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# **DETEMINANTS OF ACCOUNTING STUDENTS PERFORMANCE**

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## **ABSTRACT**

*The purpose of this study is to explore determinants of accounting students' performance at the College of Business Studies at the Public Authority for Applied Education and Training in Kuwait. To accomplish this, a questionnaire was developed and distributed to second-year accounting students. The regression results show that the factors of gender, high school major, age, frequency of doing homework, participation in class discussion, engaging in peer interaction, and number of days studying before exam are significantly and positively related to students' performance in accounting. Results further reveal that high school major (scientific versus humanities) has the strongest impact on students' performance, followed by participation in class discussion. Findings of this study offer an important contribution to accounting education literature. In addition, the findings have important implications for university administrators, accounting instructors, and accounting students.*

**JEL:** M41, I23

**KEYWORDS:** Accounting, College, Students' Performance, Grade Point Average, Kuwait

## **INTRODUCTION**

**D**eterminants of students' academic performance have long received considerable attention from members of the higher education community. Alfian and Othman (2005) argue that students' academic performance should concern not only academics and educators but also potential employers, often said to be the end users of university products. Hijazi and Naqvi (2006) argue that measuring students' academic performance is a challenging task as it results from many factors. Win and Miller (2005) argue, however, that students' academic performance can be attributed to two sets of influential factors: the first set originating with the individual, that is, the student's unique combination of abilities and socioeconomic background, and the second set relating to the educational system and its patterns of imparting knowledge to university students. The focus of this study is to explore the influence of first set of influential factors, that is, the association between students' demographic background, abilities, and learning behaviors and their academic performance. Consequently, the purpose of this study is to assess student performance and the factors potentially influencing that performance among accounting majors enrolled in the College of Business Studies at the Public Authority for Applied Education and Training.

To meet the study objective, a questionnaire exploring potential factors influencing student performance was developed and distributed to accounting students; the factors explored were identified in the literature and mentioned by local accounting faculty. Ordinary least squares regression analysis was used, with the dependent variable being students' major grade point averages, which served as a proxy for academic performance in accounting. Thirteen independent variables were included in the regression model to capture the potential influence of demographics and learning behaviors on accounting students' performance.

Study findings show significant differences in academic performance among accounting students based on the factors of gender, marital status, and type of high school education. Regression results show that the factors of gender, high school major, age, frequency of doing homework, participation in class discussion, engaging in peer interaction, and number of days studying before exam are significantly and positively related to students' performance in accounting. Results further reveal that high school major (scientific versus humanities) has the strongest impact on students' performance, followed by participation in class discussion. The findings of this study make an important contribution to the accounting education literature. In addition, the study findings have important implications offer important information to university administrators, accounting instructors, and accounting students.

The remainder of this paper is organized as follows: Section 2 briefly reviews prior studies related to determinants of academic performance. Section 3 describes the data used and the methodology followed. The results and discussion are presented in Section 4. Section 5 outlines the main conclusions, contributions, and implications drawn from this study.

## RELATED LITRATURE AND BACKGROUND

Improvement in student performance has always been a central goal of the education community and a top priority of educators. To this end, several studies have attempted to empirically determine factors associated with student success and performance in higher education (Al-Tamimi and Al-Shayeb, 2002; Kirk and Spector, 2006; Al-Twajjry, 2010, Maksy and Zheng, 2010; Vealing and Baker, 2011). Hijazi and Naqvi (2006) claim that students' academic performance is a product of socioeconomic, psychological, and environmental factors. Harb and El-Shaarawi (2007) examine this issue empirically among business majors in the UAE and find that students who participate in class discussions and those on leave outperform other students. In addition, they find the factor that most negatively affects students' performance is missing too many lectures.

In Australia, Win and Miller (2006) examine factors that influence university students' academic performance, focusing on student background and school factors. Their study shows that high schools influence the academic performance of students at university apart from students' personal background characteristics. Similarly, in the Caribbean region, Cheesman et al. (2006) investigate determinants of students' university performance. They identify five factors as important determinants of performance, namely, gender, enrollment status, faculty of study, on campus versus off campus residence, and whether the student did or did not apply for financial assistance.

Using Turkish data, Erdem et al. (2007) empirically explore which socioeconomic and demographic factors impact students' academic performance. Their study findings show that factors such as the type of high school graduates, gender, number of sisters/brothers in school, education level of parents, expression of family expectations about the school, and study time impact students' performance.

Based on Malaysian data, an examination by Ali et al. (2009) of factors influencing students' performance finds that four factors are positively related to such performance: students' demographics, active learning, students' attendance, and involvement in extracurricular activities; course assessment was found to be negatively related to students' performance. Al-Rofo (2010) observes that the most significant reason for poor academic performance is studying a specialization against students' desires. Alfian and Othman (2005) examine the performance of business and accounting students in Malaysia and find that mathematical knowledge obtained prior to entering university is crucial in promoting students' performance. Al-Twajjry (2010) attempts to identify potential factors that possibly affecting accounting student's performance in Saudi Arabia. The study results suggest that mathematical skills have a significant impact on students' performance. In addition, the study show that the load of weekly

registered hours has no negative impact on the student performance. In contrast to Al-Twajry (2010), Al-Tamimi & Al-Shayeb (2002) conclude that semester load of student have a significant influence on student performance whereas skills in mathematics have no impact on the student performance.

Although previous studies have shown the potential factors likely to influence students' academic performance in general, to our knowledge, there is no study examining factors that influence accounting students' performance in Kuwait. Motivated by the lack of research on this issue in Kuwait, the objective of this study is to investigate this issue empirically among students majoring in accounting in Kuwait.

## **DATA AND METHODOLOGY**

### The Instrument

The aim of this paper is to investigate factors likely to influence accounting students' performance. For this purpose, prior research in the area of academic performance was reviewed to construct a questionnaire to explore factors that may influence academic performance. The questionnaire consists of two parts. Part 1 contains five questions obtaining demographic data and other background information about students. Part 2 contains nine questions assessing students' academic behavior based on a five-point Likert scale, with student answers ranging from "highly agree" to "highly disagree." The questionnaire content was validated by four faculty members of the Public Authority for Applied Education and Training. The pilot study found that students easily understood the questions and had no difficulty in completing the questionnaire in a reasonable period of time. To assess the reliability and internal consistency of the questionnaire, Cronbach's alpha test was used. According to Nunnally (1978) and DeVellis (2003), a Cronbach's alpha coefficient of 0.7 or higher is considered acceptable by most social science researchers. In the current study, the Cronbach's alpha coefficient was 0.79, indicating reliability of the scales used.

### Data Collection

The population used in this study is comprised of students majoring in accounting at the College of Business Studies at the Public Authority for Applied Education and Training in the fall semester of 2011–2012. To ensure that only accounting majors were surveyed, the questionnaire was distributed in classes only offered to second-year accounting majors. The questionnaire was administered by the researchers during accounting lectures. Three hundred and fifty questionnaires were distributed in 13 various accounting classes offered only to second-year students majoring in accounting. Of the 350 questionnaires administered, 282 responses were considered appropriate for statistical analysis.

### Statistical Analysis Methods

Data collected from the questionnaire were analyzed using quantitative methods. Descriptive statistics, independent sample t-tests, and multiple regression analyses were used to identify the relative importance of factors likely to influence accounting students' performance. Ordinary least squares regression analysis was used, with the dependent variable being the students' major grade point averages (MGPA), as a proxy for academic performance. Thirteen independent variables were included in the regression model to capture the potential influence of demographics and learning behaviors on accounting students' performance. The regression model is as follows:

$$\text{MGPA} = \beta_0 + \beta_1 (\text{Gender}) + \beta_2 (\text{Marital Status}) + \beta_3 (\text{High School Major}) + \beta_4 (\text{Age}) + \beta_5 (\text{Homework}) + \beta_6 (\text{Taking Notes}) + \beta_7 (\text{Participation}) + \beta_8 (\text{Peer Interaction}) + \beta_9 (\text{Office Hours}) + \beta_{10} (\text{Studying before Exam}) + \beta_{11} (\text{Studying Hours}) + \beta_{12} (\text{Days of Absence}) + \beta_{13} (\text{Advisor}) + \varepsilon \quad (1)$$

**Where**

Gender	=	Gender of student (male vs. female)
Marital Status	=	Marital status of student (single vs. married)
High School Major	=	Type of high school education (scientific vs. humanities)
Age	=	Student age
Homework	=	How often do you do your homework?
Taking Notes	=	How often do you take notes in class?
Participation	=	How often do you participate in class discussion?
Peer Interaction	=	How often do you engage in peer interaction?
Office Hours	=	How often do you ask instructor questions during office hours?
Studying before Exam	=	How many days before exam do you start studying?
Hours in Study	=	How many hours do you study per week?
Days of Absence	=	Number of days of absence during a semester?
Advisor	=	How often do you consult your advisor?

**RESULTS AND DISCUSSION**

Table 1 provides a description of students’ demographics. It shows that the sample population was comprised of 120 males (42.6%) and 162 females (57.6%). Among the total of 282 students, only 40 (14.2%) were married as compared with 242 (85.8%) unmarried. Table 1 shows that 212 students (75.2%) majored in humanities in high school, while only 70 students (24.8%) had a scientific major in high school. Table 1 presents the frequency distribution of student accounting majors’ GPAs. It shows that 32.3% of students attained a GPA below 2.00, whereas 22% of students attained a GPA between 2.00 and 2.49. Also, 38.7% of the student sample attained a GPA between 2.5 and 3.5. Only 7% of the students surveyed attained a GPA above 3.50. In addition, Table 1 shows that 78.4% of the students surveyed were between 18 and 23 years old, 8.9% were between 24 and 26 years old, and 12.7% were 27 years or older.

Table 1: Characteristics of Sample Student Population

<b>Variable</b>	<b>Frequency</b>	<b>Percentage</b>
Male	120	42.6
Female	162	57.4
<i>Total</i>	282	100
<b>Marital Status</b>		
Single	242	85.8
Married	40	14.2
<i>Total</i>	282	100
<b>Type of High School Education</b>		
Scientific	70	24.8
Humanities	212	75.2
<i>Total</i>	282	100
<b>Accounting Major GPA</b>		
Below 2.00	91	32.3
2.00–2.49	62	22.0
2.50–2.99	60	21.3
3.00–3.50	49	17.4
Above 3.50	20	7.0
<i>Total</i>	282	100
<b>Age</b>		
18–23	221	78.4
24–26	25	8.9
Above 26	36	12.7
<i>Total</i>	282	100

*This table shows the characteristics of sample student population investigated in the study.*

Table 2 provides the results of t-tests conducted to determine whether there were significant differences between students’ demographic backgrounds and academic performances.

The results presented in Table 2 shows that significant ( $p < 0.01$ ) gender differences exist in academic performance, as female students academically outperform male students. This could be partially attributed to the fact that female students are less socially active in the Kuwaiti environment and thus have more time to study as compared with male students. In addition, Table 2 shows a significant ( $p < 0.01$ ) difference in academic performance between single and married students, as married students academically outperform single students. This finding may indicate that married students take their studies more seriously than single students. Furthermore, Table 2 shows a significant ( $p < 0.01$ ) difference in academic performance between students with a scientific background and a humanities background, as students with a scientific background perform better than students with a humanities background. This finding could be partially explained on the grounds that students with a scientific background tend to take more and higher-level mathematics classes in high school, which likely helps them perform better in accounting classes.

Table 2: T-test for Differences among Sample Characteristics with Respect to Academic Performance

Category	Variable	Mean	Standard Deviation	T-value	Significant Level
<i>Gender</i>	Male	2.12	0.68	6.30	***
	Female	2.64	0.71		
<i>Marital Status</i>	Single	2.35	0.71	3.35	***
	Married	2.84	0.83		
<i>Type of High School Education</i>	Scientific	3.08	0.69	9.47	***
	Humanities	2.19	0.63		

*This table shows the differences among the sample characteristics with respect to academic performance. \*\*\* indicates significant at 0.01 level.*

Table 3 provides the means and standard deviations of nine factors likely to influence accounting students' performance (on a five-point Likert scale). Among the nine factors, doing homework ( $M = 3.64$ ) and taking notes during class ( $M = 3.60$ ) were the most influential on students' performance in accounting. In contrast, consulting an academic advisor ( $M = 1.95$ ) had the least influence on students' performance in accounting. Table 4 present Pearson's correlations among the independent variables. The correlation matrix presented in Table 4 shows that no pair-wise correlation coefficient exceeds 0.8, suggesting that multicollinearity is unlikely to be a serious problem in interpreting the multiple regression results (Gujarati, 2003; Kennedy, 2003).

Table 3: Means and Standard Deviations of Factors Contributing to Academic Performance

Factor (n = 282)	Mean	Standard Deviation
Doing Homework	3.64	1.19
Taking Notes during Class	3.60	1.29
Participation in Class	3.27	1.13
Engagement in Peer Interaction	2.99	1.17
Asking Questions during Office Hours	2.84	1.31
Days Studying before Exam	2.66	1.16
Studying Hours per Week	2.60	1.06
Days of Absence	2.23	0.88
Consulting an Academic Advisor	1.95	1.14

*This table shows the means and standard deviations of factors contributing to academic performance.*

Table 5 shows that the multiple regression model is highly significant ( $p < 0.000$ ,  $F = 31.620$ ). Factors identified as likely influencing accounting students' performance in this study explain about 59% of the association between students' performance in accounting and the potentially influential factors. According to the regression results presented in Table 5, the gender ( $p < 0.05$ ), school major ( $p < 0.01$ ),

age ( $p < 0.05$ ), homework ( $p < 0.01$ ), participation ( $p < 0.01$ ), peer interaction ( $p < 0.10$ ), and studying before exam ( $p < 0.10$ ) variables are significantly and positively related to students' performance in accounting.

Table 4: Bivariate Correlations among Independent Variables

Variable	A	B	C	D	E	F	G	H	I	J	K	L	M
Gender (A)	1												
Status (B)	.23**	1											
Major (C)	-.18**	-.24**	1										
Age (D)	.01	.36**	-.23**	1									
Work (E)	.41**	.23**	-.30**	.19**	1								
Notes (F)	.45**	.18**	-.26**	.24**	.64**	1							
Part. (G)	.23**	.22**	-.39**	.27**	.59**	.56**	1						
Peer (H)	.31**	.15*	-.26**	.22**	.66**	.65**	.57**	1					
Office (I)	.31**	.19**	.27**	.25**	.51**	.50**	.48**	.52**	1				
Exam (J)	.29**	.20**	.23**	.24**	.50**	.53**	.49**	.50**	.43**	1			
Absence (K)	-.01	.09	.15**	-.05	-.37*	-.30**	-.33**	-.31**	-.24**	-.27**	1		
Advisor (L)	.05	-.02	-.17**	.14	.19**	.13*	.24**	.29**	.27**	.46**	-.05	1	
Hours (M)	.09	.20**	-.33**	.34**	.43**	.32**	.51**	.40**	.37**	.18**	-.14*	.25**	1

This table shows the bivariate correlations among independent variables. \*, \*\*\*, indicate significant at the 0.05, and 0.01 levels respectively (two-tailed).

Table 5: Multivariate Regression Analysis Results

Variable	Unstandardized Coefficient		Standardized Coefficient	t-statistic	Significant
	B	Std. Error	Beta		
Intercept	1.152	0.288		3.994	***
Gender	0.144	0.069	0.096	2.077	**
Marital Status	0.106	0.095	0.050	1.123	
School Major	0.450	0.075	0.261	6.038	***
Age	0.019	0.008	0.107	2.412	**
Homework	0.123	0.039	0.196	3.137	***
Taking Notes	0.036	0.035	0.061	1.017	
Participation	0.138	0.038	0.207	3.592	***
Peer Interaction	0.069	0.037	0.108	1.843	*
Office Hours	0.007	0.028	0.013	0.259	
Studying before Exam	0.055	0.032	0.085	1.695	*
Studying Hours	0.051	0.035	0.072	1.467	
Days of Absence	0.026	0.037	0.030	0.701	
Advisor	0.033	0.027	0.051	1.221	
N		R <sup>2</sup>	Adj.R <sup>2</sup>	F-statistic	p-value (F-statistics)
	282	0.605	0.586	31.620	0.000

This table shows the multivariate regression analysis results. Student Performance =  $\beta_0 + \beta_1$  (Gender) +  $\beta_2$  (Marital Status) +  $\beta_3$  (High School Major) +  $\beta_4$  (Homework) +  $\beta_5$  (Taking Notes) +  $\beta_6$  (Participation) +  $\beta_7$  (Peer Interaction) +  $\beta_8$  (Office Hours) +  $\beta_9$  (Studying before Exam) +  $\beta_{10}$  (Studying Hours) +  $\beta_{11}$  (Days of Absence) +  $\beta_{12}$  (Advisor) +  $\epsilon$ , \*, \*\*, \*\*\* indicate significant at the 0.1, 0.05, and 0.01 levels respectively.



In comparing the impact of the identified factors influencing academic performance, the standardized coefficient beta presented in Table 5 reveals that school major (scientific vs. humanities) has the strongest impact on students' performance, followed by participation. In contrast, asking during office hours has the least impact on students' performance.

## **CONCLUSION**

The purpose of this study is to explore the determinants of accounting students' performance at the College of Business Studies at the Public Authority for Applied Education and Training in Kuwait. To meet this aim, a questionnaire exploring factors that potentially influence academic performance was developed and distributed to 350 second-year accounting majors in the fall semester of 2011–2012. Of the 350 questionnaires administered, 282 responses were considered appropriate for statistical analysis. Ordinary least squares regression analysis was used, with the dependent variable being the student major grade point average (MGPA), as a proxy for academic performance. Thirteen independent variables were included in the regression model to capture the potential influence of demographics and learning behaviors on accounting students' performance. The results show significant differences in academic performance among accounting students based on factors of gender, marital status, and type of high school education.

Two main conclusions and implications could be drawn from the regression analyses. First, a scientific major in high school is associated with the strongest positive impact on student performance in accounting. The finding that students with a scientific background outperform humanities students is not particularly surprising given their stronger preparation in mathematics as compared with humanities students. This finding may suggest that mathematics skills are essential in promoting the performance of accounting students. Consequently, this finding suggests that providing some mathematics courses to humanities majors prior to taking accounting classes may improve their performance in accounting. This finding has important implications for accounting curriculum setters, suggesting that incorporating mathematics course prerequisites for high school students majoring in humanities might bridge the mathematical deficiency observed among such students who later major in accounting. Second, the findings show that students who actively participate in class and engage in peer interaction are associated with a stronger academic performance in accounting. This highlights the importance of communication skills in academic performance. Consequently, active interaction between instructors and students may likely promote participation in class and peer interaction among students outside the class, which will likely improve academic performance. An implication of this finding is that in order to enrich the learning environment and improve students' performance, accounting instructors should alter their teaching methods in ways that foster active discussions and encourage students' participation in class discussions.

To better understand determinants of students' academic performance in accounting, future research could explore more variables likely to influence students' performance, such as instruction styles and methods or students' personality characteristics. In addition, qualitative research in this area could complement the quantitative research undertaken in this study to provide more comprehensive insights into the determinants of students' academic performance in accounting.

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## STUDENT ETHICAL AWARENESS AS AFFECTED BY GENDER AND GRADE POINT AVERAGE

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### ABSTRACT

*An ethics survey of business students was conducted over a nine-semester period in a variety of business courses at a regional state university in the Midwest. The university's business program has adopted an across the curriculum approach to ethical instruction and has mandated a one-semester ethics course for all business majors. The purpose of the study was to determine if gender or academic success, as measured by cumulative grade point average, affects ethical awareness scores. The results of the survey revealed that students who had completed the one-semester ethics course achieved higher ethical awareness scores than those who had not. Although no correlation between class level and ethical awareness was discovered, gender appeared to have a limited impact on ethical awareness. While all students demonstrated a significant increase in ethical awareness after completing the ethics course, the demonstrated increase in awareness was stronger for females. Finally, the survey revealed that both high and low GPA students demonstrated increased ethical awareness after completing the ethics course. This suggests that a stand-alone ethics course does improve ethical awareness for all students and that the benefit is not limited to females or high GPA students.*

**JEL:** I21

**KEYWORDS:** Ordered Logit Model, Student Ethical Awareness

### INTRODUCTION

There is a longstanding controversy over whether business ethics can be taught, and if so, what methodology is most suitable to the task. Some argue that, desirable as sound business ethics may be, it simply cannot be taught in the classroom (Stape, 2002). Business ethics has been caustically referred to as being an oxymoron (Townley, 1992) and, during the 1970's and 1980's, writers as influential as Peter Drucker and Milton Friedman argued that it cannot be taught at all (Nguyen *et al.*, 2008). A study dealing with attitudes towards unethical behavior, Machiavellianism, and tolerance for risk identifies business students as being more likely to engage in unethical behavior than psychology students (Tang *et al.*, 2008). The authors posit that corruption and scandals are caused, not by lack of intelligence, but by lack of wisdom or virtue. They also argue that social institutions, as well as business schools, CEO's, corporate culture, and compensation systems have significant impacts on managers' ethical behavior. This corroborates earlier studies, which suggest that organizational culture and other organizational factors, which occur after formal education, play a major role in shaping the way individuals perceive moral responsibility (Frederick and Weber, 1987; Kelley *et al.*, 1989). Similarly, Awash (2008) conducted a study, which revealed that exposing students to a business ethics course influenced their managerial judgment and managerial intent, but did not directly influence moral judgment. However, the literature questioning the efficacy of teaching business ethics does not recommend abandonment of the discipline, nor does it condemn it as useless. For example, Tang *et al.* (2008) recommend that schools, organizations, and society as a whole need to work together to promote ethical behavior. In the initial portion of this study, the authors surveyed undergraduate business students to determine whether they demonstrate an increase in ethical awareness as they progress through the program and complete a required course in business ethics. The initial study was conducted over a five-semester period from spring 2008 through

spring 2010 at a regional state university in the Midwest, with students sampled from courses in accounting, economics, finance, and entrepreneurship. In addition to requiring a one-semester business ethics course, the business program has adopted an across the curriculum approach to ethical instruction. The objective of the original study was to test the hypothesis that students completing required business courses have higher ethical awareness scores than students who have not completed the business courses. The data used to test the hypothesis was obtained from surveys that asked students to rank the degree to which they believed an ethical issue was associated with a particular situation. The responses were then analyzed using an ordered logit model to determine what variables significantly affect student ethical awareness (Altmyer *et. al.*, 2011). The results were somewhat surprising. The findings illustrated modest support for the premise that students who completed an ethics course were more ethically aware. However, the completion of the ethics course significantly affected ethical awareness only as measured by the questions relating to individual situations, and not for those relating to business situations. Furthermore, there appeared to be no correlation between class level and ethical awareness. Thus, business students understanding of ethical awareness did not significantly improve as they progressed toward graduation.

Additionally, the study revealed that students who performed better academically, as evidenced by a higher GPA, had higher ethical awareness scores relative to individual situations. In addition, female students showed higher ethical awareness scores in both individual and business situations than their male counterparts. Overall, in the initial study, it appeared that most of the differences in ethical awareness between students were the result of factors unrelated to the curriculum, although a stand-alone ethics course did appear to have a modest impact (Altmyer *et. al.*, 2011). The results suggested that further research of the relationship between gender, GPA, and ethical awareness might prove a useful addition to the literature. The findings also appeared to imply that further research is needed to determine more effective ways to teach ethics. Therefore, a continuation of the study was initiated over a four-semester period from the fall of 2010 through the spring of 2012. The results of the expanded study are reported in this paper. The revised study adds several contributions to the original analysis. First, the current study finds a stronger link between ethical awareness and completion of the stand-alone ethics course. Beginning with the fall semester of 2011, the lecture sections of the ethics course were changed to a hybrid format comprising a mix of lecture and online delivery.

Although not conclusive from the data, perhaps the revised delivery method is more effective. Other studies suggest hybrid courses are more effective than pure lecture versions of the same course (i.e., Chan, 2011; Jones and Chen, 2008), although the research is not conclusive (Keller *et.al*, 2009). Second, the current study examines the effectiveness of the ethics course across genders. The results suggest both male and female students experience a significant increase in ethical awareness following completion of the ethics course. However, the response is stronger for females, perhaps partly explaining the higher level of ethical awareness experienced by females in general. Third, the current study examines whether the benefits of taking the ethics course depend on GPA. Surprisingly, both high and low GPA students demonstrate an increase in ethical awareness following completion of the ethics course. Overall, the current study suggests that a stand-alone ethics course does improve ethical awareness, and that this improvement is not limited to females or high GPA students. The paper is organized as follows: Section 2 provides a literature review, section three presents the data and methodology, section 4 discusses the empirical results, and the conclusion is presented in section 5.

## LITERATURE REVIEW

There is a large body of literature indicating a positive correlation between teaching business ethics and changing student awareness of ethics in business. A study examining undergraduate student learning in business ethics, particularly ethical judgment, indicated that the more students learn about contractualism ethics the less likely they are to engage in unethical behavior (Nguyen *et. al.*, 2008). Research also suggests that moral development continues during the college experience and that knowledge gained during this

experience has a positive correlation to moral development (King and Mayhew, 2002; Williams and Dewett, 2005). In addition, while commenting on Williams and Dewitt's work as part of their own study, Cox *et al.* (2009) state that their review of the business ethics literature indicates "business ethics education can be effective in increasing students' awareness of moral issues, promoting students' moral development, and promoting students' ability to handle complex ethical decision making." In a work dealing with the subject of teaching ethics, Gilbert (1992) stated that exposure to business ethics is necessary in order to increase student's awareness of the ethical components of business situations as well as to improve their ethical reasoning.

Klugman and Stump (2006) posit that teaching ethics enhances student's critical reasoning and therefore makes them better able to effectively deal with ethical dilemmas. Langan (1990) went so far as to state that exposure to business ethics courses prepares students to face ethical dilemmas in the workplace by broadening their knowledge base relative to business ethics, which in turn increases their analytical reasoning skills. Finally, Falkenberg and Woiceshyn (2008), while acknowledging a trend toward required ethics instruction in schools of business, state that the inclusion of business cases can facilitate the development of deductive, inductive and critical reasoning skills. A study involving undergraduate students demonstrated that the more students learn about ethics the less likely they are to report that they would engage in unethical behaviors as depicted in scenarios presented to them (Nguyen *et al.*, 2008). Furthermore, research supports a link between changing ethical mores and educational accomplishments (Gundersen *et al.*, 2008). As individuals progress through different levels of cognitive moral development, their ability to deal with ethical dilemmas improves (Christensen and Kohls, 2003; Goolsby and Hunt, 1992; Kohlberg, 1969). As a result, a pattern of increasing ethical standards should develop as individual's progress educationally (Gundersen *et al.*, 2008). Research has also linked business ethics education with changing student attitudes towards ethics in general, as well as with improving their understanding of the complexity of ethical decision-making (MacFarlane, 2001). A statistical analysis of responses from 175 students who were pursuing master's degrees in business supported the hypothesis that a comprehensive course with an ethical focus mitigated bias in judging the ethical standing of others (Cloninger and Selvarajan, 2010).

It is generally agreed that ethics can and should be taught across the curriculum, and many believe such across the curriculum programs to be effective in developing student's moral standards (Gundersen *et al.*, 2008). Some have concluded that integration of ethical education across the curriculum is not possible in the short term without the inclusion of a stand-alone ethics course (Driscoll and Finn, 2005). However, as described by Cox *et al.* (2009), much of the support for across the curriculum efforts is based on anecdotal evidence. Furthermore, several studies cast doubt on the effectiveness of ethics instruction (Cole and Smith, 1995; Wynd and Maget, 1989). There are various rationale advanced for the belief that ethics cannot, or should not, be taught in schools of higher education. Kultgen (1988) suggests that efforts at ethical instruction are better left to institutions outside higher education. He suggests that the family or religious institutions are more adept at ethical instruction and the development of individual moral values. Others, like McDonald and Donleavy (1995) and Bishop (1992), suggest that many schools give only lip service to the teaching of ethics because they have adopted such programs for appearances sake only. They conclude that such programs are therefore ineffective. Our continuation of this study attempts to gather additional data to clarify the link between ethics instruction in higher education and student awareness of ethical issues.

## **DATA AND METHODOLOGY**

The original data for this study came from a classroom survey taken by students attending a regional state university. The survey was conducted in undergraduate classes that were delivered either in the traditional lecture classroom or via the internet during the semesters of spring 2008, fall 2008, spring 2009, fall 2009, and spring 2010. Following the publication of the initial results, the study was expanded to include the

semesters of fall 2010, spring 2011, fall 2011, and spring 2012. Students completing the survey were business and non-business majors taking courses in accounting, economics, finance, or entrepreneurship as part of the general education, business core, or business specialization requirements. Students were instructed to complete the survey only once in the event that they failed the course the first time or received the survey in another business course. The survey respondents were asked questions concerning gender, year in college, cumulative grade point average, major, and completion of the business ethics course. The questionnaire also measured ethical awareness associated with personal situations and business situations. Table 1 provides the list of questions as well as sample statistics for each question, and Table 2 reveals the correlations between questions.

