

An investigation of the ethical reasoning skills of introductory accounting students

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ABSTRACT

Ethical reasoning skills in accountants are essential to the honesty and integrity of the accounting profession. However, future accountants struggle to apply the ethical knowledge gained in higher education to the practical world. With the rise of financial scandals, more research needs to be conducted regarding the reasoning skills in future accountants and whether exposure to ethics in introductory accounting classes contributes to higher ethical reasoning skills compared to students without exposure to real-world ethical quandaries.

The purpose of the research study was to examine the relationship between ethical reasoning skills of accounting students and ethics exposure in introductory accounting courses. The study was a between-subjects paired-sample analysis utilizing a quasi-experimental quantitative research design. The researcher used the Accounting Ethical Dilemmas Instrument (AEDI) to measure ethical reasoning skills of introductory accounting students and exposed a treatment group to two ethical dilemma examples via class discussions to measure if manipulation increased ethical reasoning skills compared to a control group.

Utilizing the Mann-Whitney U test, the researcher concluded that the AEDI scores in the treatment group were not statistically significant compared to the control group ($U = 278, p = .909$). Additionally, the researcher concluded that the AEDI scores of female participants were not statistically higher ($U = 285, p = .950$). In conclusion, the researcher determined that real-world ethics exposure in an introductory accounting course did not improve students' reasoning skills, and that female participants did not exhibit higher ethical reasoning skills.

Keywords: ethical reasoning skills, accounting students

INTRODUCTION

The accounting profession has undergone numerous changes in light of the Enron scandal of 2001 that devastated and questioned the profession's integrity as a whole. In the past decade of massive corporate scandals, ethics education in accounting programs experienced increased attention from numerous researchers, regulators, and investors (Hurt & Thomas, 2008; Melé, 2005). Thorne (2000) suggests that unclear accounting standards can lead to ethical dilemmas that do not have a definitive solution. However, many researchers point the responsibility of ethical behavior towards a deficiency in accounting education (Finch & McAfee, 2012; Fleming, Romanus, & Lightner, 2009; Low, Davey, & Hooper, 2008; Miller & Becker, 2011). With contradictory opinions regarding how accounting scandals come to fruition and why future accountants are lacking ethical reasoning skills, more research needs to be conducted to better understand if ethics education is an influencing factor.

Ethics education in accounting programs has been under scrutiny since the Enron scandal. The purpose of this quantitative, quasi-experimental study was to evaluate the relationship between exposure to real-world ethical dilemmas in introductory accounting courses and Thorne's (2000) Accounting Ethical Dilemma Instrument (AEDI) scores of accounting students.

H1. Given instructional efforts to integrate real-world ethical dilemma examples in the classroom, there was a significant difference between introductory accounting students in the treatment groups and the control groups on an ethical reasoning test.

H2. Among introductory accounting students exposed to real-world ethical dilemmas, female accounting students did exhibit higher AEDI scores.

LITERATURE REVIEW

The influx of financial scandals in the early 21st century drew negative attention towards the accounting profession. Consequently, ethics education received heightened interest due to the massive scandals and loss of investor confidence. Research shows that investors value senior executives with accounting degrees from highly-regarded accounting programs (Vafeas, 2009). However, individuals often have trouble transferring ethical concepts learned in audit courses to the corporate world (Fleming et al., 2009). Yet, the research literature has not identified specific factors that contribute to this inability to transfer knowledge when identifying ethical dilemmas.

One must not discredit accounting education as a whole; instead, new ideas and methods need to be discovered to improve ethics education, which can benefit both the accounting profession and the corporate world (Finch & McAfee, 2012). Accordingly, this paper examined accountants' ethical reasoning skills relating to the purpose of successfully approaching real-world ethical dilemmas within the accounting profession.

Society and Ethics

The past decade has prompted a heighten fascination with accounting scandals; however, the focused attention on ethics has been unsuccessful in resolving conflicts of interest issues and future debacles in the corporate world (Palazzo & Rethel, 2008). The Enron scandal gained

global media attention, as all stakeholders were negatively impacted with the collapse of the company; both shareholders and employees lost significant investments in the form of retirement plans and personal savings (Heath, 2009). In retrospect, the accounting profession has undergone scrutiny and heightened regulation in light of the Enron scandal, which devastated and questioned the profession's integrity.

According to Sweeney and Costello (2009), individuals are guided by what society believes is appropriate ethical behavior, which influences one's moral decision-making skills. Prior research demonstrates that individuals perceive that ethical decisions derive from parental influences and self-reflection (Brenner, Watkins, & Flynn, 2012) and that consequences greatly influence an individual's ethical behavior (Lang, Hall, & Jones, 2010).

Additionally, many researchers have examined whether gender influences ethical decision-making (Bateman & Valentine, 2010). The research literature suggests that men within the business environment are often driven by consequences, which have the greatest impact on their ethical reasoning skills and decision-making (Bateman & Valentine, 2010). In contrast, women often based their ethical reasoning on the rules implemented and valued within the company (Bateman & Valentine, 2010). Both men and women are motivated by different factors when making ethical decisions in the real world. However, women exhibited higher ethical reasoning skills in most of the research studies involving gender and ethical reasoning (Bateman & Valentine, 2010).

