



Removing the Blinders: Increasing Students' Awareness of Self-Perception Biases and Real-World Ethical Challenges Through an Educational Intervention

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Abstract

Business ethics educators strive to produce graduates who not only grasp the principles of ethical decision-making, but who can apply that business ethics education when faced with real-world challenges. However, this has proven especially difficult, as good intentions do not always translate into ethical awareness and action. Complementing a behavioral ethics approach with insights from social psychology, we developed an interventional class module with both online and in-class elements aimed at increasing students' awareness of their own susceptibility to unconscious biases and, consequently, unethical behaviors. We deployed this intervention within a problem-based learning course (137 undergraduate students), in which students completed real-world projects for actual business clients. Our results suggest that although students appeared universally aware of the importance of ethical issues in business and generally espoused intentions to act ethically, those who received the intervention were significantly more likely to recognize their own susceptibility to perpetuating unethical business behavior and to identify ethical issues specific to their real-world projects. These results have important implications for behavioral ethics pedagogy and provide a de-biasing interventional approach for bridging classroom knowledge with real-world skills.

Keywords Behavioral ethics · Social psychology · Psychological traps · Bias blind spot · Knowing-doing gap · Ethics education

Introduction

Modern business education aims to develop both the knowledge and skills of our students. Simply teaching abstract theories is increasingly recognized as insufficient to empower students' post-graduate success (Bennis and O'Toole 2005; Ghoshal 2005). Instead, students must be able to recall and *apply* those concepts when faced with challenges throughout

their careers. Despite widespread advances within business school curricula (e.g., Martell 2007; Weldy and Turnipseed 2010), many business and ethics educators recognize the failure to bridge the gap between students' ethical discourse in the classroom and their real-world ethical behaviors (Bernardi et al. 2011; Brenkert 2019; Dean and Beggs 2006; Hibbert and Cunliffe 2015). In a discussion of academia's efforts to teach ethics, Alcaraz and Thiruvattal (2010, p. 542) remark that many "consist only of 'beautiful words', lacking the view to address real changes". Recent studies bolster these concerns. For example, one study suggests that ethics education has a positive impact on attitudes and intentions, but not on actual cheating behavior (Simha et al. 2012). Going further, some scholars even claim that business schools have a *negative* effect on ethical behaviors, due to a focus on rule-based decision-making, economic gain, and an organization-centered worldview (Giacalone and Thompson 2006; Huhn 2014). Thus, academics continue to explore pedagogical and curricular innovations with the explicit hope of improving students' current and future ethical behaviors (Brenkert 2019; Holland and Albrecht 2013).

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Accordingly, our work contributes to a growing body of literature that asks if it is sufficient to teach ethical principles and decision-making models, or if more is required to ensure that business ethics education transfers out of the classroom and into real-world situations (e.g., Furman 1990; Medeiros et al. 2017; Murcia et al. 2018). Specifically, our current research highlights the impact of an ethics educational module, embedded within a problem-based learning course, on students' moral awareness and judgements in real-world situations. Prior research (Tomlin et al. 2017) provides a discussion of this same module (which applies both video-recorded and in-class ethics interventions to students working on real-world projects) and speculates on its potential. In the current paper, we expand upon this past exploratory work by presenting empirical evidence to support the efficacy of this pedagogical technique. In addition, our findings invite a discussion about the need to increase students' awareness of their own moral fallibility as an important, and often overlooked, complement to behavioral ethics. To better illuminate the importance of our intervention, we first review current directions in ethics education, along with rationales for incorporating education on self-perception biases in business ethics curricula.¹

Behavioral Business Ethics Education

Despite good intentions from both faculty and students, today's workplace remains plagued by high-impact scandals [e.g., Wells Fargo's fraudulent consumer accounts (Egan 2017); Volkswagen's 'switch' to trick emissions tests (Gates et al. 2017); Facebook's data sharing with Cambridge Analytica (Fiegerman 2018); and workplace sexual harassment by high-powered individuals ("Behind closed doors" 2018)] (Treviño et al. 2006). As a result, managers remain frustrated by a lack of progress from business ethics education and generally believe that graduates are not more ethical now than in the past (Sigurjonsson et al. 2015).