Table 1: Survey Summary Statistics (N=737)

Variable	Description	Distribution*
<b>Individual Situations</b>		
Q1	In preparing your income taxes, you claim charitable deductions that are not valid.	1-4.48%; 2-4.48%; 3-7.73%; 4-23.34%; 5-59.97%
Q2	You use your computer at work for personal reasons such as shopping online.	1-6.92%; 2-18.45%; 3-19.27%; 4-35.28%; 5-20.08%
Q3	You tell a potential buyer of your used car that it gets 30 mpg, but in reality, the car gets less than 25 mpg.	1-4.34%; 2-6.24%; 3-8.14%; 4-35.28%; 5-46.00%
Q4	You download music free off the internet.	1-9.77%; 2-17.64%; 3-19.81%; 4-29.72%; 5-23.07%
Q5	You give a store clerk \$20 to change and she gives you change for \$30 and you keep the extra money.	1-4.88%; 2-6.78%; 3-6.92%; 4-24.15%; 5-57.26%
QIS	Sum of Q1 through Q5	Mean = 19.46, Std. dev. = 4.15
<b>Business Situation</b>		
Q6	A job candidate was rated poorly and would never be considered for a position with your company but you tell her that you will hang onto her resume and consider her for future job openings.	1-9.91%; 2-29.31%; 3-27.82%; 4-22.93%; 5-10.04%
Q7	You smell alcohol on a valuable employee's breath after his lunch hour. Company policy requires termination for drinking on the job. Instead, you give him a verbal warning and tell him never to be caught again.	1-4.34%; 2-15.47%; 3-20.35%; 4-34.19%; 5-25.64%
Q8	You fill a job in your department with someone you personally pick rather than posting the position for all employees to see.	1-4.61%; 2-12.48%; 3-24.56%; 4-30.53%; 5-27.82%
Q9	You make copies of copyrighted materials and distribute them in a business meeting.	1-5.43%; 2-10.18%; 3-23.47%; 4-28.49%; 5-32.43%
Q10	Your boss calls from out of town and instructs you to forge his signature on a purchase order and bring it to the purchasing manager for processing.	1-6.11%; 2-17.64%; 3-21.57%; 4-26.05%; 5-28.63%
QBS	Sum of Q6 through Q10	Mean = 17.45; Std. dev = 3.72
QTS	Sum of QIS and QBS	Mean = 36.92; Std. dev = 6.96

*This table shows the description of each of the questions contained in the survey and the distribution of the responses to each of the questions. \*Coding applied to all survey questions is as follows: 1-Definitely not an ethical issue; 2-Probably not; 3-Maybe (not sure); 4-Probably; 5-Definitely an ethical issue.*

Table 2: Spearman Rank Correlation Matrix

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Q1	1.00									
Q2	0.37	1.00								
Q3	0.54	0.39	1.00							
Q4	0.23	0.33	0.31	1.00						
Q5	0.53	0.39	0.57	0.33	1.00					
Q6	0.07	0.17	0.19	0.24	0.21	1.00				
Q7	0.18	0.30	0.23	0.27	0.30	0.29	1.00			
Q8	0.25	0.29	0.32	0.22	0.35	0.18	0.29	1.00		
Q9	0.39	0.33	0.35	0.31	0.33	0.17	0.26	0.32	1.00	
Q10	0.21	0.22	0.21	0.23	0.24	0.13	0.28	0.25	0.35	1.00

*This table shows the correlation between any two questions contained in the survey. The closer the number to one results in more correlation between the two questions.*

Table 3 summarizes the characteristics of the respondents. The explanatory variables include the student's class level (Year), cumulative grade point average (GPA), whether or not the students major is business



(Business), gender (Gender), and whether or not students have completed the Business Ethics class (Ethic). In total 784 students were surveyed, 737 of which produced valid questionnaires. The majority of the respondents were majors in business (approximately 77 percent), and nearly three-quarters were in their junior or senior year. As business ethics was only recently added as a requirement in the college, only 27% had completed this course at the time of the survey.

Table 3: Demographic Summary Statistics (N=737)

Variable	Description	Distribution (%)	Coding
<b>Year</b>	1. Freshman	9.50	As described
	2. Sophomore	20.49	
	3. Junior	33.51	
	4. Senior	36.50	
<b>GPA</b>	Cumulative Grade Point Average		As described Mean = 2.98 Std. dev. = 0.49
<b>Business</b>	0 if non-business major	22.93	As described
	1 if business major	77.07	
<b>Gender</b>	0 if female	45.05	As described
	1 if male	54.95	
<b>Ethic</b>	0 if not taken Business Ethics Class	72.86	As described
	1 if completed Business Ethics Class	27.14	

*This table shows the demographic statistics of the respondents whose completed surveys are utilized in the study.*

Given the discrete, ordered, and multinomial nature of the survey data, the responses of the ethical awareness survey were modeled using an ordered logit model. It is assumed that the error term,  $\varepsilon_i$ , follows a logistic distribution (an assumption that  $\varepsilon_i$  are normally distributed would result in an ordered probit model). Further, the model was used to evaluate the factors that influence the degree of ethical awareness, which may be modeled as a linear function of the observable explanatory variables,  $x_i$ , and unobservable factors,  $\varepsilon_i$ , according to Greene (2003) as:

$$y^* = x_i\beta_i + \varepsilon_i \tag{1}$$

where  $y^*$  is a continuous latent variable which is not observable, given that the respondents are only provided with  $j$  possible choices and will choose the one that best reflects the degree of their ethical awareness regarding the respective situation. The respondent's ethical awareness concerning each situation can be segregated into thresholds  $\alpha_j$ , where  $j = \{1, 2, 3, 4, 5\}$ . Each student ranked his/her ethical awareness by classifying their response to each situation as definitely not an ethical issue, probably not an ethical issue, maybe an ethical issue, probably an ethical issue, and definitely an ethical issue. Hence, we observe:

$$\begin{aligned}
 y_i = 1 \text{ (definitely not an ethical issue)} & & \text{if } y_i^* \leq \alpha_1 = 1 \\
 y_i = 2 \text{ (probably not an ethical issue)} & & \text{if } \alpha_1 < y_i^* \leq \alpha_2 \\
 y_i = 3 \text{ (maybe an ethical issue)} & & \text{if } \alpha_2 < y_i^* \leq \alpha_3 \\
 y_i = 4 \text{ (probably an ethical issue)} & & \text{if } \alpha_3 < y_i^* \leq \alpha_4 \\
 y_i = 5 \text{ (definitely an ethical issue)} & & \text{if } \alpha_4 < y_i^* \leq \alpha_5
 \end{aligned}
 \tag{2}$$

Where the unknown  $\alpha_j$ s are-estimated along with the  $\beta$ s. The  $\alpha_j$ s are restricted such that  $\alpha_1 < \alpha_2 < \alpha_3 < \alpha_4 < \alpha_5$ , which is required for positive probability estimates. If the error term,  $\varepsilon_i$ , is assumed to be logistically distributed, the probabilities that the students rank the degree of ethical issue are given as:

$$Pr_{ij} = Prob\{y_i = j|x_i\} = F(\alpha_j - x_i\beta) - F(\alpha_{j-1} - x_i\beta) \tag{3}$$

Where  $i = 1$  to 737 and  $j = 1$  to 5.  $F(\cdot)$  is defined as a cumulative logistic distribution function with mean zero and standard deviation  $\sigma = \pi/\sqrt{3}$ . For simplicity, it may be assumed that the relation between a student's ethical awareness and the factors, which influence them, is linear, so that:

$$\text{Ethical Awareness} = \beta_1 \text{Year} + \beta_2 \text{GPA} + \beta_3 \text{Business} + \beta_4 \text{Gender} + \beta_5 \text{Ethic} \quad (4)$$

If a  $\beta$  is greater than zero, it implies that the degree of ethical awareness increases when the variable associated with the parameter increases. The linear equation for the degree of ethical awareness developed above may be considered as students' tendency to improve their ethical awareness. Any cumulative function of probability fulfils that objective. In fact,  $Pr_i$  may be specified in the following way:

$$Pr_i = F(\text{Ethical Awareness}) = F(\beta_1 \text{Year} + \beta_2 \text{GPA} + \beta_3 \text{Business} + \beta_4 \text{Gender} + \beta_5 \text{Ethic}) \quad (5)$$

in addition, the model will be the probit or logit, according to the cumulative function of probability  $F(\cdot)$  being either the normal or the logistic. The maximum likelihood parameter estimates (MLEs) are obtained by maximizing the log likelihood function with respect to  $\beta$ ,

$$L(\beta) = \sum_{i=1}^I \sum_{j=1}^J \delta_{ij} \ln(Pr_{ij}) \quad (6)$$

where  $\delta_{ij}$  is an indicator variable equal to one if student  $i$  ranks the degree of  $j$ , and zero otherwise. Further, the constant term in the linear regression model is set to zero without any loss of generality in the estimation. As is the case with binary models, the marginal effects of the exogenous variables on the probabilities are not equal to the coefficients, thus only the signs are unambiguous. Accordingly, the marginal effects are computed by taking the first derivative of the probabilities in equation (3) with respect to  $x_i$ .

## DISCUSSION AND EVALUATION

The results of the ordered logit model are analyzed in terms of the overall significance of the model and the influence of each explanatory variable on ethical awareness. Table 4 presents the estimated ordered logit model for the degree of ethical awareness of the five predetermined scales. *QIS* in column 2 represents the cumulative scales of ethical awareness for each individual situation. *QBS* in column 3 represents the cumulative scales of ethical awareness for each business situation, and *QTS* in column 4 represents the cumulative scales of ethical awareness for both individual and business situations. For the estimations of all three situations, *QIS*, *QBS*, and *QTS*, the Likelihood Ratio tests show the regression models are highly significant, with the significance of the Chi-square statistics at the one percent level or higher. The results indicate that the explanatory variables are significantly related to the dependent variables in all three situations.

For the ethical awareness estimate of individual situations, the variable representing the cumulative grade point average of respondents (*GPA*) is positive and significant ( $p < 0.01$ ), thus suggesting that students who perform better in academics have more awareness of the given individual situation. The variable *Gender*, which is a binary variable with 1 indicating male and 0 for female, is negative and significant ( $p < 0.01$ ), implying that female respondents have relatively more ethical awareness toward the individual situations. The positive and significant coefficient of *Ethic* ( $p < 0.01$ ) suggests that students who have taken the Business Ethics class are more ethically aware with regard to the individual situations.

For the ethical awareness estimate of business situations, only the *Gender* variable is significant at the one percent level or better. As is the case with individual situations, female respondents are relatively more aware of possible ethical issues in the given business situation. For the ethical awareness estimate of the two situations combined, both *GPA* and *Gender* are statistically significant at the one percent level or better.

Similar to the estimates for individual situations, both cumulative grade point average and female status have a positive influence on over all ethical awareness.

Table 4: Ordered Logit Model: Explanatory Variables Coefficient Values

Explanatory variables	QIS	QBS	QTS
Year	0.08 (0.07)	-0.02 (0.07)	0.02 (0.08)
GPA	0.67 (0.14)***	0.07 (0.14)	0.43 (0.14)***
Business	0.004 (0.16)	0.09 (0.16)	0.05 (0.16)
Gender	-0.50 (0.14)***	-0.81 (0.14)***	-0.75 (0.14)***
Ethic	0.48 (0.16)***	0.12 (0.16)	0.37 (0.17)**
Log likelihood	-1,940.3***	-1,966.7***	-2,365.7***
LR test	62.02	41.17	57.72
Pseudo-R <sup>2</sup>	0.08	0.05	0.08

*This table shows the results of the ordered logit model with three general situations as explanatory variables, including individual situation, business situation, and the two situations combined. Standard errors are in parentheses where \*\*\* indicates significant at 1%; \*\* indicates significant at 5%; and \* indicates significant at 10%.*

The marginal effects of the explanatory variables that are statistically significant to the probability of observing a positive ethical attitude are reported in Table 5. In an ordered logit model, a unit change in the explanatory variable will have marginal effects on each situation of the ethical awareness scales. For example, the marginal effect of a variable with a positive sign would imply a shift in the probability distribution of the scale variable to the right, i.e. toward a more positive view of an ethical issue, but the marginal effect on each situation will be different in magnitude and direction. For instance, the *GPA* variable has a marginal effect of 0.07 for individual situations and 0.08 for the combined situations. Therefore, students with a higher GPA are 7 percent more ethically aware of individual situations and 8 percent more ethically aware of both individual and business situations.

Table 5: Marginal Effects of Significant Variables at Means

Explanatory variables	QIS	QBS	QTS
GPA	0.07		0.08
Gender	-0.05	-0.20	-0.14
Ethic	0.05		0.07

*This table shows the marginal effects of the explanatory variables that are statistically significant to the probability of observing a positive ethical attitude from the estimation presented in Table 4.*

The marginal effects of female respondents on the ethical awareness scale were 5 percent, 20 percent, and 14 percent higher than male respondents for the individual, business, and combined situations, respectively. Students who have taken the Business Ethics class were 5 percent more ethically aware on the individual situations than those who have not taken the class. Table 6 presents the estimated ordered logit model for the degree of ethical awareness for each of the ten situations, and Table 7 presents the corresponding marginal effects of the significant explanatory variables. Students who are at higher year in college are more ethically aware of situation 1 (*Q1*), 2(*Q2*), and 7(*Q7*), while students who are at a lower year in college are more ethical aware of situation 6 (*Q6*). Further, students who maintain a higher cumulative grade point average tend to be more concerned with ethical issues in all situations except situations 6 (*Q6*), 7 (*Q7*), 8 (*Q8*) and 10 (*Q10*). Students who major in business are less ethically aware in situation 3 (*Q3*), but more ethically aware in situation 4(*Q4*), 9(*Q9*), and 10 (*Q10*). Female students are more likely concerned with an ethical issue in all situations except 1 (*Q1*), 3 (*Q3*), and 5 (*Q5*).

Table 6: Ordered Logit Model: Explanatory Variables Coefficient Values

Explanatory Variables	q1	q2	q3	q4	q5	q6	q7	q8	q9	q10
year	0.21 (0.08)**	0.13 (0.07)*	0.04 (0.08)	-0.07 (0.07)	0.03 (0.08)	-0.21 (0.07)***	0.13 (0.09)*	-0.03 (0.08)	-0.09 (0.07)	0.11 (0.07)
gpa	0.78 (0.16)***	0.52 (0.14)***	0.35 (0.15)**	0.42 (0.14)***	0.35 (0.15)**	0.07 (0.14)	-0.14 (0.14)	0.04 (0.14)*	0.24 (0.14)*	0.01 (0.14)
business	0.10 (0.18)	0.12 (0.16)	-0.34 (0.17)**	0.29 (0.16)	-0.21 (0.17)	-0.21 (0.16)	-0.10 (0.16)	-0.26 (0.16)	0.27 (0.16)*	0.39 (0.16)**
gender	-0.05 (0.15)	-0.49 (0.14)***	-0.18 (0.14)	-0.54 (0.14)***	-0.24 (0.15)	-0.43 (0.14)***	-0.49 (0.14)***	-0.61 (0.14)***	-0.46 (0.14)***	-0.54 (0.14)***
ethic	0.23 (0.19)	0.31 (0.17)*	0.11 (0.17)	0.43 (0.17)	0.30 (0.18)*	0.02 (0.17)	0.02 (0.17)	0.15 (0.16)	0.07 (0.16)	0.13 (0.17)
log likelihood	-807.6***	-1,086***	-905.56**	-1,123.5***	-860.19**	-1,103.3***	-1,070.6***	-1,067.4***	-1,061.2***	-1,103.2***
lr test	39.21	44.97	14.15	42.02	14.88	23.76	17.97	24.02	23.70	28.30
pseudo-r <sup>2</sup>	0.05	0.06	0.02	0.06	0.02	0.03	0.02	0.03	0.03	0.04

This table shows the results of the ordered logit model with all ten-survey questions as explanatory variables. Standard deviations are in parentheses, where \*\*\* indicates significant at 1%; \*\* indicates significant at 5%; and \* indicates significant at 10%.

Table 7: Marginal Effects of Significant Variables at Means

Explanatory Variables	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Year	0.01	0.02				-0.04	0.03			
GPA	0.03	0.06	0.07	0.08	0.07				0.06	
Business			-0.07	0.05					0.06	0.09
Gender		-0.06		-0.10		-0.09	-0.12	-0.14	-0.11	-0.13
Ethic		0.04		0.08	0.06					

This table shows the marginal effects of the explanatory variables that are statistically significant to the probability of observing a positive ethical attitude from the estimation presented in Table 6.

Further Estimations on the Classifications of Gender and GPA Differences

In accordance with the findings, and as stated in the previous section, we further divide the results into two groups. The level of student ethical awareness was first analyzed for female and male students separately. Table 8 presents the mean responses to each situation for all the respondents, broken down by groupings of female and male students, along with the marginal effects of the explanatory variables that are statistically significant to the probability of observing a positive ethical attitude. Overall, the results were consistent with the findings including all survey respondents, yet the Likelihood Ratio tests show the regression models are not statistically significant for the questions regarding business situations.

For female students, the *GPA* variable has a marginal effect of 0.07 for both individual and combined situations, implying that female students with a higher GPA are 7 percent more ethically aware of individual situations and overall situations. For individual and combined situations, the marginal effects of female respondents who have taken the course of business ethics on the ethical awareness scale are 5 percent and 8 percent higher than those female respondents who have not taken the course. On the other hand, male students who maintain relatively higher grade point average are 4 percent and 6 percent more ethically aware on the individual and overall situations than those whose grade points averages are relatively lower. Additionally, male students who have completed a required course in business ethics are 3 percent more ethically aware of individual situations than those who have not taken the course.

Table 8: Ordered Logit Model: Gender Difference

Explanatory Variables Coefficient Values						
Explanatory Variables	Female Students (n=332)			Male Students (n=405)		
	QIS	QBS	QTS	QIS	QBS	QTS
Year	-0.03(0.12)	-0.02 (0.12)	-0.05(0.12)	0.16 (0.10)	-0.01(0.10)	0.08 (0.10)
GPA	0.71(0.23)***	0.06 (0.22)	0.42(0.23)*	-0.66 (0.20)***	0.07(0.18)	-0.44 (0.20)**
Business	-0.03(0.24)	0.14 (0.22)	0.07(0.23)	0.02 (0.23)	0.04(0.24)	0.04 (0.23)
Ethic	0.52(0.26)**	0.26 (0.24)	0.46(0.25)*	0.44 (0.22)**	-0.00(0.23)	0.29 (0.23)
Log likelihood	-841.60***	-854.89	-1,030.6*	-1,089.7***	-1,096.1	-1,317.4**
LR test	17.07	2.11	8.81	24.86	0.18	10.42
Pseudo-R <sup>2</sup>	0.05	0.01	0.03	0.06	0.00	0.03
<b>Marginal Effects of Significant Variables at Means</b>						
Year						
GPA	0.07		0.07	0.04		0.06
Business						
Ethic	0.05		0.08	0.03		

This table shows the results of the ordered logit model with three general situations as explanatory variables, including individual situation, business situation, and the two situations combined. Standard errors are in parentheses where \*\*\* indicates significant at 1%; \*\* indicates significant at 5%; and \* indicates significant at 10%.

We also dissect the sample respondents into two groups based on student academic achievement. Specifically, the level of student ethical awareness was analyzed separately for groups of students whose grade point averages were above and below 3.00. The results are consistent with the findings including all survey respondents, and the Likelihood Ratio tests show the regression models are statistically significant for the questions with all three situations. The *Gender* variables are negative and statistically significant at 5 percent level or higher for all three situations in each group, implying that female respondents are more ethically aware of all three situations than male respondents, regardless of their academic achievement. According to the marginal effects, female students with higher grade point averages are 9 percent, 17 percent, and 15 percent more ethically aware of individual, business, and combined situations than male students. Female students who have lower-than-average grade point averages are still 17 percent, 26 percent, and 22 percent more ethically aware in all three situations than their male counterparts. Regardless of academic achievement, the marginal effects of students who have taken the stand-alone business ethics course on the ethical awareness scale are 10 percent and 11 percent higher than students who have not taken the course. Interestingly, low-GPA students who major in business are 12 percent less aware of individual ethics situations than those not majoring in business.

Table 9: Ordered Logit Model: GPA Difference

Explanatory Variables Coefficient Values						
Explanatory Variables	High-GPA Students (n=416)			Low-GPA Students (n=321)		
	QIS	QBS	QTS	QIS	QBS	QTS
Year	0.13 (0.10)	0.01(0.10)	0.06 (0.10)	-0.001 (0.12)	-0.08(0.12)	-0.04 (0.12)
Business	0.32 (0.21)	0.17(0.21)	0.29 (0.22)	-0.52 (0.26)**	-0.04(0.26)	-0.34 (0.25)
Gender	-0.38 (0.18)**	-0.68(0.18)***	-0.60 (0.19)***	-0.77(0.23)***	-1.04(0.23)***	-1.03(0.23)***
Ethic	0.45 (0.22)**	-0.01(0.22)	0.26 (0.23)	0.50 (0.27)*	0.38(0.26)	0.55 (0.28)**
Log likelihood	-1,068.7***	-1,112.9***	-1,318***	-864.23***	-843.01***	-1,024.7***
LR test	20.47	16.75	19.39	21.03	26.43	29.48
Pseudo-R <sup>2</sup>	0.05	0.04	0.05	0.06	0.08	0.09
<b>Marginal Effects of Significant Variables at Means</b>						
Year						
Business				-0.12		
Gender	-0.09	-0.17	-0.15	-0.17	-0.26	-0.22
Ethic	0.10			0.11		0.12

This table shows the results of the ordered logit model with three general situations as explanatory variables, including individual situation, business situation, and the two situations combined. Standard errors are in parentheses where \*\*\* indicates significant at 1%; \*\* indicates significant at 5%; and \* indicates significant at 10%.

## SUMMARY AND CONCLUSION

The original objective of the study was to test the hypothesis that students have higher ethical awareness after completing required business courses in a business program which has adopted both an across the curriculum approach to ethical instruction as well as a stand-alone business ethics course. The data used to test the hypothesis was obtained from surveys that asked students to rank the extent to which they believed an ethical issue was associated with a particular situation. The responses were then analyzed using an ordered logit model to determine what variables significantly affect student ethical awareness. The expanded study supports the hypothesis that students who have completed an ethics course are more ethically aware, and the support for this hypothesis is slightly more significant in the second portion of the study than it was in the first portion of the study. There may be various explanations for this improvement, but as noted in the introduction to this paper, the stand-alone ethics course has been revised since the first portion of the study and is now taught in a hybrid format. Perhaps this new delivery format is more effective than the traditional classroom or internet mode of delivery.

Consistent with the earlier portion of the study, the completion of the ethics course most significantly affects the ethical awareness as measured by the questions relating to individual situations and not those relating to business situations. Once again, there appears to be no correlation between class level and ethical awareness. Gender appears to have an impact on ethical awareness. Both male and female students experience a significant increase in ethical awareness following completion of the ethics course. The response is stronger for females, which may be related to the higher level of ethical awareness experienced by females in general. An examination of the responses dealing solely with business situations reveals an interesting phenomenon. Both high and low GPA students demonstrate an increase in ethical awareness following completion of the ethics course. Thus, overall, the current study suggests that a stand-alone ethics course does improve ethical awareness, and that this improvement is not limited to females or high GPA students.

It should be emphasized that this is a continuation of an exploratory study conducted on campus in one small upper Midwestern university. It is possible that results gathered elsewhere, or results gathered using different sampling tools, may produce different results. However, the results suggest further study of the relationship between gender, GPA, and ethical awareness may prove a useful addition to the literature. Furthermore, it would be of interest to probe the link between other non-curriculum related variables and ethical awareness. Further research is also needed to determine potentially effective ways to teach ethics, including the effects of delivery modalities and student ethical awareness outcomes.

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# THE RELATIONSHIP BETWEEN INTELLIGENCE, EMOTIONAL INTELLIGENCE, PERSONALITY STYLES AND ACADEMIC SUCCESS

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## ABSTRACT

*This paper assesses the effects of general and emotional intelligence and personality preferences on academic performance. The question is examined using surveys among students in economics at the University of Debrecen, Hungary. In our examination we primarily used regression analysis. With our results we answer the question of what kind of relationship exists between the aforementioned variables and academic performance. Based on our findings we can conclude that academic performance was significantly influenced by the sex, intellectual intelligence, introvert or extrovert orientation, thinking or feeling personality preference and, in some parts of the sample, by the emotional intelligence, and perceiving or judging personality preference of the student.*

**JEL:** A22

**KEYWORDS:** Higher Education, Intelligence, Emotional Intelligence, Personality

## INTRODUCTION

The objective of this paper is to assess the question of what personality traits and abilities are associated with successful academic performance. Our everyday experiences suggest that success in the education system depends on the existence of certain kinds of abilities (i.e. it seems to be trivial that quick understanding is important). Moreover, some personal characteristics – more hidden to the observer – may also influence educational performance (see e.g. Rosander et al., 2011, Farsides and Woodfield, 2003).

The concrete research question of our empirical examination is: can the average academic achievements (estimated by the mean of average grades from the last two university semesters) be predicted with the help of the intelligence quotient (hereinafter IQ), the emotional intelligence quotient (hereinafter EQ), and the personality preferences, and if yes, to what extent? Our hypothesis is that academic performance is associated with IQ and EQ measured by the appropriate tests, and the personality preferences, taking into account the sex, academic year, place of residence, number of graduate parents and grandparents, and whether or not the student is ‘deferred’. We referred to a person as ‘deferred’ if he/she was born between 31 May and 31 December because in this case he/she attends the same class as those who were born between 1 January and 31 May in the following year. The reason behind asking this in the questionnaire is that the slightly higher age may influence academic performance. The possible relationship between age and academic achievement was confirmed by Pellizzari and Billary (2012), among others.

A brief summary of the literature on the general intelligence, emotional intelligence and personality traits follows in the next section. The data collection method and the introduction of the sample are included in the third section. In the Results section we demonstrate the statistical analysis of two models and determine the role of the above mentioned features in influencing academic performance for the examined population. We draw our conclusions in the last section.

## LITERATURE REVIEW

There is no ultimate definition of intelligence, but most researchers accept that it is an ability to solve problems (including problems of comprehension) by thinking (DeYoung, 2011). In other words it is “a very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience” (Gottfredson, 1997, p. 13). General intelligence, also known as general cognitive ability, intellectual ability, general mental ability (GMA) or the *g*-factor (henceforth mainly referred to as intelligence) is a well-researched construct with impressive supporting evidence for its capability to predict labor market performance on both an individual (e.g. Bowles et al., 2001, Ferris et al., 2001, O'Reilly and Chatman, 1994) and a national level (e.g. Garrett, 2012, Hanushek and Woessmann, 2007, Lynn and Vanhanen, 2012), as well as being a generally accepted determinant of academic success on every level of the education system (Malcolm et al., 2005). Measurement of intelligence defined in this way is well established. It can be measured accurately with many different forms of tests (Gottfredson, 1997, p. 13). If the intelligence test is standardized then the score derived from it is referred to as the intelligence quotient (IQ), where the median of the norming sample is 100 (Carter, 2005, p. 7-11). Among others, Marjoribanks (1979), Laidra et al. (2007) as well as Dodonova and Dodonov (2012) have found evidence for the positive effect of intelligence on school performance; Busato et al. (2000), Song et al. (2010), Furnham (2012), and others have confirmed that intellectual ability associates positively with academic success in higher education. There also exists a strong positive correlation between educational attainment and ‘national IQs’ calculated from various IQ tests for nations, according to some research studies (e.g. Lynn and Meisenberg, 2010, Lynn and Vanhanen, 2012).

Emotional intelligence was first defined by Mayer and Salovey (1993, p. 433) as “a type of social intelligence that involves the ability to monitor one’s own and others’ emotions, to discriminate among them, and to use this information to guide one’s thinking and actions”. Emotional intelligence is the set of skills people use to read, understand, and react effectively to emotional signals sent by others and by oneself. These are skills such as empathy, problem-solving, optimism, and self-awareness, which allow people to reflect, react to, and understand various environmental situations (Romanelli et al., 2006). Emotional intelligence as defined by Daniel Goleman includes self-control, enthusiasm, persistence and self-motivation. These are abilities that can be developed and taught (Goleman, 1998). In simpler terms, emotional intelligence is the ability to perceive, understand, and manage one’s emotions (see, among others, Salovey and Mayer, 1990, Salovey et al. 1993, Goleman, 1995, Bar-On, 1997, Cooper and Sawaf, 1997, Mayer and Salovey, 1997, Ciarrochi et al., 2000, Mayer et al., 2001, 2004, Salovey & Grewal, 2005, Salovey et al., 2008). Its role as a predictor of academic performance is confirmed by several studies (e.g. Song et al., 2010, Ferrando et al., 2011). However, the finding of research on the relationship between emotional intelligence and academic success are controversial. Several authors have found that emotional intelligence measured by different tests showed no significant relationship with academic success (see e.g. O’Connor and Little, 2003; Rode et al., 2007, Lotfi Kashani et al., 2012, Ng et al., 2012, Chandana Jayawardena and Gregar, 2013), while some (Lotfi Kashani et al., 2012) have revealed a significant positive correlation between IQ and academic success. Some of the empirical studies revealed a significant positive relationship between emotional intelligence and college students’ results (see, among others, Barchard, 2003; Brackett and Mayer, 2003, Codier and Odell, 2013, Parker et al., 2004, Baljinder and Kuldeep, 2009) or high school students’ results (e.g. Paramasivam and Mani, 2013, Gil-Olarte Márquez et al., 2006). However, in three studies with college students, EQ total scores and grades were correlated only modestly (Barchard, 2003; Brackett and Mayer, 2003, Codier and Odell, 2013). The study by Gil-Olarte et al. (2006) with high school students showed scores on the EQ correlated with final grades after controlling for both personality and academic intelligence.

The personality model used in our research determines four preference pairs (dichotomies): introvert-extrovert (independence from or dependence on the environment), intuitive-sensing (holistic or analytic

thinking), thinking-feeling (rationally or personal values-based thinking), perceiving-judging (a tendency towards the extensive collection of information or towards the quick closure of the decision making process). This description of the personality with these four preference pairs originates from K. C. Briggs and I. Briggs-Myers who developed C. G. Jung's model (Quenk, 2009, p. 1-3). Hogan and Champagne (1980) used the term 'personality styles' for the concept of 'personality preference', which can be described as that way of experiencing the world that you feel 'most natural and comfortable with' (Bayne, 1997, p. 4). According to Bayne, preferences have a strong influence on, but are not identical to, behavior, because the latter is usually affected by many other factors at the same time. All the eight above mentioned preference-poles are used at least some of the time by all individuals, although the preferred ones tend to be used more frequently. Much research has already been conducted concerning the relationship between personality preferences and academic success (see among others Ziegert, 2000, Hengstler, 1981, Ditiberio and Hammer, 1993, Borg and Stranahan, 2002, Borg and Shapiro, 1996), and this paper also attempts to contribute to this line of research. Borg and Shapiro (1996) found that for their sample of 119 students on Principles of Macroeconomics courses personality preferences measured by the Myers-Briggs Type Indicator (Briggs-Myers et al., 1998) had a significant influence on academic success. They demonstrated that being an introvert had a significant positive effect on the chance of getting a good grade. Ziegert (2000) replicated Borg and Shapiro's work with a much larger sample (617 students). The course examined was Microeconomics Principles. She found that the sensing and the thinking preferences contributed positively to grades, while for the Test of Understanding College Economics (TUCE) score measured at the end of the semester only the judging preference was insignificant, and while the sensing preference modified the TUCE performance negatively. Borg and Stranahan (2002b) continued Borg, Shapiro and Ziegert's line of research and investigated the personality effects on a sample of 166 students from three advanced-level economics courses. They found only the effect of the introversion type significant; this had a positive effect.

