

A Longitudinal Study of the Effectiveness of Business Ethics Education: Establishing the Baseline

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Abstract This paper is the first phase of a longitudinal study of the class of 2014 on the effectiveness of ethics education at a business university. This phase of the project establishes the baseline attributes of incoming college freshmen with a pretest of the students' ethical proclivity as measured by Defining Issues Test (DIT-2) scores. The relationship between the students' ethical reasoning and their behavior in experimental stock trading sessions is then examined. In the trading simulations, randomly selected students were provided with the option of receiving privileged insider information about the final payoff of several stocks. The students could either accept or reject such information, with acceptance considered illegal insider trading. The results of the pretest indicate that moral reasoning as measured by the DIT-2 is related to insider trading behavior, with students with higher DIT-2 scores being less likely to accept insider information. The paper also presents demographic differences across DIT-2 scores and trading behavior as a foundation for the longitudinal examination of changes in students' moral cognition characteristics and behavior during their undergraduate career.

Keywords Business ethics · Ethical reasoning · Insider trading · Stock trading · Ethical behavior · Longitudinal study

Introduction

Although society has placed increased emphasis on ethics and corporate conduct, recent events have, once again, shaken faith in our business system. Over the past decade, a rash of

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well-known corporations, from Enron, WorldCom, and Tyco, to Arthur Andersen, Goldman Sachs, and AIG—the list seemingly goes on and on—have quickly gone from highly admired companies to corporate infamy. On the surface, it appears that questionable deal making, excessive risk taking, and even more questionable accounting and financial practices lie at the heart of many of these problems. Efforts to ensure greater transparency (e.g., Sarbanes-Oxley) and the possibility of personal liability for such behavior (see Bainbridge 2009; Sayther 2003) may ultimately resolve these issues. However, the blur of abuses over the last several decades—from the Ford Pinto malfunction controversy, to the Beechnut product adulteration scandal, and the Dalkon Shield tragedy, to the collapse of the Savings and Loan Industry, to highly questionable dotcom strategies and tactics, to the recent collapse of the financial system and scores of insider trading convictions—suggests that the problems run much deeper, giving rise to increased concerns about our basic orientation and approach to business (see, for example, Morone 2002). It is also noteworthy that many of these ethical lapses have been committed by graduates of business schools (Kaplan and Kowitt 2009).

As a result of these controversies, increased pressure has been placed on business schools to provide more ethics education for their students. Business schools have been enjoined to help students develop the skills and tools they need to identify ethical issues, to analyze the implications for and impacts on relevant stakeholders, and to provide a foundation for future coursework and ultimate business decision making. Indeed, a broad array of critics (e.g., Ferguson, et al. 2011; Ghoshal 2005; Gordon 2011; Miller 2009) suggest that much of the underlying blame for recent scandals is based on a lack ethical sensitivity among managers and the amoral, shareholder supremacy underpinnings of business education. As a result of such concerns, the Association to Advance Collegiate Schools of Business International (AACSB) has increased its emphasis on the inclusion of ethics in business curricula (AACSB, 2004), though it stopped short of mandating a required business ethics course. The UN Global Compact's Principles for Responsible Management Education (PRME) initiative has called for a basic rethinking of the approach taken in business schools, emphasizing the creation of sustainable value for a broad range of stakeholders. Many more professional associations—from the Aspen Institute and the European Foundation for Management Development (EFMD) to Net Impact—are also championing the change, pushing for businesspeople and business students to use their talents to create a more socially and environmentally sustainable world.

While calls for such programmatic and curricular change in business schools have become increasingly prominent, Pfeffer (2003) has questioned the extent to which unethical behavior in business really is a result of behaviors that are molded by the type of theories and models typically taught in business schools. Instead, he proposed that those seeking business degrees may already possess personal moral philosophies that are consistent with immoral or amoral business behavior. A recent study by Neubaum et al. (2009), however, suggests this may not be the case. Based on Forsyth's (1992) questionnaire measuring personal moral philosophies, supplemented with new measures of student attitudes toward sustainability and employer social and environmental values, Neubaum and colleagues did not find any significant difference between the personal moral philosophies of incoming business and non-business students. Moreover, they did not find any evidence to suggest that the personal moral philosophies of freshmen business students were different from business seniors, although business seniors were more likely than freshmen to believe that sustainability was important for business and that economic factors were not the only important measures of business performance.