Some individuals consider that ethical decisions are related to one's education and values (McManus & Subramaniam, 2009). However, in one research survey, students indicated that education can only modestly impact corporate ethical behaviors (Low et al., 2008). In order to better understand these varying views, future researchers need to analyze the instructional effectiveness of the ethics coverage and concepts throughout the academic process. In fact, due to the added attention towards ethics education after the early 21st century scandals, the AACSB urged institutions to discover better teaching methods for ethics education (Hurt & Thomas, 2008). Therefore, if ethics education were to be reformed throughout higher education, student perspectives might change in regard to the impact that ethics education can have on moral decision-making in the business environment. Overall, an inundation of examining the theoretical framework of ethics is currently evolving; however, the research literature is still in the early stages of development in regards to ethics education and the accounting profession (Palazzo & Rethel, 2008).

Accounting Education and Ethics

Ethics education remains an integral part of the accounting profession (Bampton & Cowton, 2013). In addition to the implementation of stricter regulations of SOX, ethics education experienced heavy scrutiny, as some of the blame was placed on accounting programs and the inability to produce ethical graduates (Low et al., 2008). In fact, a 2003 PricewaterhouseCoopers study concluded that the topic of ethics was not a cohesive and coherent part of accounting curricula at the university level (as cited in Low et al., 2008).

Ethics in accounting education is not a topic that obtained most researchers' interest until the 1980's, and the subject of accounting ethics is relatively new in the research arena (Bampton & Cowton, 2013). However, the recent research literature has steadily increased regarding the topic of accounting education and ethics (Apostolou, Dull, & Schleifer, 2013). Most of the existing research findings imply that ethics education within accounting programs remains

beneficial towards improving ethical reasoning skills (Apostolou et al., 2013). Yet, higher education institutions are currently providing inadequate ethics education when solving complex corporate dilemmas (Low et al., 2008).

Insufficient instruction can lead students down a path of failure in the corporate world. When accounting students do not effectively absorb ethical knowledge in higher education, these students will not be prepared to make tough ethical decisions encountered in the corporate world (Fleming et al., 2009). Part of the ethical learning deficiency stems from the reality that many universities lack faculty that are specifically trained to teach ethics; in addition, most accounting programs cannot offer monetary incentives to faculty members for supplementary efforts in ethics education due to budget constraints (Miller & Becker, 2011).

Even though many institutions lack the proper resources for ethics instruction, the accounting profession and its members assume ethics education is effectively taught within accounting programs across the United States (Frank, Ofobike, & Gradisher, 2010). For example, an accountant who completed an ethics course as part of a degree plan continues to be viewed by some employers as more ethical compared to an accounting student that did not complete an ethics course (Loeb, 2012). Yet, successfully completing an ethics course does not guarantee that an individual will act ethically in the practical world; thus, the perception of ethics education can often be misunderstood (Loeb, 2012).

In a recent research study, accounting students did not successfully transfer ethical knowledge obtained from audit classes to real-life corporate scenarios (Fleming et al., 2009). In this study, Fleming et al. (2009) utilized the AEDI to evaluate students ethical knowledge of dilemmas faced as an external auditor; in addition, students completed an adaptation of the AEDI that focused on dilemmas that corporate accountants often encounter. According to Fleming et al. (2009), ethics exposure obtained in most auditing courses focuses on ethical theories that many accounting majors cannot fully grasp until one gains actual experience in the business environment. Thus, Fleming et al.'s (2009) research findings are vital and suggest that traditional ethics instruction techniques are insufficient, and more research is needed to improve ethical knowledge within accounting students.

To combat the shortfall in accounting programs, the AACSB's proposal to discover better teaching methods in hopes of fostering ethics has provided a purpose for future research in ethics education (Hurt & Thomas, 2008). In addition to the absence of faculty and institutional support, a lack of coverage in the foundational aspects of ethics has been indicated, which is a massive obstacle facing ethics education (Miller & Becker, 2011). Some researchers suggest that individuals' ethical reasoning skills can be improved by explaining the big picture and purpose of accounting and clarifying why the integrity of a company's balance sheet is essential (Allen, 2005). However, more research needs to be conducted to validate whether teaching accounting students the reasoning behind honest financials improves ethical decision-making in the corporate world.

Stand-Alone Versus Integrated Ethics

Besides modifying introductory accounting courses to impart critical thinking skills upon business students by integrating a principles-based attitude, educators need to increase the amount of ethics exposure during class time. According to Hurt and Thomas (2008), the amount of time spent on ethics and the various ethical topics covered in accounting courses plays

an important role in the effectiveness of ethics education. However, only a small percentage of classroom time is spent discussing ethics (Hurtt & Thomas, 2008).

Following the financial scandals of the early 21st century, the National Association of State Boards of Accountancy mandated that future accountants complete two stand-alone ethics courses (Shawver, 2006). However, the AICPA and accounting educators argued that requiring stand-alone ethics courses would not increase students' moral reasoning due to deficient research evidence (Klimek and Wenell, 2011). Accounting professors commanded that research be conducted and prove that a stand-alone ethics course actually increased ethical reasoning via empirical research evidence before making an ethics courses a requirement as part of all accounting programs (Mintchik & Farmer, 2009). Currently, various scholars and educators argue over whether a stand-alone ethics course or integrated ethics exposure in an accounting program promotes improved ethical knowledge (Hurtt & Thomas, 2008). Some scholars claim that a stand-alone ethics course remains the best method for teaching ethics and that students develop higher moral decision-making abilities when ethics remains the focus for the entire semester (Klimek & Wenell, 2011; Uyar & Güngörmü, 2013).

