as is likely to be the case in countries with weak institutional environments—stricter laws and more money to enforce them are unlikely to reduce corruption.

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VI.ACKNOWLEDGEMENTS

BUSINESS COMMUNICATION STUDENTS' PREFERENCE FOR ASSIGNMENTS ON JOB SEARCH SKILLS

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ABSTRACT

Business communication instructors often face the challenge of selecting the assignments and topics that will be most beneficial and appealing to students as they prepare to enter the workforce. In this article, the authors discuss an exploratory that sought to determine the assignments that students ranked as most important with the hope of using such assignments as vehicles for teaching core job search skills as well as the skills in those assignments students ranked as least important, but the instructor felt were also useful to have. Students from three business communication classes were surveyed at the end of the sophomore-level course and asked to ranked the assignments and then to give reasons for their rankings. The findings revealed a preference for assignments closely related to the job search process rather than assignments related to internal workplace communications. The authors recommend that business communication instructors consider the classification, experience, and motivation of students in determining the content and skills emphasized in their courses. A follow-up study should help to determine if these recommendations are effective.

INTRODUCTION

Business communication skills are often cited as most beneficial to graduates (Ghannadian, 2013) as they respond to the changing needs of the workplace (Daniel, 2012; Mitchell, et al., 2010). At the same time, it has become more difficult for business communication courses have become overwhelming as instructors try to determine what topics to cover and which assignments to choose from a range of options (Bayless & Johnson, 2011; Muir, 1996). Business communication course syllabi and descriptions typically show a commitment to core writing and oral communication skills, but the plethora of topics and assignments in the typical one-semester course may be overwhelming for both instructor and students. In particular, instructors wonder about the types of assignments to use to teach communication concepts and skills to help prepare students for the job search process (Crews & Hemby, 2009).

The idea for this study arose some time ago at a conference session where presenters discussed the time and effort required to teach business communication courses that included many different topics and were stand-alone courses in their business degree programs. One presenter shared a syllabus containing over 25 assignments with many difference genres, including some that were to be covered in just one or two class sessions. Participants also noted that while other business school disciplines usually create new courses to accommodate new knowledge and trends, business communication instructors are expected to "incorporate" new knowledge into the existing course. The purpose of our study was to determine how business communication instructors might design their courses for more efficient and effective delivery. This study sought feedback from students about the course assignments they found most appealing after completing a business communication course. As well, the findings should help instructors choose those assignments to teach a range of knowledge and skills in their courses.

LITERATURE REVIEW

Surveys of business school alumni and employers reported by the Association for the Advancement of Colleges and Schools of Business (AACSB) continue to confirm a high preference for communication skills in business programs (Ghannadian, 2013; Daniel, 2012; Smith, 2011). Knowing the relative importance of business communication to employers and to business programs, as well as the plethora of new topics and trends in workplace communication (Bayless & Johnson, 2011), researchers in the discipline have tried to estimate the volume and range of topics that instructors across the United States include in their curricula. Sharp and Brumberger (2013) examined the business communication course descriptions at the 50 top undergraduate business schools in the United states and found that the overwhelming majority emphasized written and oral communication skills, and many included topics such as teamwork, technology, intercultural, interpersonal, visual, ethics, service learning, and job seeking skills. Sharp and Brumberger acknowledged that their findings depended on the level of accuracy of the

descriptions posted on the schools' websites and suggested that not much had changed for instructors who still performed "a juggling act in deciding what to include and what to omit from an already overfull syllabus" (p. 26). In spite of this, Sharp and Brumberger advised business communication instructors to "keep our courses up-to-date" as knowledge of the trend of topics was essential in business communication courses (p. 26).

A survey of business communication instructors on their coverage of 38 different course topics found that the most popular topics were written communication, public speaking, ethical communication, and mediated communication (Russ, 2009). The least covered were topics related to theories of communication. The survey also showed that the most popular writing assignments were reports, letters, memos, resumes, presentation outlines, emails, interview questions, document outlines, and portfolios, in that order. The most popular speaking assignments were group presentations, individual presentations, job interviews, performance reviews, negotiations, and media interviews, respectively. Russ advised that schools should verify these findings periodically with feedback from alumni, industry, and instructors, which will also be used to determine the topics and assignments to include in business communication courses.

It is fair to conclude that business communication instructors cover many topics and skills, and that the problem of course assignment overload persists. This problem will likely continue as evidenced by the number of journal articles and conference presentations inviting instructors to incorporate and integrate new topics, genres, and trends into their courses. Furthermore, it appears that instead of reducing the number of course topics, instructors are more likely to want to increase topics as they look at trends and needs in the marketplace (Johnson & Wilson, 2008).

Although many journal articles provide insights on new topics and assignments that can be covered in business communication courses, they do not offer much in terms of helping instructors prioritize topics and streamline their courses to make them more efficient and effective. We contend that there needs to be an examination of the types of course assignments that instructors cover and how those assignments can be properly sequenced and designed to provide a solid foundation of business communication skills rather than a series of innovative assignments with no clear focus.

RESEARCH QUESTIONS

As this was an exploratory study, we limited the research questions to the following:

1. How do students rank the assignments they have completed in a business communication course?

2. What explanations do students give for their ranking of the top three assignments?

METHODOLOGY

Data for this study were gleaned from students who had just completed a sophomore level business communication course at a regional university in the United States. The feedback from students is normally shared among a group of course instructors who meet regularly to discuss assignments, student performance, university assessments, and other issues. Sixteen sections of the course are offered each semester, and students enroll from majors across the university. Students majoring in business and a few other professional programs are required to take business communication, and it is one of the communication options in the general education core. Anecdotally, non-business students say they take the course to learn "real world" writing and speaking, to act professionally, to fulfill a business minor, and because they heard it was a "fun" course.

The course coordinator and instructors have agreed on specific topics which should be included in the course and so the following paragraph is written in the syllabi of all course sections:

This course will require writing assignments that will include the good news or positive message; the bad news or negative message; the persuasive message, and a research-based report. Coverage will also include employment communication and team building activities. At least one oral presentation will be included in the course. At least two examinations must be administered. Other assignments may include secondary research, primary research, and additional assignments as determined by the instructor.

The anonymous feedback form was given to students on the last day of class in three sections business communication (n=80). They were asked to give candid responses to help improve the course so that future students might benefit from their insights. The survey consisted of two questions shown below:

1. Choose the **top five** assignments and rank them in order of importance from 1 to 5, **number 1** being most important.
   Biographical Statement   _____
   Good News Letter   _____
   Bad News Memo   _____
   Persuasive Letter   _____
   Research Proposal   _____
   Secondary Data Collection _____
   Primary Data Collection   _____
   Research Report   _____

Resume Preparation   _____
Interview Questions   _____
PowerPoint Packet   _____
Oral Presentation   _____

2. Give a short explanation for each of your **top three** choices:
    Choice #1 _____
    Choice #2 _____
    Choice #3 _____

It was assumed that ranking the assignments would easier than explaining the rankings, so limiting the explanations to the top three assignments would allow students to give more meaningful feedback. Assignments were listed on the survey in the order they were given during the semester. Though this could have biased the students' responses in favor of more recent assignments, listing them chronologically was less likely to confuse students than an alphabetical sequence. The survey was read orally to the class in addition to the paper version given to students. The completed surveys were manually sorted to ensure usability and 100% of them were properly completed. The numerical rankings from the first question were then entered into an Excel spreadsheet which allowed for measures of frequencies of each assignment and their relative rankings, from 1 to 5. The qualitative responses to question two were transcribed into the Excel spreadsheet and then sorted according to like categories determined by the instructor and a graduate assistant.

FINDINGS

Research Question One

How do students rank the assignments they have completed in a business communication course?

Responses

The results of the first question of the survey are summarized in Table 1, ranked in order of percent by total. The assignments students rank as the top five accounted for 64.3% of all 12 assignments. The top-ranked assignment, Resume Preparation, was not a surprise as students have often mentioned it as one of the reasons they take business communication.

That students ranked Oral Presentation as the number two assignment might have been a surprise, considering public speaking is believed to be one of the biggest fears of students and professionals (Pull, 2012). However, most students enrolled in these sections had taken the public speaking course required by the university, so they were used to making formal presentations in class.

The Biographical Statement is a written assignment that is not commonly taught in

business communication courses, and was designed as an ice-breaker at the beginning of the semester. Students must write a 200-word statement that goes beyond the typical name-major-classification-hometown introduction. It is believed that a formal, detailed self-introduction at the beginning of the class term helps to reduce stress and build rapport (Pillet-Shore, 2011).

Interview Questions elicit students' responses to behavior-based questions that students answer based on their own life and work experiences. Each question requires a five-line, typed response, so student can give good detail.

The Research Report is a separate document, but a culmination of the Proposal, Secondary Data Collection, and Primary Data Collection assignments all based on a business problem that students identify. The entire research process involves researching a company where the students plan to seek internships or jobs. It is no surprise the Primary Data and Secondary Data tasks are unpopular as students tend to complain about logistical issues in completing them.

The Persuasive Letter, Bad News Memo, and Good News Letter are standard business communication assignments about scenarios in the workplace. In most cases, these scenarios are contrived and unfamiliar to students. PowerPoint Packet assignment is meant to give the students more in-depth knowledge on designing effective slides. PowerPoint is often criticized as viewed with skepticism (James, et al., 2006), yet are the most popular presentation tools in the workplace. Students are not usually taught how to create PowerPoints, but if done well then can be effective learning tools (Bozarth, 2013).

Table 1: Top Five Assignments in Business Communication*

Assignments	Rank 1 Raw	Rank 1 within	Rank 2 Raw	Rank 2 within	Rank 3 Raw	Rank 3 within	Rank 4 Raw	Rank 4 Within	Rank 5 Raw	Rank 5 within	Rank Total	Percent of Total
Resume Preparation	27	38.6%	19	27.1%	9	12.9%	10	14.3%	5	7.1%	70	17.5%
Oral Presentation	15	26.8%	12	21.4%	9	16.1%	5	8.9%	15	26.8%	56	14.0%
Biographical Statement	12	26.1%	8	17.4%	8	17.4%	6	13.0%	12	26.1%	46	11.5%
Interview Questions	2	4.7%	12	27.9%	10	23.3%	15	34.9%	4	9.3%	43	10.8%
Research Report	8	19.0%	5	11.9%	12	28.6%	8	19.0%	9	21.4%	42	10.5%
Research Proposal	6	18.8%	4	12.5%	7	21.9%	5	15.6%	10	31.3%	32	8.0%
Persuasive Letter	4	13.8%	3	10.3%	7	24.1%	10	34.5%	5	17.2%	29	7.3%
Bad News Memo	1	3.7%	5	18.5%	7	25.9%	5	18.5%	9	33.3%	27	6.8%
Good News Letter	2	10.0%	0	0.0%	4	20.0%	9	45.0%	5	25.0%	20	5.0%
PowerPoint Packet	2	13.3%	7	46.7%	3	20.0%	2	13.3%	1	6.7%	15	3.8%
Secondary Data Collection	1	7.7%	4	30.8%	3	23.1%	3	23.1%	2	15.4%	13	3.3%
Primary Data Collection	0	0.0%	1	14.3%	1	14.3%	2	28.6%	3	42.9%	7	1.8%
TOTAL	80		80		80		80		80		400	100.0%

*Rank percent is calculated for within group (raw/rank total); Percent of total is calculated for between groups (rank total/400).

Research Question Two

What explanations do students give for their ranking of the top three assignments?

Responses

The second survey question sought explanations from students on why they chose their top assignments. Table 2 presents the assignments ranked in the top three and is followed by a summary of feedback from students on their choices. Students' choice of the top assignments reflected their motivation to develop skills relevant to career planning. Resume Preparation (22.9%), Oral Presentation (15%), and the Biographical Statement (11.7%) represented 49.6% of preferences among all 12 assignments. These assignments relate most directly to the job search, while the assignments that ranked at the bottom would be most relevant to them once they had acquired the job. It is fair to conclude that students prefer assignments related to career planning.

Table 2: Top Three Assignments in Business Communication*

Assignments	Rank 1 Raw	Rank 1 within	Rank 2 Raw	Rank 2 within	Rank 3 Raw	Rank 3 within	Rank Total	Percent of Total
Resume Preparation	27	49.1%	19	34.5%	9	16.4%	55	22.9%
Oral Presentation	15	41.7%	12	33.3%	9	25.0%	36	15.0%
Biographical Statement	12	42.9%	8	28.6%	8	28.6%	28	11.7%
Research Report	8	32.0%	5	20.0%	12	48.0%	25	10.4%
Interview Questions	2	8.3%	12	50.0%	10	41.7%	24	10.0%
Research Proposal	6	35.3%	4	23.5%	7	41.2%	17	7.1%
Persuasive Letter	4	28.6%	3	21.4%	7	50.0%	14	5.8%
Bad News Memo	1	7.7%	5	38.5%	7	53.8%	13	5.4%
PowerPoint Packet	2	16.7%	7	58.3%	3	25.0%	12	5.0%
Secondary Data Research	1	12.5%	4	50.0%	3	37.5%	8	3.3%
Good News Letter	2	33.3%	0	0.0%	4	66.7%	6	2.5%
Primary Data Collection	0	0.0%	1	50.0%	1	50.0%	2	0.8%
TOTAL	80		80		80		240	

*Rank % is calculated for within group (raw/rank total); % of total is calculated for between groups (rank total/240).

The students' reasons for choosing the top three assignments were not as varied and elaborate as expected, though they might have assumed the reasons were self-evident. Reasons for rating Resume Preparation, Oral Presentation, and Biographical Statement referenced their importance in seeking employment opportunities, students' anxiety about the job search process, and their wanting to learn the "right way" to create the "perfect" resumes or presentations. There was the sense that they had been told different messages and versions of the wrong and right way to prepare such documents or deliver oral presentations.

Students cited the need to overcome speaking anxiety as the reason they chose Oral Presentation and that this assignment gave them an opportunity to practice their public speaking skills. Although all students are required to take a public speaking class, they still see the need to hone their speaking skills for business purposes. For the Biographical Statement, some students stated that they had not been asked to introduce themselves in such a focused, detail way and so completing the assignment gave them the opportunity to recall their experiences and achievement and organize them in order to create compelling biographical statements.

LIMITATIONS OF FINDINGS

As this was an exploratory study, several aspects can be improved to provide stronger, generalizable results. First, data were drawn from groups of students who had been taught by the same instructor who established specific methods, scenarios, and criteria for the topics and assignments given in the course. As such, students' judgment of the effectiveness and importance of the assignments were constrained by the conditions set by the instructor.

Second, the collection and sequence of assignments in any class can affect the outcomes. For example, the Biographical Statement given at the beginning served as an ice-breaker when students were new to the class and open to the concepts and ideas taught may have made a bigger impression on them compared to the Primary and Secondary Data assignments given in the middle of the semester. By the time they got to the Data Collection assignments, they had done a fair amount of writing and may have been exhausted by the process which is often the case in writing-intensive courses (Kellogg & Raulerson, (2007).

Finally, the business communication course at the university where the study was conducted is offered at the sophomore level as a general education course, compared to other universities where the course is offered at the junior level to mainly business students. As a result, the students coming from outside the business school, who are sometimes the majority in course sections, may view business communication as a job search course rather than a vital part of internal communication and skew the rankings toward those course that job search assignments.

CONCLUSION AND RECOMMENDATIONS

This study showed that students prefer assignments that teach skills and knowledge needed to succeed at the first level (job-seeking skills) rather than at the second level (job-performing skills). Effective job search skills translate into success in acquiring internships and gainful employment. Until they have more in-depth knowledge of organizations through advanced level courses in the junior and senior years, and through internship and other work experience, it may be beneficial to focus on job search communication as is the case at the university where the

study was undertaken. Thus, when business communication is taught at the sophomore or freshman levels, it should focus on job search skills. A different (follow-up) course might be needed to focus on communication on the job.

Instructors who choose to focus on job search skills should consider reorganizing the sequence of assignments and reorienting those less popular assignments toward the job search theme. For example, the Positive News assignment might ask students to write a letter accepting the job offer, which a Bad News Letter might ask them to decline the offer. The communication and rhetorical principles of both types of documents would still be taught but the context and purpose would be different.

As was stated at the beginning of the article, business communication courses can be challenging to teach due to the range of topics and issues that instructors feel they need to cover. The findings of this exploratory student suggest that instructors consider the level of the course, the types of students in the course, and the students' interest in particular topics and themes that will help them further their careers.

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PREDICTORS OF ACADEMIC PERFORMANCE IN INTRODUCTORY ACCOUNTING COURSES AMONG STUDENTS AT AN URBAN FOUR-YEAR UNIVERSITY

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ABSTRACT

This study utilized the Ordered Logit model to examine personal and contextual factors that may contribute to academic success in introductory accounting courses across three semesters among students attending a large urban minority-serving institution. This study also investigated the possible impact of the academic status of faculty teaching these courses. The empirical results reveal that the following factors significantly affect students' academic success:(i) the course delivery mode; (ii) the individual instructors; (iii) whether the students are business major; and (iv) their GPA at the time they take the introductory accounting course. The empirical findings suggest that instructors of hybrid classes should utilize more educational technologies to deliver the course materials, department be careful in assigning instructors in the first accounting course, and colleges of business should not only use their scholarships and other incentive measures to attract high GPA transfer students, but also impose a requirement that students must have a certain minimum GPA before they can take the introductory accounting courses to improve their retention and graduation.

PREDICTORS OF ACADEMIC PERFORMANCE IN INTRODUCTORY ACCOUNTING COURSES AMONG STUDENTS AT AN URBAN FOUR-YEAR UNIVERSITY

INTRODUCTION

Tinto (2012) reports that people who go to college and complete a bachelor's degree can earn over one million dollars more, on average, during their life time than do those who do not go to college. The author stressed that what matters is completing a degree, especially a four-year degree. In the age of globalization where the labor market has been internationalized, perhaps the most important indicator of success and future earnings potential in a competitive job market is not only the completion of a four-year degree but also earning a high grade point average (GPA) upon graduation.

While the importance of a four-year degree on employment opportunities is well understood, institutions still face many challenges when it comes to the retention and adequate academic progress of students. Noble and Sawyer (1987), Ting (2001) Pike and Saupe (2002) articulated that the academic success and retention of students, particularly during their first year, are major concerns for colleges and university stakeholders. In addition, academic success and retention are increasingly viewed and used as measures of effectiveness of higher education. This heightened accountability to improve the academic success and retention of college students has intensified the concerns of college and university administration and faculty, especially given the challenges of serving underprepared students included in the pool of incoming freshmen (Pascarella & Terenzini, 1991; Mclaughlin, 2006). Solutions to these concerns continue to elude researchers exploring student characteristics that contribute to academic success.

Large urban four-year universities with open admissions policies (including transfer admissions) face different challenges compared to traditional educational institutions. First, they are most likely located in or near downtowns of large U.S. metropolitan areas and enroll mostly nontraditional and ethnically diverse students. These institutions enroll students who tend to be older than traditional college age, and who have additional obligations including full-time employment and dependents. Furthermore, these universities are more likely to enroll students from a multitude of ethnic backgrounds with English being their second language.

Universities with open admissions policies serve a large percentage of first generation and academically underprepared college students that research indicates are less likely to be retained. The improvement of college student retention within these institutions have been addressed through various methods such as the evaluation of student transcripts to identify if remediation is necessary. A strategy to increase the graduation rate employed by some of these institutions is to offer automatic scholarships to transfer students based on their transfer GPA. The higher the student's GPA, the more scholarship money is awarded.

Accounting discipline faces challenges of retaining students. While the research literature concerning college student retention has led to the design and implementation of interventions that improve the performance, retention and graduation of students, these positive effects are not uniform across colleges and majors at a given university. In particular, the accounting discipline poses additional challenges for faculty and administrators because of the following characteristics: (i) the rigor of the subject matter, and (ii) the strict sequencing of the courses in the program. In addition, the rigor of the accounting curriculum must strictly be adhered to given that accounting programs are evaluated by the CPA passing rates of its graduates. Specifically, students' CPA passing rate is public record and it is used as one important quantitative measure to evaluate the accounting programs of the colleges of business by their stakeholders. Additionally, CPA exams have recently become more difficult, which may be precipitated by the wave of corporate failures in the early 2000s; examples of which include WorldCom, Enron, and Arthur Anderson.

In terms of measuring and evaluating the effectiveness on interventions on student outcomes, there are various mathematical issues to consider. Statistically, the measures of student performance, such as their grades as well as intervention activities, are truncated both from below and from above, i.e., the grades are A, B, C, D, F, or W; while interventions are in the forms of whether students participate and how often they participate in the intervention activities. The numerical values of these measures are usually discrete and truncated. This discrete and truncating phenomenon renders the conventional econometric procedures inappropriate to identify the covariates contributing to the students' performance and the effects of administrative interventions. To apply any regression model on a dependent variable with multiple truncated value and discrete in nature, the probability density of the dependent variable must be relocated from plus and minus infinity to the range between its upper and the lower limit values.

The motivation for this investigation is that if social demographic factors, delivery modes, and academic status of faculty teaching accounting courses are identified to have significant effects on students' performance, these variables could serve as an invaluable basis for formulating policy to address these pressing issues. In light of the aforementioned, this study utilized the Ordered Logit model, which can handle the qualitative responses to identify factors contributing to students' performance.

Therefore, this paper will first briefly review the literature related to college student success, and then describe the methodology used in the current investigation. Second, data analysis and empirical results will be reported. The final section will offer concluding remarks, some strategic implications, and limitations of the investigation.

REVIEW OF LITERATURE

There is extensive research on student academic success and persistence, especially among freshmen (Tinto, 1975, 1993; Pike & Saupe, 2002; McLaughlin, 2006; Tracey & Sedlacek, 1989). Tinto (1993) conceptually argued that academic performance and persistence are impacted by student characteristics that are measured by levels of academic preparation in high school and college admission test scores. This underlying assumption may explain why the College Admission Index is based, for the most part, on cognitive measures. McLaughlin (2006) White and Sedlacek (1986), Tracey and Sedlacek (1989), Boyer and Sedlacek (1988) have confirmed that cognitive variables, such as high school GPA, high school percentile rank, and college admission test scores, predict the academic success of college students.

The search for factors associated with university students' academic success by Trockel et al. (2000) stimulated keen interest and spawned a large number of empirical studies in recent decades. Cumulative grade point average is frequently used as a measure of academic success. George et al. (2008) argued that the purpose of education also extends to personal and professional achievement. Therefore, researchers conducting studies of this nature have included, in addition to GPA, subjective measures of personal success. Consequently, George et al. (2008) duplicated certain aspects of research by Trockel et al. (2000) who used GPA as their standard of success and a variety of physical and mental health criteria as predictors. Also, these authors pointed out that Trockel et al. (2000) used a mail-in survey that included self-reports of exercise, eating patterns, sleep habits, mood states, perceived stress, time-management skills, social support, and others. These researchers also asked participants to maintain a time diary of daily activities and answer a questionnaire with additional exploratory variables. Furthermore, George et al. (2008) used an expanded measure of success that includes both objective (GPA) and subjective (personal success) measures. To minimize social desirability biases and increase objectivity, they also analyzed assessments of certain questionnaire items by a friend of each participant.