The present study is part of a larger project that will examine the development of the ethical orientation of an incoming class of students enrolled at a business university. A

longitudinal design is being used to track the effectiveness of ethics education over time—both in the classroom and through extracurricular activities—to capture the progression of college freshmen through their undergraduate years. The study will follow the class of 2014, beginning in fall 2010 with a pretest of the students' baseline moral development (or ethical proclivity) and related behavior. It will be followed by four yearly posttests embedded in the General Business (GB) core, which all students are required to take. The research design includes assessments of ethical reasoning as measured by the Defining Issues Test (DIT) and ethical behavior as measured through a trading room simulation with an opportunity for insider trading. This paper reports the DIT-2 scores for the incoming class of 2014 and the relationship between the students' ethical proclivity and the propensity for insider trading.

The Defining Issues Test

The Defining Issues Test, which is based on Kohlberg's (1984) theory of moral development, is a paper-and-pencil assessment that is one of the most well-documented approaches—in terms of both reliability and validity—to measuring moral reasoning (Wilhelm, 2010). Kohlberg's framework is based on the premise that moral judgment develops through a series of stages, beginning with self-interest (which he referred to as “pre-conventional”), evolving through respect for society's laws and conventions (“conventional”), and, in some individuals, developing to the highest level of principled reasoning (“postconventional”). Although Kohlberg posited that these were “hard” stages, in which a person's judgments were based on their current level of reasoning (although there could be overlap during a transition between stages), the DIT takes a “softer” approach in that an individual's moral development can reflect a range of these stages, or what is referred to as schemata, in their development (see Bailey et al. 2010).

Based on the notion that moral judgment involves distinctive ways of defining and evaluating moral problems (see Rest 1979), the DIT presents subjects with a series of moral dilemmas. Each dilemma is followed by a number of items for the participant to consider in solving that dilemma. The participant rates and ranks the importance of each item and chooses a course of action to resolve the dilemma. The most used index of the DIT is its measure of *principled reasoning* or the P score, which Rest (1979) argued was a reliable measure of moral development.

The DIT-2 is an updated version of the original DIT, which was devised over 30 years ago. It is a shorter test with five updated stories that present moral dilemmas. After reading each story, the respondent is asked to complete three different tasks. The first task is to select the subsequent action the character in the story should take from three listed options. The DIT-2 also contains 12 possible reasons for making this decision. The second task is to rate the importance of each of these 12 statements on a 5-point scale. The final task is to select 4 of the 12 deemed most important, ranking them in order of importance. DIT-2 schema scores are computed on the basis of these four ranked statements. The calculated schema scores are expressed as the ratio of an individual's score for each schema to the possible score, ranging from 0 to 99.

Research suggests that DIT items are clustered around three general moral schemas: arguments that appeal to (1) personal interests (Personal Interest); (2) maintaining social laws and norms (Maintaining Norms); and (3) moral ideals and/or theoretical frameworks for resolving complex moral issues (Postconventional) (see Bebeau and Thoma 2003). In *The Guide for DIT-2*, Bebeau and Thoma (2003) note that the DIT-2 test is internally reliable and improves on the validity of the original DIT. Validity for the DIT has been assessed in terms of 7 criteria, including longitudinal gains. In particular, Bebeau and Thoma (2003) note that a review of 12 studies of freshmen to senior college students show effect sizes of .80.

Although Kohlberg's (1984, p. 198) stage theory is founded in cognitive development, he offered an important clarification that "the attainment of a moral stage requires cognitive development, but cognitive development will not directly lead to moral development. However, an absence of cognitive stimulation necessary for developing formal logical reasoning may be important in explaining ceilings on moral level." One's social and life experiences are also important factors in moral development. Thus, situational factors may influence moral development. According to Maeda, et al. (2009), individuals who prefer the maintaining-norms moral schema in general value existing social norms as the basis of a cooperative society and are suspicious of any attempt to change the status quo. On the other hand, people who prefer the postconventional moral schema are more willing to question existing social norms and more open to social change.

Philosophers and psychologists have long attempted to understand the relationship between moral thought and moral action. Kohlberg (1984, p. 519) postulated that, "persons at each higher stage of moral reasoning are more likely to act with responsibility, that is, to act in accord with choices about situations that they judge to be right when they were somewhat removed from the situation itself." The present study explores the relationship between moral thought (DIT 2) and moral action (trading room simulation) as the baseline for a four-year longitudinal study of developments in the ethical reasoning and behavior of business students.