## **DATA AND METHODOLOGY**

In our research we used an IQ test edited by H. J. Eysenck that was adapted for the Hungarian examinations (Eysenck, 1995). This test attempts to measure general understanding and problem solving abilities. The test contained 40 questions and students had 30 minutes to answer them. The maximum score was 40. The emotional intelligence test used in our research (Benkóné et al., 2004:55-62) contained 40 questions and the students had 25 minutes to answer them. The maximum score was again 40 but the lower limit was -20. The test selected to measure the four Myers-Briggs personality dichotomies (Hogan and Champagne, 1980, p. 96-97) had a maximum score of 40 points on the scales related to the preference pairs. For simplicity we marked the preference pairs with only one of the two preferences which can be ranged from 0 to 40 (the other pole of the preference pair can be calculated if we deduct the previous values from 40). 40 indicates the perfect dominance of the specified preference, 0 indicates that of its complementary preference.

The source of our data is established from three surveys conducted at the University of Debrecen Faculty of Economics and Business Administration among full time second, fourth and fifth year students. Intelligence and emotional intelligence tests were completed by the students of all the aforementioned years, while the personality test was completed only by the second year students. Data collection was carried out between September and November 2005. Because some students may be behind in their studies, and some may complete their courses later or sooner than prescribed by the educational syllabus our groups theoretically formed according to academic years may contain some students not in that particular year.

Surveys were filled in anonymously, so establishing which questionnaire was filled in by the same person was only possible if the student chose the voluntary option of using a coded identity, or the complete consistency of the other data made the identity of the respondent obvious. Students in our surveys were

asked to state their sex and their average grade in the previous two completed semesters. Beside these variables we asked about the number of parents and grandparents with university degrees, the place of residence (the students had to declare if they had lived mainly in a village or in a town/city until they were 14 years old, and which they regarded as their main place of residence), whether the student had lost a year (become deferred), whether he/she had taken time out between the baccalaureate and university studies, and whether he/she had already taken similar tests. Familiarity with the IQ test was asked, because multiple repetition of intelligence tests usually causes an increase in the points achieved (Eysenck, 1995, p. 33); however, this is not significant after the third repetition. This phenomenon is mainly caused by proficiency in test-completion, i.e. to knowledge of the process, as well as to the decreasing level of anxiety. The last two variables were not used because of the low response levels.

Two samples were analyzed for the corresponding IQ and EQ data of the second, fourth and fifth year students (134 students in total), and the corresponding IQ, EQ, and personality data of the second year students (61 students in total). Table 1 shows the frequency distributions of both samples according to the relevant demographic variables, whilst Table 2 contains the mean and standard deviation data of the samples, relating to the mean of the grade averages of the last two semesters (on a scale from 1 to 5), the IQ score on a 0 to 40 scale, the EQ score on a 0 to 40 scale and the introversion, the intuitive, the thinking and the perceiving preferences on a 0 to 40 scale.

Table 1: Frequency Distributions of the Samples

Sample	Year	Sex		Number of Graduate Parents			Number of Graduate Grandparents					Residency			Number of Deferred Students	N	
		Male	Female	0	1	2	0	1	2	3	4	N/A	Village	Town/City			N/A
IQ, EQ	2 <sup>nd</sup>	24	57	42	19	20	58	9	11	2	0	1	26	53	2	20	134
	4 <sup>th</sup>	10	24	17	7	10	23	6	2	0	1	2	14	20	0	12	
	5 <sup>th</sup>	8	11	9	4	6	12	2	2	2	0	1	5	14	0	11	
IQ, EQ, Personality	2 <sup>nd</sup>	17	44	33	14	14	43	6	10	1	0	1	16	43	2	17	61

*This table presents the frequency distributions of the two samples by year, sex, the number of graduate parents and grandparents, residence, and the number of students had been deferred.*

Table 2: Means and Standard Deviations of the Variables Measured on a Metric Scale in the Two Samples

Variables	Samples			
	IQ, EQ (N = 134)		IQ, EQ, Personality (N = 61)	
	Mean	Std. Deviation	Mean	Std. Deviation
Mean Of Grades	3.577	0.5277	3.477	0.4906
IQ Score	19.925	4.105	20.000	3.782
EQ Score	11.425	5.271	11.885	5.076
Graduate Parents	0.7612	0.8512	0.6885	0.8275
Gr. Grandparents	0.4846	0.8737	0.4833	0.8335
Introvert	-	-	19.623	4.855
Intuitive	-	-	19.131	4.291
Thinking	-	-	18.689	5.012
Perceiving	-	-	18.213	4.838

*This table presents the means and the standard deviations of two samples by the mean of grade averages (1-5), IQ score (0-40), EQ score (0-40), the number of graduate parents, the number of graduate grandparents and introvert, intuitive, thinking and perceiving personality preference-poles (0-40). The means of extrovert, sensing, feeling and judging preferences are computable by subtracting the mean of their pair from 40.*

## RESULTS

In the examination of the relationships between IQ, EQ, and academic achievements our hypothesis was that the mean of the second, fourth, and fifth year students' average grades in the last two completed semesters are significantly positively associated with the intelligence quotient and the level of their

abilities measured by the emotional intelligence quotient (i.e. higher IQ and EQ likely indicate a higher academic performance), if variables of sex, year, residency, number of graduate parents and grandparents, and being deferred are taken into account. As our research was exploratory we did not possess a starting model, rather the models were formed during the analysis of the data of the given sample; i.e. regression relationships were described by different types of functions.

In the tested model we used three higher scale and five artificial binary (dummy) variables. The latter were the sex (1 if female, 0 if male), the residency (1 if town/city, 0 if village), the year loss (1 if deferred, 0 if not), and the variables of the university years (1 if he/she is attending the given year, 0 if not). In this way the second year was the benchmark compared to which the other years could explain the difference between the academic achievements.

We did not find any model describing academic performance in the last two completed semesters of the second, fourth and fifth year students significant at the 0.05 level. The variable of sex and some influence of EQ were not acceptable at the 0.05 significance level. At the 0.10 significance level we found five valid models that can be divided into two major groups according to their function shape. The models with the highest  $R^2_{adj}$  value in these two groups are the following (results of these models are presented in Table 3):

$$Y = b_0 + b_1 \cdot \frac{1}{x_{IQ}} + b_2 \cdot x_{EQ} + b_3 \cdot x_{EQ}^2 + b_4 \cdot x_{EQ}^3 + b_5 \cdot x_{SEX} + b_6 \cdot x_{PARENT} + b_7 \cdot x_{YEARS} + \varepsilon \quad (1)$$

$$Y = b_0 + b_1 \cdot \frac{1}{x_{IQ}^2} + b_2 \cdot x_{EQ} + b_3 \cdot x_{EQ}^2 + b_4 \cdot x_{EQ}^3 + b_5 \cdot x_{EQ}^4 + b_6 \cdot x_{SEX} + b_7 \cdot x_{PARENT} + b_8 \cdot x_{YEARS} + \varepsilon \quad (2)$$

where  $X_{SEX}$  is 1 if the student was female, 0 if male;  $X_{PARENT}$  is the number of graduate parents;  $X_{YEARS}$  is 1, if the student was in his or her 5<sup>th</sup> year at the University, 0 otherwise;  $X_{IQ}$  is the IQ score;  $X_{EQ}$  is the EQ test score;  $\varepsilon$  represents all the factors measured.

The models in Table 3 do not involve independent variables that are not significant at the 0.10 level. Results can be summarized as follows: 1.) female students performed significantly better than males; 2.) 5<sup>th</sup> year students had better grades than 2<sup>nd</sup> and 4<sup>th</sup> year students; 3.) higher intelligence contributed to higher academic performance, but as IQ increases, its positive effect decreases (but still remains positive); 3.) in the 1<sup>st</sup> model a higher EQ indicates weaker performance (between 8 and 13 EQ points the EQ was in positive correlation with the mean of average grades); 4.) in the 2<sup>nd</sup> model there was a U-shaped connection between EQ and the mean of average grades (if the EQ is below 8 points, the correlation was negative, whilst at higher EQ levels it was positive).

With the use of Kolmogorov–Smirnov (K–S) test for normality the possibility that the distribution of residuals was not normal at the 0.10 significance level could be rejected. The value of the K–S statistic was 0.5529 for the 1<sup>st</sup> and 0.7734 for the 2<sup>nd</sup> model. To test the homoscedasticity of the residuals we used the Goldfeld–Quandt test. As explanatory variables we used EQ, IQ and  $X_{PARENT}$ , too. The  $c$  value was 15% in the case of all three explanatory variables. The distribution of the residuals were homoscedastic for both models (the  $F$  value in the 1<sup>st</sup> model was 1.145 for the IQ as an explanatory variable, 1.038 for the EQ and 1.076 for the  $X_{PARENT}$ ; in the 2<sup>nd</sup> model the values were 1.157, 1.057 and 1.041 respectively).

Table 3: Results of Two Linear Regression Models Significant at the 0.10 Level

Dependent: mean of the average grades in the last two semesters							
	Independent Variable	Coefficient	t	F	R <sup>2</sup> <sub>adj</sub>	df	N
1 <sup>st</sup> model	constant	4.133	12.557***				
	X <sub>IQ</sub> <sup>-1</sup>	-8.215	-2.710***				
	X <sub>EQ</sub>	-0.1511	-1.973*				
	X <sub>EQ</sub> <sup>2</sup>	0.0143	2.167**	4.430***	0.1529	1.885	
	X <sub>EQ</sub> <sup>3</sup>	-0.0003	-2.203**				
	X <sub>SEX</sub>	0.1795	1.884*				
	X <sub>PARENT</sub>	0.1109	2.176**				
	X <sub>YEARS</sub>	0.4699	3.797***				
2 <sup>nd</sup> model	constant	4.384	0.3890***				134
	X <sub>IQ</sub> <sup>-2</sup>	-69.846	22.303***				
	X <sub>EQ</sub>	-0.4228	0.1634**				
	X <sub>EQ</sub> <sup>2</sup>	0.0560	0.0236**				
	X <sub>EQ</sub> <sup>3</sup>	-0.0027	0.0013**	4.325***	0.1666	1.879	
	X <sub>EQ</sub> <sup>4</sup>	0.4541	0.2523*				
	X <sub>SEX</sub>	0.2033	0.0953*				
	X <sub>PARENT</sub>	0.1243	0.0510**				
X <sub>YEARS</sub>	0.4894	0.1231***					

This table presents the results of the regression analyses of two models. It contains the coefficient estimations (coefficient) and the values of the t statistic (t) for all independent variables. It also shows the F statistic (F), the adjusted R<sup>2</sup> (R<sup>2</sup><sub>adj</sub>), and the degree of freedom (df) for both models, and the sample size (N). X<sub>IQ</sub> is the IQ test score, X<sub>EQ</sub> is the EQ test score, X<sub>SEX</sub> is 1 if the student is female, 0 if not, X<sub>PARENT</sub> is the number of graduate parents, and X<sub>YEARS</sub> is 1 if he/she is attending the given year, 0 if not. \* Significant at the 0.10 level; \*\* significant at the 0.05 level; \*\*\* significant at the 0.01 level.

We also tested the contribution of IQ, EQ and personal traits to academic success. According to our hypothesis the mean of the average grades of second year students is positively correlated with IQ and EQ scores, and affected by personality traits (direction is not important) if we take into consideration their sex, residency, number of parents and grandparents with a higher education degree and if the student had been deferred. We built up two models, both significant at the 0.05 level. The first model (equation 3) contained only those independent variables that were significant at the 0.05 level, whilst in the 2<sup>nd</sup> model (equation 4) all variables were significant at least at the 0.10 level. The two models were different in the exponent of the X<sub>IQ</sub> variable. This was -6 in the 1<sup>st</sup> and -5 in the 2<sup>nd</sup> model.

$$\begin{aligned}
 Y = & b_0 + b_1 \cdot x_{SEX} + b_2 \cdot x_{PARENT} + b_3 \cdot x_{GRAND} + b_4 \cdot x_{RESIDENT} + b_5 \cdot x_{DEFERRED} + \\
 & + b_6 \cdot x_{INTRO} + b_7 \cdot x_{INTRO}^2 + b_8 \cdot \frac{1}{x_{INTU}^3} + b_9 \cdot x_{THINK} + b_{10} \cdot x_{THINK}^2 + b_{11} \cdot x_{THINK}^3 + \\
 & + b_{12} \cdot e^{x_{PERCEIVE}} + b_{13} \cdot \frac{1}{x_{IQ}^6} + b_{14} \cdot \frac{1}{x_{EQ}^2} + \varepsilon
 \end{aligned} \tag{3}$$

$$\begin{aligned}
 Y = & b_0 + b_1 \cdot x_{SEX} + b_2 \cdot x_{PARENT} + b_3 \cdot x_{GRAND} + b_4 \cdot x_{RESIDENT} + b_5 \cdot x_{DEFERRED} + \\
 & + b_6 \cdot x_{INTRO} + b_7 \cdot x_{INTRO}^2 + b_8 \cdot \frac{1}{x_{INTU}^3} + b_9 \cdot x_{THINK} + b_{10} \cdot x_{THINK}^2 + b_{11} \cdot x_{THINK}^3 + \\
 & + b_{12} \cdot e^{x_{PERCEIVE}} + b_{13} \cdot \frac{1}{x_{IQ}^5} + b_{14} \cdot \frac{1}{x_{EQ}^2} + \varepsilon
 \end{aligned} \tag{4}$$

where X<sub>SEX</sub> is 1 if the student was female, 0 if male; X<sub>PARENT</sub> is the number of graduate parents; X<sub>GRAND</sub> is the number of graduate grandparents; X<sub>RESIDENT</sub> is 1 if the student was living in a city or town, 0 otherwise; X<sub>DEFERRED</sub> is 1 if the student is deferred from school, 0 otherwise; X<sub>INTRO</sub> is the percentage value

of the introversion preference;  $X_{THINK}$  is the percentage value of the thinking preference;  $X_{PERCEIVE}$  is the percentage value of the perceiving preference;  $X_{INTU}$  is the percentage value of the intuitiveness preference;  $X_{IQ}$  is the IQ score;  $X_{EQ}$  is the EQ test score;  $\epsilon$  represents all factors not taken into consideration.

Table 4 contains two models; both of them are significant at the 0.01 level according the  $F$  test. The 1<sup>st</sup> includes independent variables that are significant at least at the 0.05 level, the 2<sup>nd</sup> involves those that are significant at least at the 0.10 level. The dependent variable is the mean of the average grades of the last two semesters.  $X_{INTRO}$ ,  $X_{THINK}$ ,  $X_{PERCEPT}$ , and  $X_{IQ}$  variables are significant in both models but  $X_{SEX}$  and  $X_{PARENT}$  have significant impacts only in the second one.

Table 4: Results of Two Regression Models

<b>Dependent:</b> mean of the average grades in the last two semesters							
	<b>Independent Variable</b>	<b>Coefficient</b>	<b>t</b>	<b>F</b>	<b>R<sup>2</sup><sub>adj</sub></b>	<b>d</b>	<b>N</b>
<b>1<sup>ST</sup> Model</b>	<i>constant</i>	10.670	5.689***				
	$X_{INTRO}$	-0.1638	-2.478**				
	$X_{INTRO}^2$	0.0043	2.452**				
	$X_{THINK}$	-0.9427	-3.094***				
	$X_{THINK}^2$	0.0495	3.030***	3.776***	0.2446	2.057	
	$X_{THINK}^3$	-0.0008	-2.964***				
	$X_{PERCEPT}$	-0.0000	-3.057***				
	$X_{IQ}^{-6}$	-898,185	-2.090**				
<b>2<sup>ST</sup> Model</b>	<i>constant</i>	9.997	5.421***				61
	$X_{SEX}$	-0.2247	-1.698*				
	$X_{PARENT}$	0.1461	2.174**				
	$X_{INTRO}$	-0.1546	-2.426**				
	$X_{INTRO}^2$	0.0040	2.435**				
	$X_{THINK}$	-0.8595	-2.849***	3.961***	0.3075	2.111	
	$X_{THINK}^2$	0.0454	2.798***				
	$X_{THINK}^3$	-0.0008	-2.750***				
	$X_{PERCEPT}$	-0.0000	-2.302**				
	$X_{IQ}^{-5}$	-88,668	-2.168**				

This table presents the results of the regression analyses of two models. It contains the coefficient estimations (coefficient) and the values of the  $t$  statistic ( $t$ ) for all independent variables. It also shows the  $F$  statistic ( $F$ ), the adjusted  $R^2$  ( $R^2_{adj}$ ), and the degree of freedom ( $df$ ) for both models, and the sample size ( $N$ ).  $X_{IQ}$  is the IQ test score,  $X_{SEX}$  is 1 if the student is female, 0 if not,  $X_{PARENT}$  is the number of graduate parents, and  $X_{INTRO}$  is the percentage value of the introversion preference,  $X_{THINK}$  is the percentage value of the thinking preference,  $X_{PERCEIVE}$  is the percentage value of the perceiving preference. \* Significant at the 0.10 level; \*\* significant at the 0.05 level; \*\*\* significant at the 0.01 level.

Distribution of the standardized residuals was likely to be normal according to the Kolmogorov–Smirnov test (the K–S statistic was 0.5251 in the case of the first and 0.8182 in the case of the second model) at the 0.10 significance level.  $F$  statistics of the Goldfeld–Quandt tests are shown in Table 5. Regression analyses were run on the first and last 25 elements of the sample to obtain the residual variances for the  $F$  test. At the second model the assumption of homoscedasticity was rejected for the introversion variable at the 0.05 significance level.

Table 5: *F* statistics of the Goldfeld–Quandt Test (*c* value was 18 percent)

1 <sup>ST</sup> Model		2 <sup>ND</sup> Model	
Non-standardized Variable	<i>F</i>	Non-standardized Variable	<i>F</i>
$X_{INTRO}$	1.584	$X_{INTRO}$	2.832*
$X_{THINK}$	1.155	$X_{THINK}$	1.277
$X_{PERCEPT}$	2.161	$X_{PERCEPT}$	2.064
$X_{IQ}$	1.179	$X_{IQ}$	1.189
–	–	$X_{PARENT}$	1.363

This table shows the values of *F* statistics (*F*) of the Goldfeld–Quandt tests according to the independent variables measured on interval scale.  $X_{IQ}$  is the IQ test score,  $X_{PARENT}$  is the number of graduate parents, and  $X_{INTRO}$  is the percentage value of the introversion preference,  $X_{THINK}$  is the percentage value of the thinking preference,  $X_{PERCEPT}$  is the percentage value of the perceiving preference. \* Significant at the 0.10 level; \*\* significant at the 0.05 level; \*\*\* significant at the 0.01 level.

### CONCLUDING COMMENTS

Our research goal was to reveal whether general intelligence, emotional intelligence and personality traits are associated with successful academic performance. Our hypothesis was that academic success in higher education is associated with IQ and EQ and the Myers–Briggs personality preferences, taking into account the sex, academic year, place of residence, number of graduate parents and grandparents, and whether or not the student is ‘deferred’. The source of our data is established from three surveys conducted at the University of Debrecen Faculty of Economics and Business Administration among full time second, fourth and fifth year students. We used regression analyses for the corresponding IQ and EQ data (134 students in total), and the corresponding IQ, EQ, and personality data (61 students in total) to assess the effect of the two types of intelligence and the personality preferences on the grade averages.

Summarizing our findings we found that both IQ and EQ were in a significant relationship with the mean of average grades at the 0.1 level, and with three of the four personality traits at the 0.05 level. The IQ was an inverse function with a negative exponent in all models in our analysis; however, the exponent varied. This can lead us to the conclusion that education cannot indicate individual cognitive differences at higher levels of intelligence, but lower IQ will hinder good academic performance. Nevertheless, this hypothesis needs further examination. The explanatory power of EQ was significant only when personality traits were not involved in the model. At lower EQ levels it was in a negative, while at higher EQ levels it was in a positive relationship with academic success. If IQ was involved in the model, the explanatory power of personality traits was almost 12 percent. Three dichotomies (personality preference pairs) had significant effects on performance: introversion-extraversion, thinking-feeling and judging-perceiving.

The greatest limitations of our findings are that the data were collected only in one semester; furthermore, the results stem from only one university faculty. Further research should explore the reproducibility of our findings on the examined major at the examined faculty. It would be also interesting to extend the sample of students to other majors and other levels of higher education (bachelor, master) or to other institutions. Similarly, the robustness of the results could be tested with the use of alternative IQ, EQ and personality tests on a comparable sample in new research.

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## BURNOUT AMONG RESEARCH TEAMS: EVIDENCE FROM MEXICAN ‘CUERPOS ACADÉMICOS’

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### ABSTRACT

*Several studies provide evidence on how burnout hinders academic performance in teaching, research and technologic development activities among Mexican professors. The aim of this work was to determine the extent of Burnout in teams of researchers, organized in newly created structures called “Cuerpos Académicos” (CAs), in public Universities in Mexico. We use a mixed approach to better understanding this phenomenon. In the first phase, a paper and pencil questionnaire was administered to 234 academics. Twenty one percent of teachers indicated signs of stress and burnout. Only women and single persons showed differences having higher scores in the instrument results. In the second phase, a qualitative analysis of professor perceptions was conducted by organizing nine focus groups, one for each academic division. Overall factors related to stress and eventual burnout could be associated to fatigue due to work overload, lack of time to fulfill assigned tasks, perceived pressure in the work environment and others. The homologation of multiple systems for teacher evaluation and a reduction of non-essential administrative demands and procedures may be efficient policies that may reduce stress and prevent burnout in these academics.*

**JEL:** I23

**KEYWORDS:** Burnout, Research Teams, Mexico, Higher Education

### INTRODUCTION

Several researchers in Mexico have done studies of Burnout in Mexican Higher Education Institutions. They provided ambiguous evidence, regarding negative effects in academic performance (Gil-Monte, Rojas & Sandoval, 2009; Guerrero, 2003, Magaña & Sánchez, 2008; Magaña, Aguilar & Surdez, 2010; Marrau, 2004). When burnout has been identified, its origins are often attributed to several organizational factors. Some could have origin in diversity of tasks and demands or ambiguity of the roles to be assumed in college life (Magaña, Surdez & Zetina, 2012; Salanova, Grau & Martínez, 2005), the organizational climate (Gil-Monte & Peiró, 2009), individual work satisfaction (Ben-Ari, Krole, & Har-Even, 2003), as well as personal and professional factors (Mazur & Lynch, 1989).

Stress and burnout have been linked to full-time Mexican professors due to increasingly demanding salary policies in Mexican universities that attach bonuses and incentives to a peer evaluation of their productivity and teaching performance. The amount of these bonuses is often higher than the established salary. Assessment and certification of teachers and colleges are also made by other institutions. These assessments offer economic incentives when the college remains within the federal and state policies.

For a better understanding of the context, we explain and discuss the effects of three influences affecting Mexican academics: 1) the federal program for implementing professor performance: “Programa de Mejoramiento al Profesorado” (PROMEP) sponsored by the Ministry of Education. 2) The National Researchers System (SNI) which is part of the National Council for Science and Technology (CONACYT); and, 3) A novel way to organize research groups, in new and emerging organizational structures called: “Cuerpos Académicos” (CAs).

It has been argued that these multiple and sometimes conflicting policies represent a source of stress among faculty, since these programs have different approaches and goals. While local systems of compensation for teaching performance operate with a criteria defined according to institutional priorities, such as collaborative research in “Cuerpos Academicos” (CAs), the federal programs pursue different objectives. PROMEP promotes a balance between teaching, research, tutoring and academic activities (Secretaría de Educación Pública [SEP] 2013). However, the SNI focuses on indicators of research performance: publishing and technological development such as patents (CONACYT, 2012).

Thus, triple-play evaluation generates demands at various levels and in different scenarios. Henceforth, professors doing research have to diversify their work activities to fulfill evaluation requirements dictated by several academic organizations. This balancing act generates physical and emotional stress.

The aim of this work is to provide evidence of the existence of stress and burnout in a sample of professors from a typical state university in Mexico. The organizational structure and policies sustaining evaluation systems provide a context for understanding the situation and thus for implementing appropriate measures to prevent and deal with stress and burnout. This research provides information regarding the perceptions of Mexican academics regarding burnout and explores their attribution of its origins and effects.

The remainder of the paper is organized as follows. The next section describes the relevant literature. Next, we discuss the data and methodology used in the study. The results are presented in the following section. The paper closes with some discussion and concluding comments.

## LITERATURE REVIEW

### Burnout and Stress

In spite of the consequences of stress and burnout for the organization and the mental health of academics, few studies exist about this phenomena in Mexican research groups. Furthermore, no attempts have been made to identify the organizational factors in Mexican public universities which generates this effect. Such information would be valuable to identify both corrective and preventive actions.

Burnout has not being catalogued within psychopathological international classifications such as the diagnostic and statistical manual of mental disorder (DSM-IV) of the American Psychiatric Association (López-Ibor & Valdés Miyar, 2002). Nevertheless, burnout has been the target of a number of studies. A vast amount of research suggest burnout could be a mental health syndrome. It is condiered in some countries, like Spain, a psychosocial type of work risk (Gil-Monte & Zuñiga, 2010).

Burnout was initially identified in individuals who work assisting people, like physicians and nurses (Maslach & Jackson, 1981). However, the study of this phenomenon has extended to include many other professions exposed to stress in the work environment, including higher education teachers.

The term burnout was originally coined by Freudenberger. But, its categorization and dissemination as a syndrome is mainly due to Maslach and Jackson (1981), who defined burnout as a response to chronic emotional stress featured by physical and psychological exhaustion, cold and impersonalized attitude toward others and a sense of inadequacy in regards to the performing tasks.

Burnout has been depicted as tridimensional. Emotional distress is the most representative component of burnout. Emotional distress refers to the feelings of overloading and emptiness of the individual’s emotional and physical resources. Depersonalization is the second most common component, which represents the interpersonal dimension that refers to a negative response to work-related chores. Finally, the third component has been

characterized as low self-fulfillment and it refers to the feelings of incompetence and lack of achievement and productivity in work (Maslach, Schaufeli & Leiter, 2001).

### Burnout and Academic Life

In Universities, as in other working environments, attitudes, practices and beliefs related to stress are influenced by factors of organizational structure such as hierarchies, operational rules, resources, work load and space distribution. Although College teaching is not regarded as a hazardous profession, research regarding the role of the work-environment has identified factors in the organization conducive to burnout such as overloading work and poor organizational climate (Brotheridge, 2003), absenteeism (Prieto & Bermejo, 2006), conflict and ambiguity of roles (Boardman & Bozeman, 2007) and conflicting assessing processes (Magaña & Sánchez, 2008; Magaña, et al., 2010).

Maslach, et al. (2001), asserted that burnout in working environments, such as universities, must be analyzed dually: on one hand considering the work situation and on the other the individual constituent factors which facilitate or protect its emergence. This study focuses on the first group that deals with aspects related to daily work. In this perspective, the most studied variable is work demand. Overloading work and pressures on time are strongly and continuously correlated to burnout, particularly exhaustion (Ben-Ari, et al., 2003). The second group includes such factors as type of work. In this individual perspective, research provides some hints. For instance, women are usually at a higher risk (Gil-Monte, 2002) of burnout, as well as workers with higher expectations in their jobs (Maslach et al., 2001).

### Context of the Study - 'Cuerpos Académicos' (CAs) in Mexican Public Universities

Important for understanding the context of this research, it is the concept of "Cuerpo Academico" (CAs), a reorganization of the academic Mexican life around collaborative groups of research and teaching. These groups tend to mimic the departmental organizational structure of American Universities. This is a national attempt to change from a more vertical and rigid system of 'Facultades', derived from the French model of higher education, that in the XVIII century inspired the emergence of Mexican Universities.

CAs were defined as "groups of teachers who generate collegiate or team research to enhance the institutional capacity to generate or apply knowledge: to identify, integrate and coordinate the intellectual resources of the institutions in order to benefit the educational programs and embed this as a policy to enhance social development and science and technological advancements" (SEP, 2013, p.77).

CAs assume that collegial groups of scholars makes decisions regarding research and teaching, within a system which does not provide for a legal, normative or formal structures for their operation. At the end of the day, decisions and outcomes from these informal research groups are confronted or changed by Deans and other administrators who hold formal power and legal decision-making capacities.

CAs have been constituted as a central strategy for institutionalizing a public policy within Mexican higher education institutions. Since 2001, the federal government has focused on organizing these academic structures by gathering groups of full time teachers, who share the same research and teaching interests, around specific disciplinary or multidisciplinary subjects. These groups are also expected to support specific educational programs, both at undergraduate and graduate levels (SEP, 2006).

The creation of CAs was encouraged by grants provided by the federal program for implementing higher education teacher's abilities: "Programa de Mejoramiento al Profesorado" (PROMEP). This occurred as a result of the realization, within the ministry of education, of the need for more flexible and democratic forms of organization that enable college teachers to perform their duties more effectively (SEP, 2010, p.3).

Castañeda (2010) noted the policy of implementing and consolidating these academic structures has gone beyond traditional educational policies in Mexico generally attached to specific presidential terms. CAs has been a salient policy in higher education since 1989. To date it has evolved from a new institutional obligation to a style of life.