Empirically, George et al. (2008) found the following seven significant predictors of GPA: (i) time-management skills; (ii) intelligence; (iii) time spent studying; (iv) waking up earlier, (v) owning a computer; (vi) less time spent in passive leisure; and (vii) healthy diet. In another study investigating predictors of academic success, Adebayo (2008) empirically found one cognitive variable – high school GPA, and two non-cognitive measures—realistic self-appraisal and understanding and coping with racism; to be the best predictors of academic success of conditionally admitted underprepared students during their first semester. Adebayo (2008) further reported that high school GPA, which accounted for 14 percent of the variance in the first semester GPA of the cohort, was a stronger predictor of first semester GPA of conditionally admitted students. Another variable is Realistic Self-Appraisal which is defined as students can reflect from a realist self-appraisal system to modify their behavior. Also, Understanding and Coping with Racism is defined

as students understand their positions in the multicultural society and are capable of coping with racism.

METHODOLOGY

Among the members of the class of the logistic regression models, the Ordered Logit model is more appropriate for handling the aforementioned truncation and non-normal distribution. The general objective of the analysis is to construct a probability model that links the changes in a set or a 1xn vector of independent variables or covariates to the probability of an outcome. Following Greene (2012), this study specifies equation (1) as the basis condition to construct the Ordered Logit model, where y^* is an unobservable dependent variable relating to the vector of covariates x's as follows:

$$y^* = x'\beta + \varepsilon \tag{1}$$

What we do observe is

$$
\begin{aligned}
y_i &= 0 \text{ if } & y_i^* &\leq 0 \\
y_i &= 1 \text{ if } & 0 &< y_i^* \leq \mu_1 \\
y_i &= 1 \text{ if } & \mu_1 &< y_i^* \leq \mu_2 \\
&\ldots\ldots\ldots\ldots \\
y_i &= J \text{ if } & \mu_{J-1} &\leq y^*
\end{aligned}
\tag{2}
$$

which is a form of censoring. The $\mu's$ are the J-1 unknown parameters to be estimated with β

$$
\begin{aligned}
\Pr(y_i = 0 \mid x, \beta, \mu) &= \varphi(-x'\beta) \\
\Pr(y_i = 1 \mid x, \beta, \mu) &= \varphi(\mu_1 - x'\beta) - \varphi(-x'\beta) \\
\Pr(y_i = 2 \mid x, \beta, \mu) &= \varphi(\mu_2 - x'\beta) - \varphi(\mu_1 - x'\beta) \\
&\ldots\ldots\ldots\ldots \\
\Pr(y_i = J \mid x, \beta, \mu) &= 1 - \varphi(\mu_{J-1} - x'\beta)
\end{aligned}
\tag{3}
$$

Finally, for all the probabilities to be positive, the $\mu's$ must satisfy the following condition:

$$0 < \mu_1 < \mu_2 < \ldots\ldots\ldots < \mu_{J-1}$$

Econometrically, equation (1) specifies how a vector of factors, x, influences the students' performances. The log-likelihood function, denoted by $Ln(\beta, \mu)$, of this model can be expressed as:

$$Ln(\beta, \mu) = \sum_{i=1}^{I} \sum_{j=0}^{J} \log[\Pr(y_i = j \mid x_i, \beta, \mu)].\zeta(y_i = j) \qquad (4)$$

where $\zeta(y_i = j)$ is an indication function which takes the value of 1 if the argument is true, and 0 if the argument is false. This model can be used to estimate the coefficient vector β of the covariates or independent variables x and the threshold values of $\mu's$. The Ordered Logit model is the standard approach to modeling a dependent variable that displays a large cluster of limit values and under a variety of assumptions about the latent error distribution; therefore, it is appropriate model to describe the influences of the demographic and other characteristics of students on their qualitative earning grades which range from A, B, C, D, F and W that are quantitatively indexed as well as to assess interventions to address the aforementioned challenges posed by the accounting discipline to the colleges of business.

Additionally, partially differentiating the system of equations (4), with respect to the covariate vector x, yields the system of partial derivatives (5). The system of equations (5) describes the marginal impacts of the covariates or the regressors x on the probabilities y and hence $y*$.

$$\frac{\partial \Pr(y_i = 0 \mid x, \beta, \mu)}{\partial x} = -\varphi(x'\beta)\beta$$

$$\frac{\partial \Pr(y_i = 1 \mid x, \beta, \mu)}{\partial x} = [\varphi(-x'\beta) - \varphi(\mu_1 - x'\beta)]\beta$$

$$\frac{\partial \Pr(y_i = 2 \mid x, \beta, \mu)}{\partial x} = [\varphi(\mu_1 - x'\beta) - \varphi(\mu_2 - x'\beta)]\beta \qquad (5)$$

$$\frac{\partial \Pr(y_i = 3 \mid x, \beta, \mu)}{\partial x} = [\varphi(\mu_2 - x'\beta) - \varphi(\mu_3 - x'\beta)]\beta$$

$$\ldots\ldots\ldots$$

$$\frac{\partial \Pr(y_i = J \mid x, \beta, \mu)}{\partial x} = \varphi(\mu_{J-1} - x'\beta)\beta$$

Mathematically, the system of equations (5) indicates that the partial or the marginal effects of the regressors, x, i.e., the effect of changing an arbitrary element x_k of the vector x, ceteris paribus, on the probabilities are not equal to the coefficients. As diagrammatically illustrated by Green (2012), an increase in any arbitrary element x_k of covariate vector x, ceteris paribus, is equivalent to shifting the distribution slightly to the right within the range of the probability density function (pdf) of y. The effect of the shift is unambiguously to shift some density mass out of the leftmost cell of under the graph of the pdf.

Additionally, if the estimated corresponding coefficient of x_k, β_k — an element of the vector β, is positive, the $\Pr(y_i = 0 \mid x, \beta, \mu)$ must decline. To this end

Green (2012) pointed out that the first expression in the system of equations (5) indicates that the derivatives of $\Pr(y_i = 0 \mid x, \beta, \mu)$ has the opposite sign of β_k. By a similar logic, the last expression of the system of equations (5) shows that $\Pr(y_i = J \mid x, \beta, \mu)$ must have the same sign as β. More specifically, if β_k is positive, the marginal effect of the element x_k must shift some density mass into the rightmost cell under the graph of the pdf of y. However, analyses of the remainder of the equations of the system of equations (5) reveal that the marginal effect of the arbitrary element x_k of the covariate vector x on any other cell in the middle is ambiguous, i.e., only the signs of the changes in $\Pr(y_i = 0 \mid x, \beta, \mu)$ and $\Pr(y_i = J \mid x, \beta, \mu)$ are unambiguous. The marginal effect on any other cell in the middle depends on the two densities.

The upshot of the aforementioned, in general, is that it is unclear how the coefficients in the Ordered Logit model should be interpreted. However, if the objective of the empirical investigation is to determine the impacts of certain covariates on the probabilities y and hence $y*$; then, their corresponding estimated coefficients (the elements of β), their signs and the characteristics of the covariates would provide sufficient information to satisfy the objective. More specifically, if the objective is to investigate the possible differences in students' performances between the face-to-face and hybrid courses, the hybrid and face-to-face courses are numerically indexed as 0's and 1's respectively, and the estimated coefficient of this covariate is positive and significant; then, it is logical to suggest that there are differences in students' performances between the two delivery modes and students in face-to-face seem to perform better, ceteris paribus.

DATA AND EMPIRICAL RESULTS

This study uses the fall semester of 2011 to 2013 cohorts of accounting 2301 (introduction to accounting) students' data collected by a large urban university serving the minority and Hispanic student body with the encrypted students' identifications. The database structure with many data fields of this data set is designed and maintained by the Banner system that this particular university uses for students' record and information management.

One of the most challenging obstacles for this type of study is the availability of data related to the prior performance of transfer students. The unavailability of such data may be due to its protected nature and the inconsistencies in transfer course articulation. The data set used in this analysis is challenging in various respects because not only does it include missing values for each student, but it also has missing values across variables that differ by students. For the sample of 846 students used in this analysis, only the following common characteristics were available: student grades (A, B, C, D, F, and W); course delivery modes (hybrid or face-to face); academic status of instructors (adjunct, lecturers, tenured /tenure track); age; ethnicity; gender; major (declared business majors were coded as

"1")earned credit hours at current university; GPA at current university at onset of accounting 2301 enrollment; transfer credit hours; transfer GPA; student type (transfer or first-time in college (FTIC); students' highest score in College Algebra (MATH 1301); and the number of times the students took College Algebra.

As to indexing the ordered qualitative covariates, students' grades which are quantitatively indexed such as A, B, C and all other grades are 3, 2, 1 and 0, respectively. These quantitative values are used as the dependent variable of the Ordered Logit model. As to the covariates, the two delivery modes: hybrid and face-to-face were indexed to 0 and 1, respectively. The students' ethnicities were indexed to numerical values from 1 to 6 and then these values were used to create variables for representing each ethnic group with "white non-Hispanic" acting as the reference group. The declared business major has the value of 1, if a student declared one of the business disciplines as his or her major, and the value of 0 was designated for all other majors. Seven instructors taught these accounting courses over the sample period and their academic status ranged from adjunct to tenured professors. Each instructor in each category is randomly assigned a numerical value to the dummy variable according to the orders of their last names, starting with the adjunct instructor, lecturers, and then tenured professors. Thus, the adjunct be assigned the numerical value of 1; the next adjunct instructor would be assigned the value of 2. Consequently, the dummy variable in this sample has the numerical values ranging from 1 to 7. The grades for College Algebra assume the values of 4, 3, 2, 1, and 0; corresponding to the alphabetical grades of A, B, C, D, and F.

The estimation results of the Ordered Logit model using the aforementioned data set are summarized in Table 1. Overall, the empirical results reveal the goodness of fit as evidenced by the log likelihood ratio statistic, Akaike information criterion (aic), and Schwarz information criterion (sic).

A closer examination of the empirical results reveal that, based on the z-statistics and their p-values, the estimated coefficients for the course delivery mode, the individual instructor, business major declaration, and GPA at the onset of introduction to accounting course emerged as statistically significant.

It is interesting to note that even though online courses have been offered by higher educational institution for a long time. This delivery mode has recently become very popular and an attractive instrument for colleges and universities to increase their enrollments. The technology supporting this delivery mode has also been advanced; however, it is not fully utilized by all instructors. Consequently, there is significant difference in leaning outcomes between traditional and online courses. In recent years, state higher educational agencies, accreditation agencies began to pay attention to this difference which precipitates colleges and universities to improve the leaning outcomes of online courses.

Table 1

Covariate		Est. coefficient	Std. Error	z-statistic	Pr. > |z|
Delivery mode		1.043391	0.258134	4.042055	0.0001
Academic status of instructor		-0.184890	0.054627	-3.384625	0.0007
Age		-0.006094	0.017304	-0.352168	0.7247
Ethnicity		-0.134372	0.092426	-1.453826	0.1460
Gender		0.035346	0.194986	0.181273	0.8562
Business major		0.582506	0.268245	2.171545	0.0299
Total credit hours earned		0.003549	0.005131	0.691727	0.4891
GPA when taking intro to acct.		0.931906	0.138794	6.714322	0.0000
Total transferred credit		-0.001387	0.003671	-0.377785	0.7056
Transferred GPA		0.059532	0.109980	0.541298	0.5883
Highest score on math 1301		0.305111	0.241067	1.265668	0.2056
Times the student takes math 1301		-0.025847	0.073411	-0.352083	0.7248
Estimates of $\mu's$	μ_1	1.644368	0.715766	2.297352	0.0216
	μ_2	2.854336	0.722225	3.952142	0.0001
	μ_3	4.244001	0.738197	5.749144	0.0000
Statistics	Akaike information criterion				2.3636
	Schwarz information criterion				2.5097
	Log likelihood				-473.0744
	Log likelihood ratio statistic				133.5768
	Prob. (Log likelihood ratio statistic)				0.0000

Note: z-statistic tests for the significance of the corresponding estimated coefficient. *Pr.>|z| is the p-value.*

CONCLUDING REMARKS, STRATEGIC IMPLICATIONS AND LIMITATIONS

There is no question that higher education pays off. The underlying assumption of this articulation is that one must successfully complete a degree. Tinto (2012) articulated that on average people who go to college and complete a bachelor's degree can earn over one million dollars more during their life time than do those who do not go to college. Clearly, to succeed academically, students must pass every course they attempt. To this end, the empirical results of this investigation indicate that the instructor status, course delivery mode, business major declaration, and GPAs at the onset of Accounting 2301 enrollment affect their grades in the course.

By and large, accounting majors command the highest average starting salary among the business majors. Accounting 2301 is the first course in the course

sequence of their degree. Successful completion of the first course in the discipline is a necessary condition for obtaining an accounting degree. Additionally, retention and graduation are two integral metrics assessing the effectiveness of large urban four-year universities.

The empirical results suggest that the following measures should be considered to improve the academic success of accounting majors. Further investigation is necessary to understand why students taking a hybrid course were less likely to succeed in their introductory accounting course. Accounting classes require working exercise problems; therefore, if a class is a hybrid, more educational technologies could be used to deliver the course contents. This approach depends on the skills and the willingness of the professor to use technologies. In addition, professor rank also appears to impact students' success in accounting 2301. Introduction in accounting is the first course in the accounting class for accounting major. Student' success in this course would also likely help increase the enrollment of the accounting program. Thus, departments may consider being more strategic in the assignment of instructors to accounting 2301 classes.

Consistent with previous research, students' GPAs at the time they take accounting 2301 affect their grades in this course. This empirical finding lends credence to the articulation that previous GPA is a very accurate predictor of students' performances. Therefore, colleges and universities, with large proportion of transfer students, should not only use their scholarships and other incentive measures to attract high GPA students but also impose a requirement that students must have a certain minimum GPA before they can take introduction to accounting to improve their retention and graduation.

Whether students are business majors also contributes to their success in accounting 2301. However, given the above finding that students' GPA at the time they take accounting 2301 affects their grades in this course, this finding should not be surprising, given that colleges of business generally have higher admission requirements than other colleges. Furthermore, it is possible that major declaration acts as a proxy for student motivation.

As always, there are limitations to all empirical investigations due to the unavailability of pertinent data and this study is no exception. Possibly, for nontraditional student population, their social-economic statuses such as income, work hours, marital status, family size, and motivation are additional variables that could affect their performances at school. Intervention measures to help students with their course work such as tutoring services, courses such as freshmen and transfer seminars designed to familiarize new students with the university culture and good study habits would also impact grades. Unfortunately, due to the lack of collection of this pertinent data, these factors could not be incorporated in this investigation.

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ARE MASSIVE OPEN ONLINE COURSES (MOOCS) THE SOLUTION TO HIGHER EDUCATION'S PROBLEMS OR ITS BIGGEST THREAT?

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ABSTRACT

The burgeoning offering of virtually free online college courses by some of the most prestigious colleges and universities, referred to popularly as MOOCs or "massive open online courses," is the epitome of sharing resources and leveraging technology; and many students are highly motivated to get certificates of completion for college courses from schools such as Harvard and Stanford at almost no cost. Public officials dealing with strapped budgets are also highly motivated to find ways to provide students access to higher education at lower costs. If employers get on board with this idea, then the loop will be closed and higher education as it is practiced in this country will undergo wrenching change. This paper will discuss the evolution of MOOCs, their expressed purposes, the problems they are meant to address, and the problems they create for traditional colleges and universities, public and private.

Keywords: MOOC, higher education, higher education alternatives, online education

INTRODUCTION

A MOOC is a "massive open online course," which is an attempt to utilize digital technology to disseminate college course material to tremendous numbers of people across the globe for free or at an extremely low cost. Some of the most prestigious universities, such as Harvard, M.I.T., Stanford, and the University of Pennsylvania, have been in the vanguard of this movement. It has been roundly hailed by many as a revolutionary delivery system for the highest quality instruction at the lowest possible cost, while simultaneously being condemned by others as a dagger aimed at the heart at the lower tiers of colleges and universities and the legions of administrators, faculty, and staff they employ. This paper will delve into the evolution of MOOCs, their expressed purposes, the problems they are meant to address, and the problems they create for traditional colleges and universities.

HISTORICAL CONTEXT

MOOCs are not an entirely new phenomenon. They are part of a continuum of ideas from educators to disseminate the college education beyond the walls of the institution. Educators have been experimenting with distance education since, at least, the middle of the 19th Century, starting with correspondence courses delivered by mail (Distance Learning, 2013). It has been suggested that an early morning televisions program provided by New York University called Sunrise Semester was the First MOOC (Kim, 2013). According to NYU's website:

> NYU hosted the first university course for academic credit ever offered on a New York metropolitan-area television station . . . . the Sunrise Semester series began in 1957 as an experiment and ran for almost 25 years. . . . To receive college credit, 177 students paid $25 per point. More than 700 students applied and some 120,000 others followed the course—without credit—on television. The series heralded the era of distance learning . . . (NYU, 2013).

Several things distinguish MOOCs from these earlier iterations:

1. **Speed** – a Web site can be amended, modified, or updated at will and disseminated at the speed of light;

2. **Scalability** – there is virtually no size limitation to a Web site and user access can be increased to truly global scale;

3. **Richness of the Internet experience** – in addition to text, there is video, music, outside links to primary materials, such as government Web sites.

In addition, there was an initial understanding that a MOOC would be delivered to the student totally free.

HIGHER EDUCATION, SAY HELLO TO CREATIVE DESTRUCTION

MOOCs are the latest example of Internet disruption. Economist Joseph Schumpeter is famous for praising capitalism's penchant for "creative destruction," where entrepreneurship destroys the monopoly power of established companies, leading to long-term growth (Schumpeter, 1942). Consider what the Internet has done to once-solid industries such as newspapers, music stores, bookstores, and other types of brick and mortar retailers.

Recently, the long venerated Boston Globe newspaper was sold for $70 million. It had been purchased by the NY Times Co. in 1993 for $1.1Billion (Haughney, 2013). Obviously, the New York Times, often cited by the nation's intelligentsia, felt that it had made a good investment in 1993, but creative destruction in the form of the Internet and its ubiquitous access to free news decimated the newspaper industry.

Higher education, stands to receive the same rough treatment at the hands of entrepreneurs wielding the power of that same Internet. Education is in the entrepreneurs' crosshairs, because it is a huge sitting target. In 1962 one cent of every dollar spent in America went on higher education; today this figure has tripled (Economist, 2012). Universities are accused of spending beyond their means, increasing spending on administration, raising tuition far faster than the rate of inflation, saddling students with massive debt burdens, lying about the job prospects of their graduates, and doing a sorry job of educating those students (Economist, 2012). In response, states have cut back on financial aid to universities and even President Obama has threatened universities with aid cuts if tuition continues to rise (Economist, 2012).

At the same time, enrollment in degree-granting institutions has exploded. According to the federal government's National Center for Education Statistics (NCES), enrollment increased by 37 percent between 2000 and 2010, from 15.3 million to 21.0 million, while post baccalaureate enrollment rose 78 percent between 1985 and 2010, after having been steady at about 1.6 million in the late 1970s and early 1980s (NCESa, 2012). Statistics from NCES from 2012 indicate that they may be wise to persevere and earn a degree, because the unemployment rate for young adults with a bachelor's degree is considerably lower than it is for those with lesser educational attainment: "For 25- to 34-year-olds, the unemployment rates for those with some college education (10.1 percent), high school completers (12.8 percent), and those who did not complete high school (16.8 percent) were also higher than the unemployment rate for those with a bachelor's degree or higher (4.1 percent)" (NCESb, 2012).

MOOCs have attracted attention, both inside and outside of academe. A 2013 story in The Economist stated that "the ivory towers of academia have been shaken to their foundations. University brands built in some cases over centuries have been forced to contemplate the possibility

that information technology will rapidly make their existing business model obsolete" (The Economist, 2013).   According to the organizer of Wharton's Supernova Technology Conference a confluence of circumstances makes higher education ripe for MOOC reinvention:

> What if an industry existed where the venerated incumbents didn't have to worry about investors pushing for steady quarterly returns and customers beholden to dying products? Where sufficient threat of decline motivated innovation, but a collapse was not so imminent to starve the necessary resources? The leaders in that industry would have extraordinary potential for transformative innovation. . . The industry I'm describing is higher education in the United States (Werbach, 2012).

THE CREATIVE DESTROYERS

There are a growing number of companies looking to get in on ground floor of the transformation of higher education. One of the best known MOOCs is edX, based in New England, organized as a non-profit organization; "edX has cast itself as the more contemplative, academically oriented player in the field" (Kolowich, 2013b). According to its Web site (at www.edx.org), "EdX is based in Cambridge, Massachusetts and is governed by MIT and Harvard."   While edX is a non-profit, does not mean that it is working for love alone. Nonprofits still have bills to pay or they will have to shut their doors. "edX offers its university affiliates a choice of two partnership models. Both models give universities the opportunity to make money from their edX MOOCs—but only after edX gets paid" (Kolowich b, 2013). Under the first model, the school creates its own online course without edX assistance, on edX's platform, included in its catalog, but subject to the course passing edX's quality review. "Once a self-service course goes live on the edX Web site, edX will collect the first $50,000 generated by the course, or $10,000 for each recurring course. The organization and the university partner will each get 50 percent of all revenue beyond that threshold" (Id.).   "The second model, called the "edX-supported model," casts the organization in the role of consultant and design partner, offering "production assistance" to universities for their MOOCs. The organization charges a base rate of $250,000 for each new course, plus $50,000 for each time a course is offered for an additional term, according to the standard agreement" (Id.) .

Coursera is the largest MOOC provider with a growing network of college and university partners (Kolowich, 2013).   Its Web site (at www.coursera.com) exclaims: "Take the world's best courses, online, for free." It asks you to join over five million "coursarians" who "learn from 461 courses, from our 91 partners." It is a for-profit Silicon Valley startup company founded by Andrew Ng and Daphne Koller who were named to the Time 100 Most Influential People in 2013 in the Pioneers category (see http://time100.time.com/2013/04/18/time-100/slide/andrew-ng-and-daphne-koller/).

They have deep roots in Silicon Valley and its epicenter, Stanford University. According to the Web site's about page Mr. Ng developed the initial platform for Stanford's online machine learning and databases classes, and in his spare time he runs the Stanford AI Lab and builds large scale brain simulations. The other co-founder, Daphne Koller, is the Rajeev Motwani Professor in the Computer Science Department at Stanford, received her degree from that prestigious institution with postdoctoral research work at U.C. Berkeley, and, according to the Coursera about page is "committed to making great education available not just to those students lucky enough to attend Stanford, but to everyone around the world. Education should be a right, not a privilege, and I believe Coursera is a way to make that happen."   In addition to being the largest MOOC company with 3.2 million registered users, Coursera boasts an impressive academic pedigree – one of its most prestigious partners, the University of Pennsylvania, recently hosted a conference on its main campus for Coursera and its academic partners. It is reported that under Coursera's contracts participating schools receive between 6 to 15 percent of revenue, as well as 20 percent of gross profits, with reports that at The University of Pennsylvania approximately 60 percent of revenue goes directly to faculty members (Zweifler, 2013).