Business schools continue to combat this problem by institutionalizing ethics into accreditation standards and evolving their approaches to teaching business ethics. In 2004, for example, the Association to Advance Collegiate Schools of Business (AACSB) updated its core values to include that accredited schools "must encourage and support ethical behavior from students" (p. 6) and that one of the principle *skill* areas for AACSB accredited schools' curricula must be "ethical understanding and reasoning" (AACSB 2017, p. 35). In addition, over the last few decades, a behavioral approach to understanding and teaching ethics has proliferated among business schools. In this new approach,

rather than focusing on an awareness of ethical theory and frameworks, scholars draw upon psychology, sociology, and related fields to explain and shape individuals' behaviors (Drumwright et al. 2015; Treviño 1986). Research in this area suggests that acting ethically is a *skill* which can be developed (Bazerman and Tenbrunsel 2011; Gentile 2010; Treviño and Nelson 2017). For example, the *Giving Voice to Values* (Gentile 2010) curriculum, which focuses on providing scripts and practical skills for how to respond to ethical dilemmas, has served as a 'leverage point' (Arce and Gentile 2015) to move business ethics education towards a more action-oriented approach.

In fact, behavioral ethics is so important for ethics education that it was recently the focus of a special issue of the *Journal of Management Education*. Work from that special issue highlighted the benefits of in-context ethics practice and learning (O'Brien et al. 2017; Tomlin et al. 2017), including active reflection about one's ethics experiences (Hedberg 2017). Unifying these articles was an understanding that students need *real* experience identifying ethical issues, evaluating ethical dilemmas from different stakeholder perspectives, and practicing resisting temptations associated with short-term self-interests—all of which ultimately bolster the development of personal and organizational norms of ethicality (Soltes 2017). Since ethics is a skill which must be developed and honed over time, some suggest that efforts to exclude the possibility of unethical behavior within classrooms (e.g., by using plagiarism checkers for written work or lock-down browsers during online exams) may actually be weakening students' 'ethical muscles' (Offstein et al. 2017). Thus, a strength of behavioral ethics pedagogy is that it provides students a 'sandbox' within which to experience the pull towards unethical behaviors and either (a) learn how to respond ethically to challenges or (b) learn from their early, smaller failures (Treviño et al. 2006).

A Knowing-Doing Gap for Business Ethics

A continued challenge for behavioral ethics, however, is ensuring the lessons and skills learned in these academic 'sandboxes' translate into real-world contexts (e.g., Ellertson et al. 2016; Lawson 2004; Peacock 2010). A good framework for thinking about this dilemma is the broader challenge of the "knowing-doing gap" (Pfeffer and Sutton 2000), which plagues virtually all fields of practice and highlights the failure of individuals to put situation-specific knowledge into action. For example, to illustrate this concept in an accessible way, the lead author of this paper begins each semester by explaining to her students that, despite being fully aware of *the rules and principles* of basketball, she cannot successfully implement the *skill* of playing basketball (that she is, in fact, embarrassingly bad at it). Rather,

¹ For an additional discussion of these issues, see Tomlin et al. (2017).

the translation of knowledge into real-world performance requires extensive and ongoing coaching, practice, and conditioning. In a similar way, behavioral ethics researchers and educators emphasize the gap between *learning* ethics and *living* ethics (e.g., Soltes 2017).

Furthermore, an overemphasis on knowledge accumulation versus skill development may have harmful results when individuals face real-world challenges (Prentice 2004). For example, Kardas and O'Brien (2018) demonstrate that merely *watching* a skill be performed leads to an illusion of ability. This confidence comes from a simple understanding of the steps that must be taken to perform the task (akin to the earlier example of basketball knowledge versus proficiency). Unfortunately, the research indicates, despite individuals' confidence that they too could perform a task after observing skillful others, mere observation and knowledge does not improve performance (Kardas and O'Brien 2018). In business, this bias is found in a myriad of contexts, ranging from information technology (Alavi and Leidner 2001) to human resource management (Becker and Huselid 2006).

Unfortunately, this knowledge-based overconfidence represents more than just a curiosity of human nature—it is a risk factor for failures with potentially catastrophic real-world repercussions. Imagine that an individual decides to undertake a dangerous task they have not previously practiced, based on their inflated and inaccurate self-confidence. This creates a risk of harm to themselves or others when their enacted behavior falls short of their perceived ability. Alternatively, in business contexts an individual's overconfidence in their ability to respond effectively to ethical dilemmas may inhibit their ability to accept their own ethical shortcomings (Kennedy and Peecher 1997; Kida 1980) or to “voice their values” when others are behaving unethically (Gentile 2010). In these contexts, small ethical failures can create a slippery slope towards more severe behaviors, as they often lack the direct feedback that results from overconfidence in physical endeavors (e.g., if this paper's lead author tried out for a basketball team, any overconfidence based upon her knowledge of the game would quickly be overwhelmed by physical realities of enacting these skills). This progression, from small to larger transgressions, may account for the large-scale scandals with which we are all too familiar (e.g., Armstrong et al. 2004; Markowitz et al. 2018; Street et al. 1997; Street and Street 2006).