The novelty of the CA concept and habits within the rather traditional Mexican higher education system, created confusion in their early stages. Many groups were formed around syllabi of existing programs, but they failed to include research work. Team work is a key and conveys sometimes artificial demands on scholars. Publications to be credited to the degree of consolidation of the CA, need to include more than one member of the team to be considered a formal product of the team. Incentives and bonuses depend a lot about the degree of consolidation of the team, assessed in one of three levels from emerging to consolidated.

Consolidated groups, the ideal level to be reached, are characterized by groups of researchers that generate products recognized as good quality and with members that participate actively in educational programs and hold doctoral degrees. They are recognized by their research and teaching.

A second key issue in this policy is networking. CA are assessed by the number of projects, exchange and collaborative work with other research groups nationally and internationally. Academics experience double pressure, to continue their original lines of research and to create additional lines that include other team members.

#### Sistema Nacional de Investigadores (SNI)

The national researchers system (SNI) is a model policy for developing countries in generating, implementing and enhancing scientific research and technological development. The SNI was created by presidential decision on July 26th 1984, with the aim to recognize the work devoted to produce scientific knowledge and technological development in Mexico. This recognition is given through peer assessment before granting the nomination of national researcher (with 5 levels: candidate, I, II, III and emeritus).

This federal policy provides both recognition and financial support to distinguish academics, to prevent brain drain and to add to emerging efforts to consolidate a competitive system of higher education in Mexico. It also promotes links between academic and business and industrial sectors to increase funding for science, innovation and technological activities (CONACYT, 2012).

The SNI encompasses all scientific disciplines, and technological practices in the country. A majority of its members belong to the best higher education institutions and research centers operating in Mexico. In this sense it helps in developing scientific activity throughout the nation and installing research groups at high academic level in all states.

Belonging to the SNI is an important distinction for any Mexican scholar and symbolizes the quality and prestige of one's scientific contributions. In addition to this nomination, economic incentives are given through scholarships whose amount varies according to the assigned level (CONACYT, 2012). However, accessing this roster conveys achievement pressures for the person, its processes of evaluation are time consuming, and they convey an emotional toll.

#### **METHODOLOGY**

This work was carried out in two phases. Phase one was descriptive and attempted to determine the levels of stress and burnout in the population under study. A paper and pencil survey was administered to 462 full-time academics, from 66 CAs, in 11 academic divisions in a typical public university in Mexico: Universidad Juárez Autónoma de Tabasco. A census was attempted, however, only 234 (51%) academics returned the survey.

A questionnaire, based on Maslach and Jackson's (1981) work was developed by translating and adapting items. A pilot administration with 5 academics from another public university clarified items. The finalized questionnaire



included 15 items in five point Lickert scale measuring three dimensions: depersonalization, emotional distress and self-fulfillment. A socio demographic section preceded the items (Magaña, et al., 2010).

The Alpha Coefficient value was 0.862. Exploratory factorial analysis to determine its construct validity replicated the three original theoretical factors. Registering for its three factors charges over 0.40 and 35% variance. The reported reliability values and validity were considered acceptable (Milton, 2010, Morales, 2011).

Phase Two attempted to explore, in depth, perceptions and concerns of professors with regard to stress and burnout. For this purpose, a qualitative approach was adopted. Groups were organized in an open and free format to elicit ideas and concerns from the professors regarding stress and demands in the workplace. All sessions were facilitated by the main investigators. The purposes of the research were explained and teachers were invited to freely express their feelings, opinions and ideas about their perceptions of stress and its association to challenges in their daily work. Information was noted by two research assistants. Audio and video recording of sessions was not welcome by the participants.

Nine focus groups were organized, one from each division of the University. Teachers that responded to the questionnaire, were invited to attend these voluntary meetings. Those who expressed their desire to participate, wrote their contact information in the space provided in the questionnaire; and were invited to their respective focus group meeting. A total of 77 professors participated in this activity. Table 1, describes groups, number of participants and the number of CAs represented.

Table 1: Participants in Focus Groups

<b>Name of academic Division</b>	<b>Professors</b>	<b>CAs</b>
Biological Science	12	6
Agriculture and Farming	6	6
Fundamental Sciences	8	10
Economics and Business	8	5
Social Studies and Humanities	11	5
Education and Arts	8	5
Engineering and Architecture	11	12
Informatics and Computing Sciences	7	8
Health Sciences	5	9
<b>Total</b>	<b>76</b>	<b>66</b>

*This table shows the number of participating professors and the number of research groups represented in the focus groups for each academic division*

Notes from the two observers were transcribed into Microsoft Word files. Information was printed and analyzed by the investigators. Main ideas were classified into the three original dimensions of burnout that guided design of the first phase instrument. By examining contents in each category, secondary sub-dimensions were derived, considering the frequency of the main idea to understand better their perceptions regarding burnout and Stress.

## **RESULTS**

### Results- Phase I

Exploratory analysis were carried out to identify differences in burnout levels by age, seniority, gender and type of appointment. The mean age was 47 years old, with a standard deviation of 8.5. Seniority was on average 17.6 years (SD 8.3). Sixty three percent were men. Some 72% were married, 42% were certified by PROMEP, and 9% belonged to the SNL.

The burnout scale produced a range of 15 to 75 points. A frequency analysis was carried out, observing a normal distribution, with a minimum value of 15 and a maximum of 73, a kurtosis of 0.32, a mean of 28.6 and a standard deviation of 8.8. The third quartile (75 percentile), was pre-established as a criterion of suspected burnout or suffering work related stress. Twenty one percent of participants ranked in this range with scores  $\geq 34$ .

Furthermore, 57% of participants reported none or very low stress related to their jobs. Emotional distress scores ranked highest in every analysis.

Statistical tests were carried out to explore differences in demographic variables. There were no significant differences by age, seniority, administrative positive and type of appointment. However, there were higher levels of emotional distress in women ( $t = -3.03$ ;  $p = 0.003$ ) and in single professors ( $t = 3.53$ ;  $p = 0.001$ ). As expected, it was observed that teachers not recognized by PROMEP reported higher scores in the low self-fulfillment dimension ( $t = 3.00$ ;  $p = 0.004$ ). Table 2 shows the results of an ANOVA to evaluate differences of population means among the several Academic Divisions in relation to the dimensions of burnout.

Table 2: Comparison of population means for each dimension of the SDE variable for Academic Division

Dimension	Academic Division	N	Mean	Standard Deviation	F	Sig.
Depersonalization	Agriculture and Farming Studies Academic Division	28	9.18	4.287	2.504	0.013*
	Health Science Academic Division	28	7.50	4.299		
	Economics and Business Academic Division	19	10.37	4.609		
	Social Studies and Humanities Academic Division	18	8.00	2.401		
	Education and Arts Academic Division	27	7.59	2.454		
	Engineering and Architecture Academic Division	27	8.37	3.743		
	Informatics and Computing Systems Academic Division	31	7.00	2.408		
	Biological Science Academic Division	27	7.30	2.493		
	Fundamental Science Academic Division	29	7.07	2.951		
Emotional Burnout	Agriculture and Farming Studies Academic Division	28	12.68	5.034	1.237	0.281
	Health Science Academic Division	19	12.37	5.408		
	Economics and Business Academic Division	27	11.89	4.318		
	Social Studies and Humanities Academic Division	27	11.52	4.182		
	Education and Arts Academic Division	31	11.35	3.980		
	Engineering and Architecture Academic Division	27	10.48	5.374		
	Informatics and Computing Systems Academic Division	29	10.45	3.897		
	Biological Science Academic Division	18	10.22	3.116		
	Fundamental Science Academic Division	28	9.86	4.836		
Low Self-fulfillment	Agriculture and Farming Studies Academic Division	28	9.43	2.044	1.627	0.118
	Health Science Academic Division	28	10.07	5.242		
	Economics and Business Academic Division	19	11.53	4.155		
	Social Studies and Humanities Academic Division	18	9.72	4.688		
	Education and Arts Academic Division	27	8.52	2.173		
	Engineering and Architecture Academic Division	27	9.19	3.000		
	Informatics and Computing Systems Academic Division	31	8.61	2.459		
	Biological Science Academic Division	27	9.37	2.151		
	Fundamental Science Academic Division	29	9.62	3.029		

*This table presents the values reported from the ANOVA test for every academic division in the study are compared. Additionally the descriptive values are reported for each dimension of Burnout. Note: \* $p \leq 0.05$*

Table 2 shows that only depersonalization appears to be significantly difference among the academic divisions in the study. Economics and Business Academic Division registered the highest level. The results, might be explained in relation to the number of students they deal with. The Economics and Business Division accommodates among the largest number of students per professor within the university (UJAT, 2013).

## Results- Phase II

Table 3, summarizes the main ideas associated with each of the three original dimensions of the construct of burnout. It can be observed that major concerns pertaining to work overload are fatigue and lack of time to fulfill required duties. Various comments and key ideas related to evaluation policies, specific job demands and problems in decision making were noted and will serve as basis for discussion in the following section.

Table 3: Dimensions, Key Ideas and Number of Phrases Associated

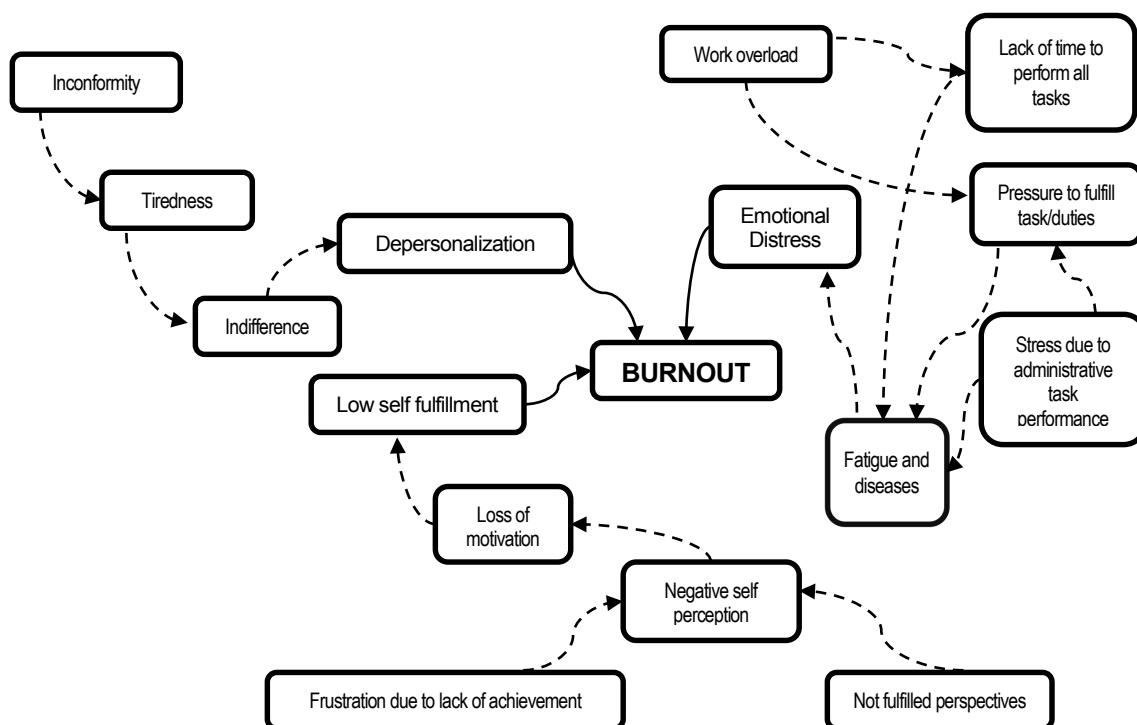
Dimension	Key Idea – Sub-dimension	N
Emotional Distress	Fatigue and diseases	14
	Work overload	19
	Lack of time to perform all tasks	13
	Pressure to fulfill tasks/duties	9
	Stress due to administrative tasks performance	6
Depersonalization	Tiredness	1
	Indifference	9
	Inconformity	3
Low Self-fulfillment	Loss of Motivation	9
	Negative self-perception	6
	Not fulfilled perspectives	2
	Frustration due to lack of achievement	5

*This table shows the dimensions (categories) and the number of phrases associated to an idea (subcategory) defined as main cause associated to it.*

Discussion

As observed from the two phases of the study, the original dimensions proposed by Maslach are empirically sustained by both quantitative and qualitative results. Furthermore, the combination of those two approaches help us understand the phenomenon of stress and burnout in universities. We have identified more specific elements in each dimensions worth future consideration. A conceptual map was developed considering the results. Figure 1, shows the relationship of some key concepts to the processes and understanding of burnout.

Figure 1: Relationships between Identified Factors and Burnout



This figure shows the conceptual map for the relationship of concepts, subcategories and processes regarding stress and burnout.

In general the main causes related to the Emotional Burnout dimension are: fatigue and diseases, which is more related to an effect than a cause; work overload; lack of time to fulfill assigned tasks, perceived pressure to fulfill

all duties and burnout due to administrative task performance. In regard to Low Self-fulfillment, the loss of motivation is originated, as expressed in the testimonial phrases, by a lack of recognition of the performed tasks. Lastly, Depersonalization is attributed to fatigue and inconformity about the loads of work assigned.

It could be observed that work overload and time pressures are strongly and consistently correlated with stress and burnout in the literature (Gil-Monte, 2005; Gil-Monte & Peiró, 1999, Gil-Monte & Peiró, 2009; Maslach & Jackson, 1981; Moriana & Herruzo, 2004; Schwab, Jackson & Schuler, 1986; Whitaker, 1996).

## CONCLUSIONS

The aim of this work was to determine the extent of burnout in teams of researchers. We conclude that levels of Burnout are rather low so far among researcher professors. The mean, with an answer scale from 15 to 75, was 28.61, and only 21% of the population under study reported a level considered high. However, the percentage may be considered a “warning” as several studies about this problem point out (Gil-Monte, Rojas & Sandoval, 2009; Guerrero, 2003; Moshe & Horenczynk, 2003; Salanova, Llorens & García-Renedo, 2003). In general, one fifth of academics in the University under study report signs of burnout and stress. Although being an academic is not a risky or over demanding profession, such as a paramedic, police officer or firefighter; the presence of burnout and risks to the individual mental health in college teaching cannot be under stated.

As in previous studies (Magaña & Sánchez, 2008; Magaña, et al., 2010), the most representative dimension of burnout is emotional distress. This dimension was considered most important in both quantitative and qualitative analyses. Here, perceived stress was associated to duties seen as over demanding by both internal and external evaluation policies. Ideas expressed by participant academics, indeed re enforce the notion that multiple schemes of evaluation generate work pressure and therefore lead to physical and emotional distress.

Regarding socio-demographic variables, gender differences are reported from the levels of emotional burnout where women appear to have a greater level. These results confirm previous studies (Gil-Monte, 2002; Maslach, et al., 2001) which prove greater levels of burnout. Gil-Monte and Peiró (2009) point out this result is mainly due to the social role of each gender, where the Mexican culture involves female roles in the function of family care in addition to the new professional role. This situation that generates a work overload factor related significantly to burnout.

Another phenomenon observed is that emotional distress shows statistically more significant differences by marital status. Single individuals register greater burnout levels. The arguments from the literature to explain this relation show that marital status does not necessarily influence the process but socio-emotional support from family members and the quality of matrimonial relationships, since these complement emotional aspects that may lead to Burnout (Gil-Monte & Peiró, 2009).

The duties to be performed as a professor are assessed by PROMEP qualifications. There exists a statistically significant difference in levels of low self-fulfillment among those who have achieved PROMEP qualifications and those who have not. PROMEP generates a set of economic incentives indirectly for the professor that allows them to satisfy certain expectations of achievement, decreasing personal inconformity that may appear in professors who do not have such qualifications.

An examination of academic divisions in this study shows that only Depersonalization displays a significant difference among academic divisions. Economics and Business Division registers the highest level and the Informatics and Computing Systems Division the lowest level. During the qualitative stage, the Depersonalization dimension evidences the problem associated with divisions with the largest enrollment. It is perceived that a general tiredness is generated as well as indifference to students. Without justifying this, it is necessary to point out the amount of students to assist is reported in some studies about SDE as a determining factor over the levels

of depersonalization (Guerrero, 2003). In this sense, the Economics and Business Division, is the one with a higher level of enrollment in the University (UJAT, 2013).

The correlation between dimensions of Burnout, age and number of years of work in the institution shows only age registered a very low negative correlation to emotional burnout. This situation may indicate that youngest professors perceive a greater level of burnout. However, the results are not sufficient to confirm this relation. Rosas, Magaña and Fernández (2008), point out that senior professors and those about to retire do not consider it profitable to invest time on obtaining accreditations and certifications required by evaluating procedures in order to reach economic incentives added to salary. The younger are configuring this multiple profile to their teaching work to get better opportunities for development. Recéndez, Campuzano and Muñoz (2010). Although professors may be near retirement, there are always individual and economic factors that encourage permanence in this group of professors

No doubt, the main asset of a University is the quality of the job performed by its academics. Results from this research, evidence the need to pay attention to stress and burnout that eventually may lead to negative outcomes from academics. From lack of efficiency to eventual mental and physical diseases.

The many demands currently imposed on academics need to be revised. For example, there is an excessive demand of red tape in many administrative processes, petty tasks are perceived as time consuming and distractors of other academic duties. There are many evaluation systems that assess the same chores, but demand different administrative processes which are rather repetitive.

Results from this research should convey a reflection upon evaluation policies toward Mexican academics and must promote more efficient administrative procedures that decrease demands on non-essential tasks. For example homologating evaluation systems, and reducing paperwork for administrative procedures. As mentioned before, stress and burnout even in college professors cannot be underestimated as a factor instrumented to measure quality teaching and research.

This paper leaves many aspects open to new research. In spite of the low problem incidence, there are several related factors with greater emphasis on organizational environment. Moreover, these are mostly related to matters of evaluation and teaching certification activities within a profile of multiple roles. This is to be pondered in a different way for every aspect. Further research is needed to identify ways to decrease stress and burnout of Mexican academics. Longitudinal studies should provide evidence on long-term effects of stress in the health of professors. A systematic review of administrative procedures is needed to reduce red tape.

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# **COMPETENCY MODELING IN AN UNDERGRADUATE MANAGEMENT DEGREE PROGRAM**

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## **ABSTRACT**

*Competency models have been adopted in many organizations to focus systems for employee selection, training and development, and work engagement on the competencies identified by the organization as most important to its operations and strategic direction. Similarly, competency models can be employed in business schools to guide the development of students with the goal of developing their abilities consistent with demands in the marketplace. In this paper, we draw on the literature on competency models in the human resource management field and higher education to demonstrate that competency models can be helpful in developing the knowledge and abilities of business students. We also discuss the experience of developing of a competency model for an undergraduate business program and the benefits and challenges of moving to a competency-based approach.*

**JEL:** M10

**KEYWORDS:** Business Education, Competencies, Student Learning, Assessment

## **INTRODUCTION**

Many organizations have adopted a competency-based approach to deal with the dynamic nature of business (Boyatzis, 2008) and address a variety of factors, including the need to change and adapt to a changing business environment, the need for greater empowerment of employees, and the desire for more engagement in work and organizations, among other factors. As organizations modify and develop new products, change production systems, or adjust work processes, they need to select, train and develop employees whose skills and knowledge align with these changing demands of work. The impact of technological change and quality management, for example, require changes in the work environment that require employees to have different skills and knowledge. The need to delegate and empower employees requires more broadly designed jobs; pushing decision-making to lower levels to increase the organization's responsiveness and efficiency requires a more general set of work qualifications and certainly a broader awareness of the purposes of the work. Finally, making work more engaging requires that workers invest their cognitive and emotional capabilities in the work, rather than just their rote behaviors.

Given the prevalence of competency models in business organizations, their efforts may provide insights to higher education about developing educational experiences to prepare students for professional success after graduation. In this paper, we draw on the literature on competency models in higher education and the practice of competency modeling in the human resource management field to demonstrate how competency modeling can be helpful in business education.

The remainder of this paper is organized as follows. The next section presents a review of the literature relevant to a competency-based approach in higher education. Next, we present the literature that addresses how competency modeling has been practiced in the human resource management field. In the following section, we discuss the development of competency models, their benefits, and the potential benefits and challenges of a competency-based approach in higher education, specifically business education. The development of a competency model for an undergraduate business program in a large

Midwestern university and the benefits and challenges of adopting a competency-based approach is presented in the following section. The paper then presents some concluding comments.

## LITERATURE REVIEW

This section summarizes the literature on competencies and competency modeling in higher education and human resource management. Competencies have also been a subject of interest and research for educators at multiple levels of the educational process. The literature identifies a number of motivations for competency modeling, including developing accreditation and assessment standards and aligning educational outcomes with the needs of employers and professions (Boritz and Carnaghan, 2003, Wolf, 1995). Competency-based approaches relative to accreditation and education have been discussed in a variety of fields, including professional psychology (Rubin et al., 2007, Barlow, 2012), health care (Calhoun et al., 2008), information systems (Beard et al., 2008), and engineering (Robinson et al., 2005). Rubin et al. (2007) present a history of the competency movement in the field of professional psychology and efforts to develop a competency-based approach for education and assessment. Efforts to define the competencies required to be effective psychiatrists and psychologists led to efforts to create a competency-based core curriculum for professional schools of psychology. Robinson et al. (2005) used interview and questionnaires to develop a competency profile for the future design engineers, dividing forty-two competencies into six competency groups. Their work highlighted the role of non-technical competencies in future success in engineering. Similarly, in the field of healthcare, Calhoun et al. (2008) identified competencies and prescriptive behavioral indicators for development and assessment as individuals progress through their careers from entry-level to more advanced career stages in the industry. In the field of business education, researchers have discussed competency approaches as a way to prepare graduates for employment in the business community. Evers and Rush (1996) took a general approach by identifying the competencies necessary for early career success in most corporate settings. They developed a model of “generalist skills” or “bases of competence” upon which specialist skills can be built in an educational setting. Later work identifies issues related to designing assessments of student performance of these competencies (Berdrow and Evers, 2010).

Educators in accounting programs and practitioners in public accounting developed a competency model to expand accounting instruction beyond accounting technical content to a broader set of skills that are necessary in public accounting, business, government, or academic careers (Daigle et al., 2007, Boritz and Carnaghan, 2003). Specifically, the American Institute of Certified Public Accountants’ (AICPA) *Core Competency Framework for Entry into the Accounting Profession* includes functional competencies, personal competencies, and competencies related to general business perspectives (Daigle et al., 2007). Research into academic practices relative to student achievement of competencies has been conducted relative to various elements of AICPA’s competency framework (e.g., Daigle et al., 2007, Kaciuba, 2012, Kaciuba and Siegel, 2009, Bolt-Lee and Foster, 2003).

Developing managerial competencies in MBA programs has been the subject of several studies. Boyacitz, Stubbs, and Taylor (2002) showed that cognitive and emotional competencies can be developed in an MBA program. Camuffo and Gerli (2004) also presented a model that integrates competency-based tools addressing functional and managerial skills within an MBA Program. Sturges and colleagues (2003) studied Canadian MBA programs and their effectiveness in developing different types of competencies. Rubin and Dierdorff (2009) assessed required curricula in MBA programs and find a misalignment between valuable managerial competencies and MBA curricula.

Several common themes occur across the literature on competencies in higher education. First, high quality professional practice involves not only requisite knowledge but also a broader set of behaviors related to application and professional conduct. Specifically, traditional conceptions of education (and the curricula that result) as developing cognitive skills and technical knowledge are insufficient at

developing a broader set of competencies that are important in career success. In other words, technical knowledge about a topic, such as accounting or information systems, for example does not necessarily translate into an ability to create value in professional practice unless it is accompanied by a broader set of competencies (Boyatzis et al., 2002). Second, explicit and intentional efforts are necessary to link the educational process to the desired professional outcomes articulated in the competency models. Reaching a point where the acquisition of cognitive and technical knowledge is integrated with a broader set of competencies and measuring student performance on these broader competencies requires significant effort and attention.

### Competency Modeling in Human Resource Management

The practice of competency modeling in the field of human resource management has become very common (Campion et al., 2011, Boyatzis, 2008). In the literature, there does not seem to be a universally accepted definition (Shippmann et al., 2000) and competency-based approaches have been generally defined as focusing on “the underlying characteristics of a person that lead to or cause effective and outstanding performance” (Boyatzis, 1982). While competencies have been described in the literature as skills and abilities, Campion et al. (2011) point out that competencies are more than simply lists of required knowledge, skills, abilities and other characteristics (KSAO). Some of the competencies commonly described in organizations are different from traditional KSAO’s in that they include “extra-role” performance that could include prosocial behaviors, such as organizational citizenship behaviors that are not associated with particular tasks but instead are believed to contribute more generally to organizational performance (O’Reilly and Chatman, 1986). Competencies can be tailored to an organization’s strategy and culture, and therefore a standard list of them does not exist.

A typical competency model identifies multiple competencies and associated behaviors required for effective performance in a particular organizational or professional context (Mirabile, 1997). Levels of competencies may be arranged in a hierarchy, describing increasing levels of capability, and behavioral descriptors can be used to assess one’s performance using the competencies as a criterion measure (Mirabile, 1997, and Rodriguez et al., 2002). Different jobs within a discipline or within a career path may require ascending levels of the competency, which provides a foundation for both performance assessment and career management systems.

In human resource management, competency models may be used to facilitate a number of human resource practices, including employee selection, employee development and succession planning (Campion et al., 2011). Identifying required competencies can serve as a “blueprint” for hiring, as organizations attempt to find a match not only between a candidate and a job, but to make a more holistic match between the candidate and the organization in a way that incorporates evolving job roles and career advancement requirements. Competency models typically provide a clear definition of each competency along with behavioral performance indicators that can be observed and used to evaluate employee capability (Markus et al., 2005). Organizations can then use assessment data and hierarchical orientation to competency modeling to create and carry out employee development systems. Competency modeling may also enhance the comprehensiveness of the measurement of work performance (Bartram, 2005), adding broader competencies to the more commonly utilized supervisory ratings of task performance (Campion et al., 2011).

Competency-based approaches differ from traditional approaches which emphasize the tasks that need to be executed within a job and the KSAO’s required to perform those tasks (Campion et al., 2011). Using this approach (sometimes described as the job analysis approach), the KSAO’s are tied to explicit tasks required by a job and the value of the KSAO’s is limited to that context. However, in a competency approach, performance capabilities have greater value in their own right. What is unique about a competency approach is its behavioral focus and resulting descriptions of human characteristics that are

broader than traditional task-driven approaches. In other words, a competency describes what a person should be capable of doing beyond the narrow scope of the current job description. Examples of competencies found in the literature and practice include “interacting and presenting,” “organizing and executing,” and “leading and deciding” (Bartrum, 2005).

Markus and colleagues (2005) identified three distinct orientations within the competency modeling movement. The first of these orientations is driven by the need to define functional performance requirements necessary for effective role performance. These performance standards are articulated in terms of work outcomes rather than task execution. The second orientation focuses on the psychological characteristics (motives and personality traits) that predict superior performance. The third orientation is characterized by an even broader strategic orientation. This orientation is driven by strategic intentions to develop competitive advantages at the collective, rather than individual level. Organizations utilizing this orientation facilitate collective learning and other strategic human resource initiatives so that aggregated individual competencies become core organizational competencies, which provide strategic competitive advantage. Our approach to competencies and the model we discuss later in this paper incorporate all three orientations.

### Contextual Factors

There are several contextual factors that have contributed to the movement toward competency modeling in human resource management. Management positions are more ambiguous than lower level roles. Managerial jobs are described more often in terms of broader areas of responsibility and goal orientation, therefore, it is necessary to identify the qualifications for such jobs as more general competencies rather than more narrowly defined KSAO's (Campion et al., 2011). Shippmann et al. (2000) point to assessment center approaches as some of the original examples of competency modeling. Assessment centers treated managerial roles and the capabilities to perform them as being somewhat homogenous or universal across organizations. Assessment centers then focused on identifying and developing these broad capabilities in current or prospective managers. Delaying of organizations, employee involvement, and job enrichment programs have caused a kind of trickle down of this phenomenon to even lower level jobs. Further, changes in organizational systems that may be described as generally consistent with the quality management movement and calling for greater employee involvement at all levels have had a similar effect. Competency modeling can align managerial work roles to business goals and strategies (Shippmann et al., 2000) and improve “line-of-sight” connection between jobs and organizational goals. In contrast, traditional task-driven approaches typically do not encompass broader employee capabilities that contribute to such strategic imperatives as problem solving, customer orientation and continuous improvement. The increased employee involvement found in high performance work systems necessitates the addition of competencies to existing task requirements. Technological change is also a significant catalyst for the movement to competency-based approaches. As new technologies are introduced, tasks change in fundamental ways and the existing task oriented descriptions are rendered out of date or even obsolete. Hiring and development systems based only on alignment of employee capabilities with tasks are inflexible and ill suited to adaptation. In an environment in which tasks are constantly changing, competency models are more enduring descriptors of performance requirements that assure the sustainability of employee selection and developmental systems.

A third driver of the competency movement is a heightened career orientation. Organizations recognize that employees expect to address a need for growth and development more today than in the past. Employment systems that are focused solely on task performance in current job roles do not readily facilitate employee development and career management. Competency models identify and facilitate assessment and development of competencies that cut across levels in the organization and provide the foundation for a career oriented approach to managing organizational talent systems.

### Evidence of Benefits

The benefits of using competency-based approaches have been discussed in published manuscripts (e.g., Markus et al., 2005, Campion et al., 2011). The benefits include the potential for improved talent management systems, particularly employee recruitment and selection systems and improved career management systems (including succession planning and employee development). Competencies may be used as useful criteria for promotion and advancement (perhaps in contrast to the “spoils” system which relies on past performance as the emphasized, and sometimes sole, determinant of promotion). “Talent pipelines” can be built through management development initiatives focused on competencies, which are linked to organizational strategy and goals. Competency models may also foster organizational change management through more adaptive HR practices and broader definition of managerial capabilities beyond narrow job functions.