A third leading player in the MOOC universe is Udacity (at www.udacity.com). According to its about page: "Udacity was born out of a Stanford University experiment in which Sebastian Thrun and Peter Norvig offered their "Introduction to Artificial Intelligence" course online to anyone, for free. Over 160,000 students in more than 190 countries enrolled and not much later, Udacity was born. Now we're a growing team of educators and engineers on a mission to change the future of education. By making high-quality classes affordable and accessible for students across the globe: Udacity is democratizing education."

SCHOOLS FEEL THEIR WAY

Richard DeMillo, author, professor, and Director of Georgia Tech's Center for 21st Century Universities issued a warning to colleges and universities that are not in the highest echelons of higher education: "The vast majority of American college students attend two thousand or so private and public institutions that might be described as the Middle--reputable educational institutions, but not considered equal to the elite and entrenched upper echelon of the Ivy League and other prestigious schools. . . If you do not change, you are heading for irrelevance and marginalization" (DeMillo, 2011). In other words, the forces of change, including MOOCs offered by schools from the upper echelon, are poised to challenge the complacency of the comfortable middle class of education, at the expense of high paid administrators and tenured faculty, supposedly for the benefit of students, public officials, and taxpayers. There are a growing number of institutions that have answered DeMillo's call for change. What follows is a snapshot of several recent initiatives involving MOOCs.

1. **Stanford's MOOC class ranking initiative –** In 2012 Stanford offered a free MOOC in artificial intelligence for which 58,000 people had registered. While there was no credit awarded for completing the course, Stanford announced that it would rank students based on their performance and issue a certificate of completion to that effect. According to one commentator: "Coming in first in a class of 100,000 will be quite an achievement . . . . That person (or more likely, thousand people) will have a credential they can take to the bank. . . . This will serve as a transcript, rendering the college transcript . . . . irrelevant and unmarketable (Jelski, 2012)."

2. **Coursera's systems initiative** - Coursera announced in May 2013 that it entered into agreements with a number of major universities and their systems, specifically: the State University of New York system, the University of Tennessee systems, the University of Colorado system, the University of Houston system, the University of Kentucky, the University of Nebraska system, the University of New Mexico system, the University System of Georgia, and West Virginia University. According to the statement: "[T]his collaboration opens up opportunities for institutions to consider for-credit offerings for non-matriculated students interested in continuing their education, but who might not have access to campus resources" (Coursera, 2013). In a statement from a spokesperson for the University of Houston: "In addition to offering free, not-for-credit online courses to anyone with Internet access, the UH System will phase in courses offering college credit, opening up a potential future revenue stream" (Bonnin, 2013).

3. **California's ultra-low cost Udacity option –** In 2013, California State University System had a pilot program for Udacity to partner with San Jose State University to offer $150 lower-division online courses at one of its campuses, which according to critics was "a move that spells the end of higher education as we know it" (Ferenstein, 2013). The program was suspended after the first course offering, however, because: "preliminary findings showed that less than half of the group -- which included high school students and college students who had failed math before -- had passed the classes" (Murphy, 2013).

4. **Wharton's online core course MOOCs -** The University of Pennsylvania's Wharton School of Business announced that it would be taking its core required classes in the MBA program online, with the same instructors. Wharton will allow students who subsequently enroll at Wharton to test out of the class they had previously taken in the MOOC format. According to the school: "About 700,000 students in 173 countries have already enrolled in Wharton MOOCs, more than the combined enrollment in Wharton's traditional MBA and undergraduate programs since the school's founding in 1881" (Lavelle, 2013).

5. AT&T and Udacity's Nanodegree program. In June, 2014 Udacity announced a partnership with AT&T to offer nanodegrees – short-term, efficient, job oriented programs that, according to the Udacity blog: "Today, we're bringing these partnerships further to the forefront as we introduce credentials built and recognized by industry with clear pathways to jobs. Together with AT&T and an initial funding from AT&T Aspire of more than $1.5 million, we are launching nanodegrees: compact, flexible, and job-focused credentials that are stackable throughout your career. And the nanodegree program is designed for efficiency: select hands-on courses by industry, a capstone project, and career guidance" (Udacity, 2014).

PUSHBACK

In response to an attempt to offer a MOOC on "Justice" from noted Harvard Professor Michael Sandel as part of the San Jose State curriculum, the philosophy department rebelled and sent an open letter to Professor Sandel, in which they stated:

[T]he move to MOOCs comes at great peril to our university. We regard such courses as a serious compromise of quality of education and, ironically for a social justice course, a case of social injustice. . . . we fear that two classes of universities will be created: one, well-funded colleges and universities in which privileged students get their own real professor; the other, financially stressed private and public universities in which students watch a bunch of video-taped lectures and interact, if indeed any interaction is available on their home campuses, with a professor that this model of education has turned into a glorified teaching assistant (Open Letter, 2013).

Doug Guthrie, former Business Dean at George Washington University is even more scathing in his analysis of MOOCs. He believes that MOOCs have not only failed to achieve their mission of cheaply educating large numbers of people, but they have also distracted attention from necessary business school reform. He argues that, yes, MOOCs create a crowd, but that crowd is not a classroom. The movement has not proven itself to reduce dropout rates, to increase test scores, or to promote teaching excellence; it is a Pollyannaish rush to elusive cost reduction and enhanced student performance (Guthrie, 2013). One of the most researched topics in the MOOC universe is the extremely high drop-out rates associated with these online courses. A search of "MOOC and dropout" returns many hits. A commonly cited figure for MOOC dropouts is 90 percent, which has caused many critics to doubt the validity of the whole concepts (Rivard, 2013).

QUESTIONS FOR THE FUTURE

Will students accept MOOCs? Today's students, according to Harry R. Lewis, a former dean of Harvard College, "no longer see any need to show up to be

lectured at" (Heller, 2013). Will employers accept them? According to one study, only 17 percent of employers said they would prefer an applicant with an online degree." (Winston, 2013). Can MOOCs save schools money? In cash-strapped California the Senate considered a bill that would require the State's public colleges to accept approved online course for credit (Heller, 2013, p. 80). The ultimate question ought to be, "Do these courses provide a good education?" According to one author the question is moot: "computers can and have successfully replaced teachers" (Ferenstein, 2013).

MOOCS AND EDUCATIONAL QUALITY

Most educators are familiar with Bloom's Taxonomy. In 1956, Benjamin Bloom headed a group of educational psychologists who developed a classification of levels of intellectual behavior important in learning. During the 1990's a new group of cognitive psychologists, led by Lorin Anderson (a former student of Bloom), updated the taxonomy to reflect relevance to 21st century work. According to the updated taxonomy the hierarchy of levels for teaching starts with remembering and progresses up through five more levels, understanding, applying, analyzing, evaluating, and ultimately, creating.   (Bloom's Taxonomy: A Forty-Year Retrospective. Anderson & Sosniak, 1994).

Better teaching is carried on at the higher levels of the taxonomy. Can higher level teaching exist when a class is completely online? This is the subject of much debate.   Some educators question the effectiveness of MOOCs to even teach so-called qualitative subjects such as social sciences, humanities, and law? According to one educator quoted in an article on MOOCs in New Yorker Magazine: "When three great scholars teach a poem in three ways, it isn't inefficiency" (The New Yorker, May 20, 2013).

Some teachers remain skeptical and assert that they will never participate in this online education delivery system. According to one such professor, Peter J. Burgard, a professor of German at Harvard: "To me, college education in general is sitting in a classroom with students, and preferably with few enough students that you can have real interaction, and really digging into and exploring a *knotty* topic—a difficult image, a fascinating text, whatever. That's what's exciting. There's a chemistry to it that simply cannot be replicated online" (The New Yorker, May 20, 2013). The problem, of course, is whether taxpayers, students, and school administrators will care about the sensibilities of highly compensated faculty and their perspectives on quality education.

CONCLUSION

Higher education is in the crosshairs of Internet entrepreneurs; and their track record for disrupting the business models of established businesses is daunting. Higher education is, and should be, frightened that its comfortable sinecure may be coming to an end. The new watchwords are likely to become efficiency and

productivity; translation – more and larger classes. According to one entrepreneur: "if MOOCs reduce the cost of higher education by one-third . . .yet only earn for themselves 1% of that benefit, that would "still be a very nice business" (The Economist, 2013). MOOCs not only signify a new path of profit for institutions of higher education, but also a way to capture the target market of the "millennial consumers" and give them what they seek most—education on demand. The development of MOOCs and other online delivery methods has the potential for shaking the very foundation of higher education and making colleges and university campuses obsolete.

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SERVICE LEARNING:
REAL WORLD EXPERIENCE IN A CLASSROOM SETTING

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ABSTRACT

As a means for providing college students with real-world experience, students in a Business Communications course volunteered to assist a local not-for-profit in developing their business. The project provided experience working in teams, researching topics related to their major, and presenting ideas to a client.

A not-for-profit group, Slow Foods Beaumont, planned to find opportunities to provide fresh fruits and vegetables to low-income areas of Beaumont. Since the group was still in the planning stages, they needed help with a variety of items. Since the Business Communications course had majors from several disciplines, students were able to work in a team in which they had an interest. For example, MIS majors developed a website and the Financial Team developed a budget.

In addition, the project provided students a way to 'give back' to the community and become involved in a worthwhile endeavor. This paper, which is written by three of the students, the course instructor, the Slow Foods Beaumont founder, and an instructor with experience as a business owner, reviews the project including the origination, steps taken for communicating within teams and with the client, the deliverables, and a look at the success of the project and areas for improvement.

Keywords: Service Learning, Real-world Class Projects, Internships, Slow Foods

INTRODUCTION

Ronald (2005) found that teams of students who have been exposed to real-world experiences learn more quickly and are able to produce deliverables in less time than is normally the case with a typical curriculum. As their first assignment, students in a Business Communications course were instructed to search online to see what skills and qualifications they would need to land their dream jobs. The curriculum already included many of the identified skills, but they realized that most employers look for students with internships or experience in their chosen field. Seeking to find an opportunity for students to gain some real-world experience as part of the Business Communications course, the instructor reached out to the Dean of the College of Business. Fortunately, he had just received a request for students to help establish a new not-for-profit. The collaboration between the instructor and the director of the non-profit resulted in a Service Learning, Real-World Experience.

As Mary Prentice and Gail Robinson discuss in their article "Improving Student Learning Outcomes with Service Learning" (2010, American Association of Community Colleges), these projects allow students to apply the knowledge learned in subject area courses to skills needed in the real world. The strength of such projects lies in doing things, carrying out plans and experimenting with new experiences. (Joan, 2005)

SLOW FOOD BEAUMONT

The project involved the non-profit, Slow Food Beaumont. The mission of this group is to promote good, fresh, and fair food. More specifically, this group wanted to operate a mobile produce market to provide access to fresh fruits and vegetables in low-income areas within Beaumont. They envisioned a truck fully stocked with produce, which could operate in several locations on a weekly basis.

The organization needed help with the details involved with starting a new business. They also needed a business plan based on solid financials, ideas for marketing and fund raising, and information on regulations and safety.

DIVIDE AND CONQUER

Students who work together to achieve a mutual objective tend to mentor and encourage each other, which promotes higher learning (Rusth & Revere, 2004). The instructor divided the class into six teams: Fundraising, Financials, Location and Business Plan, MIS, Marketing, and Suppliers and Safety. Students were allowed to select their teams, which, for the most part, matched up with their major field of study. One of the students was designated Project Manager. She gathered email addresses to coordinate communication and set up cloud storage so that information could be shared with the entire class. The following picture shows the organization of the cloud storage. Each team had a folder; others, such as a folder for logo ideas, were added later.

Cloud Storage Index for The Slow Foods Project

Name	Date modified
Financials	2/19/2014 7:37 AM
Fundraising	1/23/2014 11:12 AM
Location and Business Plan	2/12/2014 7:32 AM
Logos	2/12/2014 7:32 AM
Marketing	1/23/2014 11:13 AM
MIS	1/23/2014 11:23 AM
Suppliers and Safety	1/30/2014 2:35 PM
Slow Foods Master	2/4/2014 1:05 PM

One of the members of the Location and Business Plan team developed a logo for the project. After double checking for copyrights and existing companies with similar names, she presented approximately 10 logo/name options. Instructed by the director to develop something "sexy," she interpreted this to mean "catchy." Accordingly, she worked on finding "something that catches the eye and stimulates curiosity...a name that makes a passer-by do a double take." She presented two possibilities: "Get Fresh" and "Local Love." The name "Local Love," on its own, sounded too much like a dating site. The name "Get Fresh," on its own, sounded too ambiguous. The goal was to stimulate curiosity - not breed gross misconceptions about the company. As a result, she decided to combine the two and add a description to the logo. Ultimately, she and the class decided on "Get Fresh Beaumont" as the name, and used "Show some local love." as the tagline. The director and the board of Slow Food Beaumont approved it. Incidentally, the process of logo development served as a catalyst for the student's launch of her own logo design business.

SAFETY FIRST

Teams began work on the "Get Fresh Beaumont" project. The financials group put together a detailed budget that included up-front costs and yearly costs. They also found a truck that could be used if funds allowed. At the same time, the Supplier and Safety group members researched basic guidelines for food preparation and safety skills, which allowed the organization to stay focused on selling fresh produce. They also found the food and safety rules for the handling of produce to reduce the risk of contamination. Another concern of the group was the safety of its employees that were going to work the truck, as well as the consumers who were purchasing the produce. Using various sources found on the Internet and local libraries, the students spent many hours researching safety rules. The group also interviewed the director to learn her vision for Get Fresh Beaumont. In addition, they researched other fresh produce food trucks across the US who had a similar vision. After presenting information about the regulation of dairy products and eggs, it was decided that basic produce should be sold for the time being and other items could be added later depending on the success of the food produce truck.

The students then researched the permits necessary for selling produce. Only a basic food preparation permit would be needed to sell the goods. In addition to safety handling food, the truck would need to have a sink installed to prepare produce for sale. Unsold food would need to be properly stored for the next location or point of sale. Produce would also need to be inspected periodically to reduce spoilage. Spoiled food would need to be properly disposed of. The recommended option for disposal involved composting. Compost boxes could be established at sites outside of the produce storage (if stored at a specific location) or options explored with local farmers who have already established composts on their farmland.

The group continued by looking into local avenues for fresh produce that could be donated or sold to the organization at a reasonable price. They looked to Lamar University as part of their research. One of the students discovered that Lamar owned a local garden that grew fresh produce that was used in the University dining hall. They contacted the director of the garden project to see if produce could be donated. Other research was done by the organization's founders to obtain grants to help pay for local produce that was not donated. Negotiations with local farmers for produce purchased by grants would be necessary in order to keep costs low. Another possibility was to sell seasonal produce. Seasonable produce offered the most affordable opportunity for consumers and most beneficial opportunity for farmers.

The Suppliers and Safety team contributed to various aspects of research with other groups. Members of this group had connections with various insurance companies and one of the group members had a connection with an employee of the Supplemental Nutrition Assistance Program (SNAP). These connections allowed them to help other groups such as Financials to create a budget for

insurance coverage, and determine the cost of obtaining a SNAP kiosk in order to service lower income families on the program.

The Suppliers and Safety team made an important contribution to the project. At the end of the semester, many of them wanted to be added to the email list for the organization to keep up to date with its progress going forward. One student reported, "We were fortunate to be a part of Get Fresh Beaumont when it was brought to us as an idea and help nurture it into something more. This has not only inspired us, but it helped us gain a real life experience that will be a part of our lives forever."

LOCATION, LOCATION, & A PLAN

Meanwhile, the team dedicated to Location and Business Plan narrowed the locations in Beaumont to a few specific areas. They created a group-specific business plan structure that allowed all groups to contribute their specialized knowledge. They also presented a comprehensive business plan. The team leader found a general not-for-profit business plan template from an online source. One team member sent the format to each team so they could develop their parts. Another team began conducting research focused on the best location for the trucks to vend. The team utilized the Slow Foods, Inc. website to get a map of food deserts within Beaumont, TX. (A food dessert is an area that does not have access to fresh produce within a two-mile radius.) Surprisingly, they found that most of Beaumont was considered a food desert - especially the impoverished areas. Confronting the reality that the project could not serve all of these areas, they developed a simple team mission statement: Provide the most food for the most people.

With the mission in mind, they continued narrowing their prospects. They needed to find access-friendly locations. The group concluded that many potential patrons would not have their own vehicles and would likely be using public transportation. They identified public transportation sites in the food deserts that had an adjacent area/lot where the organization could park a food truck without blocking traffic, breaking rules, or being a danger to others. Research yielded the ten best locations for food distribution, each of which would require the owners' permission for use.

The team then added its portion to the business plan. The student who managed the consolidation of business plan information learned a lesson in patience. Because every team was interdependent, students in the Business Communication class had to learn that doing tasks without planning and communicating the plan to the other teams was not advisable.

INFORMATION & PUBLICITY

The Management Information Systems (MIS) team was the smallest

group. These students took on the task of creating a website. Due to the compressed time frame, the group decided to use the website template service Wix.com. By using a program like Wix.com, the users who took over the rest of the project would have an easier time than if they had to learn a coding language. Wix.com allowed flexibility, and gave them the availability of technical support in case something went wrong.

Launching a website on Wix.com requires an email address to verify the rights of service. To make information accessible to the entire class, the team used Google's Gmail as the source of email addresses. The MIS team set up a basic account and shared updated information in the project's Drop Box account. Once email addresses were confirmed and set, the team shifted its focus to website design.

A template service like Wix.com made creating the website much faster and easier. The MIS team browsed through numerous templates and chose a bright and vivid garden themed template. They made duplicate webpages with different layouts for each with one including a Google service that would allow the company to pin point their location on Google Maps. The webpages included all the information provided by the organization and more detailed information provided by the other teams. The MIS team also proposed the organization consider a mobile app/view service that could be used for the website.

Marketing was an extension of the Management Information Systems team. Having completed their work early, they had the time to devote to marketing. They decided to engage the class by having class members generate and vote on ideas. The goal was to get everyone involved and generate a lot of fun and creative suggestions. The class voted on a pool of ideas and left it up to the organization's board of directors to choose among the finalists.

In active learning strategies, the strength lies in doing things, carrying out plans and experiencing new situations. These types of active learning projects often generate higher scores for students (Joan. C, 2005). There are many examples of active learning in this project. For example, the Suppliers and Safety team were in charge of making sure proposed names were available to be used exclusively by the organization. The team had to select names that would create traffic and be simple yet unique enough to be searchable on the first page of Google or any other search engine. The students voted on logos, which proved to be challenging because the class liked so many of them. With the name and logo selected, the class decided to come up with T-shirt ideas.

The Fundraising and Financials team partnered to present t-shirt designs to the class. They had the task of locating trusted sources that would make the t-shirts affordable. They also came up with a selling price so that the company could raise cash by means of a PayPal account linked to the website. Final color and design decisions were left to the organization's Board of Directors.

The Management Information Systems (MIS) team created a social media presence. Facebook, Twitter, Instagram, LinkedIn, and many other sites could be used to promote the program. The most important element of the service learning assignment is the "real-world" service they provide through curriculum based community activity (Kathy. M., 2006).

REAL WORLD APPLICATION

The project laid a solid foundation for growth of the mobile produce market. The students developed a name, Get Fresh Beaumont, and a logo. They provided research into desired areas for the produce market and developed a business plan. SFB integrated the student work into a grant proposal for Capital One bank, which subsequently awarded $5,000 to SFB. Using the name, logo, graphics, and grant money gained as a result of the student effort, SFB was able to launch a pilot program in the fall of 2014. On 5 October, Get Fresh Beaumont held its first mobile produce market in a low-income area on the north side of Beaumont. The organization sold 264 pounds of produce at less than half the price found in area grocery stores.

BENEFITS OF THE PROJECT

McClam et al. (2008) found that after completing a service-learning experience, students reported that they learned more by applying classroom learning to actual experience and they felt more confident in their choice of profession. One of the main advantages of conducting the project in this course was that students were Juniors and Seniors with basic business knowledge from the core business classes that represented a diverse group of majors: Accounting, Management, Marketing, Information Systems, Finance, Economics, Entrepreneurship, and General Business. The collaboration among students from different areas of expertise resulted in a successful outcome.

The service-learning project related to a College of Business learning outcome. The outcome states that students will "Demonstrate awareness of social responsibility by experiencing service to business and the community."

Working on the project inspired the students. Many claimed that the experiment developed useful skills. One student remarked, "I had an opportunity to practice my presentation skills in front of an audience and work in a team to complete a website for a developing company." Another commented that the Slow Food project group presentations allowed the student to work on "speaking up for myself in a class setting."

Engaging students in the project yielded noteworthy insights. For example, one student indicated that the startup period created some problems, but "You can learn a lot from that, and it is important to recognize that, too." Another related to the relationship between an idea and its execution. A student stated, "I think the thing that has helped me the most in this class is the Slow Foods Project, because you don't always have to have a written out plan to start a project. It can be an idea that you have played around with in your head and you can see it form in to something with the right amount of help and work." Perhaps one student summed it up by saying, "I didn't just leave this class with book knowledge. I left this class with wisdom born only of experience… I left knowing I was partially responsible for the jumpstart of a locally owned, operated, and community-focused organization."

In addition to learning skills, many students were convinced that they had made a contribution to an important cause.

> "The vision was noble in that it took nutritious foods to impoverished neighborhoods, generating better health and, therefore, longer-living citizens, which would allow them to make longer-lasting contributions to the community. You never know what brain you're feeding. You could be feeding the next Einstein or Mother Teresa. I considered it a smart business venture because she proposed purchasing food from local farmers and distributors, generating business within the community. I was extremely excited to contribute to the cause, and even more excited for the experience I knew I would be gaining."

The voices of the students reinforce research which shows that service learning helps students retain more information learned in class, achieve higher course grades, and have greater satisfaction with the course (Gray et al., 1998). It also shows that service learning increases students' awareness of their community and its needs, helps change stereotypical beliefs, and increases understanding of social and cultural diversity (Eyler & Giles, 1999).

AREAS FOR IMPROVEMENT

There were some drawbacks to the service-learning approach and some opportunities for improvement. Although students had experience working in teams, they were not equally effective team members. Some groups needed more instruction while others easily comprehended the basic idea of the plan and worked on their own. For example, even though the Fundraising Group had ideas, they presented nothing in writing at the end of the semester. Consequently, they missed several opportunities to contribute to the effort.

FUTURE PROJECTS

Although this particular not-for-profit may not need any more help from the

students (other than carrying out their mission), the opportunity exists for students to help other businesses: start-ups, ongoing organizations, or those in need of revitalization. The opportunities to help students and society, while providing an enjoyable, active learning environment are many.

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STUDENT LOANS: A DAMOCLES FOR HIGHER EDUCATION?

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ABSTRACT

Student costs associated with obtaining a college education, especially since the Great Recession of 2007-2009, have been growing relentlessly. Among the forces pushing this growth are increases in the demand for college education, decreases in the willingness of states to fund public institutions of higher education, decreases in interest income from endowments supporting grants and scholarships, and increases in administrative and faculty costs of universities. It is feared by many that the continued confluence of these forces will irrevocably change the face of higher education in the United States by limiting college enrollment to the wealthy elite and/or limiting major fields of study to those with a market determined proper cost-benefit ratio.