DIT Research on the Ethical Reasoning of College Students

The DIT has played a major role in ethics-related research, with more than 500 published articles in which the instrument was used with college students (see Bailey, et al. 2010; King and Mayhew 2002). In their review of these studies, King and Mayhew (2002) argue that there is strong evidence that student participation in higher education is associated with gains in moral development. Examining the role of educational context on moral judgment development, Maeda, et al. (2009) found that there is a significant variation in the average DIT-2 scores across groups from different higher education institutions. Their results also indicated that females and native English speakers had consistently higher DIT-2 scores across all institutions they studied. These researchers also found that students in medical schools have higher average moral judgment levels when compared to students in business and other majors. With respect to this last finding, Maeda et al. (2009) caution that more work needs to be done to determine if this is due to targeted medical ethics coursework or to the types of students selected into these degree programs. King and Mayhew (2002) also note that research on the development of moral judgment *within* academic disciplines has yielded inconclusive results.

King and Mayhew (2002) argue that understanding the specific content and curricular approaches that make up any given academic discipline, and the effects this content and approach have in promoting growth in moral development, are fruitful research avenues. In examining changes in business students' ethical perception (DIT scores) over a four-year period, Abdolmohammadi and Reeves (2000) found moderate improvements in both men and women. Although they found that business ethics courses yielded low improvements in scores for women, there were moderate effect sizes for men, which they argued support efforts to incorporate ethics into the curriculum.

Study Design

The present paper is part of a larger longitudinal study focused on assessing the progression of moral reasoning and related behavior among undergraduate business students during their

four-year undergraduate career. The project will track the class of 2014, beginning with a pretest (administered during the first week of their college experience) of their ethical proclivity, followed by four posttests, linked to required courses in the General Business Core, at the end of each academic year. The overall study design involves an assessment of both moral reasoning and behavior: student moral reasoning is assessed with the Defining Issues Test (DIT-2) and related behavior is assessed through a Trading Room (TR) simulation with possibilities for insider trading. The present paper establishes the baseline for this longitudinal assessment, focusing on the moral reasoning of the incoming class of 2014 and its relationship with their propensity to engage in unethical (and illegal) trading behavior.

Ethics, Human Subjects, and Research on Ethics

Subjects were informed that their entering class (Class of 2014) was selected to be part of a longitudinal study that would examine the effectiveness of various aspects of their educational experience. The study was funded, in part, by the university's Assurance of Learning Initiative. The initial study was positioned as part of their orientation to the university and the first assessment of their learning and development. Students were told that the DIT-2 would be used to assess developments in their reasoning over time and the initial simulation was a way of exposing them to the school's state-of-the-art Trading Room.

Subjects were told that the study provides them with the opportunity to participate in experimental finance through a live simulated equity trading experiment, using human behavior to test theory and predictions about capital markets in a controlled setting. As part of the initial information provided to the students, they were told that such experiments are used to gain further insight into: rational expectations and market efficiency; fads, bubbles, and securities valuation; information aggregation and information transmission; ethical reasoning, ethical sensitivity, and ethical awareness; and information manipulation

Subjects were informed that participation in the study was voluntary, although their involvement would be crucial to the success of the research. Appropriate consent language was used, both with the DIT-2 and Trading Room simulation, and subjects were told that they would grant their consent by participating in the simulation and completing and submitting the DIT questionnaire.

Working with the Registrar's Office, a special file was created, identifying subjects only by the last five digits of their student ID number. The link between student names and ID numbers was kept in a separate file, and available only to two members of the research team for programming purposes. All information was thus de-identified, subjects were informed that all responses would be confidential, and only aggregate-level information would be presented. The study was approved by the university's Institutional Review Board.

Ethical Decision Making and Behavior

The study draws on Rest's (1986) four-component model for individual ethical decision making and behavior. Rest posited that to be a moral agent an individual must be able to (1) recognize a moral issue, (2) make a moral judgment, (3) resolve to place moral concerns ahead of other concerns (i.e., establish moral intent), and (4) act on those moral concerns (see Fig. 1). He argued that each component in the process is conceptually distinct and that success in one stage does not imply success in any other stage. For example, a person with a well-developed sense of moral reasoning (Component 2) will not necessarily have greater resolve to act morally (Component 3). Much of the empirical research conducted in the context of this model has involved either Component 2, called moral *development* by