Some of these benefits are quite relevant to the challenges in management education. Educational institutions are engaged in the preparation of present and future managers and must impart sustainable managerial capabilities to be relevant to their students and the organizations that employ their graduates. Not knowing exactly what students’ roles will be and knowing that they will likely work for multiple organizations over the course of their career calls for academic institutions to design programs around more general and generalizable competencies which will serve graduates’ needs regardless of organization and position that they find themselves in.

### **EXPANDING THE ROLE OF COMPETENCY MODELS IN UNDERGRADUATE BUSINESS EDUCATION**

Expanding the role of competency modeling in an undergraduate business education is consistent with the role of business schools in preparing its graduates for successful employment after graduation. Attention to the required job demands in post-graduate positions is well established and has become institutionalized in business school norms and practices, as well as accreditation processes by the Association to Advance Collegiate Schools of Business (AACSB) (Abraham and Karns, 2009). This imperative to prepare graduates that bring relevant knowledge, skills, and abilities to the organizations that hire them underlies many educational programs and practices in business schools.

Many of the contextual factors driving the adoption of competency models in the business community are relevant in the business educational context as well. Preparing students for a wide array of organizational and role assignments, as well as building a foundation for career development, is much akin to the challenge of identifying sustainable managerial capabilities that will be useful in a wide variety of roles and situations. Today’s graduate is likely to hold many more jobs over the course of his or her career than previous generations, whether those jobs are similar across organizations or within the same organization (Akkermans et al., 2012). In addition, the dynamic nature of the business environment demands employees who can adapt and apply themselves to learn new knowledge and capabilities in order to compete. Changes to information technologies and work systems, for example, demand that employees have the ability to adapt to these changes in context. For these reasons, business education that focuses on developing student’s abilities around competencies and their attendant behaviors is more consistent with the demands that will be placed on them as professionals.

The changing nature of business organizations’ approach to training and development also influences the need for more attention to competency development. Individuals are much more accountable and responsible for the development of new knowledge and capabilities. The traditional model where businesses invest in formal identification and training of its employees has become much less prevalent thereby increasing the need for individuals to take more responsibility for their on-going development (Spellman, 2010). For these reasons, a focus on developing competencies, and not just content

knowledge, is more likely to prepare graduates for the work world they will enter may yield a number of important benefits.

### Benefits to Students and Higher Education Institutions

Implementing a competency-based framework in a business school program and curriculum prepares students for what they are likely to face in the work world. To the extent that many employers use competency models to guide their employee development and selection processes and training programs, exposure to competency modeling will benefit students by exposing them to the concept. Second, employers expect to hire graduates that not only have the technical and content knowledge requirements of the position, but they expect behaviors consistent with business norms (Shuayto, 2013). Because competency models often describe broader capabilities and behaviors that extend beyond the scope of a traditionally narrow job description, a competency model describing the expected knowledge and behaviors will be a better representation of expectations of student's post-graduate positions. To the extent that students can learn about and develop the competencies necessary for professional success during their college years, they will have a "head start" in their professional development. Second, deployment of a competency-based curriculum will necessarily involve discussion and development of behavioral skills and practices that may bear on the student's future success. By assessing student competencies early in the program, students can formulate individualized development plans to enhance their preparation prior to their graduation. This practice of building self-awareness about their own strengths and areas needing development, as well as developing plans to improve their development relative to the competencies is a model for life-long learning and development that they can employ throughout their careers. As business organizations decrease their training budgets in response to tough economic conditions, the graduates' abilities to proactively pursue opportunities to develop their abilities will serve them well in long-term career development.

A third benefit of a competency framework is enhanced insights about how students plan for longer-term competency development. Students who have been exposed to a competency-based approach may be more aware of and better able to assess the tools and resources that a potential employer provides to develop their employees. As such, the student is better able to evaluate future opportunities with the employer. Students may be better prepared to assess their fit with a potential employer if they consider a broader range of factors that go beyond tangible factors (such as salary and benefits) and include issues related to employee development. In addition, the insights that the student gains about his or her developmental needs can provide for a better assessment of the congruence of factors such as their career orientation and developmental goals with any particular potential employer.

Alternatively, graduates may find themselves in organizations that do not have formal development programs or may not have access to them. To the extent that these students have some understanding of the competencies required to succeed and ways to develop them, they will be better able to assess their own capabilities and identify means to develop their competencies on their own.

The movement to competency frameworks can align business programs with the demand characteristics of the labor market. In other words, we would expect students prepared using competency frameworks to be more attractive candidates due to their exposure to relevant competency frameworks and potentially fit better with organizations.

A competency-based approach can also benefit business schools in ways that are distinct from the benefits that accrue to individual students. If business schools involve potential employers in the process of developing the competency model and methods of assessment, business school programs can align expectations regarding student achievement with factors that are highly relevant to the employers that want to hire their graduates, which improves accountability with accrediting bodies and other external

stakeholders (Holtzman and Kraft, 2010). Over time, success at preparing students to meet expectations relative to these competencies will enhance the business school's reputation (or brand) with potential employers and prospective students. Due to their practical nature of competencies, schools employing them may enlist alumni and business organizations in the educational process and connecting students and their programs with employer early on.

Because competencies are outcome-focused, competencies lend themselves to assessment activities and practices. One of the challenges of assessing cognitive abilities is the difficulty of identifying indicators of student knowledge. Because competency models are based on observable behaviors, the indicators of competency achievement are inherent to the model.

In addition, the fact that competencies are often behavioral in nature and more tightly linked to expectations in the workplace, students and faculty may find assessment activities more relevant and important. To the extent that students and faculty can see the connection between assessment and future career success, their willingness to engage with assessment activities is likely to increase. Given the increasing demands for accountability that educational institutions are facing, additional opportunities to improve the measurement of student outcomes and showing how those outcomes are related to professional success is important to individual institutions and to higher education, more generally.

### **APPLYING COMPETENCY MODELING IN AN UNDERGRADUATE MANAGEMENT PROGRAM**

Our journey to developing a competency model began with the need to assess our students' achievements of the learning outcomes that we had developed. When we began this process, the learning outcomes for our undergraduate management program were largely a list of knowledge (or cognitive content) that students should demonstrate before graduating. If we were going to assess student performance in any other way than through their performance on exams, then we would have to identify observable measures of their performance.

As the faculty went about identifying the indicators necessary to demonstrate achievement of the learning outcomes, we became more aware of the limitations of the learning outcomes we had developed. First, the learning outcomes in their initial formulation looked like a list of course objectives all put together on one list. While these created a type of simplicity or "neatness" in its implications for our curriculum in that the faculty members knew which learning outcomes were addressed in which class, the list was incomplete in that they did not reflect the comprehensive set of expectations we had for students. In addition, our learning outcomes were all cognitive or knowledge-based and our discussions forced us to step back and ask, "What type of abilities do we expect our students *to demonstrate* when they graduate?" For example, our learning outcomes presented our expectation that students know the underlying management and psychological foundations for effective teamwork, but, in reality, we also expected students to be able to demonstrate the ability to be effective team members; this expectation was not expressed in our learning outcomes. In other words, our early learning outcomes focused on the content knowledge but not the student's ability to demonstrate his or her ability to act on that knowledge, and in this case, collaborate or lead a team.

By moving towards the articulation of competencies, our discussions became more focused on the program, as opposed to individual courses. We learned to expect that many of the competencies would be addressed in different classes in different ways and that this "redundancy" was important because it reinforced the programmatic goals that we had for our students.

Through these discussions, we also concluded that our learning outcomes did not reflect the types of investments we made in students through any number of curricular and co-curricular activities. Our

college and department, in fact, invested a significant amount of energy and money in creating co-curricular opportunities for our students in order that they could develop collaborative and leadership capabilities in student organizations, for example, or by supporting student-led conferences. These activities were carried out because we thought they contributed to our students' learning, but these expectations were not explicitly identified in any of our learning outcomes. Companies that hired our students also expected students who could demonstrate these collaborative and leadership abilities. In addition, we observed that those students who gained positions in companies with high potential for career growth were the students who were displaying many more qualities than were represented in our student learning outcomes. For these reasons, we embarked on revision of our learning outcomes to more fully reflect our aspirations for our students as well as the commitment faculty had to preparing students for professional success.

We also struggled with balancing our desire to articulate the full breadth of learning that we wanted students to achieve with the very real costs in time, energy, and financial resources that are required to deliver to and assess on many behavioral indicators. It was difficult to know when the competencies and behavioral indicators were refined enough to serve as meaningful objectives and measures to achieve our overall objectives.

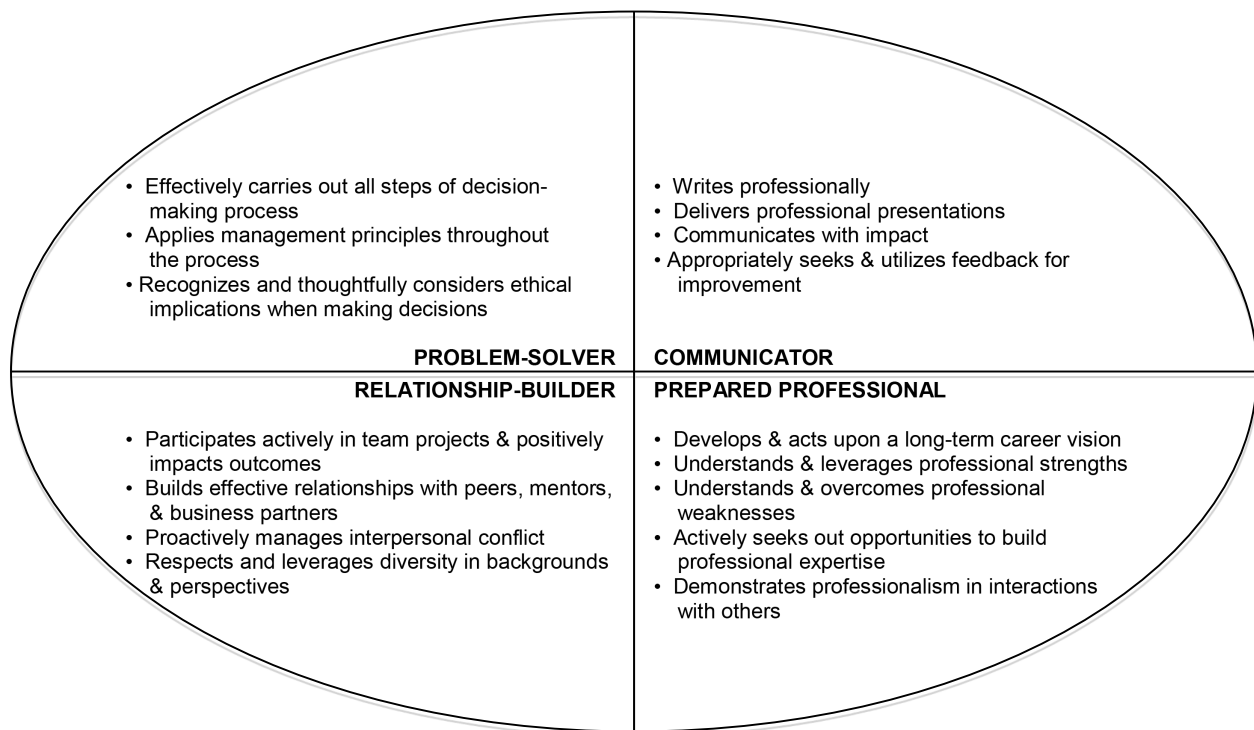
As a result of these discussions, we identified a framework of four general competencies, each with specific behavioral indicators. We sought input from those representing employers who are hiring our graduates to refine the competencies and behavioral indicators. Our department advisory board of a dozen managers participated in the refinement and revisions to our competency model. This discussion helped us characterize the types of behaviors that were most critical to early career success in ways that were meaningful to employers. For example, the faculty felt that students needed to understand the role of diversity in effective teams. While the faculty had anticipated a discussion of ethnic diversity, the managers quickly migrated to the challenges of age diversity and how new graduates had to learn to manage and interact effectively with a diverse set of age groups. Based on this discussion, faculty made final revisions to the competency model.

Figure 1 shows the competency model that was developed by faculty with the aid of our advisory board. The model incorporates four broad competencies: problem-solving, communication, relationship-building and professional development competencies, each with a set of indicators to express the behaviors that demonstrate achievement of the competency. While the behavioral indicators are specifically linked to one of the four broad competencies, some behavioral indicators may be relevant to more than one competency. For example, seeking and using feedback for improvement is identified as a behavior under the communication competency. It is clear that this behavior related not only to communication but also to what is necessary for the professional development competency. The fact that an indicator is relevant to multiple competencies only reinforces the importance of the behavior.

Note that the cognitive content, or technical knowledge, expected of our students is embedded in these behaviors, rather than identified separately. For example, students are expected to demonstrate knowledge of management principles not by simply stating them but by applying them through the problem-solving process. Similarly, students are not just expected to know what ethical implications are but be able to apply their knowledge of to the problem-solving process.



Figure 1: Management Program Competency Model



*This figure shows a competency model we developed to incorporate four broad competencies for an undergraduate management program. It includes problem-solving, communication, relationship-building and professional development competencies, each with a set of indicators to express the behaviors that demonstrate achievement of the competency.*

Although we continue to develop methods to assess student performance and improve opportunities for students to develop the competencies both in and out of the classroom, the development of the competency model and implementing methods to assess it has already generated a number of benefits. First, and perhaps most importantly, there is a clear focus on the program that orients faculty to their curriculum and class work. When the learning outcomes consisting largely of content knowledge that was neatly folded into classes, there was discussion of “who teaches what in which class” but little in terms of the ultimate purpose of that learning or the fact that students experience a program more holistically. Because the behaviors associated with the competencies do not fit neatly into a single class, the discussion by faculty has largely moved to a program-level discussion. Classes and co-curricular activities are discussed as a means to an end, not ends in and of themselves. The change in perspective from class to program also broadens the faculty’s perspective and stimulates a much broader consideration of the opportunities for enhancing student achievement.

A second benefit is a shared language among faculty and students. When all faculty members discuss the desired outcomes for students in consistent language, their importance grows in the minds of students. Faculty members often discuss their particular course objectives and how they fit into the competency model. As students see reinforcement of the competencies across the curriculum, the curriculum becomes more cohesive and students have a better understanding of how the parts contribute to the whole.

Finally, the competency model has helped the faculty identify many more ways to assess student performance. While earlier assessment methods largely focused on rating student papers or exam questions, the competency model broadened methods to include assessing performance in mock interviews and a 360-degree feedback system by internships supervisors and peers, which bring new

insights into how our students perform in a wide variety of settings both in and outside of the classroom and creates an opportunity to triangulate data on student performance.

### Implications of a Competency Model Framework in an Undergraduate Management Degree Program

The use of a competency-modeling framework in an academic setting brings with it a number of implications, particularly with regard to assessment, facilitation of the transfer of competencies to students' work life after program completion, and career orientation.

The assessment of a traditional content-focused curriculum has been fairly straightforward in the past, as a body of knowledge was typically assessed through objective testing. A competency model-based approach brings with it some special considerations when engaging in assessment. Assessment is a necessary component process of any successfully managed endeavor. Noted management theorists W. Edwards Deming and Peter Drucker both emphasized the essential nature of being able to use measurement to identify baseline conditions and to detect the results of interventions. Educational institutions have sometimes been reluctant to embrace assessment and have typically limited it to the knowledge-based outcomes. As discussed earlier in this paper, a key attribute of competency modeling is the behavioral focus. In other words, what one *can do* is at least as important as what one *knows*. Historically, business education programs (and perhaps other professional degree programs) have focused on knowledge absorption. The focus on concepts, techniques and processes was often devoid of context and application. We did not abandon the expectation that students master the expected content. However, we added the expectation that students develop and demonstrate targeted competencies that incorporate behaviors as well as content knowledge. Consequently, teaching approaches must be bolstered by more active and applied learning methods. Similarly, assessment must also be adapted to measure student competencies by assessing behaviors, and not just knowledge.

Assessment is important in both pre- and post-intervention stages, although in higher education we have more commonly emphasized post-intervention assessment. Pre-measures are important for two reasons. First, it is important to establish a baseline as a starting point; otherwise it is difficult, if not impossible to conclude that student achievement has occurred. Furthermore, the feedback provided from assessment to a student can be a significant stimulus to and even a source of learning. Post-program assessment can gauge the accomplishment of learning and enhancement of competencies, as well as allow "fine-tuning" of educational processes and methods to improve learning.

The transfer of learned content from an undergraduate business program into real world application is paramount in the ultimate judgment of the worth of that education. Transfer refers to the extent to which learning is utilized in applied situations. Similar to the unique challenges of assessment brought on by the application of a competency model in education, the challenges of competency transfer are distinct from those associated with knowledge transfer. Knowledge and skills transfer has been a recognized problem in the training literature for many years (Baldwin and Ford, 1988, Saks and Belcourt, 2006). Some estimates indicate that even in specific job-relevant contexts, as much as half of desired learning does not get transferred or utilized in the workplace. In an educational context, we might expect the transfer rate to be even lower due to the challenges of making learning directly applicable to unpredictable job roles and organizational contexts. As educators, we need to be concerned about the extent to which what we teach ultimately gets applied in the course of our graduates' careers. In business schools, some have resisted the so-called "trade-school" orientation of measuring our success in terms of job attainment and relevancy of jobs to program of study. On the other hand, many programs have embraced the use of external certifications as indicators of program efficacy. To the extent that a competency model approach incorporates knowledge as well as behaviors, we are emphasizing knowledge and skills that are a generalizable across a wide range of professional domains. Recognizing that our students go into a wide

variety of fields, roles and organizational types, the competencies maintain relevance regardless of the path taken by the student.

The behavioral orientation inherent in a competency-based approach can be expected to improve the likelihood of transfer. Beyond the use of external certifications and a behavioral orientation, there are some additional considerations for improving the rate of transfer and application of educational foundations. Providing opportunities to apply learning can facilitate the likelihood of retention and future application of learning. Some of the critical influences on transfer are the perceived utility or value of training/education, having a realistic training/educational environment, opportunities for behavioral modeling, and learners with an enhanced sense of confidence (Grossman and Salas, 2011). Through learning media that emphasizes behavioral learning, all of these factors may be enhanced. Student organizations, shadow-day experiences, action learning, case studies, applied projects and an emphasis on behaviors, instead of just knowledge, are all likely to improve the likelihood of learning retention and transfer.

Another important implication of the use of a competency modeling approach is the establishment of a career orientation as a foundation for ongoing competency development as post-graduates. The competency approach is consistent with the broader purpose for students. A career orientation is an important part of our competency modeling effort. Our objective is to develop students not only for their first job, but to help them to see the value of continued development and growth. Much of what they learn in an undergraduate business program is merely a foundation for future growth and career success. Competency models recognize the evolutionary nature of development and the need for continuous development. The applied nature of many of the tools used in the classroom, the emphasis on co-curricular programming and opportunities for experiential learning all are consistent with the behavioral orientation that is inherent in competency modeling. It is our expectation and goal that the competencies developed in the program will be useful to our students as they seek entry-level positions and to our alumni as they manage their careers beyond entry level.

## **CONCLUDING COMMENTS**

In this paper, we explored how competency modeling can create benefits for both students and higher education institutions and specifically business education programs. In our review of how competencies have been used in the human resource management field and in higher education, we found that many of the drivers of competency modeling in business organizations also apply to business education. Because our graduates will need to demonstrate technical knowledge and be generalists as well, incorporating broader skill development through competencies with content knowledge can enhance the future success of our students.

We discussed a number of student benefits of adopting a competency-based approach, including how a competency framework creates an over-arching context for the knowledge delivered through the curriculum and the benefits of preparing students for longer-term career development. Higher education institutions can also benefit from a competency-based approach because competencies provide a unifying framework for managing and developing academic programs. They create a platform for shared language around student learning outcomes and curriculum development. Competencies also provide a comprehensive framework for assessment, as well as the potential to create a greater sense of cohesion across the program and the faculty that teach its courses. In spite of these benefits, a competency-based approach is not a panacea. Competency models need to evolve over time to adapt to the needs of our students and the organizations that employ them. In spite of its challenges, adopting a competency model can enhance business education and student outcomes.

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# **POSITIONING FOR INTERNATIONAL MARKET SEGMENTS IN HIGHER EDUCATION: EVIDENCE FROM SAUDI ARABIA**

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## **ABSTRACT**

*The purpose of this qualitative research was to identify target segments to achieve objectives related to the recruitment of high performance international students and distinguished faculty in higher education sector of Saudi Arabia. Based on the premise that internal communicative branding activities are vital for educational institutions, the study examined faculty's perceptions of relevant positioning attributes for Saudi Arabia to compete in the global academic marketplace. Analysis of 92 faculty's responses helped to develop awareness of a perceived added value to occupy a niche in the higher education market. The findings highlighted distinctive positioning strengths to brand higher education institutions in Saudi Arabia. However, it can be implied that Universities should strategize their internal values rather than factors of the external environment to capitalize on these assets in the long run.*

**JEL:** M30

**KEYWORDS:** Positioning, International Target Segments, Higher Education

## **INTRODUCTION**

Within the new global environment characterized by increasing competition, higher education institutions are emerging as organizations driven by the commercial imperative of market-led forces. In the highly competitive educational market, differentiation and effective positioning appear to be key success factors pertaining to the choice of study and work destination. Universities all over the world compete to recruit international students and faculty in response to globalization and quality standards. Therefore, there is a need for higher education to build strong brands locally and globally.

Positioning an organization in the environment of its industry is one of the most important phases of the organizational strategic planning. Universities currently face complexities in external variables to which their internal structures are under pressure to adapt. Seeking to be acknowledged internationally has become a strategic goal of universities across the world. OECD (2002) specifically uses the number of students studying abroad, import and export trading of educational service as the index of internationalization of higher education in each country.

Higher education sector in the Kingdom of Saudi Arabia has grown substantially since late 1990s in response to national development plans and high demand for a qualified workforce. All education sectors in Saudi Arabia benefited from continual private and public support. The Kingdom is an attractive market for education services, as it represents the largest education base and the largest market for education services in the Gulf Cooperation Council (GCC) region. According to the report of US-Saudi Arabian Business Council (2009), public spending for education is estimated at 5.7 percent of the country's GDP, comparable with the UK (5.3 percent), Germany (4.3 percent), and South Korea (4.2 percent).

The upward trend of budgetary allocations highlights the strategy for sustained economic development. The number of public universities increased from eight universities in 2000 to 25 universities in 2012 in addition

to 35 private institutions of higher education in the country. This expansion of the higher education sector went along with the establishment of the National Commission for Assessment and Academic Accreditation (NCAAA) that obligates all universities to create a long-term strategic plan to meet national higher education quality standards that are consistent with international accreditation.

The boom in the number of Saudi Universities created competition for students, faculty, and financial support among higher education institutions. They strive to occupy a niche and develop a distinctive positioning strategy that would enable to achieve their strategic goals in the increasingly competitive academic marketplace of Saudi Arabia. However, universities in the public sector of Saudi Arabia lack experience in positioning their institutions to forge strong and individual identities. Newly established institutions face a need to raise the quality of the educational process by means of recruiting international professional employees and high achievement students to meet the criteria of NCAAA accreditation standards.

International marketing is not a separate endeavor but one of the strategic priorities to facilitate activities of Saudi universities towards regionalism and international collaboration. Thus, the problem of this research was to identify potential international target segments and specific positioning attributes that could be implemented to achieve the objectives related to the recruitment of high performance students and distinguished faculty at Saudi Universities. This research applies well-established business strategies of market segmentation and market positioning to the higher education sector. The purpose of this study was to examine faculty's perceptions of relevant positioning attributes for Saudi Arabia to compete in the international higher education marketplace.

The remainder of the article discusses current trends and the nature of educational services that reflect marketing strategies in the context of higher education. Furthermore, it presents findings and implications within the research framework to illustrate particular international market segments as applicable targets for strategic positioning in higher education of Saudi Arabia.

## LITERATURE REVIEW

There is a general consensus among scholars that branding is as important for educational institutions as it is for commercial businesses. However, marketing in education provoked a lot of discussions. Driscoll and Wicks (1998) argue that market for traditional commodities and the university education is different. Gibbs (2001) claims that the economic market commoditizes higher education on the basis of the accreditations earned at higher education institutions.

Chapleo (2006) holds that brand management in higher education is similar to nonprofit brands, but it may not necessarily be suited for the specific needs of the university sector due to greater competition in the market. Harrison-Walker (2009) emphasizes that strategic positioning, which has critical application to marketing in higher education, is often mismanaged.

A substantial number of published studies address the subject conceptually (Aaker & Shansby, 1982; Lowry and Owens, 2001; Mashhadi et al., 2008; Harrison-Walker, 2009; Manhas, 2010). Positioning has been acknowledged as a core branding activity (Aaker & Shansby, 1982). A quality-oriented approach toward strategic positioning in higher education has been discussed by Mashhadi et al. (2008). By directing all of its marketing efforts towards a desired positioning, a university maintains coherence and unity in its activities and establishes a specific image (Lowry & Owens, 2001). The characteristics of a good positioning are considered to be uniqueness, prevalence, and strength (Aaker, 1991).

Some researchers make attempts to differentiate service from product branding to avoid the danger of adopting product based branding strategy in positioning higher education institutions (Padgett & Allan,



1997; Morrison & Grane, 2007). Padgett & Allan (1997) emphasize the experiential aspect of services that plays an important role in conceptualizing a service brand image because it represents the customers' perspective. According to Morrison & Crane (2007), emotional dynamics plays a powerful role in the customers' selection, satisfaction and loyalty toward service brands.

Within the context of higher education, customer-based brand equity is concerned with the ways prospective students, employees, legislators, other stakeholders, and general public perceive the value added to an institution by associating it with a brand name. Customer-based brand equity is a multidimensional construct. In general, customer-based brand equity comprises brand loyalty, brand awareness, perceived quality, brand associations, and other proprietary brand assets, such as trademarks and patents (Aaker, 1991).

Branding builds an institution identity (Chapleo, 2005; Guzman et al., 2006; Goi Mei, 2010; Lockwood & Hadd, 2007). Chapleo (2005) argues that universities undertake insufficient effort to clearly differentiate their institutions from competitors. Lockwood & Hadd (2007) reiterate that much of the branding work in higher education has been in peripheral areas, such as assessing logos, creating and disseminating marketing materials, or selling licensed merchandise. So, improvements should take place along dimensions of marketing communications, reputation, and public relations activities.

Relationship marketing' highlights the importance of establishing relationships with stakeholders to market their institution. Relationship marketing strategy is compatible with the nature of the higher education sector because it promotes involvement of employees and students in marketing and image-building. Trim (2003) contends that higher educational institutions cannot be promoted if faculty and staff are not responsive to the students' needs and expectations.

Taylor and Reed (1995) hold that marketing in higher education should not take a totally student-centric perspective, but ought to balance needs of various stakeholders. Although the key targets for university's positioning program are prospective students, faculty and staff represent another important sector (Lowry & Owens, 2001).

McAlexander & Koenig (2010) situate brand community framework in the context of higher education marketing investments. As loyalty to the institution depends largely on a sense of belonging, it is one of the critical aspects to determine students' choice. An effective brand management strategy can be maximized only if the brand carries a promise and if every member of the academic community is committed to fulfilling that promise (Lockwood & Hadd, 2007).

Brand messages conveyed to employees internally should closely match those sent to customers (Judson & Aurand, 2009). This becomes even more critical for service organizations where consumer loyalty is typically challenged by service quality, which is often more variable and more difficult to control than product quality (Schultz, 2002).

Researchers emphasize that building brand identity begins within the organization and requires coordination of branding communicative efforts (Schiffenbauer, 2001; Schultz, 2002; Judson & Aurand, 2009). Schiffenbauer (2001) contends that the brand message will lose its credibility if it is not supported by the employees within the organization. Hence, internal branding efforts are essential for employees to understand and take ownership of the brand.

Another line of research has been evolving to help brands achieve differentiation with respect to social values. The use of marketing in education to satisfy consumer needs ignoring the mission of the educational institution misrepresents the essential nature of education. Non-profit organizations are required to focus not only on economic rewards, but on social benefits, such as spiritual values and sharing of humanitarian

ideals (Arnett et al., 2003). Guzman et al. (2006) present a reference group influence model of brand building via social values by leveraging brand equity with public services.

Developing brand identity is important for both public and private universities. Goi Mei (2010) explored the difference in service branding model between private and public higher educational institutions. The finding of the study showed that positioning of private universities is better developed than of public higher education sector (Goi Mei, 2010).

The value of a brand image to attract prospective applicants is a topic that has garnered most interest recently (Lowry & Owens, 2001; Rapert et al., 2004; Bennett & Ali-Choudhury, 2009; Judson et al., 2009). Bennett & Ali-Choudhury (2009) argue that branding facilitates students' decisions in selecting of an educational institution, particularly, by the promise of outcomes. A strong brand increases the institution's ability to compete for the best students, gain alumni membership and financial support from donors (Judson et al., 2009). Consequently, success in the educational marketing environment depends on the ability of an institution to recruit and retain the best students, faculty and staff (Jevons, 2006; Melewar & Akel, 2005). Rapert et al. (2004) argue that students are uniquely qualified to assess the quality of their educational experience. This aspect has acquired more significance due to the globalization of higher education associated with the creation of national and international brands by universities. Empirical studies focus on universities' branding initiatives in the US (Judson, et al., 2009; Jevons, 2006) and UK (Chapleo, 2006; Melewar & Akel., 2005). There is a body of research that deals with specific problems of positioning for international markets in higher education of Asia (Gray et al., 2003) and Australia (Whyte, 2001; Shanka et al., 2005).

According to the large-scale research of Becker & Kolster (2012), the number of countries that are actively involved in international student recruitment has grown considerably. Since international students mobility patterns are not fixed, countries that currently manage to attract a high number of incoming student should not take that for granted. The division between recruiting and target recruitment countries is blurring, and key recruitment countries for other nations are also actively recruiting foreign students themselves.