The primary transmission mechanism through which this change will materialize is student loans. Those loans, which have aided in the democratization of higher education, have been developing as increasingly oppressive and unmanageable burdens for students and their families. The purpose of this paper is to trace the transformation of student loans from a device enabling individuals to benefit themselves and society through advanced education to one with the potential of entangling borrowers in a morass of unanticipated financial and legal problems, mutually detrimental to both individuals and society.

The paper presents historical financial data that provide a framework for a quantitative evaluation of student loan growth and increasing default rates since the turn of the century. It then considers contrasting arguments about the seriousness of student debt from both a micro (individual student) and macro (economy as a whole) perspective. Finally, suggestions are provided to address problems that currently exist and to avoid more serious problems that could develop in the future.

Keywords: student loan crisis, student debt, higher education, college costs, federal loans

INTRODUCTION

As part of his discourse on the concept of virtue, Roman philosopher, Cicero, imaginatively buttressed his argument with the allegory known as Damocles' sword. In brief, the allegory concerns a court sycophant who praised a rich and powerful king on how fortunate he was to have such a lavish, carefree lifestyle. The sycophant did not consider the magnitude of effort that went in to achieving the king's status or the continuing efforts required to maintain that status. To teach him about these things, the king offered to trade places, with the condition that a sword secured by a single hair from a horse's tail be hung above the throne. The sycophant readily accepted the offer and switched places with the king. It was not very long, however, before the want-to-be king began to think about the ever-present sword held in place by a flimsy piece of hair. His enjoyment of the opulent lifestyle gave way to dread about the inevitable breaking of the hair and his resulting death. Not wanting to continue under such stressful conditions, the sycophant pleaded with the king to be released from their bargain.

In our contemporary society, it is not difficult to find similar, if not as dramatic, examples of success or happiness hinging on rather flimsy underpinnings, just as that of the hair securing the sword above Damocles' head. Consider, for example, a ruptured knee that may end an athlete's career or a fatal accident that may rip loved ones from us or the timing of Lehman Brothers' bankruptcy just before the Federal Government stepped in to stop the market's cleansing of bad actors in the investment banking industry. The randomness of these kinds of events demonstrates the arbitrary, tenuous nature of the *status quo*. Furthermore, no person or institution is immune from this vulnerability. Take, for example, the almost sacrosanct position of higher education in the United States. Because higher education has been widely recognized as the means for societal and personal advancement, it has historically received strong financial and emotional support. Arguably, the Morrill Act of 1862 began the active collaboration between federal and state governments to make postsecondary education available and affordable to students with the ability, desire, and commitment to obtain college degrees. From this foundation, postsecondary education experienced strong growth and by 2010 there were 4,589 colleges and universities in existence, with a combined enrollment of 21 million students and annual expenditures of $185.2 billion (U.S. Department of Education, 2014).

Yet, despite its current status, there is a growing concern that all is not well with higher education today. Costs associated with obtaining a college education have been growing relentlessly, especially since the Great Recession of 2007-2009. Among the forces pushing this growth are increases in the demand for higher education, decreases in willingness of states to fund colleges and universities, decreases in income from endowments supporting grants and scholarships, and increases in administrative and faculty costs. The result has been a continuing increase in tuition charged to students. For the less affluent, this has meant a greater reliance on loans to finance their education. As long as the expected benefits of

a college education are at least equal to the costs of obtaining one, going into debt to finance matriculation is a rational choice. Once costs exceed benefits, however, the rational choice is to forgo college enrollment. As the tuition pricing mechanism does its job of rationing access to colleges and universities, it is feared that advances in the democratization of higher education in the United States will be irrevocably reversed, to the detriment of society. If only the wealthy elite are able to afford a college education, capable individuals will be deprived of opportunities for personal advancement and society will be deprived of the intellectual contributions of those individuals. No longer will higher education be the accessible means of upward mobility as it has been in the past.

In this environment, colleges will face serious budgetary problems. Reduced enrollment will lead to reduced revenues, which will result in capital expansion being curtailed, programs being eliminated, and faculty being terminated. Concerned individuals in academia, business, and government have recognized the problem and have been engaged in the pursuit of solutions. For the most part, however, suggested solutions been inhibited by an unwillingness to break out of the confines of the traditional business model for higher education (Hampson, 2014). But the clock is ticking; the window of opportunity is closing. Without viable solutions for making higher education more affordable, the increasing burden of student loans pose the same unacceptable danger to higher education as the sword did to Damocles.

DIMENSIONS OF THE PROBLEM

Information concerning the student loan crisis is easy to find for those with access to the internet. One contributor to Forbes, for example, reported that his internet search on the subject produced over 12 million hits on the topic (Harvey, 2014). As is true of much on the internet, however, not all of the hits could be relied upon to produce objective, verifiable data. Still, by randomly selecting among the hits, one is able to obtain a general sense of the problem and its driving forces. Then, by being more selective, it is possible to eliminate emotional, anecdotal factoids and uncover data with more substance and reliability. To provide the most objective data possible, the following discussion is based on official U.S. Government documents.

Table 1 presents historical data demonstrating the increase in costs faced by students attending colleges in the United States. The table contains average cost figures for all postsecondary institutions as well as costs for public institutions only. Additionally, within each of the classifications, data for 4-year institutions have been broken out of the aggregate figures. While much of the current discussion concerning costs of college focus solely on tuition and fees, there is also the matter of room and board that students have to contend with. Therefore, room and board cost information is also included in the table.

Table 1
Average Undergraduate Tuition, Fees & Room and Board
1970 - 2013

	All Institutions				Public Institutions			
	Total T, F, R & B		Total T & F		Total T, F, R & B		Total T & F	
Year	All	4-Year	All	4-Year	All	4-Year	All	4-Year
2001	10,820	12,922	5,377	7,372	7,586	8,653	2,562	3,501
2002	11,380	13,639	5,646	7,786	8,022	9,196	2,700	3,735
2003	12,014	14,439	6,002	8,309	8,502	9,787	2,903	4,046
2004	12,953	15,505	6,608	9,029	9,247	10,674	3,319	4,587
2005	13,793	16,510	7,122	9,706	9,864	11,426	3,629	5,027
2006	14,634	17,451	7,601	10,279	10,454	12,108	3,874	5,351
2007	15,483	18,471	8,092	10,931	11,049	12,797	4,102	5,666
2008	16,231	19,363	8,483	11,454	11,573	13,429	4,291	5,943
2009	17,092	20,409	8,893	12,045	12,256	14,262	4,512	6,312
2010	17,649	21,093	9,136	12,370	12,804	15,014	4,751	6,695
2011	18,497	22,092	9,598	12,967	13,564	15,918	5,076	7,136
2012	19,418	23,025	10,180	13,567	14,377	16,805	5,559	7,703
2013	20,234	23,872	10,683	14,101	15,022	17,474	5,899	8,070

Source: U.S. Department of Education, National Center for Educational Statistics Digest of   Education Statistics, 3013, Table 330.10.

As demonstrated in Table 1, there was a dramatic increase in the costs of attending college between 2000 and 2012. While tuition and fees played an important role in the increase, they are not solely responsible. By comparing the year-to-year increases in costs, it can be seen that increases in room and board expenses have also been instrumental in exacerbating the problem. Take, for example school years 2012 and 2013 in which composite expenses at public 4-year institutions increased by $669. Tuition and fees accounted for $367 of the increase, with room and board contributing the remaining $302. When books, supplies, and other day-to-day living expenses are included into the mix, there is a sizable financial commitment that is required to take advantage of postsecondary education opportunities.

But the looming financial crisis facing college education is not a function of rising costs alone. It also has an ability to pay component. If incomes of those seeking a college education were to keep pace with its cost, there would be no financial crisis. Regrettably, such is not the case. Consider the data in Table 2, which contains median and mean levels of household income between 2000 and 2013. It is chilling to realize that both median and mean incomes of households, adjusted for 2013 prices, have fallen over the 13 year period. While the implications of this phenomenon are deserving of a special study, attention now is specifically directed to the current-dollar data in the table. As shown in the table, median and mean income between 2000 and 2012 increased by 23.7 and 27.1percent, respectively. In comparison, tuition, fees, and room and board for public institutions increased by 98.0 percent during the same period. Thus, not only did education become more expensive, it increased three or four fold as much as the ability to pay for it. If it is also recognized that there has been a growing inequality of income in the United States, especially between the upper and middle income classes, it is no wonder that more and more students are relying on loans to help finance their education.

Table 2
Household Median and Mean Income
2000 – 2013

Year	Median income		Mean income	
	Current dollars	2013 dollars	Current dollars	2013 dollars
2000	41,990	56,800	57,135	77,287
2001	42,228	55,562	58,208	76,588
2002	42,409	54,913	57,852	74,910
2003	43,318	54,865	59,067	74,812
2004	44,334	54,674	60,466	74,569
2005	46,326	55,278	63,344	75,584
2006	48,201	55,689	66,570	76,912
2007	50,233	56,436	67,609	75,957
2008	50,303	54,423	68,424	74,029
2009	49,777	54,059	67,976	73,824
2010	49,276	52,646	67,392	72,001
2011	50,054	51,842	69,677	72,166
2012	51,017	51,758	71,274	72,310
2013	51,939	51,939	72,641	72,641

Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements, 2014, Table H-6.

To demonstrate the increased reliance on loans to finance postsecondary education, consider Table 3. The table contains data for school years 2000-01 through 2011-12. Information provided includes student enrollment, the number and percentage of students receiving financial assistance, the percentage of students with student loans and the average amount of the loan. As shown in the table, student enrollment increased continuously between 2000-01 and 2009-10 and then declined in both 2010-11 and 2011-12. The number of students on some kind of assistance demonstrated the exact same pattern. For the purpose of this study, three pieces of information are of interest. First is the fact that student loans became more important in financing college education over the period. In the year 2001-01, 40.1 percent of enrolled students helped finance their college costs by taking out loans. This percentage increased to 51.2 percent in the 2012-13 school year. Second, at the same time that there was in increasing emphasis on loans to finance education, the number of students attending postsecondary institutions increased. Student loan growth, then, was fueled by a growing enrollment and an increase in the percentage of that greater enrollment taking out student loans. Third, over the period, the average dollar value of loans increased from $3,764 to $6,651.

Table 3
Enrollment and Financial Aid All Postsecondary Institutions, U.S.
2000-2011

Year	Number enrolled	Number Receiving Financial Aid	Percent receiving Aid	Percent Receiving Student Loans	Average Student Loan
2000-01	1,976,600	1,390,527	70.3	40.1	$3,764
2001-02	2,050,016	1,481,592	72.3	40.7	3,970
2002-03	2,135,613	1,553,024	72.7	41.4	4,331
2003-04	2,178,517	1,610,967	73.9	43.1	4,193
2004-05	2,260,590	1,689,910	74.8	44.0	4,463
2005-06	2,309,543	1,731,315	75.0	44.6	4,831
2006-07	2,427,043	1,766,257	72.8	43.5	5,014
2007-08	2,532,955	1,914,567	75.6	45.6	6,009
2008-09	2,675,974	2,089,288	78.1	48.6	6,974
2009-10	2,857,363	2,323,660	81.3	51.1	7,013
2010-11	2,654,501	2,184,367	82.3	50.1	6,618
2011-12	2,571,801	2,140,298	83.2	51.2	6,654

Source: U.S. Department of Education, National Center for Educational
Statistics Digest of Education Statistics, 3013, Table 331.20.

To this point, data have been presented that identify trends in the costs of postsecondary education, the median and mean incomes of households in the United States, and the reliance on loans to help finance postsecondary education. The unbiased data clearly show that costs of postsecondary education increased during a period of household income stagnation. Given these conditions, it is not surprising to find that the third trend, student loans to help finance postsecondary education, has been on an upward trajectory. These are simple, uncomplicated facts. There has been no conjecture or opinion introduced to slant the figures one way or another. In the same way, the final element in this section, student loan defaults, presents a purely descriptive data set. The source of the data is the U.S. Department of Education.

Because of a reporting change mandated by Congress in the Higher Education Opportunity act of 2008, the Department of Education changed its calculations of cohort default rates for student loans from a two-year cohort to a three-year cohort. The reason for the change was to provide Congress with a more realistic forecast of the ultimate default rate than was possible with the two-year cohort. Because regulations require student loan recipients to be monitored for two years after they began to repay their loans, debtors were found to be more atypically conscientious during that period than they were afterward. Thus, it was believed that adding the third, unmonitored, year would provide a more reliable indicator of the ultimate default rate. Unfortunately, the Department has not gone back and revised the historical two-year cohort data to the current three-year cohort requirement. Therefore, up to date, comparative data are only available

for a relatively short period of time.

As revealed in Table 4, the rate of default using a three-year cohort has been increasing more rapidly than for a two-year cohort. In each of the two periods for which data are available, the default rate for the new cohort was more than fifty percent greater than for the older one, indicating an increasing risk as the debt matures. Of even greater concern is that over one-half of student loan accounts representing over forty percent of loans outstanding are in deferred status (TransUnion, 2013)

Table 4
Default Rates on Student Loans
2009 2011

Fiscal Year	For student loan cohorts over a 2-year period			For student loan cohorts over a 3-year period		
	Number Entering Repayment Phase	Number Defaulting by End of Next Fiscal Year	2-Year Default Rate	Number Entering Repayment Phase	Number Defaulting by End of Second Following Fiscal Year	3-Year Default Rate
Fiscal Year 2009	3,628,846	320,194	8.8	3,629,109	489,040	13.4
Fiscal Year 2010	4,100,778	374,940	9.1	4,082,570	600,545	14.7
Fiscal Year 2011	4,739,481	475,538	10.0	---	---	---

Source: U.S. Department of Education, National Center for Education Statistics
Digest of Education Statistics, 2013, Table 332.50.

It is strongly argued by analysts in both the public and private sectors that one of the most important contributors to the increase in the student loan default rate is the current lack of quality employment opportunities. Indeed, the Congressional Budget Office pointed to the significance of this problem in an analysis of comparative employment recovery rates for the 2007-2009 recession versus the previous four recessions (CBO, 2014). Historically, employment continues to decline for a time after the trough of a recession has been reached. Then, as the economy strengthens, employment rebounds to its end of cycle level and begin to advance toward full-employment. Given this characteristic, one measure of the strength of a recovery is the amount of time that it takes employment to return to its end of cycle level. For the four recessions prior to 2007-2009, the rebound took about two quarters. By contrast, the rebound for the 2007-2009 recession took almost eight

quarters. Additionally, net employment growth has continued to exhibit the same weakness. In the 18 quarters (4.5 years) since the end of the recession, net employment has grown at only half the rate as previous recessions. As a result of this modest employment growth, the rate of unemployment still has not returned to its prerecession level. Moreover, much of the improvement that has occurred in the rate of unemployment is due to individuals dropping out of the labor market rather than actually returning to jobs. Under these circumstances, it is not surprising that all types of consumer loans, not just student loans, are at an increasing risk of default.

As a representative private sector firm, there is TransUnion. This company has particularly unique credentials to be cited. It provides credit management and protection services to 45,000 customers in 33 countries; its business is evaluating credit worthiness of individuals and institutions seeking loans. TransUnion warned its customers that the delinquency rate for student loans in 2012 was higher than for most other debt instruments such as mortgages, home equity lines of credit, credit cards and auto loans. The major culprit: an insufficient number of jobs to provide employment to many of the new entrants into the job market.

In addition to the generally weak job market, there is a unique phenomenon associated with some student loans that makes them even more vulnerable to default. Kathleen S. Tighe, Inspector General of the Department of Education, clearly identified this problem in a report to Congress (Tighe, 2014). She highlighted the fact that the Department of Education issues about $140 billion in loans annually, with a current portfolio of over $1 trillion. Yet, despite the magnitude of loans, DoE's efforts to provide appropriate oversight of student debt and to manage collection activities were woefully inadequate. The Department was found to be especially weak in its dealings with for-profit distance education providers. A number of such institutions were engaged in fraudulent activity to increase enrollment financed by federal student loans. Especially egregious was the practice of knowingly overstating the strength of the segment of the labor market for which the institutions were providing training and then strongly encouraging recruits to take out federal student loans finance their tuition. Upon completing their courses of study, students would discover that the existing job market for their newly minted credentials was only faint semblance what they were led to expect. They would find themselves to be saddled with a sizable debt and with very little possibility of earning the level of income that would permit them to pay off that debt. In this regard, it is interesting to note that the Consumer Financial Protection Bureau has demanded that Corinthian Colleges refund more than $560 million in college loans due to their predatory lending practices (Devaney, 2014).

IS THERE A CRISIS?

Like many sectors in the United States, institutions providing higher education services are entwined in an array of forces over which they have little control. As the forces interact with each other, they are creating a dynamic that has the possibility of dramatically reconfiguring the landscape of higher education. One of the more

perplexing forces is the default problem associated with federal student loans. Interestingly, most analyses of this phenomenon do not address its effect on higher education, *per se*, but focus on how individuals who default on the loans are affected or on the potential ramifications of default on the already weak recovery from the 2007-2009 recession. As will be discussed below, opinions concerning the seriousness of the two issues are widely divergent; some believe them to be catastrophic, while others believe them to be rather to mundane. Further, the tone of opinions concerning individuals is more combative and vitriolic than those concerning the macro economy.

The Individual Perspective. At one extreme are those who view the default problem as something so unique and beyond the control of borrowers that federal student loan debt should be forgiven. A satisfactory compilation of this view can be found in the website: studentdebtcrisis.org. The website is a broader scoped successor to forgivestudentloandebt.org., which, as its name indicates, was focused primarily on student loan forgiveness. A feature of the website is the use of testimonials to demonstrate the nightmare of some students who are trying to pay off large debt when they are unemployed or when employed in low paying jobs. Two representative testimonials are those from Catie Gutierrez and Angela Bennett. Catie's father encouraged her to take out student loans to finance her education at the University of California in Digital Media. Upon graduation, her student loan debt totaled $90,000, but she was able to get a good job and begin paying her loan off. Three months into the job, the 2007-2009 recession hit and she found herself unemployed. Due to the weak labor market, the few firms who were hiring required prospective employees to have four years of experience. To make herself more employable, Catie went to graduate school and incurred an additional $30,000 in student loans. After completing her graduate degree, Catie was not able to find employment, and she is faced with the dilemma of a high debt with increasing interest charges and little prospect of finding employment to enable her to pay the debt. The second testimony is that of Angela who is now a 65 year old woman on SSI. She went back to school in 2002 to obtain skills that would enable her to find a job and increase her standard of living. She laments that she has been unable to find employment because the majority of jobs for which she now is qualified have been exported to China and India. She now is responsible for a $23,000 loan from Sallie May, which she must repay out of her SSI benefits.

For Carie, Angela, and similarly situated individuals, federal student loan debt represents a crisis situation. Moreover, two characteristics of student loan debt make it even more of a hardship than other types of debt. First, federal bankruptcy law specifically exempts student loans from being eligible for bankruptcy proceedings, except when unduly burdensome. This means that unlike debts such as mortgage, credit card, and automobile loans, a separate, expensive, suit must be litigated to obtain relief from student loans. Second, there is no provision for federal student loan recipients to renegotiate interest on those loans; interest is permanently set. Therefore, in a period of declining interest rates, student borrowers are not free to take advantage of market conditions and reduce their liabilities in the same way

that others, such as mortgage borrowers, are free to do.

At the other extreme are those who argue that repayment of student loans is no more of a burden today than it was at any time in the past. The "scientific" basis for this view can be found in a recent Brown Center on Educational Policy at Brookings publication authored by Beth Akers and Matthew M. Chingos (Akers, 2014). Based on data from the Federal Reserve Board's Survey of Consumer Finances, the paper acknowledged that student loans have increased rapidly for two decades and that the economy is weakened by a major recession. However, the contention that student loans are in a crisis condition was rejected. Among the study's findings were, first, that the largest increases in student loan debt (about one-fourth) were attributed to households attaining the most advanced education, e.g., graduate and law degrees. The authors contend that these advanced degrees enable debtors to earn higher incomes and, therefore, have a greater capacity to pay off the loans. Second, much of the student loan debt is being incurred for living expenses and not just for tuition and books, so that student loan debt is being overstated compared prior periods. Third, with low interest rates and higher incomes associated with advanced levels of education, the burden of paying student loans is no more today than it was for previous generations. Based on these findings, the authors were dismissive of the idea that student loans pose a current or eminent crisis to financial markets or the economy as a whole. They contend that examples of students with high debt burdens featured by media are exceptions to the rule rather than an emerging national trend. Even though this paper has serious flaws, it has given cover for others to enter into the student loan discussion casting dispersion on its severity and ultimate purpose. For example, Jeffrey Dorfman, an economist at the University of Georgia and contributor to Forbes, quoted the paper's findings and offered the opinion that the debt crisis was being manufactured by "the left" in yet another scheme to subvert the market mechanism and achieve a redistribution of income (Dorfman, 2014).

The validity of the Akers-Chingos paper depends on the data used in their analysis and the inferences drawn from that data. Certainly, the Federal Reserve Board's Survey of Consumer Finances (SCF) can be relied upon to contain accurate information. But is that information appropriate for the topic analyzed by Akers-Chingos?   In a technical paper dealing with the SCF, Arthur B. Kennickell (Kennickell, 2007) pointed out that the wealthiest one percent of households was intentionally over sampled in the survey. The reason for this is that the Federal Reserve Board wanted data to enable it to study a range of issues for which wealth and financial data are important. Because the wealthiest one percent of households possess about one-third of all wealth in the United States, it was necessary to have representative information about that group; hence, the oversampling of the very rich. With the intentional oversampling of a specific population subgroup, however, the results of the survey are biased in favor of that group and cannot be relied upon to provide a general description of the population as a whole. Moreover, data improprieties do not end there. An additional problem with the report is that it only used SCF data for households

headed by persons between 20 and 40 years of age in its analysis. This segment of the population has obvious characteristics that are not typical of the population as a whole, such as new entrants into the labor force at the younger end of the group and reaching peak income growth potential at the upper end of the group. Despite the limitations of the data set itself and the additional limitations introduced by selecting an atypical component of the data set, Akers-Chingos still contend that their conclusions are valid for the general population of the United States.

In addition to these structural defects, the Akers-Chingos report has received biting refutation by a number of reviewers. Perhaps the most important critics are public agencies responsible for guiding and/or making policy decisions. For example, the Government Accountability Office (GAO) reported student loans were having a serious impact on a small percentage of retirees, including those with supplemental benefits. Because current legislation requires federal benefits to be reduced to repay federal student loans, some retired persons who have outstanding student debt are being pushed below the poverty income level as a result of the required garnishment. The GAO noted that the number of persons fifty years and older having student debt increased from 3 million in 2008 to 6.9 million in 2012. It expects this trend to continue, so the problem will become more acute in the future (GAO, 2014). A second refutation of the Akers-Chingos report comes from the Federal Reserve Board, the very agency sponsoring the SCF. In a recent FED survey, 38 percent of responders evaluated their financial situation as that of "just getting by" or struggling to so. Among households with student loans, the average debt was $27,840. Some households reported that they were struggling to service their debt, with eighteen percent being behind in their payments or having their loans in collection (FED, 2014).