Several studies revealed evidence that students in ethics courses demonstrated higher ethical sensitivity (Saat, Porter, & Woodbine, 2010), and students who took a stand-alone ethics course appeared to have higher moral reasoning skills compared to students with integrated ethics exposure (Klimek & Wenell, 2011). Furthermore, Mintchik and Farmer (2009) concluded that a stand-alone ethics course would be beneficial, as accounting students exhibited that ethical knowledge and moral reasoning skills developed differently. An ethics course focusing on developing reasoning skills has the potential to be more successful than incorporating ethical knowledge throughout an accounting program (Mintchik & Farmer, 2009).

Yet, in an AACSB survey, 90 percent of accounting programs chose to integrate ethics education, instead of requiring a stand-alone ethics course (Hurtt & Thomas, 2008). Integrating ethics into existing accounting courses can also be beneficial, as accounting students are exposed to ethical topics that are relevant to the technical accounting knowledge introduced within a particular course, such as auditing or tax (Apostolou et al., 2013). Accounting professors consider integration the preferred method due to the massive expenses involved in executing a change in the current educational approach (Apostolou et al., 2013; Klimek & Wenell, 2011).

In addition, creating a stand-alone ethics course is much more complex and requires additional instructors, whereas adding new material to an already existing accounting course is easier and more feasible (Apostolou et al., 2013). Conflicting research results exist on whether stand-alone or integrated ethics improved students' moral reasoning skills; therefore, some scholars consider a change away from integrated ethics education as an unnecessary and insignificant matter (Klimek & Wenell, 2011).

Some researchers claim that students must be exposed throughout the entire accounting program to empower individuals to make ethical decisions in the corporate world (Klimek & Wenell, 2011). Accounting professionals are regularly confronted with ethical dilemmas, and accounting programs are highly encouraged to offer exposure to ethics education (Klimek & Wenell, 2011). Whether a stand-alone course or integrated ethics exist within a program, students must develop ethical reasoning skills to be successful in a real-world business setting.

Ethical Reasoning Skills

Research findings concluded that ethical reasoning skills have decreased in newly hired accountants over a 15-year period, which was initially observed before the early 21st century financial scandals and then re-examined several years after the scandals (Abdolmohammadi, Fedorowicz, & Davis, 2009). The decrease in ethical decision-making skills of novice accountants remains a significant concern considering the accounting profession and academia has recently increased the attention on ethics education following the aftermath of those early 21st century financial scandals (Abdolmohammadi et al., 2009). Accounting students recently demonstrated lower ethical reasoning skills compared to other students in the medicine and law professions (Chunhui, Lee, & Nan, 2012). However, other studies found that accounting students' ethical reasoning skills were significantly higher than other business majors (Bampton & Cowton, 2013).

According to the Myers/Briggs Type Indicator (MBTI), the majority of accountants are categorized as either sensing/thinking or sensing/feeling personality types, which demonstrate lower ethical reasoning scores compared to other MBTI personality types (Abdolmohammadi et al., 2009). The significance of these findings alludes to the theory that accountants by nature are less ethical than other professionals (Chunhui et al., 2012). In addition to personality traits, the gender variable is a factor that continues to be examined, as several research findings concluded that females exhibit higher ethical reasoning skills compared to their male counterparts (Bampton & Cowton, 2013).

Developing individuals' ethical reasoning skills in accounting programs remains a challenge for numerous reasons. As previously mentioned, accounting educators lack the time and resources to appropriately teach ethics (Miller & Becker, 2011). In addition, most accounting textbooks scarcely cover the topic of ethics, especially introductory books where building an individual's framework of ethical reasoning is essential (Tweedie et al., 2013). Recent research findings provide evidence that a lack of ethics coverage may play a role in lower ethical reasoning skills (Miller & Becker, 2011).

Measuring Ethical Reasoning

Various research instruments have been developed over the years; however, controversy remains as to whether any of these instruments accurately measure ethical reasoning skills. One of the first instruments developed for measuring ethical reasoning was the defining issues test (DIT) (Rest, 1986). A modification to the DIT test in later years became the DIT-2 (Hurtt & Thomas, 2008). Both the DIT and the DIT-2 are founded on Kohlberg's (1981, 1984) stages of moral development and measure an individual's cognitive moral capacity (Hurtt & Thomas, 2008). An early study of ethical reasoning skills utilizing the DIT indicated that ethical reasoning skills did not increase after exposure to ethics in an auditing course (Ponemon, 1993). However, Ponemon's (1993) research findings could be a result of utilizing the DIT research instrument. Alternatively, Ponemon's (1993) research results could have been skewed by utilizing participants in an audit course, as Fleming et al.'s (2009) study revealed much later that students are unable to apply ethics skills introduced in audit courses to the real world.

The DIT and the DIT-2 are the most widely known models for measuring ethical reasoning abilities (Apostolou et al., 2013; Hurtt & Thomas, 2008). One of the main reasons that the DIT continues to be the most common research instrument for measuring ethical reasoning skills is due to ease of use and timeliness of the test (Bampton & Cowton, 2013). Some researchers have questioned the DIT's ability to measure ethical reasoning skills, especially in

regards to accountants (Bampton & Cowton, 2013; Thorne, 2000). The DIT instrument only measures an individual's cognitive moral capacity and not one's ethical intended action in the practical world (Thorne, 2000). Even if an individual exhibited extremely high ethical knowledge, that individual is not guaranteed to utilize ethical reasoning skills during a real-world ethical dilemma (Thorne, 2000).

