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.

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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*
Individual Situations		
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
Business Situation		
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
Year	1. Freshman	9.50	As described
	2. Sophomore	20.49	
	3. Junior	33.51	
	4. Senior	36.50	
GPA	Cumulative Grade Point Average		As described Mean = 2.98 Std. dev. = 0.49
Business	0 if non-business major	22.93	
	1 if business major	77.07	
Gender	0 if female	45.05	As described
	1 if male	54.95	
Ethic	0 if not taken Business Ethics Class	72.86	
	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, ε_i, follows a logistic distribution (an assumption that ε_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, ε_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 α_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 ethic issue, probably an ethical issue, and definitely an ethical issue. Hence, we observe:

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

Where the unknown α_js are-estimated along with the βs. The α_js 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, ε_i, is assumed to be logistically distributed, the probabilities that the students rank the degree of ethical issue are given as:

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

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:

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

If a β 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:

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

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

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

where δ_{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^2	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	0.13	0.04	-0.07	0.03	-0.21	0.13	-0.03	-0.09	0.11
	(0.08)**	(0.07)*	(0.08)	(0.07)	(0.08)	(0.07)***	(0.09)*	(0.08)	(0.07)	(0.07)
gpa	0.78	0.52	0.35	0.42	0.35	0.07	-0.14	0.04	0.24	0.01
	(0.16)***	(0.14)***	(0.15)**	(0.14)***	(0.15)**	(0.14)	(0.14)	(0.14)*	(0.14)*	(0.14)
business	0.10	0.12	-0.34	0.29	-0.21	-0.21	-0.10	-0.26	0.27	0.39
	(0.18)	(0.16)	(0.17)**	(0.16)	(0.17)	(0.16)	(0.16)	(0.16)	(0.16)*	(0.16)**
gender	-0.05	-0.49	-0.18	-0.54	-0.24	-0.43	-0.49	-0.61	-0.46	-0.54
	(0.15)	(0.14)***	(0.14)	(0.14)***	(0.15)	(0.14)***	(0.14)***	(0.14)***	(0.14)***	(0.14)***
ethic	0.23	0.31	0.11	0.43	0.30	0.02	0.02	0.15	0.07	0.13
	(0.19)	(0.17)*	(0.17)	(0.17)	(0.18)*	(0.17)	(0.17)	(0.16)	(0.16)	(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^2	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					
	Female Students (*n*=332)			**Male Students (*n*=405)**		
Explanatory Variables	**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^2	0.05	0.01	0.03	0.06	0.00	0.03
	Marginal Effects of Significant Variables at Means					
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					
	High-GPA Students (*n*=416)			**Low-GPA Students (*n*=321)**		
Explanatory Variables	**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^2	0.05	0.04	0.05	0.06	0.08	0.09
	Marginal Effects of Significant Variables at Means					
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 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.

REFERENCES

Altmyer, D.J., Schallenkamp, K.A., Yang, S.P., DeBeaumont, R.C. (2011) "Student Ethical Awareness and Business Program Matriculation: Evidence from the U.S," *Journal of Business Education and Accreditation*, 3 (1), 41-49.

Awasthi, V.N. (2008) "Managerial Decision-Making on Moral Issues and the Effects of Teaching Ethics," *Journal of Business Ethics*, 78(1-2), 207-223.

Bishop, T. R. (1992) "Integrating business ethics into an undergraduate curriculum," *Journal of Business Ethics*, 11, 291-299.

Christensen, S. L., & Kohls, J. (2003) "Ethical decision making in times of organizational crisis," *Business & Society*, 42, 328-358.

Chan, D. (2011) "A Comparison of Traditional and Blended Learning in an Introductory Principles of Accounting Course," *American Journal of Business Education*, September 2011, 1-10.

Cloninger, P.A. & Selvarajan, T.T. (2010) "Can Ethics Education Improve Ethical Judgment? An Empirical Study," *S.A.M. Advanced Management Journal*, 75 (4), 4-11.

Cole, B.C. & Smith, D.L. (1995) " Effects Of Ethics Instruction On The Ethical Perception Of College Business Students," *Journal of Education for Business*, 70(6), 351-356.