The macroeconomic perspective. While not unsympathetic to the problems of individual debtors, some view the problem of loan default in more general terms: the possible consequences of student loan default on the economy as a whole. Perhaps the most objective and representative assessment is that of Deputy U.S. Treasury Secretary, Sarah Bloom Raskin. Prior to her Treasury appointment, Ms. Raskin served on the Board of Governors of the Federal Reserve System during the period in which financial markets failures were threatening economic systems throughout the world. Given her background, Ms. Rankin's views concerning student loan default are worthy of serious consideration. She is concerned that because student loans now exceed credit card debt, defaulting on those loans could have a very serious consequence on the economy. While defaulting on the loans may not have as devastating an impact as default on mortgages had earlier, its effect on the weak, fragile recovery that currently exists would be substantial. Individuals with large student loans, whether under default or not, have their credit ratings impaired. These individuals are not able to qualify for automobile, mortgage, or any other type of durable goods loans. Without the spending financed by those loans, economic growth would flounder, recovery would become even weaker, and the economy might be pushed into yet another recession (Klimasinska, 2014). It is noteworthy to recognize that Secretary Raskin's assessment coincides with that of

the Fed (FED, 2014).

Others, such as Allie Bidwell (Bidwell, 2014) and John Harvey (Harvey, 2014) take a more moderate approach by recognizing that the debt is bad and will have some adverse impact on the economy, but it is not a problem of crisis proportions. Their views are consistent with a Vanguard comparison between loan debt in 2007 and student loan debt in 2014. Vanguard pointed out that student loan debt today pales in comparison with mortgage debt just prior to the financial crisis of 2008. For example, mortgage debt was 62% of GDP versus 7% for student debt; individuals were using about 36% of their income to pay mortgages versus 4% for student debt; and, finally, there were $9.4 trillion in mortgage based securities outstanding versus $225 million in student loan based securities. Based on these relationships, Vanguard concluded that student loan defaults lacked the potential to impact financial markets today as the mortgage defaults did in 2008.

The Synthesis.   Based on the previous discussion, several conclusions can be drawn about the student loan controversy. First, there are some extreme, knee-jerk assessments that are getting much more attention than they deserve. Examples include arguments that the federal student loan problem is so great that the only way to solve it is through wholesale forgiveness of federal student loans, on one hand, and the contention that student loans pose no problem what so ever and those who claim otherwise are out to destroy the free market system. As it usually does, the truth lies somewhere between the two extreme views. Existing data clearly show that college costs are increasing at a very fast rate and that state funding is decreasing. Students are becoming more responsible for the costs of their education and many have gone into debt to do so. At the same time, the availability of jobs opening to graduating students is shrinking, causing a debt repayment challenge. These are the clear facts. If an appropriate solution is to be accomplished, extremists on both sides of the issue should be removed from the dialog, an action easier said than done.

Second, it is necessary to distinguish between problems that are principally micro (student level) in nature and that those that are principally macro (economy as a whole level) in nature. If the problem being debated is not clearly defined, arguments will be less rigorous and opened to emotional rushes rather than thoughtful consideration. This may lead to policies being either adopted or rejected that would not have otherwise been so with a more refined problem definition. Additionally, although some policy initiatives can provide solutions to both types of problems, more focused, customized initiatives would likely provide more efficient solutions in a variety of cases.

Finally, it must be recognized that the economics problem of scarcity and choice exist for higher education. The market for educational services is similar to that for medical services to the extent that a third party pays a significant part of its costs. This can cause a serious disconnect between the costs/benefits of consumers and the costs/benefits of providers. Consumers, for example may not fully

explore how the current employment environment will impact their ability to obtain well-paying jobs after graduation and may choose majors that will almost guarantee financial problems. Providers may not fully evaluate how expensive buildings and programs will be maintained during periods with a greater resistance to funding and find themselves in financial emergencies as well. These are basic questions that individuals and society as a whole must answer.

WORKING TOWARD A SOLUTION

It is possible to classify solutions to the student loan problem into four broad, but not mutually exclusive groups. At the most fundamental level, enabling legislation needs to be revised to place student loans on a similar footing as other consumer debt. As mentioned earlier, existing legislation establishes fixed interest rates on federal student loans. Borrowers are restricted from renegotiate their loans for reduced rates even during periods when interest rates in general are lower than average. Thus, unlike mortgage, credit card, or other debtors, federal student loan borrowers are unable to take advantage of market conditions and reduce their debt burden when interest rates fall. As an example, debtors, other than those with federal student loans, were able to take advantage of historically low interest rates resulting from the Federal Reserve's program of Quantitative Easing and lower their debt service obligations. By simply permitting student debtors to take advantage of the same market conditions as other debtors, they too would be able to mitigate some of the adverse labor market conditions that they currently face.

An additional student debt anomaly in federal legislation that should be addressed is its exemption from normal bankruptcy procedures. While it is recognized that relief can be obtained through a trial subsequent to an original bankruptcy that is very expensive procedure for those already having the serious financial difficulties. This legislative change is especially reasonable for those who have student loan debt and are also on government assistance. On the one hand, the government provides what it considers to be a modest level of support for the poor, the elderly, and the injured, and then, on the other hand, deducts student debt obligations from those modest benefits. This results in government policy being at cross purpose with itself. It is inefficient and wasteful.

A second solution is preventative in nature. It would be to require all potential borrowers to participate in financial training. No such requirement now exists. Students are not required to do a cost/benefit analysis for their desired degrees, nor are they required to seriously consider the consequences and responsibilities of borrowing to finance their education. The training would make potential borrowers better consumers of educational services. They would be forced to consider all of the expenses, educational and living, of obtaining a college degree. They also would be required to research and evaluate opportunities for employment after graduation. In this way, there would be no surprises or misunderstandings about costs, realistic job possibilities, or legal financial obligations associated with their education and debt. Students would be able to make more rational choices for

their future than they are required to do now.

Additionally, lenders should be permitted (required?) to take into consideration the borrower's ability to repay the loan after graduation. Legislation basing eligibility for loans on need alone is begging for repayment problems, especially with existing job market conditions. It seems reasonable that financial institutions should evaluate federal student loans with the same risk based criteria that is used for other loans. Although this will likely result in students having to change their majors or even not enroll in colleges, it makes more sense and is more compassionate than permitting students to accumulate large debts knowing full well they have little chance of getting jobs with incomes sufficient to permit repayment.

A third solution would be to grant some selective forgiveness for student loans. The forgiveness should not be done uniformly across all borrowers and, perhaps, not completely. Already, the Department of Education is calling for loan forgiveness from institutions which it calls predators. Those are usually for-profit institutions that aggressively court students with gross overstatements about the availability of jobs in their desired fields and understatements about the true cost of the education they will receive.

Addition, the government is already considering relief for students seeking high demand or high impact jobs such as math and science and those who commit to public service for a period after graduation. In a similar vein, students are now being permitted to apply for participation in a program that would move them from a repayment program based on amortization to one based on income. Those who are accepted in the income based program would be required to pay a periodic amount based of a percentage of their disposable income. For those with very small disposable incomes the required payment might even drop to zero. Under this program, the length of the payback period has been extended to as many as 30 years, with the possibility of balance forgiveness after that time.

A fourth solution, and one that brings back a reconsideration of this paper's title, is to rethink the entire concept of higher education as it exists today. Because the usual business model for public education is that of revenue based on enrollment, student growth considerations have been and are now an important motivator for college administrators. Enticements were and are now being given to high school students and their parents that a college education is the surest way to economic success. Don't be worried about the student's background or aptitude they are told, enroll. While the philosophy of inclusion worked well after World War II and after the social change ushered in by leaders such as Martin Luther King, Jr., there is some question about its relevance today. Many high school students simply do not have skills and aptitudes that lend themselves to a college education. Those students are best served by technical or trade schools or even no formal schooling at all after high school. No longer is our economy producing an abundance of diverse, high paying jobs for students to move into immediately after graduation,

so the quasi-guarantee of financial success can no longer be tied to a college degree. Colleges and universities, the custodians of truth and knowledge, should be the first to explicitly admit that fact. Instead, schools establish remedial programs for students who lack the ability or desire to successfully pursue a college degree, fund administrative departments to experiment with ways to increase student retention and graduation, and encourage extra credit to be given to students who participate in institution-favored programs.

The pursuit of more students has also led colleges and universities to invest heavily in accoutrements to enhance student life such as gymnasia, art galleries, athletic facilities, and the like. Entertainment extravaganzas such as Syracuse University's Carrier Dome, the University of Northern Iowa's UNI-Dome, the University of Idaho's Kibbie Dome, and the proposed Jacksonville State University's domed football stadium are extreme examples of how nonacademic expenditures have become common place. To be sure, some facilities and programs pay for themselves, but most do not. Those that fail to generate sufficient revenue to pay their way must receive subsidies from other sources of a schools income such as tuition, fees, gifts, and non-designated endowments.

In this broken business model for higher education, student loans seem to be the weakest link holding the model together. Serious concerns about the growing default rate make it likely that more restrictive eligibility conditions will be a feature of future reform legislation. Fewer individuals will be eligible for loans, which will result in a decline in college enrollment. When that occurs, schools will be required to make fundamental changes that will have broad implications for students, faculty, administration, and society as a whole.

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THE ROLE OF COMPUTER SELF-EFFICACY IN MATHEMATICS ACHIEVEMENT

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ABSTRACT

The study of mathematics and statistics is important in many disciplines, including business. The research study focused on student's attitude of a historically black college towards learning mathematics using computer. The study was conducted using six instruments to measure the attitude towards using computer and its impact in their achievement. The variables such as computer-self-efficacy, perceived usefulness, perceived ease of use, subjective norms, attitude and actual use of the computer were used to account the effect towards the achievement in mathematics. The role of computer-self-efficacy was the focus on students' perceived usefulness and perceived-ease-of use to determine how their attitude affects their final exam scores. The data were collected over three different time periods during the fall semester to find the result that changed over time. Originally a total of 327 students participated in a voluntary basis; of those 278 completed their response in Time1, 241 in Time2 and 237in Time3 respectively.

The result indicated that computer-self-efficacy (beta coefficients increased from .181 to .394) had major impact on perceived usefulness with increased evidence of beta analysis. The perceived usefulness (increased from .320 to .424) is the most significant predictor of attitude. The attitude positively influenced the duration of actual usage of the computer system that accounted heavily towards student's final exam scores (beta coefficient .197). Additional research endeavors should be devoted to the measurement of system use in different set up with different ethnic background to further analyze students' acceptance or rejection of computer used for their learning and successful outcome in mathematics course. Similar study could be conducted to measure the impact of using computers in learning statistics.

Keywords: Computer self-efficacy, Perceived usefulness, Attitude, Computer-Technology and Mathematics

INTRODUCTION & LITERATURE REVIEW

Across the US, a gap in academic achievement particularly in mathematics persists between the African American and other ethnic minority students and their white counterparts. This achievement disparity triggered a series of studies that resulted significant body of empirical research (Jencks & Phillips, 1998; Peng & Hill, 1995). A longitudinal research study involving 18 four-year institutions revealed that white students scored higher than their African American counterparts on seven standardized tests measuring critical thinking scale, knowledge of mathematics, science reasoning, reading and writing skills (Flowers & Pascarella, 2003). The National Assessment of Educational Progress (NAEP), assessed student's performance in several subjects including reading and mathematics based on the curriculum framework developed by the National Assessment Governing Board (NAGB). The NAGB develops the curricular frameworks using standards developed within the field. The data on the achievement gap are based on the national average test-score differences between various racial and ethnic groups assessed by the NAEP. Most recent data available from NAEP indicated that performance of twelfth-graders in mathematics showed 7% black students achieved at or above the proficient level in 2013, whereas 33% white students achieved that level (NCES, 2013). The College Entrance Examination Board (CEEB) assessed the students' performance for college-bound seniors through Scholastic Assessment Test (SAT). The SAT average scores in verbal and math by the African American students also showed a gap in academic performance when compared with white and Asian Americans (CEEB, 2003). The underline cause of this academic achievement gap in African American students is not yet established, but various contributing factors have been characterized such as socioeconomic and family condition, youth culture and student behavior, schooling and practices that might influence the academic outcome of the students (Lee, 2002)

The mathematics performance gap among African American students can be narrowed if effective instruction complemented with technology could be implemented in the classroom across this nation. Meta-analytic reviews of media research have produced evidence that exhibit positive learning benefits with various media, particularly computers (Clark 1985a, b). These analyses reported an approximate 20 percent increase in final exam scores following computer-based instruction (CBI) when it is compared to traditional forms of instruction. It is not just the computer but the teaching method built into the computer that accounts for the learning gains (Kulik & Kulik, 1986).

The use of technology in the classroom has afforded educators the opportunity to explore more complex problems with their students than would otherwise possible with a paper and pencil format. The Black students' attitude towards using computer may help towards their success in mathematics. Computer Assisted Instruction (CAI) in Mathematics is definitely a supplement to regular classroom in basic mathematics and algebra to benefit the students in mathematics. If CAI is used appropriately, the gap between white/Asians and

African Americans students should begin to close (Brown, 2000). The acceptance and utilization of technology to enhance academic achievement in mathematics is directly controlled by various factors that dictate whether a person would use technology effectively or not. These factors such as computer-self-efficacy, perceived usefulness, perceived ease of use and social influence play intricate role that shapes a person's attitude towards the utilization of the technology to improve performance in executing a particular task or behavioral objectives.

Bandura (1977) introduced the construct of self-efficacy that deals with the social cognitive theory of human behavior. Individuals possess the ability to exercise some measure of control over their thoughts, feelings, motivation and actions. This self regulatory function guide a person's own cognitive development and subsequent expression of that into a behavioral pattern. The self perception directly influences the performance of the person and it can alter and reshape his/her self-beliefs which in turn control the subsequent performances. In general, Bandura championed the idea of human behavior where the beliefs of people about themselves play key role in the formation and development of capabilities that will dictate their behavior.

Self-efficacy refers to the confidence of a person has on his own capabilities to execute a particular task successfully (Bandura, 1997). Students with low self-efficacy give up easily in their academic pursuits than students who have high self-efficacy. This low self-efficacy results from student's past performances which directly influences their future successes or failures, such as grades in academic fields. Furthermore, self-efficacy influences people's decisions, goals, and their levels of effort in conducting a particular task and the length of time they would like to invest in the successful execution of the task.

The Technology Acceptance Model (TAM) was one of the most influential extensions of Ajzen and Fishbein's theory (1980) of reasoned action (TRA) and was developed by Fred Davis (1989). Davis (1989) introduced the TAM to account for the psychological factors that affect computer acceptance. The user acceptance of any technology can be predicted by the Technology Acceptance Model (TAM), and is determined by two unique factors that is perceived usefulness and perceived ease of use. Many of TRA's attitude measures were replaced with the technology acceptance measure's *ease of use*, and *usefulness*. TRA and TAM, both of which have strong behavioral elements, assumes that when someone forms an intention to act, that they will be free to act without limitation. In the real world there will be many constraints, such as limited ability, time constraints, environmental and organizational limits, or unconscious habits which will limit the freedom to act. (Bagozzi et al.1992).

Technology has no doubt become an integral part of higher education enabling students to access information rapidly and visually (Smith, 2002). It is appropriate to note how the computer algebra systems (CAS) are becoming a part

of the growing technology-based curriculum for mathematics. The influences of these types of software are being investigated around the world. Several studies on the use of CAS within college mathematics curriculums, more specifically calculus courses and college algebra courses have been investigated. The first calculus study found students' attitudes and confidence were positively affected by CAS(Schrock, 1989), a second study also indicated student achievement was positively affected by CAS (Cooley, 1995), while the last study found no significant improvement in academic performance following the implementation of CAS in the calculus curriculum (Keepers, 1995). But, when CAS was used as an instructional tool, students outperformed the control group both conceptually and computationally (Tiwari, 1999). Finally, in the college algebra class studied, students using CAS were again able to outperformed the non-users.

The concept of computer self-efficacy derived from the self-efficacy idea of Bandura, and it is defined as an individual's belief in their ability to use technology in the process of solving problems, making decisions, collect and disseminate information. Compeau & Higgins (1995) described computer self-efficacy as "a judgment of one's capability to use a computer" (p.192). It has been found that self-efficacy judgments could influence a person's expectations because "the outcomes one expects derive largely from judgments as to how well one can execute the requisite behavior" (Bandura, 1978, p.241). Computer self-efficacy influenced greatly about a person's expectations toward using the computer and a person with high competence in using computer, used computer regularly, whereas, persons with low self-efficacy avoided the computer usage in his/her work (Kinzie, Delcourt, & Powers, 1994). Several studies have documented **(**DeBacker & Nelson**,** 2000; Smist, Archambault, & Owen, 1997) that female students exhibit a lower level of self-efficacy in mathematics and science courses in secondary schools than the male students. Many studies (Bandura, 1997**;** Chemars, Hu, & Garcia, 2001; Silver, Smith, & Greene, 2001) observed a direct link exits between self-efficacy and overall academic achievement, as well as mathematics and science courses achievement.

Attitude is related to behavior. Individual behavior has a direct correlation with a person's attitude and difficulty to perform that given behavior (Campbell, 1963). Attitude leads to action. "Attitude controls an orderly arrangement of evaluative responses" according to Eagly & Chaiken (1993),

Subjective norm (SN) deals with the idea of behavioral intention which is directly influenced by the social environment. People act on the basis of their intention and perception of control over their behavior. Intentions are influenced by the attitude towards executing the behavior (Ajzen, 1991). According to Anandarajan, Igbaria, & Anakwe (2000), the definition of Subjective Norm (SN) is two-fold: vertical pressure and horizontal pressure. Vertical pressure is referred to the social pressure from people who are subordinate to the individual (i.e., a vertical dyads relationship); horizontal pressure refers to the social pressure from people closely related to the individual (e.g., close friends). There is more for those who

report high subjective norms to accept and adopt the new system (Anandarajan et al.2000; Liker & Sindi, 1997). Subjective norms include users' likelihood perception of the external forces and their motivation to comply with the forces (Robinson, 2001). From the perspective of university faculty in the context of faculty development, Wolski and Jackson (1999) also agreed to this proposition. Strong correlations have been found between attitude and subjective norm.

It is hypothesized that attitude directly influence computer usage to achieve academic success in Algebra course through computer self-efficacy, subjective norms, perceived usefulness and actual usage of computer system. Therefore, hypothesis-1 predicts that computer self-efficacy will have a positive effect on individual's perceived usefulness. Hypothesis-2 predicts that computer sefl-efficacy will have a positive effect on individual's attitude to use the computer. Hypothesis-3 predicts that perceived usefulness will have a positive effect on individual's attitude to use computer. Hypothesis-4 predicts that attitude will directly influence the duration of actual use of computers. Hypothesis-5 predicts that attitude will positively influence the academic achievement (final grade).

METHODOLOGY

A survey questionnaire was used to receive responses from the students. The survey was distributed to participating students who were using computers to improve their scores in a college algebra course. The following six instruments were used in data collection questionnaire. They are: usability instrument, computer-self-efficacy instrument, attitude instrument, subjective norms instrument, computer use instrument and demographic instrument. The survey questionnaire was administered to students at three different times in a fall semester.

In the beginning of the semester, a total of three hundred twenty seven students participated in the survey designed for this study. The total semester time is divided to three weeks period each (Time1, Time2, and Time3) and survey was administered three times to see the improvement of students' attitude using the computer for their benefit. Two hundred seventy eight completed the survey in Time1, two hundred forty one in Time2, and two hundred thirty seven in Time3 with their responses respectively. Confidentiality of sample participants was strictly maintained.

There were five scales used to measure perceived usefulness, perceived ease of use, computer self-efficacy, subjective norms, and attitude. The perceived usefulness scale had four items (Davis, 1989); perceived ease of use- nine items (Davis, 1989); computer-self-efficacy- eight items (Lee, 2002); subjective norms- four items (Wolski & Jackson, 1999) and attitude (Ajzen & Fishbein, 1980) had one item with a total of 26 items. The reliability of those five scales was studied. Statistical Package (SPSS) was used for analysis to find the coefficients of the pathways through multiple regressions.

RESULT

The Cronbach Alpha Coefficients of reliability analysis of the data on three different time periods is shown in Table1. The data varied from .7797 to .8584 which is satisfactory.