Furthermore, the examples of ethical dilemmas exhibited on the DIT are often criticized for not including accounting-specific ethical dilemmas for future accountants to judge (Thorne, 2000). The DIT and the DIT-2 are perceived to contain superfluous ethical examples that are not suitable for accounting students (Hurt & Thomas, 2008). Thorne (2000) considered the DIT and DIT-2 inappropriate for measuring ethical reasoning skills of accounting students due to the irrelevant cases utilized in those tests. Therefore, Thorne (2000) developed the AEDI, which is an accounting-specific measurement that evaluates accounting students' ethical reasoning skills, while still utilizing the same scoring codes of the DIT. Bampton and Cowton (2013) agreed that researchers need to utilize accounting-specific ethical dilemmas examples when performing research on participants.

Some researchers have reservations about whether research participants will actually answer ethical dilemmas examples questions in the same regard as they would in the real world (Bampton & Cowton, 2013). For example, the issue of participants selecting the socially-desired response can potentially manipulate or skew research data and results (Bampton & Cowton, 2013). In fact, Rest (1979) concluded that the DIT instrument would only measure ethical reasoning decisions and not one's actions in the real world. Alternatively, Kohlberg (1981) posited that understanding and actual behavior in the practical world are equivalent.

Teaching Ethical Reasoning

Due to a recent study that concluded accountants' scores on an ethical reasoning assessment declined from 1990 to 2005, the need for examining ethics education and new methods for teaching reasoning skills need to be made a priority within the research realm (Abdolmohammadi et al., 2009). A recent study determined that students are more ethically sensitive towards real-world dilemmas when accounting education explains the responsibilities of an accountant instead of just focusing on accounting transactions and internal controls (Billiot et al., 2012). However, a few earlier studies confirmed that ethical reasoning skills were not improved after an ethics education manipulation (Bampton & Cowton, 2013). According to Abdolmohammadi et al., 2009, traditional accounting instruction has not improved ethical reasoning, which indicates a need for examining other educational methods. Other factors outside of education may be contributing to ethical reasoning skills in accounting students, such as personality traits, social groups, culture, and family background (Bampton & Cowton, 2013).

Furthermore, Earley and Kelly (2004) concluded that ethical reasoning skills improved when undergraduate students were exposed to ethics utilizing several different types of methods, such as case studies, class discussion, and videos. O'Leary (2009) confirmed that ethical reasoning improved in graduate students after receiving ethics education. Thus, the existing research suggests that ethics education remains valuable in developing ethical reasoning skills in future accountants.

One of the most popular methods for introducing ethics to accounting students is the case study approach that utilizes real-world ethical dilemmas to teach a specific topic on ethics (Apostolou et al., 2013). As a result, several studies have concluded that exposing students to

ethics via case studies is beneficial (Fleming et al., 2009; Shawver, 2006). Students are able to relate to real-world examples that are relevant to a particular accounting topic, which can be a method of maintaining interest and understanding of an ethical topic.

Research findings suggest that teaching ethical reasoning skills to students possibly enables one to avoid making unethical decisions (Dellaportas et al., 2011). Lau (2010) concluded that exposure to ethics education increased ethical reasoning in undergraduate students. Thomas (2012) examined the difference in ethical reasoning skills between seniors and introductory accounting students, and he concluded that accounting programs improved ethical reasoning skills in students.

The effectiveness of the teaching methods makes a difference on the impact of ethical reasoning, as only proper ethical exposure increases moral decision-making (O'Leary, 2009; Saat et al., 2010). Future researchers need to examine various educational approaches to measure if improvement in ethical reasoning skills is possible at the university level (Thorne, 2001). Therefore, examining the impact of incorporating real-world ethical dilemma examples in introductory accounting courses needs to be further examined at the university level.

METHODS

With Billiot et al.'s (2012) recommendation to study the impact of early ethics exposure on reasoning skills, the researcher examined participants at the freshman and sophomore level at various higher education institutions in Texas. Tweedie et al. (2013) posited that introductory courses build a student's foundation for ethical reasoning. By examining ethical reasoning skills of students in introductory accounting courses, the researcher mitigated a potential confounding variable that research participants received ethics exposure prior to the study. Utilizing a between-subjects paired-sample analysis, the researcher examined if participants' ethical reasoning skills were higher when practical ethical dilemma examples were introduced and discussed in the classroom setting in comparison to participants' ethical reasoning skills that experienced no exposure.

The researcher obtained permission from Texas State University, which is a public AACSB accredited in accounting institution in Texas, and corresponding professors to perform research in the classroom setting. Upon obtaining permission, four introductory accounting classes were selected, which provided a convenience sample for the research design. Using quantitative, quasi-experimental methodology, two introductory accounting classes received exposure to ethical dilemmas in the corporate world, and two classes represented the control groups and did not receive exposure to ethical dilemma examples. Once the classes were selected, real-world ethical dilemma examples were exposed and discussed in two of the selected introductory accounting courses and served as the treatment groups to determine if ethics exposure improved ethical reasoning skills among introductory accounting students.

Billiot et al. (2012) urged further research in examining ethical reasoning skills in accounting students utilizing various instructors, as compared to the Billiot et al. study that used the same instructor for the treatment. Therefore, the researcher used two different professors from Texas State University. Also, the researcher used a quantitative, quasi-experimental equivalent design with a demographics questionnaire and posttests administered to participants in introductory accounting courses.