Within organizations, one of the contributing factors to this knowing-doing gap is an emphasis on talk, rather than action. For example, Pfeffer and Sutton (2000) suggest that the act of *planning* may take the place of enactment of said plans, lamenting that, for many, “merely hearing and talking about methods for doing innovative work eliminated the [perceived] need to actually use these methods” (2000, p. 29). Thus, mission statements and codified core values allow groups to feel as if they have ‘checked a box’ in terms of

ethics, but may not necessarily translate into the implementation and continual development of ethical behaviors.

Biases as Impediments to Moral Skill Development in Classroom Interventions

Behavioral ethics, then, combats one important aspect of this knowing-doing gap by emphasizing ethical behaviors and actions in the classroom, rather than simply intentions or theory. However, as Prentice (2014, p. 325) notes, even students “skilled at moral reasoning may still do bad things [in the real-world] because they are subject to psychological shortcomings, or overwhelmed by social pressures, organizational stresses, and other situation factors.” Thus, students must accept their irrationality and susceptibility to a myriad of psychological biases that can have disastrous effects (e.g., Ariely 2009; Kahneman 2011; Schwartz 2017) before we can expect ethical behavior. Although this simple concept underscores much of the behavioral ethics literature, most individuals (including students and faculty) remain irrationally overconfident regarding their honesty, their ethics relative to their peers, and other important factors related to ethical behavior (Bazerman and Sezer 2016; Bazerman and Tenbrunsel 2011; Chugh et al. 2005; Greenberg et al. 1982).

In one of the most famous studies in social psychology, Milgram (1963) demonstrated how psychological biases can lead ordinary people to commit unethical acts. In this study, participants believed they were administering painful electric shocks to an individual in another room. Despite pleas from the receiving party to stop the shocks, the *majority* of participants continued to the maximum shock level (i.e., the point at which participants believed they were harming, or even killing, their partner in the other room). Based on the behavior and feedback from participants, it appeared that individuals committed these acts simply because an authority figure (i.e., the lab coat wearing experimenter) instructed them to continue. This seminal, and controversial, research established the now-well-known ‘obedience to authority bias’.

The outcome of this experiment was surprising to most and was in stark contrast to how people *believed* they or others would behave. After being given a description of the basic task, and without knowledge of the actual results, professional psychologists estimated that no more than 1% of participants would administer the maximum shock level [a far cry from the 65% who actually did (Milgram 1965)]. Presumably, these professionals believed that ‘good people’ simply would not do bad things. Importantly, differences between ethical intentions and enacted behaviors extend beyond physical harm (e.g., delivering pain) and can also directly or indirectly cause serious harm to stakeholder groups, society, and the environment (Joyner and Payne 2002).

Thus, Milgram's research on obedience to authority, though conducted over half a century ago, continues to be relevant today and aligns well with contemporary scholarship in business ethics [such as the "locus of responsibility" from the *Giving Voice to Values* approach (Gentile 2010)]. In fact, the obedience to authority bias is one of the most commonly cited explanations for unethical behavior in the business ethics literature (e.g., Hoyk and Hersey 2008; Prentice 2014; Schwartz 2017)—employees often rationalize their wrong-doing by asserting that they were merely following the orders of their bosses.

Self-Awareness Biases as a Key Component of Real-World Change

Business educators continue to grapple with ways to translate ethics education into real-world practice (Soltes 2017). Classroom interventions may make students more aware of the general possibility of ethical dilemmas or train them to recognize the 'right' behaviors in concocted pedagogical exercises. However, students must also be motivated to continually apply these lessons beyond the classroom and to embrace the moral humility (e.g., Argandona 2015) and moral courage (e.g., Comer and Vega 2011) needed to monitor for and recognize their own psychological biases in real-world situations. Ironically, most individuals readily accept that biases impact human reasoning but assume themselves relatively immune to biases (perhaps overestimating biases affecting others). This phenomenon, dubbed the "bias blind spot" (Pronin et al. 2002), is a challenge that has proven especially intractable and one that business educators continue to struggle with (e.g., Banaji and Greenwald 2013; Scopelliti et al. 2015; West et al. 2012). For example, research suggests that asking individuals to assess their susceptibility to bias may unintentionally reinforce their sense of objectivity and result in even greater confidence that they are not susceptible to biases [i.e., an "introspection illusion" (Pronin and Kugler 2007)].