According to OECD's "Education at a Glance" report (2013), the United States is losing market share to other countries. The United States hosted 23 percent of all international students in 2000; that amount had dropped to 17 percent by 2011. Universities in other countries, especially in the East, are actively exploring niche markets in higher education.

Based on the premise that internal communicative branding activities are vital for educational institutions as service organizations, the authors developed an approach for their qualitative study.

## **DATA AND METHODOLOGY**

Due to its interpretive aspect, this research follows a qualitative method that offers descriptive statistics applicable to the study. A survey using a structured questionnaire was conducted in 2013 to elicit responses within a higher education setting. The overall sample size comprised 92 faculty in Saudi Arabia. The only relevant personal data considered for the research was the type of contract the employees had. The overwhelming majority of the respondents (74%) had an international contract, while only 26% of the respondents were hired locally, which means that such a sample gives a representative diversity for the research purposes.

The questionnaire contained multiple items related to two dimensions. First, it evaluated employment criteria for the academic faculty in KSA, as well as problems they encounter in the job recruitment process. Second, it investigated perceptions of faculty with regards to positioning attributes applicable for higher

education institutions to attract prospective international students and faculty. The attributes were selected to identify perceived target regions for recruitment of high performance international students.

## RESULTS

Job contract criteria were viewed as important by academic faculty. The majority of the respondents (78%) who filled out the survey placed salary at the top of the list, while professional development and research opportunities ranked second and third with corresponding 68% and 62%. This means that though financial benefits are the priority for the job seekers, employees in academia are very much concerned about the professional setting a university can offer. Other criteria, such as career promotion, friendly and cooperative environment and satisfaction for family needs, were ranked on average between 44% and 48%.

At the same time, 74% of the respondents would consider not to renew their contract if they encounter lack of administrative support. 57% of the respondents were dissatisfied with their illegibility for conference participation allowance which adds evidence to the professional development orientation on the part of the international faculty. Almost half of the sample regarded the lack of recreation facilities as a disadvantage of KSA. About one third (29.63%) were not contend with availability of postgraduate programs for teaching assignments. It should be noted that half of the respondents (53%) faced problems with initial contract negotiations, and one third encountered difficulties to process visas, verify academic credentials, and arrange travel and relocation. However, issues with cultural adaptation would be considered a reason for resigning only by 9% of the employees.

From the above mentioned data, it can be concluded that offering opportunities to pursue professional growth in the contracts for prospective employees would be a positioning strength for higher educational institutions of Saudi Arabia.

Some 90% of respondents in this study strongly agreed that international faculty and students are important for the University. 92% of respondents unanimously agreed that academic records is the most important criteria for admitting international students to a Saudi university, while 42% consider that majoring in Islamic studies and Arabic language is another significant factor. It should be added to these selective criteria, that 25% of the respondents considered religion and 17% - nationality as valid criteria for students' recruitment. Income status and gender were rated equally low at 8.47%.

These data represent a perceived student's profile targeting, to a large extent, international segments that are either affiliated with the Islamic world or pursue studies in the correspondent fields with no gender or income discrimination. The results are presented in Table 1.

Another important assumption drawn from the survey is the geographic segmentation. According to the responses, Saudi Arabia should attempt to recruit students from diversified locations around the world capitalizing on the niche market, rather than focusing on the Middle East. While the Middle East is still on the top position (3.61), it is narrowly followed by Asia (3.42) and Europe (3.26), which are in close proximity. The results in Table 1 show preferable regions for recruitment of high performance international students as perceived by academic faculty in Saudi Arabia.

In the second part of the survey, value categories were appraised to indicate strength variables and potential positioning attributes for a Saudi University. Three intersecting value categories were identified for the purpose of categorization: 1.) Quality standards and quality of educations, 2.) Tax free salary for employees and financial aid for students, 3.) Standard of life and availability of housing and recreation activities.

The results of cross-checking are consistent with the previous conclusion that faculty value equally financial benefits and professional opportunities with the ranking of the salary (3.44) and research facilities (3.33).

Additionally, Islamic culture was rated at the value of 3.27 for the students, and security and safety at 2.82 for the faculty. The table below summarizes value out of 5 points for the categories perceived as strength for attracting high performance international students and distinguished faculty to a Saudi University.

Table1: Distribution of Geographic Regions for Recruitment of High Performance International Students

Geographic Region	Target Segment %
Middle East	3.61
Asia	3.42
Europe	3.26
Americas	2.8
Africa	1.87

This table shows the distribution of regions for recruitment of high-performance international students.

As displayed by Table 2, there are a few patterns among responses common for both target segments, such as quality of the educational process and living standards with a slight overarching significance for the student segment. The respondents also agree that financial benefits are the key attractive category for both target segments, and it is a dominant factor for prospective international students. From this data, it can be concluded that internal institutional factors are ranked above the factors of the external environment.

Finally, respondents suggested that the best way for advertising higher education in Saudi Arabia is participation in educational fairs (87%) and the institutional website (74%), followed by utilizing advertising in media (53%) and social networks (55%).

Table 2. Distribution of Value Categories for Target Segments

Value category	Faculty	Students
Quality of education	3.36	3.42
Salary/ scholarship	3.44	4.15
Standard of life/ housing	2.38	2.45
Security/safety	2.82	-
Research facilities	3.33	-
Islamic culture	-	3.27
Reputation of KSA	-	1.8

This table shows distribution of value categories.

## CONCLUDING COMMENTS

The paper discussed potential benefits of applying marketing strategies, which have been effective in business, to the field of international positioning of higher education institutions. The findings led the authors to conclude that there is a lack of market orientation and customer focus to achieve competitive advantage in Saudi Arabia.

In general, marketing of educational institution is about creating value for stakeholders. There are unique assets that higher educations in Saudi Arabia can capitalize on to develop a distinctive positioning strategy with a clear message for prospective students and faculty, including international target segments.

A need for aligning accurate positioning messages with perceptions of internal stakeholders has emerged. Understanding faculty’s perceptions of marketing attributes may help awareness of customers’ expectations to differentiate a perceived added value in the market. It will enable effective communication between employees and customers, stable enrollments, greater students’ retention and less faculty turn-over, and as a result, increased quality assurance of the educational process.

The survey yielded clear results regarding applicable positioning attributes to target international market segments. The findings highlighted recognizable positioning strength in higher education of Saudi Arabia.

However, it can be implied that universities should strategize their internal values rather than benefits of the external environment to capitalize on these advantages in the long run.

Acknowledging the limitations of this small-scale research, the authors refrain from making wide generalizations. We encourage expanding this study to an approach that gives a better representation of customers' needs involving the student body.

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# **MODEL TO EVALUATE ATTRITION/RETENTION DECISIONS BY ACCOUNTANCY DIPLOMA STUDENTS: CASE STUDY EVIDENCE FROM SUDAN**

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## **ABSTRACT**

*Research to date which has analyzed attrition at universities and community colleges has tended to focus on clusters of factors which may or may not impact attrition. This paper extends the current literature and develops a model to evaluate attrition. Three core groups of factors which impact attrition are developed into a model. These are external factors, internal faculty factors, and demographic factors. The model was then tested on accounting students and the departmental head of a public institution offering accounting diploma programs in Sudan. The model identified many impacting factors from the three core groups. Satisfactory explanations were also available as to why other factors were not found significant, in this particular testing environment.*

**JEL:** I20, I29, M10

**KEYWORD:** Attrition, Accountancy Diploma Students, Attrition Model, Sudan

## **INTRODUCTION**

**T**he demand for accounting trainees has increased in recent years. Accounting governing bodies such as AICPA (2004), note how current business and legal environments should be encouraging an expansion of the accounting profession. However, evidence suggests the supply of competent accountants is insufficient to meet the current demand. Fielding (2005) notes a UK research study by RHI (2001) which found that 40% of respondents reported their accounting firm had faced difficulty in recruiting staff with the right accounting skills, to fulfil their increased workload. Similarly, in Australia, difficulty in recruiting competent accountants is noted by CPA Australia (2011).

According to Glass and Oakley (2003) this lack of supply can be attributed in part to the shortage of accounting graduates. According to Byrne and Flood (2005) and French and Cappage (2011) in several developed countries, whereas the demand for business studies has increased, the number of accounting graduates has decreased. Bean and Bernardi (2005), and Sullivan (2006) stated that there is a lot of negative publicity surrounding the profession. Rogers, Dillard and Yuthas (2005) noted that the accounting profession's appearance and reputation is based upon it being seen to act with the "highest sense of integrity". Enron and subsequent accounting scandals emanating from the global financial crisis, have contributed to the accounting profession's poor image and a loss of public trust in the profession. Heiat and Brown (2007), explained that this has led to a reduction in students considering majoring in accounting. Diamond (2005) stated that the accounting profession is heavily reliant upon accounting programs to produce trainee accountants any reduction in the number of accountancy graduates will impact the profession. Wilkerson (2010) further added that the accounting education can be viewed as underpinning the whole accounting profession.

Attracting potential students to study accounting is however only part of the issue. Retention of students within accounting programs during their studies, and to completion, is a separate and equally critical

issue. Accountancy attrition has become gradually more significant in higher education. In this study, the term attrition is used to refer to a student dropping out completely, transferring to a different college, or changing their major. Definitions of what exactly attrition is can vary, so this definition is selected as it is consistent with Dera (2004, p. 3) among others.

Bowler (2009) notes that attrition rates for universities and community colleges average 30% in the first year. Whereas a certain percentage of students can always be expected to drop out Mulverry (quoted in AAP (2005) considered a rate of 10-14% to be acceptable for an institution). This percentage should be minimised as much as possible. The purpose of the current study therefore is to develop a comprehensive model with which to evaluate factors which impact upon attrition rates in accountancy programs. Such a model will contribute to the extant literature in several ways by:

- (i) Adding to our understanding of the problems facing management of accounting training institutions, concerning low retention and high attrition rates among students;
- (ii) Investigating the factors that cause high attrition rates in accounting programs; and
- (iii) Comparing the attitudes of students to those of management, as to the most significant factors impacting attrition.

The paper extends current research on accounting attrition by developing a more comprehensive model than any previous study. Most extant research regarding attrition and retention focused on four years colleges and universities. Some focuses on community colleges. This research draws from both areas to investigate the attrition rate among accountancy diploma programs and develop the new model. The model is then tested on one institution and on both students and an administrator simultaneously. This factor is an extension of the traditional attrition studies which predominantly concentrate exclusively on student responses.

The remainder of the paper is structured as follows. The next section provides a literature review and hypotheses development. The third section describes the proposed attrition evaluation model. The fourth section outlines the research method. Section five provides the results and analyses. Finally the sixth section summarises and concludes.

## **LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT**

Research to date on attrition rates in accountancy programs has tended to focus on clusters of factors which may or may not impact attrition. Some studies have used four year colleges or universities as their test institutions whereas others have used community colleges (a vocational education setting). From a review of all these studies three core groups of factors which impact attrition are identified. These are external factors, internal faculty factors, and demographic factors. Let us consider each in turn.

### External Factors

“The first external factor in our model is financial factor. St. John, Paulsen, and Carter, (2005) stated that In the US financial assistance programs are very important in supporting students’ admission to community colleges, especially for students belonging to mid to lower socio-economic classes. According to Mendez, Horton, and Mendez (2012) college assistance programs offer the money needed to enrol in higher education, and without such programs students from these disadvantaged group, would not be able to obtain college education . Bharath (2009) and Clark (2012) found that in the US, being forced to pay for college is the number one factor that leads college students to dropout.”

“The second external factor in our model is Marriage and Relationship Involvements. Millar (2010) noted that marital status is an additional factor impacting students’ attrition, especially for female students Astin (1975 p.15) stated that getting married while in college has little impact on attrition rates for men but is an important factor impacting attrition rates of female students.”

“The third external factor in our model is Employment. Nakajima, Dembo and Mossler, (2012) note that in the US full time employment, while attending college full time, has a significant influence on college student dropout rates. King, and Bannon (2002), and Salisbury *et al*, (2012) stated that full time employed college/university students are less likely to prosper in college than students who do not have a job.

“The fourth external factor in our model is Personal and Family Illness. Roberts , McGill and Hyland (2012) conducted a study in Australia and discovered personal and family illness impact on female students’ decisions to withdraw from college. These facts are supported Sydow, and Sandel (1998) who reported about 32% of college students withdraw from college for family issues, such as death or illness of a close family member.”

“The fifth external factor in our model is poor English Skills. Bynum (2010) notes that in the US, English proficiency programs have influenced students’ decisions to stay in college. In South Africa, Brits *et al* (2011), note that a confident level of English proficiency, linguistic and study abilities are crucial factors for guaranteeing academic success.”

“The sixth external factor in our model is Racial and Demographic Tension. Pender (2010) notes that under-represented racial students in the US (African American, Latinos, and American Indians) have higher dropout rates than other racial groups (i.e. white and Asian students). According to Summers and Hrabowski(2006) these students fail to continue their studies because of inadequate or unsuccessful efforts by colleges, to help them upgrade their academic and social involvement in the institution’s setting”

“The seventh external factor in our model is Lack of Transportation. Roberts, McGill, and Hyland (2012) found that several characteristics of commuting to university were found to be an issue impacting attrition, particularly among female students.”

“The eighth external factor in our model is Conflict with College Authorities. There is a lack of literature concerning this factor and most attrition research has failed to focus on the issue. This study therefore extends previous research by considering this factor and including it in an attrition evaluation model.”

“The ninth external factor in our model is Absence of Clear Policies and Rules. As with the previous issue, this factor has not been investigated by many researchers and so is included for consideration here as well.”

“The tenth external factor in our model is Poor Attendance and Grades. Bean and Metzner (1985) included GPA scores in their model of attrition among college students. Most researchers find that this factor is more related to community colleges than universities due to the different academic settings of the two groups. This is commented upon by many researchers such as Leone and Tian, (2009), Kinloch, (2012), and Mikiko *et al*, (2012).”

“The eleventh external factor in our model is increased interest in other Areas over Accounting. Challenges such as accounting programs losing their students to other areas (for example nursing) and the explosion of interest in information technology, have contributed to increased student attrition from accounting courses. This has been noted in studies such as the AAA (1986), Arthur Andersen perspectives Paper (1989), AECC (1990) , and Frederickson and Pratt (1995).”

“The twelfth external factor in our model is Loss Interest in Accounting Studies. According to Bougen (1994) and Ferreira and Santoso (2008) a negative view of accounting programs appears to be reinforced in the first year of college education, which is exacerbated when out-dated teaching styles are used to teach accounting.”

“The thirteenth external factor in our model is Family Pressure. López, Desmond, and Bruch (2010) noted that in the US when parents involve themselves in their kids’ lives, these children gain high educational rewards. According to Astin (1999) family backgrounds therefore play a vital role in bringing students to institutions and encouraging them to complete their studies.”

“The fourteenth external factor in our model is Other Issues. This an open ended questions to find out if there is any other reason that could force the student to leave the college and not listed in this model.”

First hypothesis is therefore stated as follows:

*H1: External factors will impact attrition rates of accountancy programs.*

### Institutional Internal Factors

Institutional internal factors include all facilities and services provided by an accounting education institution, insofar as they relate to the accounting faculty. Eight such factors have been identified in the literature as potentially impacting upon attrition rates. Let us consider each in turn.

“The first internal factor in our model is Registration System. A few researchers such as Hale & Bray (2011) Andrews, (2003) and Angelo (1990) have completed studies focusing on the influences of the college registration system and its impact on retention and attrition rates. The findings of these researchers state that the college registration system strongly impacts retention and attrition rates.”

“The second internal factor in our model is Course Scheduling and Timetabling. According to Douglas, McClelland & Davies (2008) communication with students concerning modification to course timetables and exams has a significant impact on student satisfaction and attrition.”

“The third internal factor in our model is Curriculum. The college accounting curriculum factor has not been well investigated by researchers. Researchers such as Dorn (1993) and Ibrahim & Brihoum (2001) propose that college curriculum must be reviewed regularly to ensure it remains relevant to the requirements and demands of the industry. They stated industry built curricula not only assists in retaining students, but they also entice more students.”

“The fourth internal factor in our model is Course Assessments. Bailey (2009) noted that course assessment impacts college attrition, Bailey, Jeong, & Cho (2010) supported the above argument.”

“The fifth internal factor in our model is Teaching and College Instructors. The extant literature notes that “faculty-student collaboration” is a predictor of student attrition. Pascarella & Terenzini (2005 p. 394) as cited in Khan and Osman (2011); Tinto (1975), as cited in Khan and Osman (2011) agreed with this statements.”

“The sixth internal factor in our model is Classroom and Teaching Resources. There is little in the literature that addresses factors such as class rooms and teaching resources, and their impact on college attrition rates. Hence this study expands research into the area of attrition by considering if it is an internal institutional factor which may impact decision making.”

“The seventh internal factor in our model is Technology. The extant literature is inconclusive regarding the connection between student satisfaction, the utilization of technology in higher education, and their relationship, if any, to student attrition rates. Green and Gilbert (1995) supported the opinion that utilization of information technology improves the learning progression among college students which can lead to better retention rates.”

“The eighth internal factor in our model is College Services and Resources, this factors is divided five sub sections (a, b, c, d, and e). Blackmore, Douglas, and Barnes (2006) note that student’s satisfaction with college services such as library, employment and IT services, assists students in remaining at college. It also leads to them endorsing the college to their friends.”

“The first sub section (A) in the eighth internal factor in our model is Counselling and advising. According to Noel *et al* (1985) counselling and advising have a significant positive impact on student satisfaction and therefore retention rates”

“The first sub section (B) in the eighth internal factor in our model is Students Services. Harvey-Smith, (2002) as cited in Brits *et al*, (2011), notes that the accessibility of student services provided by the college can have a huge impact on student’s persistence and retention.”

“The first sub section (C) in the eighth internal factor in our model is Library and College Facilities. According to Mallinckrodt, Sedlacek (2009) this another area which has not received much focus is the relationship between the rate of usage of college facilities and student retention rates (. It is therefore included here to consider its possible impact.”

“The first sub section (D) in the eighth internal factor in our model is Extracurricular and recreational Services. Windschitl (2008) and Fenzel (2001) found that several activities that help to maintain a healthy lifestyle also have a positive influence on college retention rates.”

“The first sub section (E) in the eighth internal factor in our model is Academic Support Services. Roberts and Styron (2010), Pascarella and Terenzini, (2005), noted that many educational institutions offer their students different types of academic services and resources, in order to enhance the chances of retaining them”

The second hypothesis is therefore stated as follows:

*H2: Institutional internal factors will impact attrition rates of accountancy programs*

### Demographic Factors

Demographic factors relate to the specific personal situation of each individual and their personal attitudes and attributes. Many such factors have been assessed in the extant literature as impacting attrition. Six have been identified and selected for this study. Let us consider each in turn.

“The first demographic factor in our model is Age. Many researchers believe that the age factor is directly related to drop out decisions. Xenos, Pierrakeas, and Pintelas (2002) concluded that older students are more likely to dropout than younger ones.”

“The second demographic factor in our model is Marital Status. Jacobs and King (2002) as cited in Harpe and Kaniuka (2012) investigated the affiliation between marital status and graduation rates. The authors found that unmarried students with no children graduated at a greater rate than married students.”

“The third demographic factor in our model is Geographic Location and Nationality. A report by the Australian Education International (2006b) as cited in Jackling & Keneley (2009) noted international students dropped out at a lower rate than Australian (local) students. Other studies, such as Grebennikov and Shah (2012) similarly found that international students demonstrate better retention rates than local students.”

“The fourth demographic factor in our model is Years of studies. Horn (2009) noted how previous research revealed students’ dropout rates in community colleges tend to be utmost in the first year of study and then subsequently decreases. Bradburn (2002) supported these findings by noting 23 per cent of students withdraw from college in their first year, compared with 14 and 8 percent who withdraw in the second and third year.”

“The fifth demographic factor in our model is Level of Computing Skills. Research by Lim (2001) found that students with high computer skills tended to be more satisfied with their courses and were more likely to stay in college and even register for future courses.”

“The sixth demographic factor in our model is Reason for Choosing the Accounting Program. Mauldin *et al* (2000) cited in Uyar, Haydar and Kuzey (2011) investigated factors that influenced students’ decisions to choose accounting as a college major. They found that the accounting instructor was the most significant factor. Byrne and Flood (2005) summarised research from the USA, Canada, Australia and New Zealand which examined factors that impact students’ decisions to major in accounting and to seek a job in accounting.”

“The eighth demographic factor in our model is Encouraging Others to Major in Accounting. Studies by Pearson (2002) and Albert and Sacks (2000) noted earlier, commented upon accounting practitioners and educators, and their expressed opinion not to re-choose accounting as their first choice of study, if they were re-commencing. This research therefore will attempt to investigate this factor further, by asking current accounting students whether they would encourage others to take up accounting studies, and then link these responses to attrition rates.”

The third hypothesis is therefore stated as follows:

*H3: Demographic factors will impact attrition rates of accountancy programs.*

Finally, a stated objective of this paper in the introductory section was to extend current research in the area of attrition from accountancy courses by comparing the attitudes of students to administrators, as regards the significance of influencing factors. The fourth hypothesis is therefore stated as follows:

*H4: There will be no difference between the attitudes of students and administrators as to the impact of influencing factors, on attrition rates of accountancy programs.*

## **DATA AND METHODOLOGY**

### Survey Instrument

Having developed the model, it was incorporated into a survey instrument suitable for testing on students and administrators. The survey instrument listed in three parts, the first Part listed the demographic details requested of the students. This comprised the seven factors outlined above with some additional subdivisions as appropriate. For example, the students were asked to specify their specific diploma course, as accounting or finance as that was the option available at the tested institution. The second section listed 13 external factors outlined above section (literature review section) and also added a final open ended

question, soliciting any other reasons a student might decide to drop out. Part 3 listed the 8 institutional internal factors outlined above as well. However each of these was sub-divided further into 2-5 sub-factors, before requesting an assessment of the 15 overall factors. For example the first internal factor was the registration system. This was then further sub-divided into five categories: pre-registration, ability to add another course, delays and penalties, warning systems, and announcements.

Finally, Part 4 of the survey instrument listed a further open question inviting overall comments. The completed survey instrument therefore contained 66 items for the respondents to assess. A five-point Likert scale (from 1 (strongly disagree) to 5 (strongly agree)) was used to rate responses regarding (i) the level of impact each of these factors would have on a student's decision to drop out of college; or (ii) their satisfaction level regarding current college factors.

Data Collection: The researchers collected the data for this paper in February 2011.

### Participants

Sudan was chosen as a sample country in which to test the model. It was chosen for several reasons (location, economic, and social). Firstly its location in Africa. Differences exist in economic and political systems, cultural and religious beliefs, and ethnic backgrounds. All these have an impact on the education systems and are different when compared to continents such as Europe with a predominance of developed countries.

The survey instrument was distributed to the accounting/business students and their program director at one university in Sudan that offers a two year accountancy diploma program. The students completed them during lecture time under the supervision of one of the authors. The institution (University of Khartoum) administrator interview was conducted face-to-face with the program directors. The actual attrition rate was taken from university records, through the director, during the interview. 123 students' questionnaires were collected from the university and one administrators' (the program director) questionnaire. Also an interview was conducted with the program director. The attrition rate was 40%.

## **RESULTS AND DISCUSSION**

### *H1: External factors will impact attrition rates of accountancy programs*

First we used basic analysis of means and independent sample t-tests to test Hypothesis one, whether external factors contribute to attrition in Khartoum University (diploma program). Students were asked if the listed external factors would force them to terminate their accounting studies and the constructed measurement started with 1 (strongly disagree) and ended with 5 (strongly agree) on the 5-point Likert scale. Therefore all factors with means greater than 3.0 are considered to impact upon attrition. Out of the 14 external factors, nine were found to be significant, as they had means greater than 3.0. Table 2 lists them in order of importance as per the students' responses.

According to the students' responses we conclude that in Sudan financial factors, increasing interest in other majors, getting a job, academic factors, personal and family sickness, "other reasons", family pressures, losing interest in studying accounting, absences of clear policy, and English language, are the principal factors impacting attrition from accounting courses. The open ended "other reasons" question offered the following issues as impacting attrition: having to leave school to work, in order to support family; or finding difficulty in coping with the system, especially students from small towns and villages.

These results tend to indicate that external factors identified in previous literature do indeed affect attrition rates in the University of Khartoum, but some factors appear to have more influence on attrition

than others. The remaining four external factors, lack of transportation, demographic reasons, marriage, and issues with administration factors, had means less than 3.0 and so could not be considered as impacting upon attrition in this setting. This is discussed further below.

Table 1: Demographic Details

	Frequency and Percentage	
	No.	%
Age <sup>^</sup>		
17-20	122	100
21-25	-	-
26-30	-	-
Total	122	100.0
Marital Status <sup>^</sup>	No.	%
Single	122	100.0
Total	122	100.0
Diploma Type <sup>^</sup>	No.	%
Accounting	122	100.0
Finance	-	-
Total	122	100.0
Choice reason	No	%
academic advisor	12	9.8
Parents	18	14.8
high school result	70	57.4
others	22	18
Total	122	100.0
Year of study*	No.	%
1st	102	83.6
2nd	4	3.3
3rd	16	13.1
Total	122	100
computer skills*	No.	%
NO skills	19	15.6
beginners	42	34.4
good	43	35.2
Excellent	18	14.8
Total	122	100.0
Region***	No.	%
north Sudan	50	41.0
east Sudan	10	8.2
west Sudan	26	21.3
central Sudan	31	25.4
south Sudan	5	4.1
Total	122	100.0
Encouraging others**	No	%
Yes	58	47.5
No	64	52.5%
Total	122	100.0

Notes: This table presents each demographic factor, ANOVA were performed to see which factor impact the external factors regarding attrition ( $F=MS$  between/ $MS$  within), the first column shows the demographic details for each factors, column 2 is divided to two sections, section 1 the number of students and their responses, section two shows the percentage of students responses, the significance level of the demographic factors impact on the external factors is ... \*=10%, \*\* = 5%, \*\*\* = 1% and no asterisk = no sig. <sup>^</sup> = not tested for sig

This time the students were asked how satisfied they were with the listed internal factors and the constructed measurement started with 1 (strongly dissatisfied) and ended with 5 (strongly satisfied). Hence, rather than cutting off at the mid-point of 3.0 and evaluating whether or not the factors impacted attrition (as with the external factors) the purpose with the internal factors was to evaluate which factors would have the greatest influence upon a decision to terminate accounting studies. The questionnaire contained 8 *internal* factor clusters: registration, scheduling of lecture and examination, curriculum, grading, teaching, facility, technology, and college services. These were then further sub-divided into 38 sub-factors. The lower the mean, the greater the dissatisfaction and therefore, the greater the propensity to quit accounting studies. According to student's responses three clusters of factors which appeared to have the strongest influence are: lack of technology, standard of college facilities, and standard of college services. Table 3 provides the support for these conclusions.



Table 2: Students’ Rankings of Importance of External Factors

External Factors	Mean	STDV
Ext1: Financial	3.729	1.253
Ext 12: Interest in other major	3.721	1.267
Ext3: Job	3.704	1.257
Ext10: Academic	3.426	1.390
Ext 4: personal and family sickness	3.245	1.484
Ext14: Other	3.237	1.390
Ext13: Family Pressures	3.106	1.365
Ext11: Loss interest	3.098	1.313
Ext9: Absence of policy	3.098	1.313
Ext 6: English Lang	3.041	1.307
Ext5: No trsport	2.885	1.286
Ext7 :Demographic reason	2.836	1.215
Ext2: Marriage	2.745	1.364
Ext8: Issues with Adm	2.565	1.304

Notes: This table presents the sample mean ( $\bar{x} = \sum X/n$ ) and standard deviations ( $s = \sqrt{\frac{\sum (x-\bar{x})^2}{n-1}}$ ) for external all factors according to the students opinions. The table also ranks these means from most to least effective factors that could impact student’s decision to leave the college, the first column lists all the factors, column 2 list all the mean, and column three list the standard deviation.

*H2: Institutional internal factors will impact attrition rates of accountancy programs*

Table 3: Students’ and Administrators’ Rankings of Importance of Internal Factor Groups

Factors	Students		Administrators	
	Means	STDV	Means	STDV
GrandTech(avg. internal factors Teaching)	3.481	1.0371	2.750	1.0349
Grandfacility (Avg. Internal factors-facilities)	3.545	1.0051	4.000	1.0018
Grandserv (Avg. Internal factors-College services)	3.627	0.8387	3.166	0.8362
GrandReg (Avg. internal factors-Registration)	3.695	0.658	3.000	0.6592
GrandExam (avg. internal factors examinations)	3.808	0.8623	4.6667	0.8622
Grandeur (Avg. Internal factors-Curriculum)	3.841	0.7752	4.000	0.7721
GrandTeaching (Avg. Internal factors-Technology)	3.888	0.8196	4.000	0.8163
GrandLectur (avg. internal factors-lecture-scheduling)	3.920	0.7436	4.000	0.7405

Notes: Notes: This table presents the sample mean ( $\bar{x} = \sum X/n$ ) and standard deviations ( $s = \sqrt{\frac{\sum (x-\bar{x})^2}{n-1}}$ ) for all the grand mean of all internal factors according to the students and college administrators opinions. The table also ranks these means from most to least effective factors that impacts students decision to leave the college, the first column list all the internal factors (average each factors), column 2 is divided to two section, section one list all the means, and section two list the standard deviation based on the students opinions, and column three is divided to two section, section one list the means, and section two list the standard deviation based on the administrators opinions.,

Table 3 lists the internal factor means in ascending order, as classified by both students and the program administrator. Both agreed on three of the first four factors noted above. Furthermore from the students responses the first 4 means are very close (3.48 to 3.69) and then there is a gap to the remaining five means (3.80 to 3.92). For the administrators the difference is even more pronounced. The first factor has a mean less than 3.0, the third and fourth mean are range (3.0 - 3.1). The remaining five range from 4.0 to 4.6. Based on students and the administers responses the first, third, and four factors therefore appear to be contributing more to attrition (technology, services, and registration) than the other five internal factors (scheduling of lecture/examination, curriculum, and registration, grading, and teaching), there is a difference in opinion between the students and administers regarding internal factor 2 (facility) students the stated they are not satisfied with college facility and it can force them to leave the college, administers in other hand believe otherwise..