The questionnaire included demographics questions, as well as questions related to a student's progress in his/her degree plan in order to test for group equivalence among the four

classes and among the treatment and control groups (Jackson, 2012). Two of the classes utilized in the study were managerial accounting classes that were taught by the same instructor and represented one of the treatment groups and one of the control groups. The remaining two participating classes consisted of introductory accounting courses for business minors that were taught by a second instructor and represented one of the treatment groups and one of the control groups. Furthermore, in order to control for gender and age of the students, a regression analysis was performed to evaluate the relationship between age, gender, and posttest/AEDI scores. Also, the ratio of male to female participants was measured to ensure that there was not a significant difference between the treatment and control groups in the study.

Once group equivalence was established, the next portion of the study was implemented, which applied the manipulation of exposure to real-world ethical dilemma examples to the treatment groups. The treatment groups were exposed to two real-world ethical dilemma examples during the semester via case studies that were discussed in one class session. Then, students from both the treatment and control groups completed a posttest. The posttest was administered to students in introductory accounting courses from the selected treatment and control groups during the semester to measure students' ethical reasoning skills via Thorne's (2000) AEDI.

Both the demographics questionnaire and posttests were administered through Qualtrics survey software and provided the ability for participants to answer confidentially to encourage honest answers. For example, some students might have constructed responses to reflect a professor's opinions in order to avoid being criticized or judged, which compromises the validity of the research findings. Therefore, confidentiality allowed the researcher to obtain truthful answers by protecting the individual students' identities from one's professor. By conducting an online questionnaire and posttest, students' views remained confidential to the professor; thus, providing assurance for the students to answer candidly.

In addition, by using Qualtrics, an online computerized software program, participant responses remained accurate and organized, and the data collection process was more efficient. During the administering of the questionnaires and posttests, confidentiality can be destroyed if the proper precautions are not taken, which is a common problem in survey design research (Leong & Austin, 2006). Ultimately, protection of the participants' identities was crucial in order to gain trust and prevent participants from being recognized after the research study. Therefore, the appropriate confidentiality controls and secure online software were established to protect the participants' responses and accomplish confidentiality, so no individual can be targeted after the study.

Fleming et al.'s (2009) study concluded that students were unable to transfer ethical knowledge learned in auditing courses to a corporate environment; however, the study measured and examined ethical knowledge on a conceptual basis. In the study, the researcher measured ethical reasoning on a deliberative basis after students are exposed to real-world ethical dilemma examples in the two selected introductory accounting classes. Therefore, the researcher examined a gap in the research knowledge, as previous studies have not measured freshman and sophomore students' ethical reasoning skills on a deliberative basis after exposure to real-world ethical dilemma examples.

The quantitative, quasi-experimental equivalent design best suited the needs of the dissertation research project compared to other designs, such as a case study. A longitudinal case study could have produced valuable research findings; however, during the dissertation process, the researcher cannot effectively contribute the significant amount of time and expenses

required to follow participants for a number of years. In addition, participants might have refused to contribute to a long-term study due to time constraints and disinterest; thus, the lack of feasibility of a longitudinal case study generated major limitations in the research design. Therefore, a research study design that provided an efficient data collection and analysis was practical and achievable for the dissertation project.

Population

Texas remains one of the few states that require CPA candidates to take a college ethics course in order to take the CPA exam (Hurt & Thomas, 2008). In addition, all CPA candidates in Texas must complete at least 30 semester hours of upper level accounting courses (Texas State Board of Public Accountancy [TSBPA], n.d.). Therefore, to be successful in upper level accounting courses, individuals must complete introductory accounting courses as a prerequisite for upper level accounting courses. The number of CPA candidates that tested from July to September 2014 amounted to 2,656 individuals at universities in the state of Texas (TSBPA, 2014).

Additionally, Texas State University offered six sections of the introductory managerial accounting labeled as ACC 2362 for the fall semester of 2015 (Texas State University [TSU]). The maximum capacity of students taking introductory managerial accounting at Texas State University in the fall of 2015 was 464 students. Texas State also offered three sections of accounting in organization and society labeled as ACC 2301, which was an introductory accounting course for business minors. The maximum capacity of students taking accounting in organization and society at Texas State University in the fall of 2015 was 486 students. The population for this study was the total possible number of accounting students who took either introductory managerial accounting or accounting in organizations and society at Texas State University in the fall semester of 2015, which equaled the combined maximum capacity of 950 students.

Sample

The researcher used an AACSB accredited in accounting university in Texas for the research project to ensure the curriculum was similar in nature among the corresponding courses at the institution. Four introductory accounting classes from Texas State University were selected to represent the treatment and control groups. Students enrolled in the classes were asked to participate in the research study and signed informed consent forms before any research was conducted. Therefore, a convenience sampling was utilized, as the research participants were pre-enrolled in the various introductory accounting classes. Using a probability value of 0.05, a statistical power of 0.80, and a medium effect size of 0.25, the total sample size consisted of 48 participants. The accounting in organizations and society course at Texas State University range in capacity from 94-246 students; therefore, a maximum of 392 participants are possible.

Secondly, introductory managerial accounting courses at Texas State University range in capacity from 58-142 students, so with the class capacity structure the maximum number of participant could have been 232. However, in order to maintain similarities among managerial accounting courses, the researcher implemented the research manipulation within the lower capacity classes of 58 students, which gave the opportunity for a maximum of 116 research participants from the managerial accounting course.

Materials/Instruments

The research instrument for measuring ethical reasoning skills was Thorne's (2000) abbreviated version of the AEDI, which has been used in numerous accounting studies and found to be reliable in the research arena. Thorne tested the AEDI to ensure validity and reliability utilizing graduate accounting students by comparing the instrument to the traditional DIT created by Rest (1986), which was the original instrument created to measure ethical reasoning skills. Thorne's testing concluded that the validity and reliability of the AEDI were comparable to the traditional DIT instrument (Thorne, 2000).