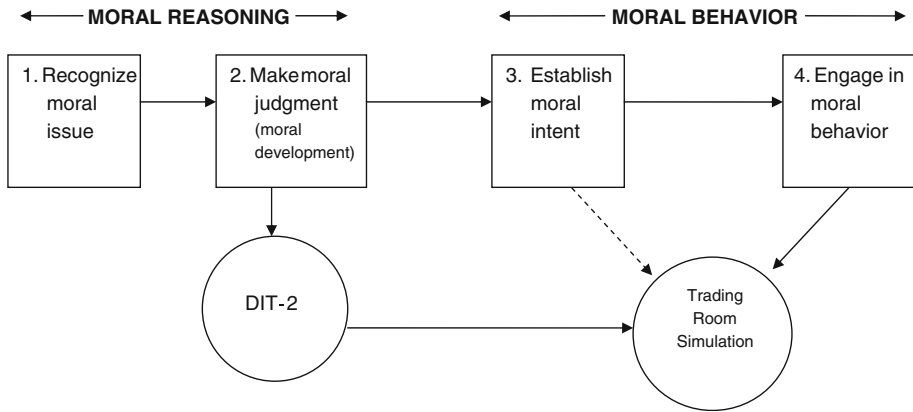


Fig. 1 Ethical decision making and behavior Adapted from Rest (1986)

Kohlberg (1984) and Rest (1979, 1986), or the relationship between Components 2 and 4, linking moral development with action.

As reflected in Fig. 1, DIT-2 scores are used to assess the level of the student's moral reasoning (judgment) and their decision to either accept or reject insider information during the Trading Room simulation is used as a measure of their moral behavior.

Trading Simulation: Insider Trading as an Ethical Issue

The ethics of insider trading has been extensively debated in the literature. Engelen and Van Liedekerke (2007) provide an excellent summary of two main schools on the legality and ethicality of insider trading. One strand of the literature believes that insider trading should be considered a fair reward for the management that produces the valuable information. In essence, since these individuals (insiders) developed the privileged information they should be allowed to trade ahead of the general public. Because insiders take huge risk in producing this valuable information, they should be allowed to gain from trading on it. In addition, by allowing insiders to release information through their trading, market prices become more informative and liquidity is improved.

In another strand of the literature, insider trading by top management is seen as unfair because it creates undue price volatility. Critics also point out that ordinary shareholders are not able to profit (or avoid losses) from trading because they lack access to this privileged information. Overall, this strand of the literature argues that insider trading is unethical. While Engelen and Van Liedekerke (2007, p. 497) attempt to bridge the gap between the two camps by distinguishing informational efficiency from market manipulation, they also point out that "At the policy level, there is now more or less consensus that insider trading is on the whole bad and should be banned." Our study design follows this policy consensus and students participating in the trading simulation were told that insider trading is both illegal and unethical.

Several trading simulations and scenarios have been used to examine ethical behavior in this manner. As part of a research project examining the ethics of undergraduate business students, Persons (2009), for example, found that the majority (81%) of the respondents believed that making a profit from insider trading was unethical. However, he also found that almost half (45%) of the students did not find insider trading to be unethical if a loss was avoided and the insider owned the stock. He conjectured that those students who did not find

insider trading unethical believed that they were entitled to protect themselves from a loss and/or that they would not get caught trading on insider information. Along similar lines, in a study of finance professionals in Finland, Hartikainen and Torstila (2004) found that almost one-quarter of respondents (24%) were accepting of insider trading, despite the fact that is a clear breach of Finnish law.

In a small sample of college juniors, Abdolmohammadi and Sultan (2002) studied the relationship between ethical reasoning and insider trading using the DIT and a competitive stock trading simulation. Insider information was given to 24 of the 52 students in the study, providing them with prior knowledge of the settlement for a lawsuit for dumping radioactive waste. The students were given \$10,000 in hypothetical funds to trade on this information and were in competition for up to \$100 cash prize based on the profits made during the simulation. Fifteen of the 24 students admitted to trading on this insider information, and they found that students with higher moral reasoning (higher P scores on the DIT) were less likely to trade on insider information compared to those with lower moral reasoning.