*H3: Demographic factors will impact attrition rates of accountancy programs*

The first two demographic factors to be assessed were age and marital status. Previous studies, as mentioned above had found these to be significant factors impacting upon attrition decisions. Table 1 provides the raw data distribution of the participants. In the current sample, there was not a significant enough spread of participants in these categories to assess their impact or otherwise upon attrition decisions. As regards age, all are in the 17-20 years of age category. This did not leave a sufficient alternative cohort to gauge results against.

Similarly, when considering marital status, all the 122 students who completed the survey are single. For this culturally specific reason, the demographic factor of gender was omitted from the study. To comply with university policy, administrators asked the researchers to remove gender from the questionnaire. A further demographic detail, diploma type was also redundant in this institution as all participants are accounting students. A further demographic factor, choosing accounting as field of study, showed no significant difference when ANOVAs were performed, and so this factor was also found to be insignificant within this cohort.

Additional factor demographic factor choosing accounting as field of study showed no significant difference, when ANOVA is performed.

A further analysis of this particular cohort based upon the year of study demographic factor, revealed that of the 14 external factors only one, absence of policy, revealed a difference in responses (ANOVA results showing an F-score of 3.321, significant at .039).

Two other demographic variables, level of computer skills, and whether the participant would encourage others to commence accounting studies, were subjected to ANOVAs to evaluate any significant differences as regards evaluation of the 14 external factors. In the case of level of computer skills this was found to be significant regarding the external factor, family pressure (F-score of 2.303 and significance level .081). Encouraging others to major in accounting, was found to be significant in relation to two external factors, the financial factor and marriage (financial factor showed an F-score of 3.793 and significance level of .054, and marriage showed an F-score of 4.819 and significant level of .030).

One demographic factor provided strong evidence of impact upon the evaluation of attrition external factors. In Sudan there were no international students enrolled in the university. However, the students enrolled in the accountancy diploma programs came from one of five different regions within the country. Analysis of evaluation of the impact of external factors on attrition decisions was found to be significantly impacted by which region the students came from. Table 4 summarises the results.

Considering the evaluation of the 14 external factors four were impacted by the respondents' region of origin. This demographic factor is therefore assessed as significantly impacting attrition decisions. Intuitively, this makes sense due to the fact the majority of these students came from small villages and rural areas within the county and many find the college environment is not pleasant (the researcher spoke to a large number of these students and they confirmed this result).

A review of the raw data and response to open ended questions offers further support to the concept of demographic factors influencing attrition decisions. Participants were asked whether they would recommend the accounting programme to friends/family and to expand on their answer. The majority (64% - this explains the mean of 1.47 as the construct was 1 = yes and 2 = no) said they would not. The main reasons they gave were, (i) no jobs in accountancy, (ii) a diploma will still not guarantee access to university to study for a degree, and (iii) the costs are too high. These reasons support the results earlier identified at Table 1, where students considered the external factors of costs and job opportunities having

significant impact on their attrition decisions. This demographic factor, attitude towards recommending accountancy to others, therefore appears to impact attrition decision making as well. H3 can therefore be said to be partially supported as well, as two of the eight factors impact attrition decision making and the specific population tested in this setting precluded testing of some traditional variables (age and gender) which the majority of studies have found to impact attrition.

Table 4 – Impact of Demographic Factor – Region of Origin – on Students’ Rankings of Importance of External Factors

<b>External Factors</b>	<b>F</b>	<b>Sig</b>
Ext1: Financial	2.471	*** <b>0.048</b>
Ext2: Marriage	2.163	* <b>0.077</b>
Ext3: Job	0.118	0.976
Ext 4: personal and family sickness	2.956	*** <b>0.023</b>
Ext5: No trsport	1.587	0.182
Ext 6: English Lang	1.932	0.110
Ext7 :Demographic reason	0.822	0.513
Ext8: Issues with Adm	0.336	0.854
Ext9: Absence of policy	0.290	0.884
Ext10: Academic	0.183	0.947
Ext11: Loss interest	0.892	0.471
Ext 12: Interest in other major	2.249	** <b>0.068</b>
Ext13: Family Pressures	0.282	0.889
Ext14: Other	1.279	0.282

Notes: This table presents the demographic factor(region of origin and its impact on the external factors), ANVOA were performed to see which external factor were impacted by this demographic factor (F=MS between/MS within), the first column shows the all the 14 external factors , column 2 is divided to two sections, section 1shows the F scores for each factors, section two shows the significant level for each factor, the significance levels stated at ... \*=10%, \*\* = 5%, \*\*\* = 1% and no asterisk = no sig. ^ = not tested for sig.

*H4: There will be no difference between the attitudes of students and administrators as to the impact of influencing factors, on attrition rates of accountancy programs.*

Based upon the forth hypothesis it was anticipated there would be no significant differences between students and administrators in their attitudes towards attrition factors. Tables 5 provide the data to evaluate this prediction.

Considering the external factors firstly, Table 5 demonstrates that there are no significant differences in attitudes between the college administrator and the 122 students. Focussing on the internal factors, Table 5 similarly demonstrates that there are no significant differences in attitudes between the college administrator and the 122 students in all comparisons of internal factors. As both external and internal factors revealed no significant different evaluations, H4 therefore has to be accepted.

Table 5: Comparison of Students and Administrators Assessment of External Factors and Internal Factors

		(n=123)				(n=123)	
		Mean	Sig			Mean	Sig
EF 1	Student	3.729	0.315	IF 1	Student	3.737	0.820
	Admin	5.000	.		Admin	4.000	.
EF 2	Student	2.745	0.205	IF 2	Student	4.024	0.981
	Admin	1.000	.		Admin	4.000	.
EF 3	Student	3.704	0.816	IF 3	Student	3.877	0.918
	Admin	4.000	.		Admin	4.000	.
EF 4	Student	3.245	0.614	IF 4	Student	4.000	0.373
	Admin	4.000	.		Admin	5.000	.
EF 5	Student	2.885	0.147	IF 5	Student	3.623	0.757
	Admin	1.000	.		Admin	4.000	.
EF 6	Student	3.041	0.123	IF 6	Student	3.688	0.788
	Admin	1.000	.		Admin	4.000	.
EF 7	Student	2.836	0.893	IF 7	Student	3.508	0.686
	Admin	3.000	.		Admin	3.000	.
EF 8	Student	2.565	0.234	IF8	Student	3.549	0.658
	Admin	1.000	.		Admin	3.000	.
EF 9	Student	3.098	0.941				
	Admin	3.000	.				
EF 10	Student	3.426	0.682				
	Admin	4.000	.				
EF 11	Student	3.098	0.520				
	Admin	4.000	.				
EF 12	Student	3.721	0.827				
	Admin	4.000	.				
EF 13	Student	3.106	0.938				
	Admin	3.000	.				
EF 14	Student	3.237	0.586				
	Admin	4.000	.				

*This table compare the mean for all the external factors and the internal factors ( $\bar{x} = \sum X/n$ ) between the students and administers. The first column shows the all the 14 external factors, column 2 list the participants (students/or administrator), column 3 list all the mean for the external factors, column 4 shows the significant level (external factors), column5 shows the grand mean of each of the internal factors, and column 6 list the participants (students/or administrator), column 7 shows the mean for all the internal factors, and column 8 shows the significant level for the internal factors. The significance levels stated at ... \* = 10%, \*\* = 5%, \*\*\* = 1% and no asterisk = no sig. ^ = not tested for sig.*

## SUMMARY AND CONCLUSION

Attrition from accountancy programs is a significant issue impacting both the accountancy profession and academia. This study develops a model with which to gauge the impact of various factors upon attrition. It expands upon the extant literature by developing a model with three categories of factors, namely external, internal institutional and demographic which may impact attrition decisions. A sample college was then chosen, and the model tested on students enrolled in the accountancy diploma. Results revealed that factors from all three categories have the capacity to impact attrition to varying extents. The results also indicated that there are no differences between students and administrators as to the significance of some factors to an attrition decision.

The results of this study should be viewed in the context of several limitations however these limitations form the basis for proposed future research into this critical area, discussed below the first limitation. Concerns the limited sample, and the fact that the sample was drawn from particular geographic region. This may or may not be generalizable to other regions. Future research intends to test the model on more than one institution within a jurisdiction and then in different jurisdictions, to compare results. The model can also hopefully be refined after reviewing each use and if accurate attrition rates are available, possibly even developed into a predictive tool.

Further limitations that any conclusions about factors causing attrition from accountancy courses should be based upon data extracted from students who have actually dropped out of such courses. The current model has been used on students who are still actually in their accounting program. Intuitively it appears

reasonable to assume that the factors current students consider would impact their decision to drop out of accounting studies are indeed similar to the factors which caused actual students to drop out. Similarly analyses of the factors students are most dissatisfied with during their current studies would seem logical indicators of potential to terminate accounting studies. However it is not feasible to automatically assume the factors current students identify are indeed the factors which made actual drop out students decide to leave. Similarly, although confidentiality was assured, the risk exists that students may be unwilling to give accurate responses to all questions for fear of reprisal from their institution. These limitations must be recognised while interpreting results.

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# PEDAGOGY FOR CREATIVE COLLABORATION

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## ABSTRACT

*In an increasingly globalized and knowledge-based economy, graduates with creative minds and able to collaborate will have a clear competitive edge over their peers. This paper examines the pedagogy used in an elective course aimed to raise the creative design literacy of nondesign students who were mostly Business students. Students in this course learned to think creatively and worked collaboratively in small groups to solve design problems. The positive results in this study strongly suggest the pedagogical model employed is well suited to prepare Business students to be better future promoters and consumers of design.*

**JEL:** I230

**KEYWORDS:** Collaborative Learning, Group Creativity, Group Dynamics, Design Making

## INTRODUCTION

Singapore, a tiny island-state with few natural resources, has, by necessity, invested heavily in education to develop its human capital to its fullest as a pillar of economic growth since its independence in 1965. In a speech on “Education for Competitiveness and Growth” at the Singapore Conference in Washington in February 2012, Singapore’s Minister for Education, Mr Heng Swee Keat, likened the earlier years as “survival-driven” and “efficiency-driven” years (Heng, 2012). Singapore’s economy has since developed rapidly and by the late 1990s, had transitioned into a knowledge-based economy. In 1997, the Prime Minister launched the *Thinking Schools, Learning Nation* initiative and the focus then switched to fostering greater critical thinking skills, creativity and innovation among its students, from primary schools, through secondary schools to universities (Goh, 1997).

Singapore’s circumstances force it to develop its human capital seriously. It considers education as critical to its survival and education will shape its future. To remain competitive in the rapidly globalizing world, Singapore leaders firmly believe that its future knowledge workers need to have creative minds and multidisciplinary skills. These future workers will be the ones who will challenge the conventional approaches to business, communication and aesthetics to break new grounds and compete in the globalized economy. Much efforts and resources have thus been invested to release and develop creativity among these future knowledge workers.

This paper studies the benefits of collaborative learning in nurturing the creative minds of undergraduates. A case study of an elective course designed to facilitate creative thinking skills in solving design problems is presented. Emphasis is on creative collaboration in a learners’ centric environment where students work in small groups. The results are encouraging and this pedagogical model can be considered to nurture and release learner’s creativity in other disciplines.

## LITERATURE REVIEW ON CREATIVITY AND CREATIVE COLLABORATION

Our nation’s continual educational change places much emphasis on nurturing essential creative thinking skills of our future knowledge workers. So what are the essential creative thinking skills or creativity wanted in these workers? Can every individual be creative? Contrary to conventional belief that only a few can be creative, Richard Florida, an American urban studies theorist, once stated, “Every single human being is creative”. He argued the world is shifting from an economy based on physical assets –

land, capital, and labor – to one based on intellectual assets, or human creativity (Florida, 2006). Present-day research on creativity has broadened its scope to refer to creativity as “creative cognitive processes fundamental for human functioning and not a trait granted to a chosen few” (Moreau and Dahl, 2005). Simply put, “ordinary creativity rather than genius” (Craft, 2003). Judith Heerwagen who shares this perspective also believes all of us have the potential for creative expression. However, whether we express or suppress our innate creativity depends on “the socio-cultural context, personality differences, and specific personal experiences such as knowledge and skills” (Heerwagen, 2002).

Some researchers defined creativity to “include the generation of ideas, alternatives, and possibilities” (Smith, 1998); “the ability to solve problems or to make something or to pose questions regularly in a domain; those questions are initially novel but are eventually accepted in one or more cultures” (Gardner, 1993). Recent theoretical and empirical work looks at creativity as something the brain does naturally. In other words, the cognitive functions of our brain can adapt and change to aid problem solving when conditions call for it. It argued that under such circumstances, “novel approaches and inventions are highly advantageous” (Simonton, 2000; Findlay and Lumsden, 1988). Others argued that “Creativity is an acquired behaviour - learnable, teachable, tangible, and crucial to human development” (Balkin, 1990).

With the belief that all human beings have the potential to be creative, the next pedagogical issue is to find effective ways of nurturing and releasing this creativity in our future workers. Educators like Dewey and Vygotsky had long held that education is a social process. They believed our thoughts and ideas are constructed through communication with others (Dewey, 1897; Vygotsky, 1986). George Swede, the psychologist, suggested that “groups can be creative”, a notion that “creativity is socially constructed” (Swede, 1993; Heerwagen 2002). Other psychological study revealed the potential a child can raise himself “to a higher intellectual level of development through collaboration” (Vygotsky, 1987). Studies on peer interaction within schools have all inferred that collaboration helps individuals integrate many perspectives on a problem. It also helps bring in superior intellectual results (Inagaki, 1981; Inagaki & Hatano, 1977; Kol'tsova, 1978). The focus of collaboration is to create an environment of active, involved and exploratory learning and creativity (Slavin 1990). When students collaborate in small groups, they can express themselves and explore their ideas in a nonthreatening environment (Sandberg 1995). They benefit from a diversity of ideas and talents. This broad concept of “diversity which includes different disciplines, personality types, and different ways of thinking about problems are believed to lead to increased number and variety of ideas” (Stacey, 1996). Many researchers on team dynamics also found diversity to heighten individual and group creativity. Mutual sharing of talent and knowledge from different disciplines not only can be a good learning experience for all involved but can also enable a multidisciplinary approach to solving problems. This setting has a close likeness to the real working world where people from different backgrounds collaborate to find design solutions that are relevant and necessary to meet many different interests and uses.

Researchers also found that group creativity works best when members have fun, play and feel relaxed with one another. This enables members to produce free flow of ideas without feeling inhibited. As Meryll Goldberg, Professor of Visual and Performing Arts put it, “play can be an intensely creative time. It is an opportunity to break the rules, open the door of discovery, and thereby create” (Goldberg, 2012). Fredrickson has reviewed the literature on the effect positive emotions, such as “joy, contentment, satisfaction, anticipated pride, and challenge” have on information processing. She believes that “positive emotions temporarily create a broader mind set and prompt individuals to expand the self, share information with others, and push themselves to their limits” while the opposite can “become unfortunate distractions and emotionally disempowering” and “de-contextualise the learning and de-motivate the student” (Fredrickson, 2001). On the dynamics of group creativity, researchers have observed the “collective direction” is not provided by a ‘leader’ but by group members “executing timely information and their expectation of appropriate action”. In other words, group creativity depends on a self-managing team and as computer simulations of flocking show (Reynolds, 1987) members in the team often display

signs of separation, alignment and cohesion. Separation is the ability to steer to avoid crowding others. Alignment is the ability to steer towards the average heading of the local flock mates, and cohesion is the ability to steer to move towards the average position of local flock mates (McWilliam and Dawson, 2008; Reynolds, 1987). When students get along well with one another and manage their roles and responsibilities well, they often share the excitement of understanding and discovering the problem collectively. They then work towards a common vision to tackle it. Other researchers on group creativity have pointed out the benefit of “communities of practice” which “provide an intellectual space for engagement and ‘imagination’ to manifest within individuals and amongst groups” (Wenger, McDermott & Snyder, 2002). Also peer collaboration under guiding teacher who encourages and not controls (Vygotsky, 1978, Oldham & Cummings, 1996) is important influencing individual and group creativity. The pedagogy also involves teachers and students as co-participants in learning.

## **METHODOLOGY**

At the Nanyang Technological University in Singapore, the undergraduate curriculum requires students to take elective courses outside their own major discipline to broaden their education. Among these electives, many of them are designed to nurture creative thinking in students through art and design studies. This paper examines an elective course conducted at the Nanyang Technological University entitled “Creative Thinking in Design Solutions” which is open to nondesign undergraduates to promote creative thinking. Approved by the University Academic Board, the objectives of the course are twofold: as general education to nurture creative thinking in the nondesign students; and to raise the standard of design literacy in these students. The methodology stresses group creativity and collaborative learning. Most of these students are from Business and Communication disciplines with Engineering and Science students form the minority. These students bring with them different views based on their different backgrounds and experiences. Collaborative learning allows them to share their views in a group setting to come up with innovative and creative approaches to design solutions. Done in a studio setting, the lecturer serves as the facilitator to guide students in constructing knowledge. The goals are to nurture creative thinking through ideas creation and visual expression in group work; and to apply and evaluate creative ideas for effective design. These lifelong skills will prepare the nondesign students to be better future consumers, clients, co-designers, promoters and interest groups of design.

The maximum enrollment of each class is 21. Students meet once a week in three-hour studio sessions for thirteen weeks. In a typical session, introductory lectures on basic principles and approaches in design and in creative thinking are included as most of these students do not have visual art and design background. Creative thinking techniques to help students unlock their visual imagination are emphasized. These are divergent thinking, associative thinking, analogical thinking and lateral thinking. Brainstorming using free association with words, images, sound, tactile and motion are also included. After the introductory lectures, students randomly form themselves into small groups of three. They work collaboratively on the class exercises which are intended to help them apply the basics of design and become familiar to using the various ways to think creatively in problem solving.

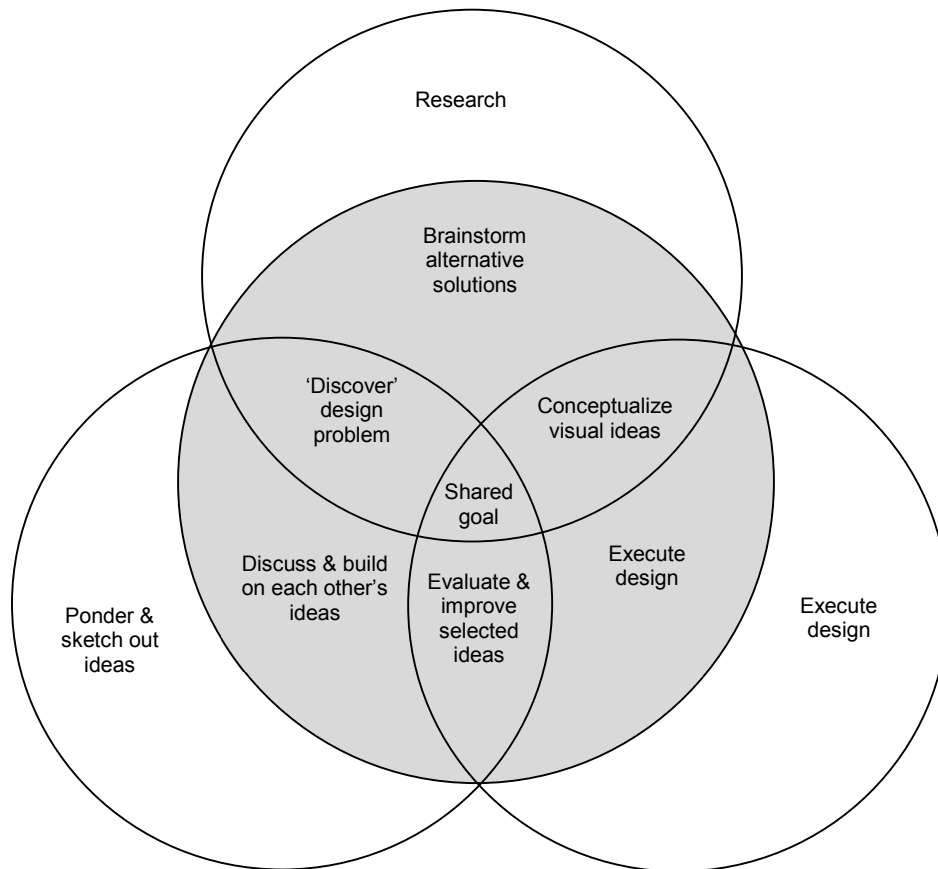
Group brainstorming and collaborative work are emphasized. Besides working collaboratively to build ideas on top of others, play, having fun and feeling relaxed with other group members are emphasized. Having students from different disciplines working in a group exposes students to how others with different backgrounds think, solve problems and communicate. Opportunities are created for students to develop empathy by learning to view from others’ perspectives. This method takes advantage of all the individual creativities as well as developing new group creativity.

To reap the benefits of group synergy, students are briefed on group etiquette. They are reminded to uphold a positively toned mood constantly to avoid conflicts and chaos which may hamper the flow of communication and interactions among members. In line with this thinking, students are encouraged to go

out together for drinks, to socialize and to interact. Interaction helps to understand one another better, especially how others from different disciplines may think and communicate differently (Biscoux, 2007). This is especially so after students form themselves into ‘permanent’ groups of three for their final design projects on which they spend four to five weeks to complete. This final project requires students to create and design a brand identity for the launch of an event or a company that promotes earth friendly awareness. This project provides the opportunity for students to find a design problem first and then to solve it.

Figure 1 below illustrates the inner workings of a group in collaboration. The shaded areas show group members to be working together while the white areas show ‘separation’ or parallel activities by individual.

Figure 1 Inner Workings of a Group In Collaboration



*This figure shows the inner workings of a group with collaborative activities in the shaded area. Parallel activities by individual fall in the no shaded areas. Group who sets up a shared goal often alternates working between collaborative and individual activities. For example, members may start with brainstorming alternate solutions to conceptualize visual ideas together. They then break off, do more research or ponder sketching ideas on their own. After which they gather to discuss, build on each other’s ideas, evaluate and improve the selected ideas before executing the design together or individually.*

Teams that create conducive environments for themselves often establish a shared goal and a common vision at the start of their project as shown in the focal center of Figure 1. They brainstorm thoroughly with all members present to ‘discover’ a design problem and to conceptualize ideas to solve this problem (Csikszentmihalyi, 1990). At times, individual leaves the group to do some research before the team meets again to evaluate the alternative solutions for their design problem. This evaluation often involves brainstorming until all members are mentally and physically exhausted. They then break up, reflect

individually on what transpired, research for more information, and come up with new ideas. They meet again in a group to share and evaluate each idea, build and improve on the selected ideas. The team may alternate these group and individual activities a few times to decide the best possible solution. When the team selects a final solution, they may either divide the job or perform together. This depends on how competent each individual's skills. Even after individual completes the designs, other group members often come together to evaluate the designs and improve on them.

During workings of a group, one member may take on the role of writing minutes for, and scheduling, their meetings. Another may take on the role of 'leader' ensuring everyone does his or her 'homework' and presents them on time for discussion. In this age of new media, the team may likely also create a Facebook for the project to ease their communication and co-creation online. Whenever the team needs extra research information, either the 'leader' assigns a member to do it or someone in the group volunteers to act on it. When members can uphold an environment conducive for learning, the interests, excitement and passion of even one member can motivate others to keep the group going so collectively they can achieve their goal.

During any one of these stages in their final design project between brainstorming, selection of best possible solution and design execution, the lecturer provides guidance and encourages the team to achieve better results or reach higher ground. These consultations enable the lecturer to gain better insight how the team works. Problems that inhibit learning are discussed and settled. Examples are differences in working styles, inability to meet group's expectation, and major conflict of ideas. However, the lecturer reminds the group often "the person or situation that disturbs us the most might be the one that could have the greatest impact on our ability to make positive and creative changes" (McNiff, 2003). Her sensitivity in deciding when to allow the group resolve the conflict on their own can impact their learning and achievement significantly.

After completing their final group projects, students present their projects to the whole class and submit their reports. Their presentations and reports include: 1) Reasons the design problem and issue are chosen. 2) Their research, brainstorming for ideas and their creative thinking techniques to form design solutions. 3) How they use visual images as tools for imagination and communication. 4) How and why they choose design elements and principles to suit the message and spirit of the product. 5) And how they explore and experiment in creating the designs. Each student also includes his or her experience and contribution as an individual, and as a member of the team; challenges faced and benefits.

After each team's presentation, the class are invited to give a critique with one group leads the rest for comments. Students are given guidelines in critique etiquette earlier. They are to create open and harmonious learning environment always. They are to be aware of the manner they prefer to receive comments on their work, respect others' opinions and feelings and give constructive comments to help others to improve. Students also give their opinions on their peers' comments. At the end, the lecturer gives her comments and sums up all the opinions. This helpful sharing of comments between peers and lecturer creates an environment for students to construct their own learning. Students also learn how each group manages their collaborative work, the benefits and challenges faced and how problems which arose are resolved.

## **DATA**

Through all the reports presented and interviews with group members at the end of each semester, the author gained further insights into the workings of each group in their final design projects. The following data highlight certain group creative experience and typical manner when members from different background work together in small groups of three.

*Sharing of ideas:* It is clear from the students' feedback the approach taken in the conduct of the course created a relaxed atmosphere and encouraged cross-fertilization of ideas. 82% of the students in the class reported that they had fun and good sharing of ideas during brainstorming; evaluation of design ideas; and exploration and improvement of designs. 69% felt that they could not achieve the results without each member contributing to the group.

*Leveraging on each other's strengths:* There is clear evidence the groups took advantage of their diverse backgrounds and talents in carrying out their projects. 73% recognized the benefits from each talent in achieving their goals. Those with design software skills would carry out the designs. Others performed other roles. 56% cited improvement of design skills with the support and motivation from others.

*Benefit from what they learn from the course*" 74% reported the benefits of collaborative learning in the course in increasing their skills and confidence in applying design theories into practice. It also helped them in thinking creatively to solve design problems and in exploring their creative side they were not aware of.

*Self-managing teams and meeting challenges*" All the groups showed some form of self-organization and "collective direction" with members contributing according to their strengths and talents. 37% reported major challenges but could resolve these, learn from them and eventually understand the diversity of the group. Challenges cited are major conflict in opinion, working styles, motivation and commitment of each member, time and effort spent on the project, and communication problem.

## RESULTS AND DISCUSSION

There was in general good sharing of ideas especially when group members clicked well with one another. With the approach taken in this course, most group members enjoyed working together and had fun. Examples of their comments are:

*"I learned that by working in a team, the design ideas shared are insightful and fresh." "At first, I found that each of us in the group have differing views, probably because we come from different Schools. However, this turned out to be good as it allowed us to look at issues from different perspectives and not simply from a promoter's angle, which I take as an advertising student." "ZZ and I were in charge of the children book and it was fun since ZZ have many ideas and kid's topic is his ace too... Even though I did most of the design execution of the book, I still keep asking for others' contributions." "We had wonderful brainstorming sessions. We were so comfortable around one another that we speak our mind, without fear of looking 'stupid'. It is through this openness that most of our once 'stupid' ideas were transformed into 'awesome' ideas".*

Most of them could benefit having group members with different disciplines and backgrounds as they contributed ideas from different perspectives. Various talents and capabilities existed among group members. The groups took advantage of the diverse talents and benefited from each other's talent. The special talents that showed up among the students include proficiency in design software, in copywriting, in facilitating brainstorming and in transforming ideas into sketches. Most recognized the contributions of diverse talent. They understood that they have achieved the creative result because all members committed and contributed fully. Some of their comments are on the next page:

*"My main issue is that I have problems using Photoshop. However, my group mates helped me overcome this problem and we could benefit from each other's strengths while making up for the others' weaknesses... All in all, it was a very pleasant experience that taught the team more than the course syllabus." "It has been the coming together of each person's expertise that has made the process so interesting and our product so successful. Very often, we build on each other's strengths and push*



*ourselves to the limit in producing the best work we can...There were times we stayed up in the wee hours to do our project. I will miss our weekly meetings.” “Working with a team of people from various specializations was challenging at times. Yet it was also interesting to work with people who have different working styles and different approaches to the problem...felt like a real team creating designing concepts in a professional setting.”*

Most of them also applied what they learned in creative thinking like thinking out of the box and how unrelated ideas can be linked to their design projects. Some cited the opportunity to explore their creative side and gain better perspective in viewing and evaluating visual images. For Business students, in particular, who are more familiar with business strategies, the creative design making in this course has created a new aesthetic awareness in them. While they explored and evaluated their creative solutions, they realized that visual designs could be powerful form of communication to create impact in marketing their business strategies. Below are some of their comments:

*“I did design work in Polytechnic, but the thought processing skills acquired from this course helped me in streamlining and refining my sketches. It also added depth in my designs.” “I found myself applying what we learned in class on our project. For example, much thought was put into choosing the correct font to suit the overall concept. We also kept in mind to uphold consistency throughout our project with the fonts, colors, images and lines used. I am highly pleased with the result of our final design, and could not ask for better group mates.” “While my strength is more in using Photoshop to design compared to drawing, I slowly started recognizing how by drawing, ideas can be developed further from there.” “Being able to attend this course had allowed me to realize my dream. I had enjoyed the process. It gave me a sense of confidence that I could do design work. This motivated me to want to know more about art and media. Attending class was always fun as there was no right or wrong answer and ideas had no limit. I was allowed to think out of the box and link unrelated ideas together which thrilled me. I was introduced to many design principles that helped me see graphic images and better understand many designs I used to take for granted.” “...Enjoyable experience...explored my creative side that I didn't know I had.” “...To be creative can change life and even world.”*

There is clear evidence of group self-organization and self-management. A few performed well as ‘leaders’, ensuring every member complete his or her assigned duties based on the planned schedule. Some admitted the difficulties faced when members with different working and communication styles worked together and when contrasting and conflicting ideas were presented resulting in “high levels of tensions and frustrations”. However, they went through these challenges and emerged from the “long and exhausting process”. They now recognize other’s contribution and realize the “final product would not have been possible without any of the three of us”. A few also cited the enthusiasm of one member could motivate others to contribute. The opposite also applies. The morale of the team could be affected when one member disengaged. Some examples of their comments are:

*“I've always and still am daunted by group work, but this experience has made me recognize its greater potential compared with working alone. Another point I noticed about group work was that it was motivational when all other team members were. However, if just one of us was not, the atmosphere would be dampened and that would affect our productivity. This project has also made me appreciative of what others can contribute. For example, I found it nice that XX took much initiative to organize early meetings, even out of school, as well as to lead the discussions. XX would often contribute enthusiastically crazy ideas which I sometimes found hard to swallow...YY would often be the one to combine my more conservative ideas with those of XX.” “Most of us had to juggle this group project with other school projects. We had to use our time efficiently, and worked hard as a team... I thoroughly enjoyed myself and had great fun working with my team.” “...The most memorable group project. Our group came randomly and there was a whole load of communication problems. None of us came from the same country and we did not speak the same ‘English’. However, the longer we worked together, the*

*more we could work - amazing. At the end of the project, I found that I could understand everyone clearly. We became attuned to the 'English' that each of us spoke." "As a whole, this final group project has been a fruitful one, especially group work experience. It was not easy to work as a team. Even having a good friend as a teammate was not easy... Despite the early high levels of tensions and frustrations, I am glad to see our final design collaterals as the product of a long and exhausting process. Though I'm sure there is still room for improvement...I feel this final product would not have been possible without any of the three of us."*

## CONCLUSION AND IMPLICATION

This paper set out to examine the benefits of collaborative learning in nurturing creative thinking in students. An elective course employing learner's centric pedagogy was used as case study. Emphasis was on small groups of students collaborating to solve design problems. These students came from diverse disciplines, backgrounds and countries. Most of them had no or little training in the visual art and design. Students were encouraged to have fun and uphold positive mood while working together. They were briefed on group etiquette and were prepared with possible challenges. Much care was taken to create environment conducive for creative collaboration. The lecturer guided and encouraged without controlling. Data were obtained from students' reports, interviews and teacher observations. Most students had fun, shared and explored ideas while collaborating and leveraging on each other's strengths. More than half had improved their design skills. Most also benefited from what they learned from the course like the creative thinking skills and applied them in solving design problems.