Thorne (2000) created a four case version in addition to the six case version of AEDI due to the practicability of time and attention for research participants. Both Pearson correlations and similarity in scores between the six case version and the four case versions were examined to select the most appropriate cases to be included in the four case version of the AEDI (Thorne, 2000). The abbreviated version of the AEDI was examined and concluded to be equivalent to the full six case version of the AEDI (Thorne, 2000).

In fact, the internal consistency reliability factor utilizing Cronbach's alpha was higher when compared to Rest's (1979) DIT instrument (Thorne, 2000). Thorne assessed both discriminant and convergent validity during the 2000 study and discovered the correlation between the AEDI scores and the DIT scores was 0.65, which was consistent with similar relationships between Rest's DIT and previously used research instruments to measure ethical reasoning skills.

Thorne (2000) created the AEDI to measure ethical reasoning skills utilizing accounting-specific ethical dilemma examples. The coding scheme used by Thorne can be found in Table 1 (Appendix) and was examined by a Delphi panel of accounting experts who reviewed the ethical cases with 93.7% agreement on the scoring scheme. Additionally, Thorne tested the AEDI for skewness in socially desirable responses from the participants and concluded that the participants did not select responses based on this threat to validity.

A participant's P-score was calculated by assigning points based on rank. Four points are assigned for first rank, 3 points for second rank, 2 points for third rank, and 1 point for the fourth ranked item (Thorne, 2000; Rest, 1979). The P-score was calculated by adding up all the points allocated to all of the principled items; then, a participant's points total were divided by the total possible points for a percentage score (Rest, 1979). For the principled items and scoring, no order of importance exists. Therefore, as long as a participant selects all three principled items for a case, the maximum points are distributed to the participant.

The meaningless items were inserted in the instrument to ensure that participants understood and were appropriately answering the case dilemmas. For example, if a student did not comprehend what a case was asking or randomly marked answers down, the answers would skew the results. Therefore, if more than one meaningless item was selected, the results from that participant were considered invalid and not included in the study. Some meaningless items with complex language were included in the questionnaire in order to ensure that scores recorded were based on a participant understanding the material.

RESULTS

Utilizing cluster sampling, a demographics questionnaire and posttests were conducted in four introductory accounting courses to determine if ethical reasoning differed after

incorporating exposure to two real-world ethical dilemmas examples. Using a probability value of 0.05, a statistical power of 0.80, and a medium effect size of 0.25, a total of forty-eight participants' surveys from Texas State University were used in this study's analysis. The Mann-Whitney U test analysis was conducted to identify if providing real-world ethical dilemma examples in accounting courses enabled students to absorb and transfer ethical knowledge to a practical business setting. Ultimately, the researcher determined if real-world ethics exposure in higher education improved students' ethical reasoning skills via Thorne's (2000) AEDI. Thorne (2000) developed the AEDI, which measures an individual's deliberate reasoning skills and is geared more towards accounting students than previous research instruments.

The study measured accounting students' AEDI scores in a treatment group, who were exposed to several ethical case studies related to the corporate world, and in a control group, which did not receive exposure to ethical case studies. The case studies were introduced and discussed during a class session in two of the four introductory accounting courses at Texas State University, a public, AACSB-accredited in accounting university in Texas.

In the fall semester of 2015, the researcher utilized two accounting in organizations and society courses (ACC2301) and two introductory managerial accounting courses (ACC2362) at Texas State University. The ACC2301 courses had a total of 235 students in section 002, the treatment group, and 144 students in section 004, the control group. The ACC2362 courses had a total of 57 students in section 005, the treatment group, and 58 students in section 004, the control group. Within the ACC2301 courses, 107 students in the treatment group agreed to participate in the study and indicated their gender and 102 students in the control group agreed to participate and indicated their gender, which was included in the demographics questionnaire that distributed to all the students in these two courses via the professor. As for the ACC2362 courses, only 9 students in the treatment group agreed to participate in the study and indicated their gender and only 8 students in the control group agreed to participate and indicated their gender, which was included in the demographics questionnaire that distributed to all the students in these two courses via the professor.

Within the ACC2301 courses, 21 posttests were confirmed as valid and complete in the treatment group and 27 posttest responses were confirmed as valid and complete in the control group. Participants were instructed to rank the four most important statements from a list of 12 items from most important to fourth most important. However, some participants selected more than one item as most important, second most important, third most important, and fourth most important. Therefore, the researcher was unable to score those surveys that were completed incorrectly. In addition, some participants failed to answer all of the questions on the survey, which made their responses invalid as well.

Within the ACC2362 courses, only 2 posttests were confirmed as valid and complete in the treatment group and only 3 posttest responses were confirmed as valid and complete in the control group. For the ACC2362 introductory managerial courses, the researcher determined that the sample sizes were too low to analyze. Therefore, based on the small sample sizes for the ACC2362 courses, the researcher was not able to run statistical tests of significance. The total targeted sample size was 104 participants, so the total number of 48 valid surveys for the ACC2301 courses did not meet the expected sample size. Therefore, additional statistical tests were run such as the Mann-Whitney U test to accommodate the small sample size within the study.