The present longitudinal study is a logical extension of Abdolmohammadi and Sultan's (2002) research. While their study focused on college juniors, the present research project will measure change over a four year period, beginning with establishing the baseline for the entering class of 2014. Similar to Abdolmohammadi and Sultan (2002), in addition to completing the DIT-2, the class of 2014 also participated in a trading room (TR) simulation with the opportunity for insider trading. Prior to coming to campus, students received an email attachment providing an overview of the simulation and a link to a trading practice session. They were encouraged to use this link, which also provided information on the dynamics associated with the market microstructure (e.g., bid/ask prices; price taker versus price maker) and the mechanics of using the simulation software. Also included in the email was a description of insider trading and statements that insider activity is unethical and illegal. Students were informed that insider trading can range from acting on insider information to passing on insider information to one's "club" (e.g., family, friends, peer group). The students also received information on the effectiveness of SEC regulation of insider trading, i.e., it is hard to monitor and prosecute. All this information was reviewed in the Trading Room prior to the simulation.

The simulation model in the present study is based upon an interactive trading platform (FTS) developed at Carnegie Mellon University. In this trading platform, students have the opportunity to trade 3 stocks, starting with an initial position (endowment) in each of the stocks. Students can trade (i.e., buy or sell) the stocks for a total of 3 trading periods or sessions. At the end of each trading period, actual earnings are announced. Companies are then valued based on a multiple of the earnings. The multiples at which these companies trade, or the P/E ratios of the companies, is provided to the students. Students are also given six equally likely earnings per share amounts for each company. The earnings of the companies are independent of each other. Students are also able to borrow and short sell the stocks. The interest rate on cash is 0%.

Just prior to the trading session, insider information on actual earnings was passed via a window message to 6 randomly selected students per stock (18 out of 45 student participants) in each session. The insiders had the ability to either accept or reject the insider information. If they chose to accept, they were considered "bad insiders"; "good insiders" did not accept the information. Student portfolio value at the completion of the trading period determined their performance. As an incentive to take the simulation seriously, a cash prize of \$100 was given to the student with the highest portfolio value in each trading simulation. A total of 19 trading sessions were used to accommodate the 964 students in the entering class of 2014.

Results

Of a total of 964 freshmen, 921 students took the DIT and 908 participated in the TR simulation. Some students took the DIT but did not complete the TR simulation. Others completed the TR simulation but did not complete the DIT. Further, some students did not provide a valid ID when trading or completing the DIT. Finally, there were some missing data on the DIT in this matched group. After adjusting for the missing data, our resulting sample size consisted of 800 valid observations. The students were mainly from the New England (58%) and Mid-Atlantic region (21%) of the US, with smaller numbers from other regions in the US (8%) and international (13%) locations. The demographic composition of the sample is displayed in Table 1.

Baseline Ethical Reasoning

Table 1 also lists the descriptive statistics for the three moral schemas—pre-conventional, maintaining norms, and postconventional. The moral reasoning of the class of 2014 is in line with prior findings of college freshmen. Maeda, et al. (2009), for example, using data obtained from 1998 to 2005 on students from 65 different institutions reported an average P score for freshmen year students of 30.98 (with a standard deviation of 13.97). Similarly, the higher mean P score for women is statistically significant ($\rho=.0002$), confirming prior DIT study results that females have higher scores than males. The Table also breaks down the three moral schemas for different student groups—international students, those accepted into the honors program, students choosing to participate in an innovative pilot program entitled Complex Problems-Creative Solutions (CP/CS) pilot program, those planning to participate in the university's service-learning program, athletes, and ALANA (African Americans, Latinos, Asian Americans and Native Americans) students.

The CP/CS initiative is designed to develop student ability to recognize, analyze, and solve problems creatively by providing them with knowledge, skills, and ways of viewing the world that integrate multiple business and liberal arts disciplines. The mean P scores for

Table 1 Descriptive statistics of the sample with personal interest (PI), maintain norms (MN), and post-conventional (P) schema scores

Individual characteristics	N	PI Score	MN Score	P Score
Gender ¹				
Female (Mean) (Standard deviation)	341 (42.6%)	28.342 (12.195sd) ²	33.419 (11.991)	32.878 (13.348)
Male	459 (57.4%)	30.868 (12.908)	34.306 (3.275)	28.001 (13.211)
TOTAL	800			
International	103 (12.9%)	27.918 (11.283)	35.992 (12.264)	28.999 (13.348)
Honors	85 (10.6%)	27.583 (12.687)	31.405 (13.1407)	35.250 (13.589)
CP/CS Pilot	51 (6.4%)	28.598 (11.841)	36.078 (13.827)	29.186 (2.680)
Service-Learning	111 (13.9%)	29.184 (12.665)	34.349 (13.385)	29.989 (15.599)
Athletes	120 (15%)	31.486 (12.401)	32.836 (11.727)	29.189 (12.712)
ALANA	130 (16.2%)	31.709 (13.405)	33.317 (12.989)	28.507 (13.112)

¹ The difference between the female and male P scores is statistically significant using Satterthwaite *t*-test =5.13 $\rho=.0001$

² Standard deviation noted in parentheses

Honors students were statistically highest among all demographics. The mean P scores for the international students and the ALANA students were slightly lower than the average P score for the other student groups. Finally the mean P score for students planning to participate in service-learning was 29.99.