Despite the pernicious nature of these self-perception biases, there is reason to believe that change can be achieved. Recent research suggests that individuals' bias blind spots vary in strength (Scopelliti et al. 2015) and that education can reduce susceptibility to self-perception biases (Morewedge et al. 2015; Stalder 2008). For example, in Study 5 of Pronin and Kugler's (2007) work, participants were presented with an ostensible *Science* article titled "Unaware of Our Unawareness" (which was actually created by the researchers for use in the study). After reading this article, which provided education about nonconscious influences on human behavior, participants did not demonstrate a bias blind spot (i.e., on average, those who read the article did not perceive themselves as less susceptible to biases relative to their peers). Though the bias blind spot is distinct

from general decision-making competency (Scopelliti et al. 2015), we propose that the presence of such self-perception biases acts as a barrier to effective ethical decision-making and action.

From a broader psychological perspective, it is commonly accepted that behavioral modification in response to a problem follows five consecutive steps: (1) individuals consult their general orientations or patterned routines towards problem solving, (2) they define a problem in regards to established paradigms, (3) they generate alternatives to confronting the problem, (4) they enact a self-determined "satisficing" behavior and, (5) lastly, they assess the outcome of their decision and adjust future problem solving attempts as needed (D'Zurilla and Goldfried 1971). Refining this model, Rest (1986) offers a four-staged process for the enactment of ethical behaviors. In the first stage, labeled *moral awareness*, individuals engage in interpretative cognitive processes in which they may, or may not, "recognize that a moral problem exists in a situation" (Treviño et al. 2006, p. 953). This stage, essentially collapsing steps one and two from D'Zurilla and Goldfried's (1971) model, is predominantly influenced by two factors. The first, moral intensity, is contextual and reflects aspects of an individual issue, such as the magnitude of potential consequences, social consensus, probability of effect, temporal immediacy, proximity, and/or concentration of effect (Jones 1991; Morris and McDonald 1995). The second, ethical sensitivity, is individual and reflects one's ability to recognize the ethical implications involved in different decision-making situations (Sparks and Hunt 1998).

Following the recognition of ethical issues, individuals then enact a process of *moral judgement* in which they attempt to reconcile future actions with their understanding of the ethical and practical issues involved (Rest 1986). Evidence supports a moderate correlation between these cognitive aspects of ethical behaviors and their subsequent effect on *moral motivation and enacted behaviors* (Ashkanasy et al. 2006; Treviño and Youngblood 1990). Simply speaking, increasing one's ability to recognize ethical issues and to fully appreciate their susceptibility to biases and ethical lapses within real-world contexts is critically intertwined with their feeling of obligation to act [i.e., their moral motivation (Eisenberg 1986)] and later enactment of ethical behaviors.

Consequently, our educational training module was based on insights concerning biases and the bias blind spot, and attempted to: (a) increase students' awareness of common cognitive biases, (b) increase students' awareness of their own susceptibility to those biases, and (c) provide opportunities for students to recognize ethical dilemmas and their own blind spot bias in real world situations. In the following section, we further describe this educational training module before discussing our results.

The Current Study

Tomlin et al. (2017) detailed an educational module that focuses on ethics, psychological traps, and social psychology to increase students' awareness of their own susceptibility to ethical transgressions. Tomlin et al. (2017) explored the potential of this intervention through a rich qualitative discussion of written student comments. The comments were suggestive, hinting that students who received the ethics intervention were better able to recognize ethical issues in real-world situations and were more likely to recognize their own susceptibility to biases. However, a major limitation was a lack of explicit comparisons between students who received the ethics intervention and those who did not. The current research returns to, and expands upon, that prior work to provide a deeper understanding of how and where the intervention produces benefits. Thus, the tentative results from Tomlin et al. (2017) formed the basis for this work's hypotheses, which were tested using both quantitative and qualitative analyses.