Cox, P.L., Friedman, B.A., & Edwards, A. (2009) "Enron: The Smartest Guys in the Room-Using the Enron Film to Examine Student Attitudes towards Business Ethics," *Journal of Behavioral and Applied Management,* 10(2), 263-290.

Driscoll, C. & Finn J. (2005) "Exploring Discrepancies and Variability Among Professors and Students," *Journal of Business Ethics Education*, 2 (1) 51-69.

Falkenberg, L., Woiceshyn, J. (2008) "Enhancing Business Ethics: Using Cases to Teach Moral Reasoning," *Journal of Business Ethics*, 79 (3), 213-217.

Frederick, W., & Weber, J. (1987) "The values of corporate managers and their critics: An empirical description and normative implications," In W. Frederick (Ed.), *Research in corporate performance and policy* (pp. 131-152). Greenwich, CT: JAI Press.

Gilbert, J. (1992) "Teaching Business Ethics: What, Why, Who, Where and When," *Journal of Education for Business*, 68(1) 5-8.

Goolsby, J. R., & Hunt, S. D. (1992) "Cognitive moral development and marketing," *Journal of Marketing*, 56, 55-68.

Greene, W.H. (2003) *Econometric Analysis* (5th ed.), Upper Saddle River, NJ: Prentice Hall.

Gundersen, D.E., Capozzoli, E.A., & Rajamma, R.K. (2008) "Learned Ethical Behavior: An Academic Perspective," *Journal of Education for Business*, 83(6), 315-324.

Jones, K., Chen, C. (2008) "Blended Learning in a Graduate Accounting Course: Student Satisfaction and Course Design Issues," *The Accounting Educator's Journal*, 18, 15-28.

Kelley, S. W., Skinner, S. J., & Ferrell, O. C. (1989) "Opportunistic behavior in marketing research organizations," *Journal of Business Research*, 18, 327-340.

Keller, J. H., Hassell, J.M., Weber, S. A. & Johnson, J.N. (2009) "A Comparison of Academic Performance in Traditional and Hybrid Sections of Introductory Managerial Accounting," *Journal of Accounting Education*, 27(3), 147-154.

King, P.M. & Mayhew, M.J. (2002) "Moral judgment development in higher education: Insights from the Defining Issues Test," *Journal of Moral Education*, 31(3), 247-270.

Klugman, C. & Stump, B. (2006) "The effect of ethics training upon individual choice," *Journal of Further and Higher Education*, 30(2), 181-192.

Kohlberg, L. (1969) "Stage and sequence: The cognitive developmental approach to socialization," In D. Goslin (Ed.), *Handbook of socialization theory and research* (pp. 347-480), Chicago: Rand McNally.

Kultgen, J. (1988) "Ethics and Professionalism," *University of Pennsylvania Press*.

Langan, J. (1990) "The Ethics of Business," *Theological Studies*, 51(1), 81-100.

MacFarlane, B. (2001) "Developing reflective students: Evaluating the benefits of learning logs within a business ethics program," *Teaching Business Ethics*, 5, 375-387.

McDonald, G.M. & G. Donleavy (1995) "Objections to the teaching of business ethics," *Journal of Business Ethics*, 14, 839-853.

Nguyen, N.T., Basuray, M.T., Smith, W.P., Kopka, D., & McCulloh, D.N. (2008) "Ethics Perception: Does Teaching Make a Difference?" *Journal of Education for Business*, 84(2), 66-75.

Stape, A.L. (2002) " Ethics: Area business schools are not rushing to add courses on ethical behavior as a result of the Enron scandal," *The Providence Journal*, (April 7).

Tang, T.L., Chen, Y.J., & Sutarso, T. (2008) "Bad apples in bad (business) barrels: The love of money, Machiavellianism, risk tolerance, and unethical behavior," *Management Decision,* 46(2), 243-263.

Townley, P. (1992) "Business Ethics . . . An Oxymoron?" *Canadian Business Review,* 19(1), 35-37.

Williams, S.D. & Dewett, T. (2005) "Yes, you can teach business ethics: A review and research agenda," *Journal of Leadership and Organizational Studies*, 12(2), 109-120.

Wynd, W.R. & Maget, J. (1989) "The business and society class, does it change student attitudes?" *Journal of Business Ethics*, 8, 486-491.

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