Trading Room Simulation Results

Figure 2 presents the results of the TR simulation. As mentioned earlier, insider information on actual earnings was passed to 6 randomly selected students per stock, or 18 out of 45 student participants in each session. The insiders had the ability to either accept or reject this information. If they chose to accept, they were considered “bad insiders”; “good insiders” did not accept the information. Students were deemed outsiders if the program did not randomly select them to receive insider information.

The FTS software allows researchers to assign insider and outsider status across trading sessions. Recall that a trading simulation is composed of three consecutive sessions, each lasting 5 min, representing one physical year. Compared to the “bad insiders” (i.e., those students who accepted insider information), students picked randomly as outsiders and students who were offered the privileged information but chose not to accept it (“good insiders”) did not have any information advantage. During the first trading session, there were 222 outsiders (27%), 307 bad insiders (38%) and 286 good insiders (35%). Of the 307 bad insiders, approximately 61% (187 students) remained bad insiders in session 2, while 20 rejected the information and became good insiders. One hundred of these individuals did not receive insider information in the second trading session and subsequently were identified as outsiders. Of the 187 bad insiders in session 2, 69% (125 students) remained bad insiders, 11 switched to good insiders, and 51 did not receive insider information in the third and final session. This last group of 51 students would thus be labeled as “bad, bad, outsider” in the TR session tree results. It is interesting to note that there appears to be a strong proclivity to continue behavior established in the first trading session. For example, once a student accepts inside information, thus behaving as a bad insider, given the opportunity to accept inside information in subsequent trials, the student is likely to remain “bad.”

Table 2 provides an overview of the results of the relationship between moral intent and behavior, by comparing the Personal Interest, Maintain Norms and Postconventional (P) DIT scores of “good” and “bad” insiders. Of note is the consistent finding that good insiders have higher P scores (the highest possible moral schema) and lower personal interest scores (the lowest possible moral schema) than bad insiders, regardless of the trading session.

Table 3 provides the average P score for good insiders and bad insiders, aggregated over each trading session. For example, the 263 good insiders in trading session 2 are calculated

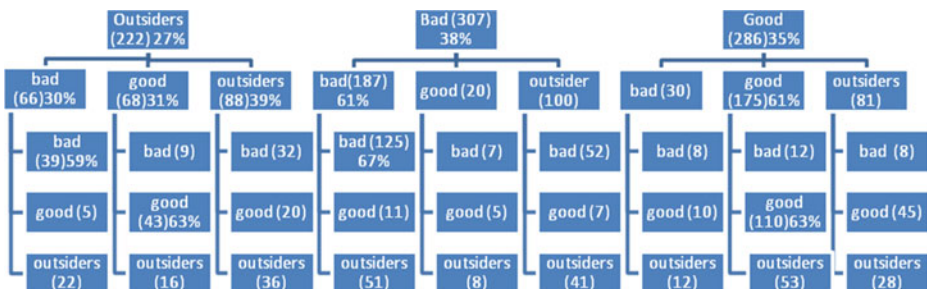


Fig. 2 Results of the trading room simulation

Table 2 Trading room results by DIT-2 scores

	Personal interest score	Maintain norms score	Postconventional score
SESSION 1			
Good Insider (N:286)	29.25	33.71	30.92
Bad Insider (N:307)	30.50	34.03	28.72
SESSION 2			
Bad/Bad (N:187)	31.32	33.85	28.03
Bad/Good (N:20)	29.24	33.71	31.99
Good/Good (N:175)	29.57	33.74	31.17
Good/Bad (N:30)	32.81	31.59	29.94
Outsider/Bad (N:66)	30.56	34.55	30.04
Outsider/Good (N:68)	26.86	34.58	32.21
SESSION 3			
Outsider/Bad/Bad (N:39)	29.39	34.64	31.72
Outsider/Good/Good (N:43)	26.27	35.79	31.58
Outsider/Outsider/Bad (N:32)	33.01	32.60	29.63
Outsider/Outsider/Good (N:20)	29.69	35.32	30.14
Bad/Bad/Bad (N:125)	32.43	32.99	27.67
Bad/Outsider/Bad (N:52)	29.53	34.21	28.89
Good/Good/Good (N:110)	29.20	34.01	30.77

by summing the number of good insiders across row 2 (68+20+175) in Fig. 2. The difference in the P Scores for good versus bad insiders is statistically significant in all cases, confirming the observation that the higher the P score, the less likely the student will accept insider information.