The findings of this study confirm the observations of other researchers on group dynamics in collaborative group learning and group creativity. This study shows that most groups organized and managed themselves while leveraging on, and benefiting from, each member's strengths and talents as they collaborated in learning and working. This is especially so as they came from different disciplines and had different backgrounds. They learned from one another. They shared the different ways of viewing and solving a problem. Though a few faced challenges, they overcame them as they progressed. All commented that they could achieve the results because every group member contributed fully.

This study also shows the pedagogical model is well suited to nurture creative thinking and collaborative learning skills. For nondesign students especially those in Business and Communication disciplines, design making as pedagogy is apt. Training the aesthetic sense, skills in creative thinking and visual communication and the ability to collaborate with others from different disciplines are all necessary in the 21<sup>st</sup> century workforce. The elective course in this study can be applied as a model for general education to nurture creative thinking in Business students and to raise the standard of design literacy in these students. Follow-up studies on how these students apply their new skills in their future careers will be valuable. Beyond limit of this study, research to compare the results of creative collaboration applied to nondesign disciplines will be useful. Further studies on nurturing creative thinking in Business students without collaborative learning and working will be useful to understand the contrast in results.

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## BIOGRAPHY

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# **IMPLICATIONS OF RADICALLY TRANSFORMATIONAL CHALLENGES CONFRONTING EDUCATION BUSINESS LEADERSHIP**

Karen Starr, Victoria Teachers Mutual Bank

## **ABSTRACT**

*This paper highlights the radical and rapid changes occurring at all levels of education that are having a profound impact on educational leadership, governance, business and administration. These far-reaching transformations include: competition from a rapidly expanding unregulated private sector; the international impact of de-regulation; the demise of union power, secure education jobs, time-honored hours and working conditions; constant, rapid education policy change and the proliferation of open access technologies which are rendering physical education campuses less relevant or obsolete. The paper suggests that at this stage in history we are witnessing game-changing forces that are fundamentally altering educational provision, the nature of education work, the education workforce, educational outcomes, educational leadership, governance and business. Most importantly, it argues that educational leaders and education business managers need to be ready for them and more instrumental in policy debates arising in their wake. The paper concludes with ideas for responsive action from education business leaders.*

**JEL:** H830, I210, O33

**KEYWORDS:** Education Game-Changers, Education Business, Educational Change

## **INTRODUCTION**

**W**orldwide, education is BIG BUSINESS. From kindergarten to higher education, from basic training to the most sophisticated professional learning, from knowledge transfer to knowledge creation – no matter what form it takes, where it is conducted or at what level – education globally is a multi-trillion dollar industry (Everett, Johnson and Madden, 2007). Education employs millions of people and entails countless assets to supply the world’s insatiable appetite for learning consumption and production. With formal education requirements expanding to subsume much of our individual lives and knowledge being in constant need of updating, education is now an ongoing, lifelong pursuit. The overwhelming scale of demand for education across the globe is staggering, heightening the impetus for significant transformation at a time when universal primary education for all the world’s children has still not been achieved (Brown, 2011). There will never be a time when education ceases to be an expanding and integral component of life and work (Starr, 2012).

Right now, however, educational institutions are experiencing enormous flux and change, the likes of which have never been so wide reaching and disruptive. Powerful and pervasive impetuses for change are significantly altering the status quo, prevailing customs, current thinking, long-held traditions and assumptions, and the way societies work and do things. Concomitantly we are witnessing education policy and practice transformations that may be colloquially referred to as ‘game changers’ or ‘rule breakers’. For the purposes of this paper a ‘game-changer’ is defined as: “an event, idea, or procedure that effects a significant shift in the current way of doing or thinking about something” (Oxford Dictionary).

Education is a globalized activity, and the impact of globalization provides a rationale for the game-changers and their rapid emergence. Globalization has intensified international economic competition

spurring governments to increase national growth, productivity, efficiency and knowledge yield via a well-educated, innovative workforce and citizenry. Education is seen to play a major role in enhancing the nation's competitiveness and productivity in a global marketplace (e.g. Productivity Commission, 2013). As a result, education policies throughout the developed world have increasingly subsumed economic imperatives.

As a result of globalization, governments of all persuasions have instigated structural reforms to align national education agendas with the demands of intensified international competition. Education policy is, therefore, consistent with the needs, values and underlying philosophy of market economics and neo-liberal political agendas that valorize a clear set of premises and values: sovereign individualism, competition, consumer choice, institutional differentiation, innovation/entrepreneurialism, cost efficiency, user-pays principles, small government and institutional autonomy. In this context, governments (state and federal) and education "consumers" (parents and students) require greater transparency and more information to aid choice and accountability in autonomous, locally managed institutional arrangements, hence the introduction of comparative education websites (e.g. Australia's My School website that broadcasts the statistics and test results of every school in the nation).

After the catastrophic and ongoing effects of the global financial crisis (GFC) in 2008, education has been even more clearly in the sights of governments as a major vehicle for economic reform, national productivity and growth. A reinvigorated and fortified laissez-faire free market economic and neo-liberal policy hegemony is rapidly changing the operations and behaviors of educational programs and institutions. Education's role in national economic fortunes has assumed primacy over its individual, civic or social benefits (Reid, Gill & Sears, 2010; Smyth & Shacklock, 2004). Education is a contested and highly political realm of social life. Reforms are "deeply political", and raise questions about the fundamental purposes of education (Woods, 2008, p. 80). Globalization has had a profound effect, forcing education institutions to rethink their operations and behaviours as the world becomes smarter, faster and smaller (Bush, 2008).

In the face of globalization, education is as fallible and vulnerable, yet as propitiously and opportunely placed to benefit as any other essential human enterprise. Through the forces of globalization, education everywhere confronts new challenges and uncertainties (Held & McGrew, 2004), although there are opportunities: decisions about what to do, how and when rest with educational leaders. In order to achieve positive outcomes, there are 'wicked' determinations to be made at the local level (Kets de Vries, 2001).

## LITERATURE REVIEW

A general literature search will attest to the assertion that 'the business of education' yields very little – mostly texts about Business Education. A literature review revealed research that relates to aspects of the current study, but none that traverses the same territory in its entirety.

Researchers covering complementary terrain include Bonk (2009) whose book *The World is Open: How Web Technology is Revolutionizing Education* discusses developments in e-learning and e-demand. This phenomena raises questions as to how much, if any, physical infrastructure in the way of campuses and buildings, and features such as rigid timetables and on-site teaching staff may be necessary for education to occur. In similar vein, Kamenetz (2010) suggests that e-learning and e-demand are producing the DIY U (do-it-yourself university), with 'edupunks' and 'edupreneurs' creating coming shifts in higher education. Kamenetz's research raises issues concerning educational access and costs associated with traditional universities while focusing on inevitable transformations created through interactive technologies while providing advice about DIY education.

Knight (2008) extends this theme by exposing the rapid changes that are occurring as universities embrace internationalization and its attendant accouterments such as commercialization, international institutional

competition and quality assurance. Globalizing tendencies are changing educational leadership, business and governance irrevocably, with universities traversing uncharted territory as they respond to rampant change.

Rothstein, Heywood, Adams & Scott's (2009) research focuses on the schooling sector and challenges current strictures around teachers' employment, including remuneration, employment conditions, vacations, health and retirement plans, as well as teaching mores, dominant education cultures and the practices of teacher unions (see also Maslen, 2013). This book discusses increasing needs for educational performance accountability and its implications, including methods of evaluating teacher performance and payment by results. Likewise, Meister & Willyerd's (2010) research on future work and impending workforce needs canvass emerging employment/employee trends and the challenges they present for employers. Like Rothstein et al (2009), the authors argue for drastic employment changes, including increasing mobility, 24/7 global accessibility, flexible hours, work location, contractual arrangements, and shifts in expectations around entitlements, promotion and retirement age.

Darling-Hammond (2010) raises the issue of closing the achievement gaps between various classes and segments of American society, finding that current policies and practices for educational equity in USA – including incessant testing regimes - are failing and creating further problems. She posits why this is the case and proposes strategies for educational reform based on improvements achieved elsewhere in the world.

While not solely focused on education, there is much research from the fields of economics and finance describing their social influences that are also of relevant to this study. For example: Shiller (2012) describes how finance can be used to create social good. He focuses on re-defining and re-thinking finance and its role for a good society and interrogates the meaning of social stewardship for positive social outcomes. Chomsky (1999) analyzes current policies underpinned by neoliberalism and economic rationalism, the interests they serve and their social and ecological consequences. Chomsky suggests that transformation towards equality will require organized social and political activism. To achieve similar ends, Sukhdev (2012) proposes new business models to redress 'market-centricity' and problems associated with social inequalities, environmental degradation and political interference in corporate life.

Watson & Freemant (2012) study the trends, opportunities and challenges presented by relentless, rapid major change. They ponder possible future scenarios and potential problems while suggesting social actors must actively shape the future to overcome looming problems and to generate constructive, positive change. Winter (2012) writing on the same theme argues that organizations must be nimble – adaptive, innovative and high-performing to survive in a volatile, unpredictable global business environment and provides a 'blueprint' for coping with fast, frequent change to achieve business agility.

Currently, the "business of education" is not a common research area. However, as education both recognizes and seeks to confront unprecedented business challenges, there is a rapidly growing recognition of its importance by governments, education systems and policy makers, educational boards and councils, students and parents and the media.

## **DATA AND METHODOLOGY**

This research involved interview and focus group data gathered from 2010 to 2013. Face-to-face, semi-structured interviews and focus groups were conducted with 199 participants, digitally recorded and transcribed. This study originally occurred in Australia but was broadened to include information from the United Kingdom, the United States, Canada, South Africa and New Zealand, through participation in international conferences for education business managers, and through the Association of School Business Officials' International Aspects Committee.

The research is an exercise in grounded theory building (Glaser and Strauss, 1967), which supports examination of individual standpoints within complex contexts. Grounded theory research considers the inextricability of the macro- (international and national), meso- (state and district) and micro- (institutional) connections and their effects on the experiences of individuals and groups. Real life experience is the starting point, connecting individuals with broader structural arrangements, such as global economics, government policies, national social issues and historical events. In other words, large-scale social structures affect tangible realities that are inseparable from contextualized practice or history (Ball, 1994). In this case, for example, micro-level experience is where the business effects of macro and meso actions, innovations and decisions are sensed and site-based responses instigated, with institutional experience being influenced by local, systemic, national or global decisions and events.

In grounded theory building, theory is generated from the data gathered through an inductive process - a process whereby emerging research insights are analyzed and continually tested, producing further evidence and/or new theoretical insights (Corbin and Strauss, 2008). Data were categorized and analyzed, with similarities and differences enabling the construction of propositions. As themes emerged 'loudly and clearly' through the data, a theory or picture of the actual situation could be produced. Thus a recursive relationship between data collection, analysis, and theory occurs until the data are 'saturated' - that is when similar instances appear and re-appear over and over again (Glaser and Strauss, 1967). Hence the iterative processes of developing claims and interpretations within a grounded theory approach is responsive to research situations and the multiple levels of meaning produced by the people in them (Gray, 2009). Finally, emerging theories were compared with extant literature from across the world.

## RESULTS AND DISCUSSION

The most often-cited game-changing challenges raised by interviewees are described below under thematic headings and include the implications for educators and educational institutions. As will be demonstrated, these game-changers are inextricably inter-linked and mutually influential and often comprise paradoxical, inconsistent and contradictory tendencies. They are altering or will alter education such that it will never be the same again, providing much grist for important decision making in educational leadership, business and governance. The major themes include the impact of increasing de-regulation in education, constant rapid policy change and disruptive technologies.

### De-regulation and Default Autonomy

Increasingly governments are devolving authority and responsibility to the education site level. Greater de-regulation and policies of 'default autonomy' refer decision-making, risk management, accountability and liability to site leaders and governors. Proponents of expanding 'devolution' include those claiming such policies aid educational improvement, increasing student learning attainment and raising standards (e.g. OECD, 2010). Opponents are cynical about 'default autonomy' occurring simultaneously with downwards pressures on budgets and upwards pressures on standards after governments themselves have failed on both counts – in other words, 'pushing problems down the line' (e.g. Marginson, 2010).

Fewer government impediments to operations, however, come at the price of increasing interventions in the form of new accountabilities, regulatory compliance and mandatory audit reporting. Governments promoting autonomous educational institutions, "steer at a distance" (Kickert, 1995), mandating policy agendas and quality assurance mechanisms, devolving all operational activities to individual sites and averting risk through intensive regulatory, compliance, audit and accountability schemes. Therefore, while bureaucracies may be smaller, government interventions in education are increasing. The current education funding focus is on outputs rather than inputs; public-private partnerships and sponsorship; a 'hand up' rather than a 'hand out'. Public investment in education is squeezed with constant Treasury pressures to reduce education spending, while value-for-money (VPM) and return-on-investment are highlighted.



Previously dominant social democratic agendas have been marginalized, including overt equity and social justice policies in education (although lip service is paid to them).

A corollary impact of de-regulation is the arrival of new players in the education market - a burgeoning 'for-profit' sector with an escalating market share and a new labor supply of non-qualified or semi-skilled and casually-employed staff. Some governments are contemplating increasing this movement by appointing non-educators to be educational CEOs, replacing school principals and academics in top education leadership posts (e.g. Preiss, 2013). The rise of nimble, flexible, low cost, low bureaucracy, 'for profit' education providers in a deregulated market with online or low rent changeable premises, movable product & incentivized enrollments are challenging traditional educational institutions which are highly regulated, expensive to operate, with extensive premises and infrastructure; tenured, unionized staff; rigid operational hours and standard program offerings

In the United States alone, this growing sector represents 8% of all post-secondary enrolments as online education services burgeon (The Economist, 2010). Unregulated education markets such as the private tutoring industry, charging fees from \$25 to \$100 per hour, are flourishing (Australian Broadcasting Corporation, 2011). Sponsors clamor for naming rights and corporate social responsibility recognition, seeking reputational benefits and future custom. There are public-private partnerships, cross-level education provisioning and multi-service hub developments, which are changing the way education is delivered and operationalized.

De-regulatory activities have also fuelled the internationalization of education, including the enrolment of full-fee paying international students and a concomitant movement of students and teachers across the globe. Education has thereby become a tradable commodity as international student markets become critical to nations' gross domestic product. International education testing regimes and league tables for schooling and higher education (a huge education industry in itself), provide measurable and comparable outputs as a barometer of educational effectiveness. This exercise also assists potential international students in making choices about where to study, which is significant in countries such as Australia where education is the nation's third largest export earner, and for the state of Victoria, the largest income earner.

Suffice to say, these moves are not without their critics, including the overwhelming majority of respondents of this research.

### Constant Rapid Policy Turnaround

Incoming governments focusing on short-term political agendas change the education policies of their predecessors, often appealing to populist concerns through negative political and media commentary. A general distrust of educators is perpetrated with criticisms generally concerning 'provider capture', inadequate standards, the need for "back-to-basics" programs or poor returns on education investments. These disparagements serve to legitimate educational policy reforms amongst education 'consumers' whose expectations are constantly growing. Politically appointed bureaucrats ensure education policy aims and their implementation are pursued (a major change since the days of permanent bureaucratic appointments serving the government of the day irrespective of its political persuasion). Government funded 'think tanks' and independent consultants assist the pursuit of goal achievement, policy legitimation and cost savings, amidst a distrust of educational research emanating from independent university researchers.

A consequence is that education policy changes constantly which makes full implementation impossible and policy effects inestimable while ensuring that educational institutions are constantly responding to externally imposed change. With rapid technological innovation and stakeholders at every level and angle, emerging educational responses are often un-tested and disruptive to conventional practices and

assumptions within educational leadership, business and governance. The longevity of formal policies, business models and governance cycles has never been shorter and the work of educational leaders, education business managers and governing councilors has never been more uncertain, experimental and equivocal. Fluidity and constant major change is the new norm making leadership and governance challenging, demanding and inherently riskier. Most frustrating for educators are policies that “come and go”, wasting enormous amounts of energy and taking time and focus away from teaching and learning. Further criticisms arise when policy mandates paradoxically contradict each other and produce unintended consequences. For example, interviewees spoke about cost-cutting policies (“efficiency dividends”) such as re-engineered education workplaces, replacing people with DIY technology with the result that efforts to raise productivity are frustrated. The use of technology in rapid policy upheaval provides a segue into the final major game-changer – that of disruptive technologies.

### Disruptive Technologies

This game-changer represents the largest challenge and concern for the educational leaders interviewed. Research respondents were concerned about a general inability in education to quickly adopt and adapt quickly enough to emerging disruptive technologies. Costs, capacity and the adaptability of staff are hindrances to the current ‘Old World’ (industrial thinking), which is increasingly outmoded and outdated, being replaced with New World, digital thinking and networked behaviors. Education can’t keep up with constant change and innovation and is seen to be still deep-rooted in the industrial factory age, with government policies reinforcing this business model. Research commentators referred to the difficulty of promoting creativity, problem-solving, critical thinking and teamwork in schools – New World skills – while politicians are calling for ‘back-to-basics’ reforms and reinvigorated standardized testing regimes that narrowly focus the curriculum on Mathematics, Reading and Science. Unwittingly an insatiable appetite for testing and comparative world rankings is creating a ‘core-and options’ curriculum, with the three test areas being ‘core’ and all other learning areas ‘optional’. This reversion to the 1960s elides current education arguments supporting diversity and creativity and constrains educational aims. These aims include providing a broad and balanced education in all areas of knowledge during the compulsory years of schooling, leaving specialization until senior secondary and tertiary years; meeting the learning needs to different talents and interests; and developing students’ capacity to apply knowledge to real world problems through interdisciplinary learning applications.

The proliferation of technologies enabling education to occur anytime, anywhere, on any device make physical attendance in classrooms and lecture theaters unnecessary, although educators concede that on-site attendance is beneficial, especially for the compulsory schooling years. One professor said: A new lecture theater has been built right next to the building where my office is located. It’s beautiful – a magnificent piece of architecture and the technological equipment is amazing. It’s a joy to be in and work in. BUT, last week was the first week of Semester. Of the 123 students in my course, only 32 turned up... Why would they turn up when the lecture is recorded and can be downloaded at any time? And it’s down hill from here because attendance goes down as the semester progresses. Why are we are still building lecture theaters and wasting millions of dollars? Our students are in a different era...

Kurzweil’s (2005) prophecy about ‘singularity’ whereby technology and biology merge to augment our physical lives, senses and experiences, is almost complete. We carry or wear digital devices that have transformed the world in every way, providing constant access to reality and virtual reality. Technologies such as Google Glass, the *hands-free multi-function internet device* worn like eyeglasses enables simultaneous reality and virtual reality experience, challenging the usefulness or necessity of traditional textbooks and the didactic rote learning of facts. *At the time of writing the release of this amazing development is imminent, with global demands expected to rival the advent of smart phones and i-pads. Take-up will no doubt be speedy as Google Glass becomes the next ‘must-have’ device.*

Social media enables anyone with a web 2.0 enabled device to create, share and comment on content from anyone anywhere. Interviewees referred to *Tumblr*, *Gowalla*, *Foursquare*, *Posterous*, *Quantcast*, *Friendster*, *Fromspring*, *Quora.com*, *Hunch.com*, *Facebook* and *Twitter* which are consuming increasing amounts of students' time while creating anxiety for many educators who feel overwhelmed and out-of-date.

Educators were aware of emerging technologies that will be commonplace in no time. The advent of 3D printing challenges traditional manufacturing, providing the means by which a massive range of physical objects can be created onsite, tailored and individualized, as needed by anyone, anywhere. The specter of 4D printing that enables material objects to change their properties like chameleons to suit varying conditions (for example, glass could become opaque or transparent, clothing could become cooler or warmer as required) will have even more impact. The first generation of quantum computers are appearing - computers based on quantum mechanics that have such enormous capacity, are so fast and powerful, they will challenge human intelligence as they solve problems in seconds that would require eons through conventional computers. The developers of this D-Wave technology admit themselves that it is difficult to imagine how quantum computers or 'genius machines' will be used or their effects, but there is no doubt they will and the impacts will be astonishing and inconceivable in terms of current understandings about the world.

The Kahn Academy offers free self-paced online courses, materials, resources and assessment tools in a wide range of subjects at varying education levels and offers 'badges' for achievement. Massive Online Open Courses (MOOCs) are open-license e-learning courses offered free of charge to anyone (without pre-requisites), anywhere in the world via the internet that have rapidly swept through the global higher education landscape. MOOCs are credited with opening up Ivy-league universities and high-profile professors to the masses (Bohle, 2013). The take-up of these self-directed courses has quickly run into the millions – faster than Twitter or Facebook (Lewin, 2013).

The business model behind MOOCs might appear perplexing because the courses on offer cost around \$50,000 to produce (with videography being the biggest cost), they still require staff to monitor discussion forums, yet they are free to students. However, revenue streams can be generated through licensing, assessment fees, fees for certificates of completion, provision of recruitment data to potential employers, kick-backs from recommended text book sales, and through generating recruits into degree courses through MOOC credits. Further revenues are being canvassed through advertising or sponsorships on MOOC sites and through the development of paid introductory and remedial courses. MOOCs enable students to 'dip in and out' of education courses and coordinate the attainment of education credentials around their life events and activities. Friedman (2013) sums up the fears of many interviewees when he says:

I can see a day soon where you'll create your own college degree by taking the best online courses from the best professors from around the world ... paying only the nominal fee for the certificates of completion. It will change teaching, learning and the pathway to employment. There is a new world unfolding and everyone will have to adapt.

While universities are currently the most affected by MOOCs, there are moves for their introduction for school age children as a means of providing education in developing countries. For example, Mitra (2013) asks, "What is going to be the future of learning?" to which his answer is free, open courses in the cloud. These enabling technologies are democratizing, empowering networks and friendship groups and supporting people power. But there are downsides. Educators speak of increasing problems with cyber-bullying and rising litigation for technologically created problems. Many young people are living hyper-connected lives. Educators are concerned about continuous connectivity and 'always-on' tech-savvy lifestyles that are influencing students and their learning. Concerns include students becoming easily bored or impatient with traditional teaching and learning activities, needing 'quick-fixes', instant gratification and

being disinclined towards deep-thinking and time-consuming lengthy learning tasks. This new generation of students is challenging the technological capabilities of many teachers, a fact highlighted by the OECD (2010).

The cost of technological provisioning which is quickly out-of-date is taking increasing percentages of education budgets. Further worries for education business leaders concern privacy and data security that are enormous new realms of risk to be managed.

Finally educators are aware that these game-changers raise the question – are educational institutions necessary? For example, Michigan state is enabling students from Grades 5 – 12 to take two online subjects per semester through Michigan Virtual University. And if we decide that schools, training colleges and universities are necessary, how many are necessary?

## IMPLICATIONS

In the high-stakes environment of educational leadership, business management and governance, the overwhelming sense derived from the interviews was a sense of the demise of ‘the way we were’ amidst concerns about ‘the way we are’ and ‘are becoming’. There is much fear and anxiety about rapid, complex change and uncertainty. At the same time, there is optimism and amazement about the possibilities inherent in these game-changing forces. It would be fair to say, however, that feelings about being pushed outside of ‘comfort zones’ are having corporeal effects.

Interviewees mentioned the need for educational institutions to collaborate more in order to survive. Viability is strengthened through networks, federations, amalgamations amidst a larger number of educational institutions going into receivership or closing; or the cessation of less popular courses or having to implement staff redundancies. Ironically, this need arises as there is more competition between educational institutions and less cooperation as they battle for market share and as educational leaders are consumed with issues about individual sites and not ‘the system’. Simultaneously there are increasing calls for individualized student programming (while the curriculum and assessment instruments are standardized) and for specializations to be available across education facilities. Interviewees argue that implementing ‘individuation’ policies is frustrated by educators having less time and focus on teaching and learning as more time and effort is spent on test ranking attainment and compliance mandates.

Educators believe that this testing emphasis is ‘dumbing down’ the curriculum and, ironically, causing standards to drop. Teaching is being de-professionalized in the process with respondents arguing that teachers are well aware of what students know and do not know – standardized tests produce information that is already known within educational institutions. There were concerns raised about the diminishing worth of education qualifications as the numbers of unemployed graduates grow.

Cheaper ‘efficient’ provisioning makes education ‘mean and lean’ but staff cuts and redundancies are occurring at the same time as education work is intensifying, with expectations of 24/7 availability, more unpaid out-of-hours work and reduced work-life balance. Educational institutions are becoming more flexible to cater for twenty-first century lifestyles (for example, Free Schools in England establish operational hours and school calendars based on the needs of working parents). Teleworking is being promoted in universities as a means of relieving car parking and office space provisions and utilities costs.

Ironically, devolved authority, responsibility and default autonomy at the site level is perceived to create a center – periphery power structure, relegating the position of educational leaders to that of perfunctory middle managers with little time or incentive to pursue institutionally inspired major change.

Many ideas about responding to game-changing challenges were recorded in the research. These mostly concerned areas for contemplation and action. These ideas are summarized in Table 1 under three main organizing themes for educational business leadership: discover, educate, advocate.

## CONCLUSION

This paper delineates radical changes influencing education and their implications for education business and governance. Data were derived from a grounded theory research conducted from 2010 to 2013 spanning Australia, USA, Canada, UK, New Zealand and South Africa. While many fundamental changes were identified, three major challenges were seen to have far-reaching effects: increasing de-regulation that is creating new players in the education market place alongside the growing prevalence of ‘default autonomy’ policies that increase responsibility and accountability at the institutional level; a more rapidly changing education policy environment that creates extra work for educational leaders and hinders teaching and learning; and a proliferation of disruptive technologies that are influencing education access, participation, programs, policies and budgets. These transformational challenges have their basis in the imperatives of globalization, technological innovation and a fundamental shift in the purposes, expectations and outcomes of education. Collectively they are transforming education business, governance and leadership, the role of governments and regulators, the work of educators and the learning experiences of students.

The educational business leaders in this research argue most emphatically for a re-thinking of educational leadership and education business, including the need for wrestling education out of political realm and the short-term agendas of politicians, to pursue education business ‘for good’.

Table 1: Responses to Challenges

<b>DISCOVER</b>	<p>How worldwide pervasive changes are affecting and are likely to affect education.                      What the challenges will mean for education business, education business models.                      The short, medium and longer term implication of challenges for educational institutions.                      Imminent and current education policy and take a position on how policy agendas should change.</p>
<b>EDUCATE</b>	<p>Work alongside educational leaders and their national professional associations to form alliances for policy change.                      Educate educators about education business and business implications.                      Overcome the education business ‘backlash’ (business is a ‘dirty’ word in education): re-brand ‘business’ as the means by which education happens and demonstrate how education business can improve education.                      Promote distributed leadership in education and demonstrate how the business side of education can create more time for teaching, learning and educational leadership.</p>
<b>ADVOCATE</b>	<p>Re-think the purposes of education: the economic/vocational vision needs to be balanced by notions about the intrinsic worth of education.                      Take a proactive stance on education policy.                      Develop alternative measures of institutional and student success and educational ‘quality’.                      Question the equity impact of education policies. Denounce assumptions about a ‘level-playing field’ that underpin testing, rankings and institutional funding.                      Promote ‘prosumption’ in its broadest sense so that educational facilities, knowledge and resources are more evenly shared and costs lowered.                      Create commercial partnerships and networks for school sustainability.                      Broadcast education’s good news and great achievements.                      En masse refuse to implement policy that we know to be ‘bad’.                      Take political action, including making public pronouncements, political lobbying, press statements and media announcements – telling it as it is and what is required to fix problems (and pushing for fewer interventions, greater trust and not simply more money).                      Stick up for education, educators, students – everywhere.</p>

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## **BIOGRAPHY**

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