Research participants were $N = 48$ undergraduate students enrolled in an ACC2301 Accounting in Organizations & Society course at Texas State University. In the treatment group,

$n = 14$ or 66.67% were male participants, and $n = 7$ or 33.33% were female participants. In the control group, $n = 10$ or 37.04% were male participants, and $n = 17$ or 62.96% were female participants. In the treatment group, the average age was $M = 21.79$ years old, and ranged 15 years from min = 18 years old, max = 33 years old. In the control group, the average age was $M = 22.62$ years old, and ranged 22 years from min = 19 years old, max = 41 years old. See Table 2 (Appendix) for details on the age of participants within the treatment group and control group.

In the treatment group, participants were classified as follows: 2.8% were freshmen, 16.8% were sophomores, 36.4% were juniors, and 43.9% were seniors. As for the control group, participants were classified as follows: no freshmen were indicated, 6.9% were sophomores, 33.3% were juniors, 56.9% were seniors, and 2.9% indicated the other category. In the treatment group, half of the participants indicated they had previously taken an ethics course, $n = 54$, 50.5%, $n = 53$, 49.5% indicated they had not previously taken an ethics course. In the control group, a majority of the participants indicated they had previously taken an ethics course, $n = 63$, 61.8%, $n = 39$, 38.2% indicated they had not previously taken an ethics course. See Table 3 (Appendix) for details on if participants had previously taken an ethics course within the treatment group and control group.

For the treatment group, the Accounting Ethical Dilemma Instrument (AEDI) scores for ethical reasoning were normally distributed, see Table 4 (Appendix), $M = 32.62$, $SD = 18.17$, range 75, min = 5, max = 80. For the control group, the Accounting Ethical Dilemma Instrument (AEDI) scores for ethical reasoning were normally distributed, $M = 31.19$, $SD = 12.27$, range 45, min = 10, max = 55. Table 5 displays a summary of the results.

CONCLUSIONS AND IMPLICATIONS

The hypotheses are included in this section with the research findings that are appropriate with the data collected.

H1. Given instructional efforts to integrate real-world ethical dilemma examples in the classroom, there was a significant difference between introductory accounting students in the treatment groups and the control groups on an ethical reasoning test.

Result. There was no statistically significant difference between introductory accounting students in the treatment and the control groups on an ethical reasoning test. Therefore, the null hypothesis was accepted.

Utilizing the Mann-Whitney U test, the researcher tested for significance to compare the difference in the dependent variable, AEDI scores, between two independent groups, the treatment and control group. For the control group, the Accounting Ethical Dilemma Instrument (AEDI) scores' mean rank for ethical reasoning, 24.70, was slightly higher than the treatment group, 24.24, see Figure 1 (Appendix). Utilizing the mean ranks instead of the median allows the data to be influenced by outliers. However, since both the treatment and the control group were normally distributed, the researcher was required to analyze the data by observing mean ranks. From Figure 2 (Appendix), the researcher concluded that the AEDI scores in the treatment group were not statistically significant different than the control group ($U = 278$, $p = .909$). In summary, the following table includes the data analysis from the Mann-Whitney U test. In addition, the researcher ran the Kolmogoro-Smirnov test display, see Figure 3 (Appendix), as this statistical test has more power than the Mann-Whitney U test when sample

sizes for each group at less than 25. The Kolmogorov-Smirnov test also indicated that the treatment group did not score statistically different than the control group with a p value of .999.

H2. Among all of the introductory accounting students, female accounting students did exhibit higher AEDI scores.

Result. The female accounting students did not exhibit statistically significant higher AEDI scores. Therefore, the null hypothesis was accepted. See Table 5 (Appendix) for a summary of the AEDI score results between male and female participants.

Utilizing the Mann-Whitney U test again, the researcher tested for statistical significance to compare the difference of the dependent variable, AEDI scores, between the gender variable. Since the male participants' AEDI scores were not normally distributed, the researcher compared the medians of the AEDI scores between male and female participants via the statistical results from the Mann-Whitney U test, see Figure 4 (Appendix). For the female participants, the Accounting Ethical Dilemma Instrument (AEDI) scores' mean rank for ethical reasoning, 24.63, was slightly higher than the male participants, 24.38. Since all four assumptions were met for the Mann-Whitney U test for the gender grouping variable, the researcher was able to analyze the data utilizing the medians of the data sets and therefore added statistical power to the results, as comparing the medians of the two group variables are not influenced by outliers.

From Figure 5 (Appendix), the researcher concluded that the AEDI scores of female participants were not statistically higher than male participants ($U = 285, p = .950$). The Mann-Whitney U test was non-significant, as p -value was greater than the critical value of .05. Thus, the findings indicate that female participants did not significantly demonstrate higher ethical reasoning skills than male participants. In addition to the Mann-Whitney U test, the researcher ran the Kolmogorov-Smirnov Z test, see Figure 6 (Appendix), as this test has better statistical power when the sample sizes for each group are less than 25 participants. The Kolmogorov-Smirnov Z test indicated a p -value of .893, which is displayed in Figure 8. Due to the small sample sizes, the researcher selected additional statistical tests to ensure reliability and accuracy of the research findings. The Kolmogorov-Smirnov test also indicated that female participants did not score statistically higher than male participants with a p value of .893.

FUTURE RESEARCH

Based on the research findings, several recommendations are present for future research studies. The research study concluded that the case study method was not beneficial to introductory accounting students; therefore, additional methods for ethics exposure at the university level need to be examined in the future. The study measured students' ethical reasoning skills soon after exposure to real-world ethical dilemma examples. If students' reasoning skills were examined in a longitudinal study, the results could prove beneficial and possibly indicate improved ethical reasoning skills over a greater span of time. Thus, examining participants' ethical development throughout higher education could contribute to the research literature.