Summary and Conclusions

The results presented in the paper are based on an assessment of the incoming class of 2014, examining their moral reasoning and behavior as they enter business school. These data will also serve as the baseline for a longitudinal assessment of changes over their undergraduate career. The results suggest that the current focus on business ethics and efforts to enhance the moral reasoning of business students are worthwhile endeavors. Similar to the belief of real insider traders (see Charness and Garoupa 2000; Kay 2003), students in the study might have felt that there was virtually no chance of getting caught trading on the privileged information. Moreover, in light of the financial incentive (\$100 cash prize) provided to the winner of the TR simulation, we expected that some students would accept the inside

Table 3 Trading room simulation results by postconventional reasoning: good v. bad insiders

Trading session	P Score good (N)	P Score bad (N)	Difference (Satterthwaite <i>t</i> -test)
1	30.9238 (286)	28.7182 (307)	2.2056 (1.97; $\rho=.0488$)
2	31.4979 (263)	28.6981 (283)	2.7998 (2.38; $\rho=.0177$)
3	30.9371 (256)	28.7809 (292)	2.1562 (1.85; $\rho=.0647$)

information. While this did occur, the study found that students who did not accept insider information had statistically significantly higher P scores compared to students who did accept this information, suggesting a link between high moral reasoning and moral behavior.

Given these outcomes, it appears that efforts to enhance the moral reasoning of business students could lead to increased ethical behavior in the workplace. Graduates with high P scores could very well see themselves as “moral exemplars,” individuals who prioritize ethical considerations in their daily lives (Bailey, et al. 2010; Walker and Frimer 2007). Similarly those individuals at the maintaining norms (conventional) level might have a great tendency to rely on codes of conduct, ethics policies, and regulatory guidelines in making decisions. It could be that individuals at the pre-conventional, personal interest level have a higher probability of engaging in unethical behavior, a concern that will be explored more fully in the course of the longitudinal study.

There are, however, a number of limitations associated with this part of the study. First, on average, college freshmen are not as well-versed in key trading behaviors—margin buying and short sales decisions—compared to business seniors, especially finance majors. Thus the perceived gain to be reaped from insider trading in the TR simulation is probably lower for the less financially acute. Hence, those not engaging in insider trading when given the opportunity to do so may not realize the magnitude of the profit potential from trading on insider information.

It also isn't clear that moral reasoning rather than adherence to the law is the driving factor in the rejection of privileged information by “good” insiders. The packet of material sent to the students stressed that insider trading is illegal as well as unethical. However, within the context of the simulation, college freshmen could be swayed by the low probability of getting caught being a “bad” insider and the limited effect that such insider trading would have on their reputation.

It may be that the low *probability of effect*, a characteristic of moral intensity also has a bearing on insider trading. According to Jones (1991), moral intensity is a construct that captures the extent of issue-related moral imperative in a situation. The probability of effect is included in the moral intensity construct for reasons of logic. The expected value of, for example, a financial gain is the product of the magnitude of the gain and its probability of occurrence. Similarly, the expected consequences of a moral act would be the product of the magnitude of consequences, the probability that the act will take place, and the probability that the act will cause the harm (benefit) predicted. It may be that insider trading is viewed by some individuals as having a low probability of effect on the market and/or a low probability of being caught. This area will be explored more fully in the next phases of the study.

The results of this stage of the research are promising in terms of the relationship between moral reasoning (as measured by the DIT-2) and trading behavior, and provide insight for the next stages of our longitudinal study. In subsequent posttests conducted in the TR simulation, students will be surveyed about their perception of the likelihood of getting caught if they act on insider information, the extent to which legal and/or ethical concerns influence that decision, and how they decided on their course of action. The early findings though suggest that efforts to enhance the moral sensitivity, awareness and reasoning of business students can lead to the type of behavior we would like to see emulated in the business world.

References

- Abdalmohammadi, M. J., & Sultan, J. (2002). Ethical reasoning and the use of insider information in trading. *Journal of Business Ethics*, 37(2), 165–173.