Table 4. Internal Consistency Reliability Testing			
Cronbach Alpha (Standardized) for Instruments and Sample size			
	Time1	Time2	Time3
Alpha	.7797	.8337	.8584
N	273	233	226

The computer self-efficacy (CSE) positively influenced the perceived usefulness (PU) and PU directly affected the attitude during Time1 as seen in Figure1. Subjective Norm (SN) also exerted positive influence on attitude (AT).
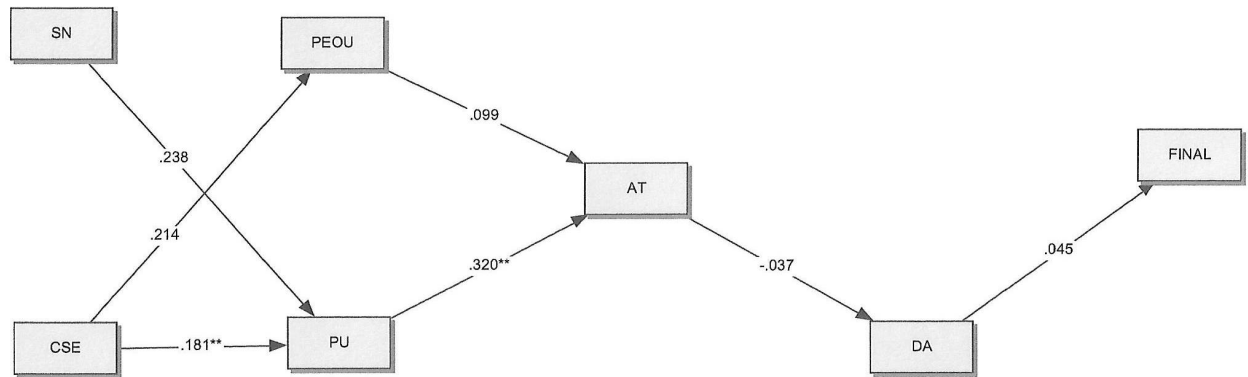
Fig 1. Beta coefficients of variables for the period of Time1

During Time 2 period, CSE contributed immensely PU which attributed a sharp increase in attitude as depicted in Figure 2. Subjective norm also influenced the PU which contributed a steady increase in the beta coefficients.
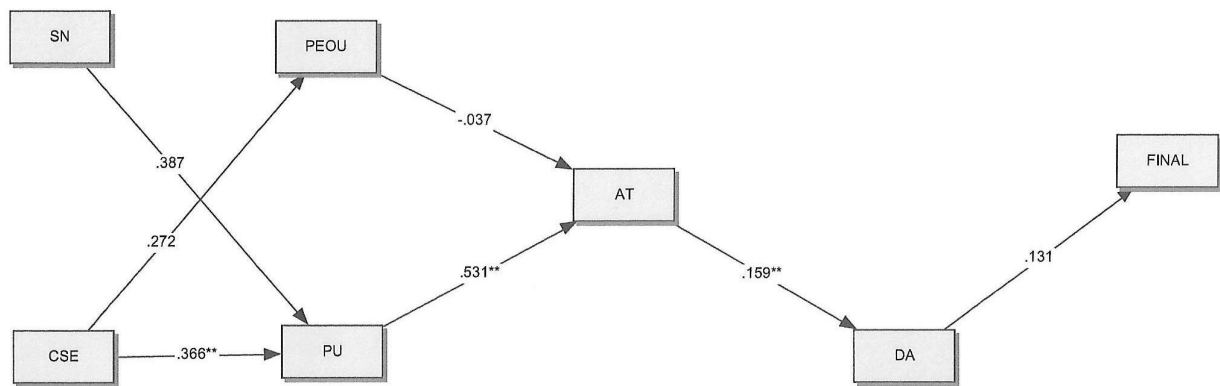

Fig 2. Beta coefficients of variables for the period of Time2

During the Time3 period, CSE, PU, SN strongly influenced the attitude which positively affected the outcome in the final is shown in Fig 3
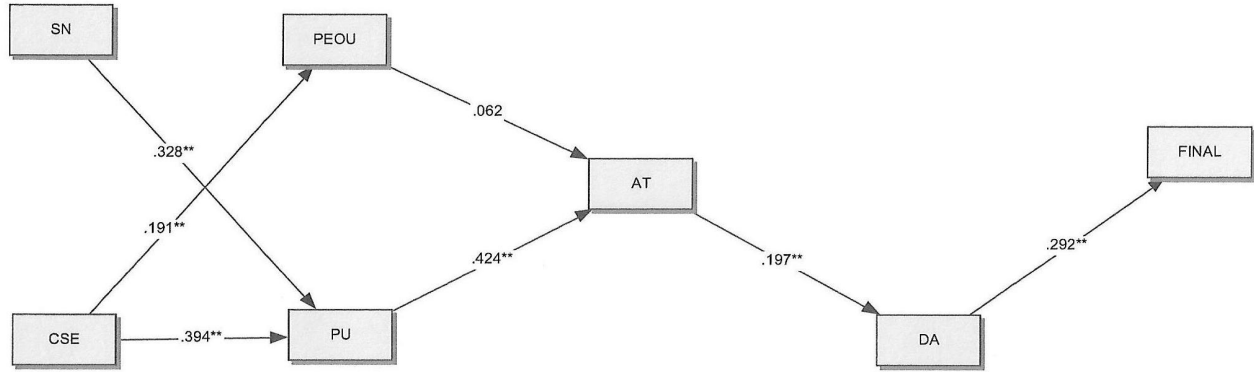
Fig 3. Beta coefficients of variables for Time3

Table 2. Change of beta over time summarized in the table.

From	To	Time 1	Time 2	Time 3
CSE	PU	.181**	.366**	.394**
CSE	PEOU	.214	.272	.191**
SN	PU	.238	.387	.328**
PU	AT	.320**	.531**	.424**
PEOU	AT	.099	-.037	.062
AT	DA	-.037	.159**	.197**
DA	FINAL	.045	.131	.292**

CSE: Computer Self-efficacy; DA: Duration of Actual Use of Computer; PU: Perceived Usefulness; PEOU: Perceived ease of use; AT: Attitude; SN: Subjective Norm; Final: Final exam scores at the end of semester. ** Denotes when the t-test is statistically significant (p ≤.05).

The computer self-efficacy (CSE) had a steady increase in the beta to contribute to perceived usefulness starting from .181 (Time1) to .394 (Time3) over time suggesting that CSE best predicted students' perception of the usefulness of the software for their success in the math course. It supported the hypothesis-1. CSE influenced attitude indirectly but had a positive correlation to attitude via perceived usefulness (PU) of the system that supported hypothesis-2. The beta of subjective norms (SN) in Time1 increased consistently from .238 to .387 in Time2, but in Time3 the beta value dropped down a little. This indicated that social pressure played an important role to go to the lab and use the software to get a better grade. The PU of the system predicted the attitude where beta coefficient steadily increased from .320 (Time1) up to .424 (Time3) indicating a strong direct effect on attitude. It supported hypothesis-3. The Beta coefficients of attitude (AT) also steadily increased its contribution towards the duration of actual use from Time2 to Time3. From Time2 to Time3, AT supported the fact that more time they will spend in the computer the better result they will get in their math score. It supported the hypothesis-4 and hypothesis-5.

From the demographic report it was found that in Time1 approximately 72%

of students preferred the instruction face-to-face instead of interacting with a computer. In Time3, the African American students' preferred face-to-face interaction with instructor increased from 72% to approximately 85%. According to some students' additional comments, mathematics gets clearer learning face-to-face from the instructor in a class.

DISCUSSIONS

The Perceived Usefulness (PU) has a greater influence on the perceived ease of use, and expressed a strong positive influence on attitude, whereas, the perceived ease of use had very little influence on attitude. In other words, subjective norm and perceived usefulness can be considered as the strongest predictor of attitude. Our findings regarding the positive role played by Perceived Usefulness on attitude is totally opposite to the findings of Malhotra & Galleta (2005), where they observed that PU play a relatively marginal role in predicting attitude, whereas, Perceived-ease of Use was the strongest predictor of attitude. Internalization will have positive influence on user's perceived ease of use of the system, according to Malhotra & Galleta (2005), but our result indicated that PEOU has no influence on the attitude and behavioral intention to use the system. This finding strongly suggest that at least in our system, internalization by PEOU had no bearing on the influence to induce the ultimate usage of the system.

Malhotra & Galleta extended Technology Acceptance Model to include Psychological Attachment to show the social influence on technology.an (1958). Subjective norm is mainly based on continuance (cognitive) conceptualization of commitment **(**Meyer & Allen, 1984). Computer self-efficacy played a major role in influencing PU and AT which brings a positive effect on the duration of actual use of the computer that translate into the final outcome of the exam scores in algebra course.

CONCLUSION

Technology is the application of knowledge, tools, and skills to solve practical problems and human capabilities. According to this study computer self-efficacy is contributing a lot towards perceived usefulness and perceived usefulness is contributing to students' attitude for actual use of the computer to their benefit. The duration of using the computer is coming from their attitude towards it. To maximize the performance of students using computer towards their achievement in mathematics, these following suggestions are added towards the improvement of curriculum and instruction.

- Computer skills are most meaningful when integrated with class projects in mathematics and other subject areas. This requires collaboration on the part of all teachers in computer assisted instruction (CAI).   They will require knowledge and attitudes necessary to be collaborative workers, and ethical technology users.

- There should be workshops for both pre-service and in-service teachers regarding the use of computers in subject areas needed for the level of students.
- Computer Algebra System (CAS) has powerful tools for carrying out mathematical computations, manipulations, and procedures. Most schools are quite far from implementing routine use of such tools into their mathematics curriculum, instruction, and assessment.
- Computer-aided instruction has been shown to be an effective tool for mathematics instruction. Using proper technology students enjoy learning more and make gains in math performance. Babbitt (1999), suggested tips to guide teachers and parents in selecting instructional mathematics software in which the focus should be on instructional software such as concept development, drill and practice, tutorial and simulation software rather than just spreadsheets or graphic software.
- According to Babbitt (1999), the software in which number of problems and instructional levels can be modified will serve the needs of a wide range of students in a single classroom or an individual student over a long period of time. Some students are motivated by the immediate response of the software where others became frustrated by time pressure. Having the ability to modify the response speed is important for achievement in mathematics (Babbitt, 1999).
  From the study it was found that the computer self-efficacy was increased steadily from Time1 to Time3. The mathematics course should be designed in such a way that the students have to do individualized or group projects in the computer for special credits applied to their final exam scores. It would motivate students to use the computer frequently and intensely as they know it would help their grades. If they work with their peers in the same projects, then they would be more enthusiastic to compete with other groups.
- As the perceived ease of using the computer would directly affect their attitude, as a result the students would be motivated to increase the use of computer more often and stay longer in using the computer to succeed in mathematics.

The following are the recommendations for further research to the study:

1. The study should be done in other four-year college Introductory Algebra courses
   in order to test the validity and reliability of the research.
2. There should be a comparative study in respect to community college algebra students to compare the attitude of African American students using computer towards the mathematics performance.
3. There should be a comparative study between African American students and white students to see if the obtained result of this study would be similar or different in any respect of attitude towards the acceptance of technology.
4. It will be interesting to study the effects of Computer self-efficacy and attitude on the performances in Statistics and Business Calculus. As Algebra is the

foundation of higher mathematics so the findings might show similar effects on the outcome of learning statistics and other quantitative subjects.

LIMITATIONS

The results may not apply to other courses that are using the computer to facilitate the instruction. A larger sample size may suggest any difference in the findings.

The availability of computers to students in the lab in their preferred time is a big negative factor in the institution. The lab hours were inconvenient for students to come and work. The lab is closed during holidays. If the students could have more access, that could have positive impact on the study. The researcher also found that the software was so designed that if the students could not solve the problem in the first three trials they had to start all over from the beginning with a new set of problems. These features of the software lead frustrations in students' mind. Also, there were not enough computers available at a time for students to use for the purpose.

From the demographic report it was found that in Time1 and Time2 approximately 72% of students preferred face-to-face instruction rather than interacting with a computer. In Time3, the African American students' preferred face-to-face interaction with instructor increased from 72% to approximately 85%. According to some students' additional comments, mathematics gets clearer learning face-to-face from the instructor in a class. This conviction might be a major barrier for using computer in learning mathematics.

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A PILOT STUDY: ACADEMIC COACHING TO DEVELOP STUDENTS' CRITICAL THINKING SKILLS

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ABSTRACT

The importance of and deficiency in students' critical thinking skills has been discussed extensively by the U.S. government, commissions, accreditors, researchers and educators. This deficiency is directly linked to students' academic and career success, and has severe consequences for the U.S. workforce. Although attempts have been made to solve the problem, research has shown minimum improvement over the years. The problem and attempts that have been made in higher education to solve it are discussed. However, these attempts focus on the education domain while research shows that the majority of students' time is spent in their non-education domain. Therefore tools and techniques that focus on the non-education domain are needed. For years "coaching" using thought-provoking questions has been used successfully as a performance improvement tool. This research shows that it can also be used as a developmental tool for students. Using this academic coaching framework, focused on the core critical thinking skills and the non-education domain, students' critical thinking showed improvement with as little as four weeks of coaching. The paper provides an extensive discussion on critical thinking and the field of coaching. In addition, this academic coaching format used is thoroughly explained.

Keywords: critical thinking, higher level thinking, coaching, academic coaching, Socratic Method, Blooms' Taxonomy, Suchman's Model

INTRODUCTION

In the early 1900s, Osborne (1934) emphasized 'thought power' as a major educational goal and later Siegel (1980) took a gigantic step further taking the position that teaching in any other manner would be immortal. The Rockefeller Commission (1980), The College Board (1983), American Philosophical Association (1985) and the National Council of Teachers (2000) also called for developing students' higher order thinking skills, a component of critical thinking (Tsui, 2008). Later Van Gelder (2005) agreed that the goal of education should be to teach in a critical manner. Critical thinking consists of a set of skills and attitudes which allow students to recognize and authenticate problems (Watson & Glaser, 1994). It encompasses their "ability to make decisions by analyzing issues and evaluating options, recognizing the existence of assumptions and the need to make inferences" (Walker & Diaz, 2003, p. 64). Its importance was later identified by the Commission on Achieving Necessary Skills as a 'fundamental requirement' (U.S. Department of Labor, 1991). The conclusion formed by Lipman (1988) and later by Van Gelder (2005) posits that critical thinking needs to be infused into the educational system. Further, research conducted by The Conference Board (2006) found that employers place the responsibility for teaching students critical thinking skills on four-year colleges and universities.

The critical thinking deficiency has been studied extensively and not only does research confirm its existence, critical thinking skills have shown minimum improvement over the years (Tsui, 2008; Flores, Matkin, et al, 2012). Starting in 2006 the Wabash National Study of Liberal Arts Education found that there continues to be a deficiency in critical thinking skills by those 1st year college students. Critical thinking research by Arum & Roksa (2011) discovered that after completing two years of school, at least 45% of students showed no improvement and 36% showed no improvement after completing four years. Flores, Matkin, et al (2012) highlight the fact that this deficiency carries over into the workplace, a position that is supported by an earlier July 2009 report by the Robert Wood Johnson Foundation *Jobs to Careers* which highlighted the value of critical thinking to workforce efficiency.

Although attempts have been made to incorporate critical thinking into the curriculum (Barnes, 2005; Elder, 2005; Tiwari et al., 2006; Tsui, 2008), positive results have not been universal due to the variation in the methods being used, training, and administrative support (Tsui, 2008; Flores, Matkin, et al, 2012). Paul (2005) gives three more specific reasons to explain why teachers are not developing students' critical thinking skills: (1) a lack of understanding of the concept, (2) failure to recognize their deficiency, and (3) devotion to traditional classroom instruction methods. More importantly, in holding on to traditional instruction methods, Pedrosa-de-Jesus, da Silva Lopes, et al (2012) suggest that teachers' preferred style is based on how they learned. In other words, if it worked for them when they were a student, it should work for the students they now teach. However, it is evident that traditional teaching methods that focus on rote memorization, teaching

content, and knowledge building, although once effective, are now obsolete and do not facilitate critical thinking (Lizzio & Wilson, 2007). Teaching must now be geared to 'thinking' skills (McGuiness, 1993; Flores, Matkin, et al, 2012) and thus, educators most adjust (Peters, 2007) by trying different teaching methods (Walker & Diaz, 2003).

Alshraideh (2009) magnifies the problem in his discussion of students' failure to think critically. He agrees with Ramer (1999) that teachers are finding that they have to think for their students, thus handicapping them for life. A new pedagogy is needed, one that is focused on teaching students how to think critically rather than teaching course-content (Flores, Matkin, et al, 2012) which could have just the opposite effect (Tsui, 1999). Thus, the goal should be to motivate students to think for themselves (Alshraideh, 2009) both inside and outside the classroom (Walker & Diaz, 2003). Of paramount importance is a process of self-reflection (Wiersema & Licklider, 2009; Flores, Matkin, et al, 2012) where students reassess their biases and open themselves to new ideas that will expand their perspectives.

Critical thinking skill development must happen in colleges and universities. Understanding that education should prepare students for careers, a skill deficiency will have dire consequences for the workforce, and, most importantly, a lack of critical thinking skills translates into an inability to lead (and become future leaders) (Flores, Matkin, et al, 2012). The problem has already manifested itself in the workplace because most leaders lack strong critical thinking skills (Rooke & Torbert, 2005). Examples of this as identified in the CCTST User Manual by Insight Assessment are seen in "dangerous and costly errors, repeated mistakes, bad decisions, failed systems, inaction when action is needed, the giving of bad advice, inaccurate assumptions, and the lack of anticipated action" (p. 9). In essence, if future leaders lack these skills, they will be less effective and their mistakes could have severe consequences for the future of the organization (Carroll & Mui, 2008; Spreier et al, 2006). Not only does excellent leadership move the firm forward, it also enables the organization to make meaningful contributions to the global economy (Flores, Matkin, et al, 2012). Therefore, education must play a critical role in preparing students to critically think, which in turn produces good leaders who can have a global impact.

For business programs that meet the highest standards of excellence, AACSB Standard 8-Curriculum Management and Assurance of Learning (AoL) provides guidance in achieving their accreditation or reaccreditation goals. Adopted by the Council in April 2013, this standard emphasizes the importance of critical thinking to student success (AACSB, 2012; AACSB, 2013). Critical thinking is a popular and one of the most important assessment areas. However, having critical thinking as a goal, although admirable, presents problems in both its teaching (Harris & Zha, 2013) and assessment (Cavaliere & Mayer, 2012). Based on discussions with business executives and faculty which underscored students' lack of ability to formulate and articulate logical arguments with supporting evidence, AACSB has gone even further, conducting workshops on incorporating critical

thinking into the curriculum (AACSB, 2011). Thus, critical thinking will continue to be a key area to be evaluated by AACSB (AACSB, 2007).

For colleges and universities as a whole, the various regional accreditation bodies also require that higher education address the problem. For example, according to the Southern Association of Colleges and Schools Commission on Colleges, in their Foundations for Quality Enhancement (revised by the College Delegate Assembly in December 2011), institutions must demonstrate critical thinking as part of the discussion on student learning outcomes (SACS, 2011).

Literature Review: Critical Thinking (CT)

As far back as Plata and Socrates, certain characteristics have been identified as being associated with strong reasoning. Dewey (1933) followed with a discussion of the importance of having a critical thinking mindset ("habits of mind") for solving personal and professional problems. Of critical importance is the ability to engage in reflective judgment.

Numerous definitions of critical thinking have been offered. In a comprehensive analysis Flores, Matkin, et al (2012) explained how its meaning has evolved over the years from the simple to more complex with many dichotomous views. To explain the concept, Ennis (1962) offered a general theory on "critical thinking as correct assessing of statements" (p. 83).   A more developed definition was provided by Halpern (1996) as "the use of those cognitive skills or strategies that increase the probability of a desirable outcome" (p. 5). However, Ricketts and Rudd (2005) gave it more meaning and posits it as "a reasoned, purposive, and introspective approach to solving problems or addressing questions, with incomplete evidence and information, and for which an incontrovertible solution is unlikely" (Rudd et al, 2000 p. 5). Returning to the simple yet deep, Paul (2005) classifies it as "the art of thinking about thinking, intellectually and with discipline" (p. 28) or "purposeful thinking" (Paul, 1995 p. 64). Again adding complexity, Mazer et al (2007) describes it as "the ability to construct meaning and articulate and evaluate arguments, as well as evaluate sources and support" (p. 176).

Given the varying views, in 1987 the American Psychological Association sought to formulate a consensus definition by commissioning what turned into a two-year research project spearheaded by Peter Facione. Using a Delphi approach with an international panel of forty-six men and women experts from various disciplines from the United States and Canada, the world famous study is now called the APA Delphi study of critical thinking. The resulting 1990 report not only defined critical thinking, it identified and described the core critical thinking skills, and the characteristics that an ideal critical thinker should possess.   The document is still being used today to aid in the understanding of critical thinking theory. In addition, its recommendations have been invaluable for critical thinking instruction and assessment.

Critical Thinking Defined

The well-respected expert consensus statement from the APA Delphi study offered the following definition of critical thinking as the

"... purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based." (Facione, 1990, p. 27)

According to the APA Delphi Research Report as taken from the Section 8 of the CCTST User Manual, the six core critical thinking skills are described as:

1. Interpretation: To comprehend and express the meaning or significance of a wide variety of experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures or criteria.
2. Analysis: To identify the intended and actual inferential relationships among statements, questions, concepts, descriptions or other forms of representation intended to express beliefs, judgments, experiences, reasons, information, or opinions.
3. Evaluation: To assess the credibility of statements or other representations which are accounts or descriptions of a person's perception, experience, situation, judgment, belief, or opinion; and to assess the logical strength of the actual or intended inferential relationships among statements, descriptions, questions or other forms of representation.
4. Inference: To identify and secure elements needed to draw reasonable conclusions; to form conjectures and hypotheses; to consider relevant information and to educe the consequences flowing from data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, questions, or other forms of representation.
5. Explanation: To state the results of one's reasoning; to justify that reasoning in terms of the evidential, conceptual, methodological, criteriological and contextual considerations upon which one's results were based; and to present one's reasoning in the form of cogent arguments.
6. Self-regulation: Self-consciously to monitor one's cognitive activities, the elements used in those activities, and the results educed, particularly by applying skills in analysis and evaluation to one's own inferential judgments with a view toward questioning, confirming, validating, or correcting either one's reasoning or one's results. (p. 73)

Another outcome of the APA Delphi Report as outlined in the CCTST User Manual was a list of characteristics of the ideal critical thinker:

"...habitually inquisitive, well informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing

personal biases, prudent in making judgments, willing to
clear about issues, orderly in complex matters, diligent in seeking
relevant information, reasonable in the selection of criteria, focused
in inquiry, and persistent in seeking results which are as precise as the
subject and the circumstances of inquiry permit. (Facione, 1990, p.
27)

Critical Thinking Efforts in Academia

Critical thinking practice is considered to be a major ingredient to student learning and success (Cotton, 1991; Napell, 2001). Attempts have been made to incorporate it into the curriculum, but to be successful teachers must know how to ask the right questions (Napell, 2001). Some are doing just that; however most are asking "confusing, dead end and 'yes/no' questions that contribute nothing to students' development of critical thinking skills" (Alshraideh, 2009, p. 59). Early thinking by Falkof & Moss (1984), as discussed by Alshraideh, also calls to light the importance of asking the right questions (rather than giving answers) if we want to elicit student thinking. In addition, as a follow-up to the early call by the National Commission on Excellence in Education (1983) for improvements in the U.S. Education System, Pedrosa-de-Jesus, da Silva Lopes, et al (2012) propose that education reform is still needed and questioning skills should be a component (because it can lead to critical thinking). As a guide in developing critical thinking skills in college students, teachers can turn to Bloom's Taxonomy: analysis, synthesis and evaluation (Walker & Diaz, 2003; Alshraideh, 2009; Pinkney & Shaughnessy, 2013); Paul's Socratic Method: deep probing, systemic and disciplined (Paul & Elder, 2007); or Suchman's Model: questioning and inquiry (Alshraideh, 2009). All are primarily used in the STEM fields (math and science education) with proficiency mostly limited to teachers in those disciplines.

Bloom's Taxonomy

Bloom's Taxonomy is considered one of the most widely recognized (Kracl, 2012) and used teaching and questioning techniques (Kagan, 2005). The technique is primarily used for assessing students based on their higher order thinking (Black & Ellis, 2010). Alshraideh (2009) offers a discussion of Blooms' Taxonomy as a five-step hierarchical order for thinking (comprehension, application, analysis, synthesis and evaluation). The latter three question types are geared to facilitating higher-order thinking. More specifically, "question analysis recognizes knowledge as a part of reasoning; synthesis questions call for imagination and original thinking; and evaluation questions require judgment based on self-imposed standards" (p. 59). However, there is debate as to whether students must progress through each skill in their respective order, or whether skipping steps will accomplish the desired results. Walker & Diaz (2003) support the use of 'questioning' as a teaching technique to "promote the analysis, synthesis, and evaluation levels of Bloom's Taxonomy" (p. 64); however it is used primarily for math and science education.

Paul's Socratic Method

Paul & Elder (2007) defined the Socratic Method as a "systematic, disciplined, and deep" (p. 36) questioning technique used for a variety of purposes such as solving problems and analyzing thought. For academic purposes, it can best be used to: (1) probe student thinking, and (2) help students learn and apply the technique (p. 36). It is derived from an ancient legend whereby Socrates encourages young men in Athens to "question assumptions and discern subtleties" (Pinkney & Shaughnessy, 2013, p. 346). Although used extensively in academia, its use has been concentrated in the sciences.   A key aspect of the method is the scaffolding technique, whereby "the student is given hints and additional questions are posed, to move them in a direction that generates new ideas and perspectives" (Braun, 2004, p. 234). This scaffolding process is integral to the critical thinking process (Walker & Diaz, 2003).