Based on the findings, exposure to ethical dilemmas examples did not affect the ethical reasoning skills of introductory accounting students, which may indicate that ethical decision-making cannot be taught. These findings are in agreement with Low et al.'s (2008) conclusion that ethics education does not improve ethical reasoning or prevent future scandals. However, one study proved that ethical reasoning skills do improve when comparing freshmen and senior

accounting students (Thomas, 2012). Another researcher concluded that ethical reasoning skills did improve among graduate students that obtained ethics education (O'Leary, 2009). Consequently, some factor or factors within higher education in accounting programs is increasing ethical reasoning skills. However, past research literature has not been able to identify a specific factor that results in the improvement of ethical reasoning skills in accounting students. The research study determined that exposure to ethics via the case study method did not contribute to increased ethical reasoning skills in introductory accounting students.

However, more research needs to be conducted to determine the specific factors and variables that result in improved ethical reasoning skills in higher education. One could posit that a single specific factor does not improve ethical reasoning skills; yet, accounting students' experiences and journey throughout the university years potentially results in improved ethical reasoning skills. Numerous factors are present that could contribute to improved ethical reasoning skills, such as culture, institution, peers, family background, ethics education experience, effectiveness of instruction, and limitless other factors. Therefore, more research needs to be conducted to determine the contributing factors, such as examining students that have completed an ethics course versus students that have not. In addition, a longitudinal study examining students over the course of their academic career could prove beneficial.

Also, several methodical enhancements could provide a significant contribution to the research literature. Studies that examine undergraduate students and graduate students could determine the differences in factors that possibly result in improved ethical reasoning skills. The research study exposed undergraduates to two case studies within a semester; therefore, examining the exposure to a range of different amounts of case studies could deem interesting research results, as students may be impacted by the quantity of case study exposure. In addition, the research instrument utilized included ethical dilemmas in the real world that some undergraduate may not have fully understood. Therefore, further research in developing research instruments that effectively measure ethical reasoning skills in undergraduates could also contribute to the research literature.

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APPENDIX: TABLES AND FIGURES

Table 1

AEDI Scoring Scheme		
Ethical cases	Principled items	Meaningless items
Alice	8, 10, 12	4, 7
Bill	5, 11, 12	6
John	6, 10, 11	5
Bob and Cora	5, 11, 12	6

Table 2

	Average Age (<i>M</i>)	Min. Age	Max. Age	Range
Treatment Group	21.79	18	33	15
Control Group	22.62	22	41	19

Table 3

	Previous Ethics Course	No Ethics Course
Treatment Group	50.5%	49.5%
Control Group	61.8%	38.2%

Table 4

	# of Participants	Min.	Max.	<i>M</i>	<i>SE</i>	<i>SD</i>
Control group	27	10	55	31.19	2.36	12.27
Treatment group	21	5	80	32.62	3.97	18.17

Table 5

	# of Participants	Min.	Max.	<i>M</i>	<i>SE</i>	<i>SD</i>
Male	24	12.50	80	32.50	3.19	15.62
Female	24	5	55	31.13	2.98	14.61

	GroupCode	N	Mean Rank	Sum of Ranks
AEDI score	Control	27	24.70	667.00
	Treatment	21	24.24	509.00
	Total	48		

Figure 1. Mann-Whitney U test mean ranks.

	AEDI score
Mann-Whitney U	278.000
Wilcoxon W	509.000
Z	-.115
Asymp. Sig. (2-tailed)	.909

Figure 2. Mann-Whitney U test of AEDI scores.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of AEDI score is the same across categories of GroupCode.	Independent-Samples Mann-Whitney U Test	.909	Retain the null hypothesis.
2	The distribution of AEDI score is the same across categories of GroupCode.	Independent-Samples Kolmogorov-Smirnov Test	.999	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Figure 3. Mann-Whitney U test and Kolmogorov-Smirnov statistical significance results of AEDI scores for ethical reasoning between the control group and the treatment group.

	Please indicate your gender:	N	Mean Rank	Sum of Ranks
AEDI score	Male	24	24.38	585.00
	Female	24	24.63	591.00
	Total	48		

Figure 4. Mann-Whitney U test mean ranks table of AEDI scores for ethical reasoning male and female participants.

	AEDI score
Mann-Whitney U	285.000
Wilcoxon W	585.000
Z	-.062
Asymp. Sig. (2-tailed)	.950

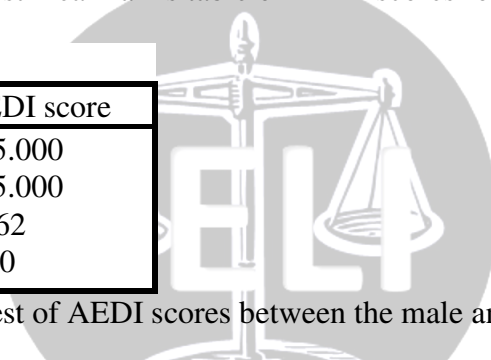


Figure 5. Mann-Whitney U test of AEDI scores between the male and female participants.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of AEDI score is the same across categories of Please indicate your gender:.	Independent-Samples Mann-Whitney U Test	.950	Retain the null hypothesis.
2	The distribution of AEDI score is the same across categories of Please indicate your gender:.	Independent-Samples Kolmogorov-Smirnov Test	.893	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Figure 6. Mann-Whitney U test and Kolmogorov-Smirnov statistical significance results of AEDI scores for ethical reasoning between male and female participants.