- Abdolmohammadi, M. J., & Reeves, M. F. (2000). Effects of education and intervention on business students' ethical cognition: A cross sectional and longitudinal study. *Teaching Business Ethics*, 4, 269–284.
- Bailey, C. D., Scott, I., & Thoma, S. J. (2010). Revitalizing accounting ethics research in the Neo-Kohlbergian framework: Putting the DIT into perspective. *Behavioral Research in Accounting*, 22(2), 1–26.
- Bainbridge, S. M. (2009). Caremark and enterprise risk management. *Journal of Corporation Law*, 34, 967–990.
- Bebeau, M. J., & Thoma, S. J. (2003). *Guide for DIT-2—Center for the Study of Ethical Development*. Minneapolis, MN: University of Minnesota.
- Charness, G., & Garoupa, N. (2000). Reputation, honesty, and efficiency with insider information: An experiment. *Journal of Economics and Management Strategy*, 9(3), 425–451.
- Engelen, P.-J., & Van Liedekerke, L. (2007). The ethics of insider trading revisited. *Journal of Business Ethics*, 74, 497–507.
- Ferguson, J., Collison, D., Power, D., & Stevenson, L. (2011). Accounting education, socialization and the ethics of business. *Business Ethics: A European Review*, 20(1), 12–29.
- Forsyth, D. R. (1992). Judging the morality of business practices: The influence of personal moral philosophies. *Journal of Business Ethics*, 11(5/6), 461–470.
- Ghoshal, S. (2005). Bad management theories are destroying good management practices. *The Academy of Management Learning and Education*, 4(1), 75–91.
- Gordon, I. (2011). Lessons to be learned: An examination of Canadian and U.S. financial accounting and auditing textbooks for ethics/governance coverage. *Journal of Business Ethics*, 101(1), 29–47.
- Hartikainen, O., & Torstila, S. (2004). Job-Related Ethical Judgment in the Finance Profession. *Journal of Applied Finance* Spring/Summer: 62–78.
- Jones, T. M. (1991). Ethical decision making by individuals in organizations: An issue-contingent model. *Academy of Management Review*, 2, 366–395.
- Kaplan, D. A., & Kowitz, B. (2009). MBAs get schooled in ethics. *Fortune*, 160(8), 27–28.
- Kay, J. (2003). Why fat cats are bad for business. *New Statesman*, June, 2, 22–24.
- King, P. A., & Mayhew, M. J. (2002). Moral judgment development in higher education: Insights for the defining issues test. *Journal of Moral Education*, 31(3), 247–270.
- Kohlberg, L. (1984). *The Psychology of Moral Development: The Nature and Validity of Moral Stages*. New York: Harpercollins.
- Maeda, Y., Thoma, S. J., & Bedeau, M. J. (2009). Understanding the relationship between moral judgment development and individual characteristics: The role of educational contexts. *Journal of Educational Psychology*, 101(1), 233–247.
- Miller, R. (2009). The ethics narrative and the role of the business school in moral development. *Journal of Business Ethics*, 90, 287–293.
- Morone, J. (2002). Our High-flying Habit. *Boston Globe*, October 6.
- Neubaum, D. O., Pagell, M., Drexler, J. A., Mckee-Ryan, F. M., & Larson, E. (2009). Business education and its relationship to student personal moral philosophies and attitudes toward profits: An empirical response to critics. *The Academy of Management Learning and Education*, 8(1), 9–24.
- Persons, O. (2009). Using a Corporate Code of Ethics to Assess Students' Ethicality: Implications for Business Education. *Journal of Education for Business*, July/August: 357–366.
- Pfeffer, J. (2003). The Human Factor: Teaching the Wrong Lesson. *Business 2.0*, 4(10): 60.
- Rest, J. R. (1986). *Moral Development: Advances in Research and Theory*. New York: Praeger.
- Rest, J. R. (1979). *Development in judging moral issues*. Minneapolis, MN: University of Minnesota Press.
- Sayther, C. (2003). Report Card on Sarbanes-Oxley: One Year Later. *Financial Executive* (October): 6.
- Walker, L. J., & Frimer, J. A. (2007). Moral personality of brave and caring examples. *Journal of Personality and Social Psychology*, 95(3), 845–860.
- Wilhelm, W.J. (2010). Ethical Reasoning Instruction in Non-Ethics business courses: A non-intrusive Approach. *Delta Pi Epsilon Journal*, 52(3), 152–167.