Paul & Elder (2007) make a strong connection between critical thinking (a tool for understanding the thought process) and Socratic questioning (using the tool to develop questions that will help aid in 'thought'). For them the goal is "to establish an additional level of thinking, a powerful inner voice of reason" (p.36). Thus critical thinking is a tool to explore reasoning, and it must be understood in order for the Socratic questioning process to be effective. Socratic questioning is also "analytical in that the whole of reasoning or thinking must be dissected into parts with questions targeted at each part" (p. 36). When teachers use the process effectively, students recognize the value of questioning and can apply it "in other classes and in other areas of their lives" (Paul & Elder, 2007, p. 37).

Suchmans' Inquiry Model

Similar to the Socratic Method, Alshraideh (2009) discusses Suchmans'
Model as focusing on "training students in questioning skills that will allow them to learn from their own knowledge and experiences" (p. 60). The teacher's role is only to assist them in using "their cognitive skills creating and answering questions" (p. 60). Thus, students become self-learners. The model (questioning and inquiry) has four steps for solving problems: (1) students should ask and think, (2) analyzing their thinking results in conscious awareness, (3) additional strategies to use, and (4) students learn to develop alternatives (p. 60-61). Alshraideh's research confirms the success of the model for accomplishing the goal of developing critical thinking skills; however it is being used mostly for in-class mathematics and science education.

The Challenge: Today's College Student

Our worlds are multifaceted, but in addition, the world of college students is filled with many contradictions. Prior to college, many have enjoyed (1) parents who told them what to do and how to do it, and (2) school teachers who told them the exact course content they needed to know (especially relative to their exams). When they arrive in this new world of freedom (college) as young adults, they

are doing, and/or (3) don't want anyone telling them what to do. However, when it comes to the education, they revert to their childhood or K-12 years and expect someone else to think for them and to be told everything they need to know (Wiersema & Licklider, 2009).   In addition, when faced with a course-related problem, they expect an advisor or counselor or teacher to solve it for them. In many cases, advisors, counselors and teachers are doing just that. However, by doing so they are impeding students from thinking for themselves, and thus are handicapping students for life.

In classrooms across the country, efforts are being made to reverse this trend by using techniques to not only teach students to 'think', but to 'think critically', like the Socratic Method, Bloom's Taxonomy and Suchmans' Inquiry Model. All employ 'questioning' techniques. Yet, unfortunately, these efforts are limited to course-specific content (education). According to the Bureau of Labor Statistics American Time Use Survey (2013), based on an average weekday (24-hour clock), full-time college students only spend 14% of their time engaged in educational activities (i.e., classes, reading, homework, etc.). Thus, attempts at present critical thinking skill development is only taking place in about 14% of a student's day.   Aside from another 36% of their time sleeping, the remainder of their time is spent mostly in leisure/sports - 16%, working and related activities - 11%, traveling - 6%, eating and drinking - 4%, and grooming – 3% with 10% of their time engaged in 'Other' activities.   Given the assumption that all activities aside from sleeping involve 'thought', 'forming conclusions', 'decision-making', 'discussion', 'argument', 'opinions', and 'debate', these are opportunities for students to practice, develop and apply critical thinking skills, especially when interacting with other students (Walker & Diaz, 2003). More importantly, the general consensus is that cognitive development is not limited to the classroom (Strauss & Terenzini, 2007). In addition, early research showed that higher-order thinking skills are dependent upon students' involvement in a wide range of experiences outside the classroom (Terenzini, Pascarella, & Blimling, 1996).   However, no one activity alone will have a significant effect; rather it is the cumulative effect of numerous activities and the more varied the better (Pascarella & Terenzini, 1991). Restricting the development of these skills to the classroom and/or educational activities overlooks other aspects of their lives (Flores, Matkin, et al, 2012), and fails to maximize learning (Strauss & Terenzini, 2007, Webberman, 2011).

Given students' 'use of time', there are clearly two dimensions to a college student's life consisting of education- and non-education-related activities. Seldom do teachers or advisors have in-depth conversations with students regarding non-education-related issues, such as relationships, health concerns, family and financial problems, or legal issues, unless they have a direct connection to education and academics. However there are advisors and teachers who feel there role is limited to the latter.   In a student-centeredculture, everyone (faculty and staff and especially tutors, advisors and counselors) must play a role in helping students, including when it comes to addressing matters that are non-education-related. This does not mean everyone (or anyone for that matter) should engage in these

discussions with the goal of telling them what to do or solving their problems. Instead, this is another excellent opportunity for the development of their critical thinking skills, so that they can successfully analyze situations, evaluate alternatives actions and solutions, and make smart decisions (Webberman, 2011).

Diagram A. Average Weekday Time Use for FT College Students
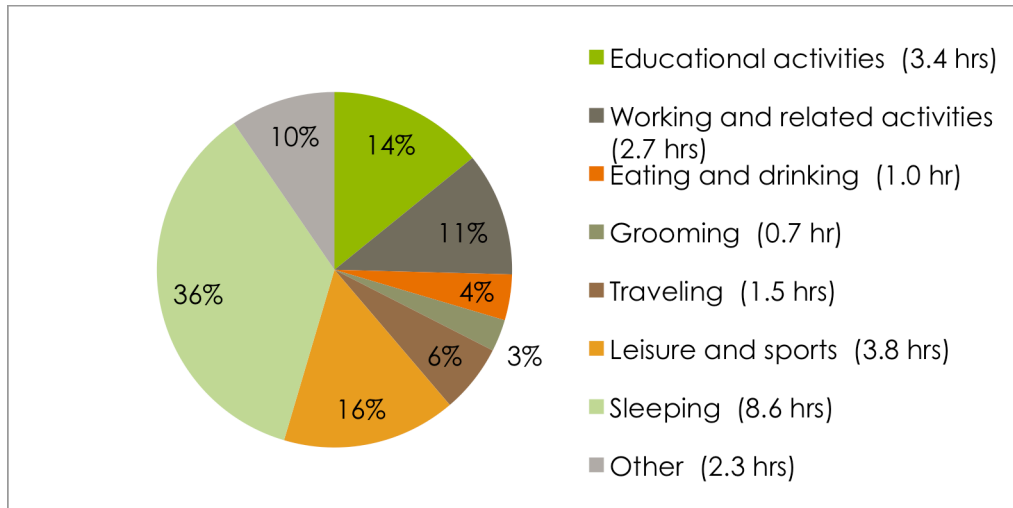
Bureau of Labor Statistics, American Time Use Study, 2008-12

THE COACHING PROFESSION

Origin and Development

As chronicled by (Davison & Gasiorowski, 2006), coaching became an independent discipline in the 70s and has since evolved into a recognized profession with a set of standards, a professional organization (International Coach Federation or ICF), and a number of training institutions. Included are also coaching models, curriculums, strategies and protocols. There is even a field of study called Coaching Psychology. Thomas Leonard is often called the founder of coaching (Richardson, 1999) and he developed the first formal coach training program called Coach University. Although great coaches require certain knowledge, skills and abilities, anyone possessing these skills can become a coach, regardless of their background. Of critical importance are excellent communication skills and the ability to ask powerful questions. To demonstrate proficiency, the coaches now pursue professional designations and credentials through one of the professional associations. Paramount to their success is a desire to help individuals develop, accomplish their personal and professional goals (Whitworth, Kimsey-House, & Sandahl, 1998), expand their possibilities, and draw upon their resources (Davison & Gasiorowski, 2006).

The Coaching Technique

Coaching is described as a tool for performance improvement in both the personal and professional lives (Davison & Gasiorowski, 2006) to help develop attitudes and skills (Whitworth, et al, 1998). Empowering others by unlocking their potential is a key coaching activity. It is accomplished by asking powerful probing questions and allowing the person to think and formulate an answer/response. If stuck, the coach can offer guidance but only by way of additional (follow-up) questions (scaffolding). The general consensus is that the more questions posed (and answered), the deeper the learning. More importantly, students will begin to mimic their teachers by asking and answering their own questions, thus developing an intentional mental thought process (Wiersema & Licklider, 2009).

As discussed by Wiersema & Licklider (2009), the focus is on the students' metacognitive awareness of their thinking rather than specific course concepts, and it is this metacognition process of "thinking about one's own thinking" (p. 123) that causes learning to occur. To be successful, students must broaden their perspective (making it different and better) by removing personal "biases, beliefs and assumptions" (Wiersema & Licklider, 2009, p. 119). This in turn will give them different and better perspectives on the issue (Moustakas, 1994). Other dimensions to coaching include reflection (Robinson & Gahagan, 2010) and self-discovery (Webberman, 2011). The framework developed by Robinson & Gahagan (2010) identifies self-assessment (gathering baseline data), reflection (interests, goals, and motivations) and goal setting (strategy) as being keys to success. Their process flows from the concept of self-authorship which is based on a strong belief system, identity recognition (Baxter Magolda & King, 2004) and self-discovery (Baxter Magolda, 2007). Given its richness, this is indeed a developmental technique worthy of embracing and one that can be easily learned.

Academic Coaching (AC) Practice

Coaching, by a myriad of titles such as executive coach, career coach, life coach, relationship coach, business coach, and leadership coach has been used extensively in the business world. Each title connotes a coach's specialty and estimates have it that there are over 100 (Davison & Gasiorowski, 2006). Thus, working in the education domain, it is appropriate that this specialty should be referred to as 'academic coaching' (AC). The profession of academic coaching evolved over the last ten years, and comes under the general heading of life and/or business coaching (both of which are under the umbrella of the ICF) (Webberman, 2011).

The totality of the academic coaching experience is explained by Carol Carter, an academic coach, in her interview with Webberman (2011). Carter defines it as "an ongoing partnership to help students produce fulfilling results in their lives" (p. 19). The core of AC is "powerful questioning, vision, and accountability"

(p. 18) and the goal is to get students to "deepen their learning, take responsibility for their actions, improve their effectiveness, and consciously create their outcomes in life" (p. 19). To truly maximize the dialogue, questions must be "specific and open-ended" (p. 19) to get the student talking. To keep the conversation going, additional follow-up and probing questions are asked until the student has thoroughly analyzed the situation, explored alternatives and reached a logical conclusion. Thus, students develop a vision for facing adversity and challenges in the future (Walker & Diaz, 2003), and learn to hold themselves accountable for their decisions (Webberman, 2011).

Faculty and staff should employ AC to address education and non-education related matters (Walker & Diaz, 2003), because the two are interrelated and interconnected (Pascarella & Terenzini, 2005), and critical thinking is important to both (Flores, Matkin, et al, 2012). Thus, any intervention must deal with the 'whole' student (Webberman, 2011). Research by Day, Kington, et al (2006) examined the personal and professional selves of teachers and concluded that both are "integral to one another" (p. 601) and, personal experiences are connected to professional performance (Goodson & Hargreaves, 1996; Acker, 1999). In addition, early research by Nais (1989) contends that we must acknowledge the personal in order to better understand the professional. Liking students to teachers, we can divide their lives into similar classifications with student as 'person' (non-education-related) and student as 'learner' (education-related). With this analogy we can conclude that the life of the 'person' is integral to that of the 'learner' and the experiences of the 'person' are linked to those of the 'learner'. Day, Kington, et al (2006) conclude that there are "unavoidable interrelationships between professional and personal identities" (p. 603) and if we truly want to understand the former, we must get to know the latter (p. 604).

In dealing with the 'whole' student, critical is the development of a "social relationship or emotional bond with the student" (Webberman, 2011, p. 18) prior to the coaching intervention, and this relationship will be enhanced as a result thereof. The effect of the academic coaching experience on matters of the 'person' (to which they spend 50% of their non-sleep time) will create an 'awaking' that can transcend to matters of the 'learner'. Therefore, when a question is asked either in- or out-of-class regarding course content, the student can skillfully employ an analytical thinking process to arrive at and articulate a well-thought out response (Walker & Diaz, 2003). Carol offers three suggestions to faculty and staff for successfully using coaching: (1) learn to formulate and apply powerful thought-provoking questions, (2) gain a commitment from students to the process, and (3) ask students to reflect on the process (what they did, how they did it, the results and areas for improvement) (Webberman, 2011,p.19). Unfortunately, making the transition to coaching may be problematic for faculty and staff due to their time constraints. Research by Daines (1986) showed that regardless of the question type, two seconds was the average wait time for students' responses. In applying AC, more time will be needed to give students time to reflect, analyze, formulate and respond. Coaches, on the other hand, have "a strong sense of value they

experience from helping others grow and develop" (Davison & Gasiorowski, 2006). For faculty and staff in higher education who share those qualities, coaching is an ideal fit.

RESEARCH METHODOLOGY

Once the Institutional Review Board application was submitted (along with an online version of the assessment to be used) and approved, volunteers were solicited from the author's Strategic Management class. The students are all seniors from various business disciplines. From the twenty who volunteered, twelve were selected (six males and six females) based on their perceived coachability. (Two students failed to complete the process thereby reducing the total participants to ten.) Each student received an official email notification of their preliminary selection for the project. For final inclusion, in that email they were asked to acknowledge via email their agreement (or disagreement) to the following conditions:

1. First be 'coachable', and willing and committed to the research project.
2. Able to devote at least 30 minutes per week to coaching either in-person or by phone.
3. Willing to set aside an hour within the next few days to take the first assessment; and an hour at the end of four weeks and the end of eight weeks for subsequent assessments.
4. Be willing to complete assignments and engage in coaching discussions and activities for critical thinking skill development.
5. Agree to sign the IRB consent form.

CCTST Assessment Instrument

The generic form of the California Critical Thinking Skills Test (CCTST) by Insight Assessment was chosen as the measurement tool and approval was granted from Insight Assessment via a one-year license to use the instrument. Thirty-six tests were purchased along with online access. CCTST is an internationally recognized critical thinking assessment of reflective thinking skills and is based on the APA Delphi consensus definition of critical thinking. This version measured Analysis, Inference, Evaluation, Induction and Deduction. Content, construct and criterion validity have been established using standard psychometric item analysis methods and item-specific protocol analyses. Each is explained in Section 7 of the CCTST User Manual. In addition, test retest reliability meets or exceeds .88. Test items use everyday scenarios in multiple choice format and range in difficulty. The number of items in the test varies but the time limit is set between 45-50 minutes. The test was administered online allowing for immediate reporting of results. Results are provided for each skill area (scale score) in addition to an overall score (34-point) and a percentile ranking (based on the overall score as compared to similar test-takers). The strength of the overall score is further grouped as:

- Superior: 24 or higher
- Strong: 19 – 23
- Moderate: 13 – 18
- Weak: 8 – 12
- Not Manifested: 0 – 7

RESEARCH OVERVIEW

Prior to the start of the actual coaching sessions, the IRB consent form was signed by each participant and the CCTST was administered as a pre-test. After the test, students received a handout explaining each of the six core CT skills: Interpretation, Analysis, Evaluation, Inference, Explanation and Self-Regulation. The handout can be found in Section 8 of the CCTST User Manual by Insight Assessment. However, the six core critical thinking skills and their consensus descriptions were taken from the actual APA Delphi research report (Facione, 1990). The research project focused on the first four areas, with Induction and Deduction reasoning incorporated into Inference. In addition, the latter two were infused within the first four (i.e., each week participants were required to explain and self-regulate their actions).

The research project covered a ten (10) week period. (Chart 1) The Pre-test provided a baseline measurement for each participant. The next four weeks consisted of one-on-one/in-person coaching sessions (one skill per week) that lasted from 30-60 minutes. In the 6th week the Mid-test was administered and results charted. All participants, regardless of whether or not they showed improvement, were given the option to continue receiving two additional weeks of coaching (covering the same four skills but with more depth) and/or continue reviewing the skills on their own. In week nine, participants took the Post-test, and in week ten, for the first time, each participant received their results. For comparison purposes, the higher of the midpoint and endpoint scores were used. It is critical that scores are not provided to participants prior to the Post-test because it could bias the research. Those who do well will try to repeat the same answers (without thinking) while those who do poorly may be discouraged and lack motivation to try harder. They will also be asked to provide feedback on the coaching process used and give a personal assessment of any changes in their critical thinking as a result thereof.   Certificates of completion were also given.

Chart 1. Research Schedule

Week 1	Weeks 2 - 5	Week 6	Weeks 7-8	Week 9	Week 10
Pre-test	Coaching	Mid-test	Additional Coaching	Post-test	Debrief

As in professional coaching, "coachees" are given assignments to complete to assist in addressing their developmental area/s. Thus, each participant was

in the CCTST User Manual. Examples of these questions can be found in Chart 3. Each assignment also included #5 which required participants to identify and reflect on what they learned from the exercise (what they did versus what they probably should have done).

Chart 3. Critical Thinking Skill Questions

Critical Thinking Skills	Examples of Reflective Questions
Interpretation	What exactly is happening? What is the best way to characterize/categorize/classify this?
Analysis	Why do you think that? What are the arguments pro and con?
Evaluation	How strong are those arguments? Do we have all our facts right?
Inference	Given what we know so far, what can we rule out? What are some alternatives we haven't yet explored?

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FINDINGS

The research on coaching for critical thinking skill development yielded some very surprising results. (Chart 4) Coaching employs a questioning technique and is quite similar to the education-related questioning techniques like the Socratic Method. Given the research in support of these techniques for improving critical thinking skills, it was anticipated that skills would improve while using the coaching technique. However, the timeframe and magnitude of the improvements were unexpected. In addition, the takeaways from this research were very valuable. In relation to the research question, the results confirm that academic coaching based on the non-education related domain can be used to improve students' critical thinking skills.

In summary, making comparisons to their pre-test (baseline) score, of the ten participants who completed the process, at the midpoint:

- Five (50%) showed an increase: #1, 2, 3, 4, 5.
- Two (20%) had no change: #6, 7.
- Three (30%) showed a decrease: #8, 9, 10.

On the other hand, in comparison to the pre-test (baseline) score, at the endpoint:

- Of the two (20%) who had no change at the midpoint (#6 & 7), both continued the coaching and showed an increase.
- Two (20%) who showed an increase at the midpoint (#4 & #5) chose to discontinue coaching, but continued reviewing the skills. One's score

- (#4) was less than at the midpoint, yet still higher that their baseline. The other (#5) continued to increase.

Chart 4. Research Findings

Participant	Pre-Test		Mid-Test		Post-Test	
	Overall	Percentile	Overall	Percentile	Overall	Percentile
1	26	94	27 (+1)	95 (+1)	NR	NR
2	16	47	20 (+4)	72 (+25)	16 (n/c)	47 (n/c)
3	15	39	18 (+3)	60 (+21)	14 (-1)	33 (-6)
4	17	53	19 (+2)	66 (+13)	18 (+1)	60 (+7)
5	13	26	16 (+3)	47 (+21)	19 (+3)	66 (+19)
6	18	60	18 (n/c)	60 (n/c)	20 (+2)	72 (+12)
7	18	60	18 (n/c)	60 (n/c)	19 (+1)	66 (+6)
8	13	26	11(-2)	14 (-12)	11 (-2)	14 (-12)
9	14	33	12 (-2)	19 (-14)	11 (-3)	14 (-19)
10	12	19	11(-1)	14 (-5)	9 (-3)	8 (-8)

- Two (20%) who showed an increase at the midpoint (#2 & 3), chose to discontinue coaching and did not continue reviewing the skills. One reverted to their baseline results while the other showed a decrease.
- The three (30%) who showed a decrease at the midpoint (#8, 9 10), all chose to discontinue coaching and did not continue reviewing the skills. They continued to show a decrease.

One (10%) who showed an increase at the midpoint (#1) chose to forego taking the test again. Therefore, the midpoint results were used.

As to the strength of the overall scores, the findings were quite significant. Of those showing improvement, comparing the baseline to the highest results (end- or midpoint):

- One (#1) continued as Superior (#1).
- Four (#2, 4, 6, 7) went from Moderate to Strong.
- Two (#3, 5) continued as Moderate.

Of the ones who did not improve,

- Two (# 8, 9) went from Moderate to Weak.
- One (#10) remained as Weak.

DISCUSSION

One thing is obvious: academic coaching can be used to improve students' critical thinking skills. However, it did not work for every participant, and over time, results were mixed. This raises several questions and observations.

1. Why did it work for some and not for others?

    • In additional to the initial coaching sessions which lasted an hour each, participants #2 & 3 used highly personal and significant life "events" like major issues involving family and friends, engaged in extensive journaling and reflection, and spent time studying the skill areas. Both showed large increases (+3).
    • In addition to the initial coaching sessions which lasted closer to ½ hour, participants #4 & 5 used more general "events" and minimal journaling, but devoted extra time to studying the skill areas. Results were a +2 and +3 respectively.
    • In addition to the coaching sessions which lasted closer to ¾ hour, participants #6 and 7 continued the coaching sessions through weeks 7 & 8, used semi-personal "events", minimum journaling but also devoted extra time to understanding the skills. Results were +2 and +1 respectively.
    • Participants #8, 9 &10 used very general "events" for their assignments, very little journaling, and spent very little time attempting to understand the skills. Thus their scores were the lowest (all decreases).

2. Why did participants who showed an increase at the midpoint show a decrease at the endpoint?

    • Participants who continued the coaching sessions, journaling, studying the skills and working on the assignments past the initial four weeks (# 6 & 7) showed increases at the endpoint, compared to those who did not.

Therefore, for success in using academic coaching to improve students' critical thinking skills, it can be concluded that the fundamental elements are:

    • Extended coaching sessions (minimum 1 hour per week for at least 3 months).
    • Extensive journaling and serious self-reflection around personal and significant life "events".
    • Continuous study of each critical thinking skill area.
    • Embedded within these results is the participant's personal commitment to improving their critical thinking skills.

Interestingly, although tests results were not positive for every participant, their self-assessment indicated that the coaching sessions were beneficial and their critical thinking skills had improved. In addition, they were applying the concepts

in their everyday lives.

CONCLUSION

Recognizing the importance of getting students to think critically, the role of "educators" in any academic setting today has to change from someone who gives answers to someone who asks thought-provoking questions (i.e., 'asking versus telling') (Wiersema & Licklider, 2009). Current techniques like Bloom's Taxonomy, The Socratic Method and Suchman's Model have an education focus and are used primarily for STEM fields. Therefore, faculty and staff outside the STEM fields may find these techniques hard to learn and use. Coaching has the potential to substantially change the postsecondary student development model. Thus, higher education can learn a lot from the coaching profession which has some basic principles and concepts that can be easily learned and successfully applied. Once students learn to employ their new critical thinking skills to address the issues faced relative to non-education matters, it will be easier for them to do the same in dealing with the more abstract education-related concepts. Thus, they will have developed a 'habit of mind' which will benefit them for life.

LIMITATIONS AND FUTURE RESEARCH

The current pilot study was limited in the number of participants and the length of the study. Future research should include a larger sample so the results can be generalized to the larger population of college students. Critical thinking stand-alone courses run for either a quarter (three months) or a semester (four months). Therefore, future studies should allow for a minimum of three months of coaching intervention to facilitate improvements and reinforce gains. In addition, a longitudinal study is needed to ascertain the effects of the coaching intervention over time.

Just as there has been a wealth of empirical research on the use of Bloom's Taxonomy, the Socratic Method and Suchman's Model, more empirical research is needed on Academic Coaching to better support its value in improving students' critical thinking skills. Numerous colleges and universities around the country are using an "academic coaching" model. However, few measure their results using a recognized critical thinking assessment tool, like The California Critical Thinking Skills Test by Insight Assessment, as an objective measure of success. Therefore, coaches in these programs who focus on critical thinking skill development should employ more objective measures (versus subjective measures), and publish their results. Academic coaches also have a responsibility to further the practice by developing and validating an academic coaching model, and in establishing "best practices" for coaching success.

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AACSB ACCREDITATION – BANG OR BUST: A STUDY OF STUDENT LEARNING OUTCOMES IN RELATIONSHIP TO INSTITUTIONAL RESOURCES

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ABSTRACT

Prior research shows that results on standardized tests are a function of student characteristics.

We contend that institutional resources have significant incremental impact on student learning outcomes. Using proxies for institutional commitment to student learning, we find evidence of a relationship between institutional support and student learning outcomes on standardized tests. Analyzing data from 2006 to 2014, we use outcomes on the Educational Testing Service (ETS) major field test in business (MFTB) for students at 473 colleges and universities from more than 900 testing events and find strong evidence that program accreditation matters. Additionally, measures such as student to faculty ratio and the number of full-time faculty are positively related to student learning outcomes. Our results are promising and indicate that institutional support in the form of program structure and institutional commitment provides added benefit that leads to better student learning outcomes.

Keywords: Accreditation, Business Education, Assurance of Learning (AoL), Institutional Resources, Major Field Test in Business (MFTB)

INTRODUCTION

A major emphasis for business schools today is on the effectiveness of student preparation. Accrediting bodies, such as the Association to Advance Collegiate Schools of Business (AACSB) and the Accreditation Council for Business Schools & Programs (ACBSP), place significant emphasis on assessment of learning outcomes. These accrediting bodies have significant influence on the curriculum and content of the business schools for which they govern. They provide guidelines for assessing institution performance in the education of their business students. These guidelines include both curriculum requirements and an assessment of student performance in relation to curriculum requirements.

We contend that accreditation is beneficial to higher education schools, especially recent AACSB standards for alignment of business program activities to the school's mission and "closing the loop" activities focused on continuous program improvement. We suggest that institutional resources at accredited institutions provide additional benefit to students. Our results show that the average score on the major field test in business *(*MFTB) is significantly higher for accredited institutions as compared to non-accredited institutions. Furthermore, we find that student learning outcomes are better for AACSB versus ACBSP accredited institutions. We believe these results are due to the structure imposed by accrediting bodies and effective use of resources at AACSB-accredited institutions. This study extends earlier research of Bycio and Allen (2007), Black and Duhon (2003), and Contreras, et al., (2011) which examine the effect of accrediting standards on the performance of students on the MFTB with a focus on institutional support in the form of program structure and institutional commitment.

RESEARCH MOTIVATION

Since 1919, the Association to Advance Collegiate Schools of Business (AACSB) has accredited collegiate degree programs in business to ensure quality and continuous improvement in business education. Today, over 700 business schools located in over 45 countries and territories have earned AACSB Accreditation. Some researchers attribute successful outcomes for these accredited institutions to AACSB standards and implementation guidelines which include strategic management standards, participant standards, and assurance of learning (AoL) standards which link the school's mission to strategic educational goals, focus resources towards achieving mission goals, and encourage continuous program improvement (Pineno, 2008). Key tenets of AACSB standards are focus on the school's mission, defined learning objectives, emphasis on faculty involvement with program development and assessment, measurement of student's skills and knowledge, and closing the loop (Miles, et al, 2004).

While the AACSB is the oldest organization dedicated to accreditation of undergraduate business programs, it is not the only one. Since 1989, the Accreditation Council for Business Schools & Programs (ACBSP) has also

accredited business programs with a focus on teaching excellence. One of the primary motivations for the founding of ACBSP was a concern that the AACSB accreditation was too focused on research. Organizers of the ACBSP felt that there was a need for an accrediting organization with concentration on teaching excellence and inclusion of 2-year institutions (Ribezzo, 1998). The mission statement of ACBSP includes a focus on continuous improvement, and the organization promotes teaching excellence as well as student learning.

Both acredidation bodies havce a mandate to implement effective programs which achieve value-added student learning outcomes. Better student performance outcomes are observed when actions to institutions are driven by their mission versus quantitative constraints (Schaniel 2000)/ This is because a missionstatement provides a clear vision for schools which aligns their actions, instructional delivery, and services to their unique purpose and values (Cole, 2002). A well-defined missino statement provides solid footing for effective program assessment (White, 2007). When schools can successfully link their mission to assurance of learning goals, performance outcomes are good; this is a great benefit for schools with special missinos (Monds, et al., 2012)

Most often standardized testing is used to meet accreditation AoL requirements (Shaftel and Shaftel, 2007). A commonly used standardized test is the Major Field Test in Business (MFTB) which is sponsored by Higher Education Assessment of the Educational Testing Service (ETS). MFTB covers foundation course content typically taught in undergraduate business programs and used by several accredited institutions to assess the value added by their accredited business program (Rotondo, 2005; Rook and Tanyel, 2009). About 27% of ETS administering institutions are ACBSP accredited; while, about 33% of ETS administering institutions are AACSB accredited.

For this study, we consider another factor which is institutional resources in the form of financial resources and instructional quality as determinants of student learning outcomes. Research on student performance outcomes indicates that quality of faculty has a significant impact on student learning and the quality of graduating students (Weldy, et al., 2008). AACSB standards include quality of faculty requirements. At AACSB accredited business schools, 50% of faculty must meet the school's defined academic qualified (AQ) requirements and 90% of faculty must meet academic qualified or professional qualified (PQ) requirements. Furthermore, these business schools must provide sufficient resources to support faculty development (AACSB International, 2003). Research productivity and research impact are often used to convey faculty quality (Cosier and LeClair, 2008). Additionally, maintaining and sustaining accreditation is costly for institutions with some AACSB schools witnessing a 5-fold increase in spending for student assessment. We suggest that accreditation standards levy a program structure on institutions which directly impacts student learning outcomes. Therefore, institutional support in the form of program structure, quality of instruction, and financial resources provides added benefit as evidenced by student learning

outcomes.

Program structure, when well-designed and implemented properly, should improve student performance. Similarly, additional financial resources are expected to provide benefits to students in the form of higher quality instructional resources, including faculty, staff, and learning environments. Therefore, we expect that:

Hypothesis 1: Accreditation will be associated with higher MFTB student outcomes.
Hypothesis 2: Lower student to faculty ratios will be associated with higher MFTB outcomes.
Hypothesis 3: The more full-time faculty, the higher the MFTB outcomes.
Hypothesis 4: The more financial resources, the higher the MFTB outcomes.

LITERATURE REVIEW

We find limited evidence on the use of MFTB or other standardized testing and accreditation. Thus, we discuss research that speaks more generally to institutional costs or benefits associated with AACSB accreditation. Some of the research is concerned with the actual costs in dollars and others indicate the cost to existing faculty when programs are new to accreditation. However, there are several papers that point to ways in which undergraduate business programs have been improved by their pursuit of approval from external accreditation agencies.

Kelley, Tong, and Choi (2010) indicate that assessment programs cost over $10,000 annually, and they document some of the costs associated with the assessment of learning component of AACSB accreditation. A survey of 49 respondents (a 16.2 percent response rate from their e-mailed surveys to deans of business schools) showed that the majority of schools have assessment budgets near $20,000. External training for faculty, at about 30 percent of the assessment budget, was a large cost for most schools. However, standardized testing instruments represented the largest portion of the budget at just over 50 percent. The authors indicated the existence of other costs for which no dollar amount has been specified, such as faculty time commitment for working on assessment related tasks and release time for some faculty. The findings confirmed that schools spend more on assessment related tasks as they get closer to their next AACSB visit.

Heriot, Austin, and Franklin (2009) provide the most detailed identification of costs associated with AACSB accreditation. They survey deans from 10 colleges and universities which received initial accreditation between 2003 and 2006. They find that the largest one-time cost for these schools is incurred because of infrastructure upgrades. Other one-time costs include peer-review team visits, mock review expenditures, and expenses for consultants. Heriot, et al., indicate that most schools considering accreditation fail to consider the recurring and increasing annual expenditures associated with the endeavor. These costs include the costs

For AACSB dues, conference participation, increased library holdings or information access, faculty professional development, technology, recruitment, and faculty salaries. An unmeasured cost is the opportunity cost associated with lost revenue from programs that were cut or reduced because their continuation might jeopardize the school's accreditation. The authors conclude that smaller teaching schools seeking initial accreditation must consider where any additional funding to maintain accreditation would come from as these schools are less likely to have the same funding sources of larger research schools.

Roberts, Groesbeck, and Johnson (2003) investigated the value of AACSB accreditation from the perception of faculty. Using 30 business schools and a sample period from 1997 to 2001, the authors surveyed faculty who were in positions prior to accreditation and those who were hired after accreditation to find their views on whether the accreditation was believed to be beneficial. The response rate for their survey was 25.25 percent. Few respondents (only 13-14 percent) disagreed or strongly disagreed with the statement that AACSB accreditation was worth the effort it took to get it or with the statement that they would recommend it to other schools. However, about one-third of respondents (approximately 28-32 percent) disagreed with the statement that accreditation benefited them or the faculty who were there prior to accreditation. The authors suggest that the main change is a shift from teaching to research activities, implying that the accreditation value may be more from image or an improvement in the ability to garner resources.

Lightbody (2010) presented the case of an Australian university seeking accreditation and gave details indicating that the AACSB requirements in place at the time of her study were not practical in Australia given the tendency for the university to be staffed by many instructors moving from practice to academia. The greatest problem appeared to be in having a sufficient number of faculty with a terminal research degree. Because the common practice in Australia was for practitioners to join faculty before getting a PhD, the AACSB standards resulted in the proportion of academically qualified faculty being too small. Moreover, many Australian instructors had no desire to get the PhD as it was not necessary for the positions they sought and not a requirement prior to the university seeking accreditation. As a result of accreditation, university officials imposed degree requirements and differentiated teaching loads for those who were academically qualified and others. The opportunities for upward mobility in faculty rank became limited for those with no interest in a terminal degree.

Several researchers, however, focus on the benefits of AACSB accreditation to students, to external stakeholders (e.g., employers), and to faculty. Kim, Rhim, Henderson, Bizal, & Pitman (1996) find that accounting graduates from schools with AACSB accounting accreditation get higher starting salaries that accounting graduates from programs that just have AACSB business accreditation. Furthermore, graduates at schools with AACSB business accreditation are paid higher than those at schools without any AACSB accreditation. Trapnell (2007) focuses on the role

of AACSB in providing external validation to stakeholders that a business school is using resources to align the actions of administrators and faculty with the business school's stated mission. Ng & Spooner (2007) praised AACSB for the mechanisms associated with developing an assurance of learning process for it was through these mechanisms that the internally developed learning goals led the faculty toward a path that they had stalled on many times before in evaluating the direction of the program within their business school. Trifts (2012) summarizes the benefits of AACSB accreditation into two improved categories: external relations and internal operations.

Brink and Smith (2012) find a higher level of resources at AACSB accredited institutions in comparison to institutions that received accreditation from other business accrediting agencies. However, they acknowledge that it is difficult to determine whether higher resources led organizations to AACSB accreditation or AACSB accreditation influenced the level of institutional resources. The authors end their paper with a call for research to investigate whether differences in quality or differences in stakeholder utility exists across the three different business accrediting agencies.

DATA AND RESULTS

We used average scores from the MFTB offered by ETS as our performance measure for student outcomes, the dependent variable in our model. This test covers understanding and knowledge of basic business concepts and principles and has been administered by 850 institutions of higher learning as of July 2014. A key variable that serves as a proxy for student ability in research on student outcomes is the score on college entrance exams. In our first analysis, we grouped all institutions administering the MFTB into quartiles on the basis of business accreditation and SAT profile. The composite SAT score is the sum of the values reported in the 2010 Carnegie Classifications dataset for the 25th percentiles on SAT Math and SAT Critical Reading tests. For institutions that only include 25th percentiles composite scores for the ACT test, we used values from the 2009 ACT-SAT concordance tables to create an equivalent SAT composite (College Board, 2009). We limited our portfolios to those schools which administer the computer-based MFTB during the sample period from 2006 to 2014 and which have a composite SAT score available. The ETS reporting system allows for comparative analyses from testing outcomes on computerized versions of three different forms.

With our interest in the impact of business accreditation, we identified whether each school was accredited by the AACSB, the ACBSP, or neither of these two accrediting bodies. After removing five institutions which indicated accreditation by both accrediting bodies, we were left with 700 universities and colleges for our univariate analysis of difference in mean MFTB outcomes. Of these institutions, 37 percent were accredited by the AACSB, 20 percent were accredited by the ACBSP, and 43 percent were not accredited by either organization as of July 2014. To control for students' ability at college entry, we use the average SAT

scores across the three different types of business accreditation institutions. This results in a final sample of 622 institutions which administered the first form, 560 institutions administering the second form, and 429 which administered the third form. Table 1 contains the data on average SAT, as well as average MFTB outcomes for the earliest form of the test (called Form CMF). No ETS analysis could be completed for portfolios with fewer than 10 observations. An analysis of variance for differences across the three samples resulted in no significant differences in mean SAT scores for the three accreditation types, as well as across the different test forms. However, tests of mean differences provide evidence of support for Hypothesis 1 because they reveal that AACSB-accredited institutions have significantly higher student outcomes on the MFTB than unaccredited institutions after controlling for entering SAT profiles. AACSB-accredited institutions have significantly higher student outcomes than ACBSP-accredited institutions in all profile groups except the second quartile for which there is no significant difference in mean MFTB outcomes. The results were similar for all test forms. We attribute this finding to value added by accreditation to student learning outcomes. Thus, we conclude that the evidence supports the hypothesis that accreditation (of any type) is associated with higher MFTB student outcomes.

Table 1: Univariate tests of differences in mean student outcomes

The sample consists of all colleges and universities that administered the Major Field Test in Business (MFTB) from 2006 to 2014 and which gave values in the Carnegie Classification Dataset allowing a composite SAT score to be computed. We separated the institutions by business accreditation and divided into quartiles on the basis of SAT scores. This table contains the results for the first computerized form of the MFTB that is available. MFTB is the average scores on the MFTB and AVGSAT is the average SAT score for the accreditation group and SAT profile.

	Low SAT	Mid-Low SAT	Mid-High SAT	High SAT
AACSB	AVGSAT = 818.6 MFTB = 149.8 N = 49	AVGSAT = 921.9 MFTB = 154.3 N = 73	AVGSAT = 988.1 MFTB = 155.6 N = 53	AVGSAT = 1090.3 MFTB = 159.6 N = 62
ACBSP	AVGSAT = 815.6 MFTB = 147.2 N = 55	AVGSAT = 920.7 MFTB = 151.0 N = 48	AVGSAT = 981.3 MFTB = 154.4 N = 26	Not enough universities to complete an analysis.
No Accreditation	AVGSAT = 815.1 MFTB = 145.9 N = 98	AVGSAT = 917.1 MFTB = 150.6 N = 94	AVGSAT = 992.0 MFTB = 153.7 N = 37	AVGSAT = 1082.9 MFTB = 152.8 N = 22

For the second analysis, we investigated the impact of institutional resources on student outcomes. We performed a multivariate analysis which includes more observations than the three portfolios in our initial analysis. Therefore, we

Reconstructed SAT portfolios using only schools with information on our proxies for institutional resources and limited portfolio size as much as possible in view of the restriction from ETS that at least 10 institutions are needed to run an analysis. We used AACSB DataDirect to collect the institutional resource data for the AACSB-accredited and some of the member organizations which have data available. These included some institutions with ACSBP accreditation and some with no accreditation. Our final sample contains 84 portfolios that include 473 U.S. universities and colleges and over 250,000 test takers. We present descriptive statistics for this sample in Table 2.

Table 2: Descriptive statistics for institutional resources sample

We constructed portfolios based on entering SAT profiles from the Carnegie Classification Dataset and on business accreditation for schools that administered the computerized form of the Major Field Test in Business from 2006-2014. We collected data on test outcomes and student demographics from the comparative institutions report using the ETS reporting system and data on institutional resources from the AACSB global listing available on their website (www.aacsb.edu).

Portfolio variables	
Number of portfolios	84
Number of schools	473
Number of school-forms	922
Number of test takers	250,870
AVGSAT, Mean SAT for 25th percentile	935.1
Independent variables, portfolio averages	
%MALE , Percent of male test takers	52.5
%BLACK, Percent of Black test takers	13.2
AACSB = 1, if AACSB schools, and 0 otherwise	
Percent AACSB-accredited	65.5
Percent ACBSP-accredited	10.7
Percent unaccredited	23.8
SFRATIO, Student to faculty ratio	20.3
FTFAC, Number of full time faculty	42.7
SBUDGET, Operating budget/enrollment	$ 2,700
Outcome variable	
MFTB, Mean MFTB outcome	152.7

The functional model for our study is *Outcome = f (gender effects, racial effects, program structure, institutional resources)* where outcome is the average student MFTB score for the portfolio. Following common approaches from prior studies on student learning outcomes, for gender effects, we used the average percentage of male test takers. We captured racial effects using the average percentage of Black test takers. This value may capture some effects of non-English speaking test takers because the demographics do not provide enough information to distinguish between African Americans and Black test takers who may be

from other countries. We used the type of business accreditation as the proxy for program structure. AACSB is equal to 1 if the school is accredited by the AACSB, and 0 otherwise. The student to faculty ratio, the number of full time faculty, and the ratio of the business school's operating budget (in thousands of dollars) to student enrollment are our proxies for institutional resources.

We present parameter estimates, standard errors, and p-values from the ordinary least squares regression of average MFTB score on the six independent variables in Table 3. The two variables from prior studies, %MALE and %BLACK, have coefficient estimates that are similar to those of earlier studies. A significant, positive coefficient (at alpha level of 0.05) for %MALE indicates that the outcome is about 16 points higher on the MFTB for each one percent increase in male test takers. A significant, negative coefficient (at alpha level of 0.01) for %BLACK indicates that the outcome is about 18 points lower on the MFTB for each one percent increase in Black test takers. For the hypothesized variables in our model, only the program structure variable (AACSB) has a coefficient which is significant at an alpha level of 5 percent or better. The other three coefficient estimates are all significant at alpha levels of 10 percent.

The regression results in Table 3 provide evidence on Hypotheses 2, 3, and 4. The coefficient estimates for student to faculty ratios (Hypothesis 2) is not significant at conventional levels (alpha level of 5 percent or better). Yet, the sign is in the expected direction. That is as student to faculty ratios go down, the MFTB score goes up (i.e., coefficient estimate = -0.079). This coefficient estimate is marginally significant, having an alpha levels of less than 10 percent (p-value = 0.07). A similar outcome is found for the outcome of the coefficient for full-time faculty (Hypothesis 3). The estimated coefficient is marginally significant (p-value = 0.06) and in the expected direction, indicating a positive relationship. As the number of full time faculty is increased, student outcomes improve with a higher MFTB score. The evidence for Hypothesis 4 is a bit stronger, but still marginal as the p-value is also approximately 0.06. The proxy for financial resources actually has a negative coefficient, so it is not in the direction expected. We find a negative relationship between student outcomes and business schools' operating budget adjusted for student enrollment. One explanation is that our variable, the ratio of operating budget to student enrollment, is capturing the effect of a growing enrollment that exceeds the spending of operating funds on mechanisms that improve learning outcomes or the lowering of admission standards to increase operating funds.

Table 3: Regression results for AACSB accredited and non-AACSB accredited institutions

The dependent variable is the average outcome on the Major Field Test in Business (MFTB) for a portfolio of schools having similar entering student SAT profiles and the same type of business accreditation. All independent variables are the average portfolio value. %MALE is the average percent of male test takers during the sample period taking the MFTB on the same form. %BLACK is the average

average percent of Black test takers taking the MFTB on the same form. AACSB is an indicator variable that equals 1 if the portfolio holds AACSB-accredited institutions and 0 otherwise. SFRATIO is the average student to faculty ratio for the business schools in the portfolio. FTFAC is the average number of full-time faculty. SBUDGET is the ratio of the operating budget to student enrollment (in \$000s).

Model: MFTB = a + b_1%MALE + b_2%BLACK + b_3 AACSB + b_4SFRATIO + b_5FTFAC+ b_6SBUDGET + e			
	Estimate	Standard error	p-value
Intercept	144.160	4.672	<0.0001
%MALE	16.427	8.419	0.0547
%BLK	-17.992	2.238	<0.0001
AACSB	4.145	0.618	<0.0001
SFRATIO	-0.079	0.044	0.0739
FTFAC	0.029	0.015	0.0609
SBUDGET	-0.026	0.013	0.0564
F value	46.78		<0.0001
Adj. r-square	0.77		

CONCLUSIONS AND LIMITATIONS

This paper examines the impact of accrediting standards on student learning outcomes as measured by the ETS major field test in business (MFTB). Unlike prior research with shows that results on standardized tests are a function of student characteristics, our study evaluates the impact of institutional support on student learning outcomes. We contend that institutional resources have significant incremental impact on student performance on the MFTB. We measure institutional support as accreditation versus non-accreditation, student-to-faculty ratio, average number of full-time faculty, and operating budget to student enrollment ratio.

We find better student learning outcomes for accredited institutions versus non-accredited institutions, with higher mean MFTB scores for AACSB accredited institutions. Furthermore, superior MFTB performance is observed for schools with lower student to faculty ratios and higher average number of full-time faculty which highlights incremental benefits to student learning outcomes from smaller class sizes, greater faculty availability and attention, and quality of faculty. However, we observe an inverse relationship between average operating funds per student

to MFTB performance which may indicate ineffective use of resources or a greater pool of low performing students.

We do not advocate that AACSB accreditation is preferred over other accreditation bodies, but rather "closing the loop" activities focused on continuous program improvement result in better student learning outcomes as measured by standardized test results. Critics of AACSB's oversight suggest its standards are too rigid and too costly for institutions to sustain. These critics contend varying levels of accreditation depending upon schools' available resources is a better approach which will enable business schools to compete against market threats from on-line education and corporate universities (Julian and Ofori-Dankwa, 2006; White, et al., 2009).

We extend research on the value added from accreditation on student learning outcomes by demonstrating that institutional resources at accredited institutions provide additional benefit to students. Our results show that institutional support in the form of program structure and institutional commitment leads to better student learning outcomes. We believe that educational institutions can benefit from further evidence on the ways in which accreditation impacts processes and outcomes. Future research should identify ways of overcoming the focus on standardized outcomes only and consider increasing sample size with data from more institutions about their resources, as well as collecting more specific data on how the operating budget is being used.

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