Specifically, we hypothesized that students who experienced the ethics module would not differ from their classmates in terms of their general ethics knowledge (i.e., their awareness of ethical issues in business) or their intentions (i.e., that all students would endorse behaving ethically), which are components of a normative business ethics education (Brenkert 2019). Of critical importance, we predicted that students from the ethics intervention would be more likely to actively identify real ethical challenges in their work teams and would be more aware of their own susceptibility to unethical behavior.

The current research methods are identical to the pedagogical intervention described in Tomlin et al. (2017). This intervention was delivered and assessed across two semesters. Quantitative data were collected in both semesters, while qualitative student comments were collected in the second semester only. Tomlin et al. (2017) reported and discussed only those second semester written comments and was thus an incomplete evaluation of the ethics intervention. However, the current research utilizes data from both semesters, providing quantitative analyses of student experiences and behaviors, as well as a more systematic evaluation of the qualitative student comments. This empirical approach provides additional and more robust support for the claim that business ethics education can be improved by incorporating information about the bias blind spot into students' ethics learning and skill development. It also provides a more nuanced understanding of how the intervention impacts students and the best practices for applying such an intervention in the future.

Methods

As detailed in Tomlin et al. (2017), an ethics education module was designed and delivered to undergraduate students enrolled in an interdisciplinary teamwork course. The course facilitated deep student learning by utilizing a problem-based learning (PBL) approach, which has been shown to help students learn about ethics in numerous contexts (Brownell and Jameson 2004; Chang and Wang 2011; Hoffmann and Borenstein 2014; Jones et al. 2010; Lavine and Roussin 2012). Furthermore, PBL is consistent with recent calls to more effectively connect classroom activities to the real world (Raman et al. 2017). In our PBL course, students' work was not merely a simulation, but a 'live case' (Kennedy et al. 2001; Sims and Felton 2006), and students were responsible for delivering real value to their clients throughout the semester (e.g., preparing feasibility studies, developing websites, designing and executing marketing campaigns, etc.).

Such PBL learning contexts are "dynamic, emergent, context-sensitive, and holistic" (Billimoria 1998, p. 266). As Govekar and Rishi (2007) note, these real-life situations can enhance students' understanding of both theory and practice, and improve teamwork, communication skills, and adaptability. This course was deemed opportune for embedding the current ethics education module, because it provided students a meaningful context in which to apply knowledge about ethics from the classroom. Based upon past experiences teaching this class, we knew that students would inevitably encounter unpredictable and varied real-world ethical dilemmas with their teammates, their clients, and the project itself, offering a "system in which students 'liv[ed] ethics' instead of merely learn[ing] ethics" (Solberg et al. 1995, p. 71). Some examples of these dilemmas include 'free riding' teammates, miscommunication about teams' expectations and timelines, unreasonable pressure/demands, and clients encouraging students to behave unethically.

Participants

One hundred thirty-seven undergraduate sophomores, juniors, and seniors at a public university in the United States were included in the current evaluation. These students were enrolled in a business innovation 'teams' course that required students (working within teams of three to five students) to collaborate for an entire semester on a consulting project for a real-world client. Students were randomly assigned to their consulting teams (except to ensure that each team had one senior, at minimum, who had prior experience with the PBL paradigm), and consulting teams

Table 1 Timeline illustrating the implementation of the current research across each semester of the PBL course

Timeline	Event
Beginning of the semester	Students are randomly assigned to a team; Teams are randomly assigned to a real-world client and begin working
Week 3	Students are randomly assigned to either the ethics intervention or control condition (they are blind to this assignment)
Between weeks 3–4	Students are instructed to independently watch the instructor-recorded video, based on their assigned condition (ethics intervention vs. control)
Week 4	Students participate in an instructor-led discussion of the video, based on their assigned condition (ethics intervention vs. control)
Week 4–15	Students continue working on their real-world projects; No other ethics instruction is delivered
Week 15	Students complete brief survey assessing ethics and team experiences

were randomly assigned to their clients. Students in this course came from various majors (e.g., business, chemistry, computer science, early childhood education), all with a desire to develop their skills as business leaders and innovators. Data were collected across two semesters (35 teams total) and neither students nor clients repeated across semesters.

To ensure that all data were completely anonymous and confidential, demographic information was not collected on the student participants' surveys. As students originated from many majors, the demographic data for the campus provides a reasonable substitute: 44.1% female, 30% racial minority, and 23.2 years mean age. Because demographic data are not tied to individual responses, and because the authors had no a priori hypotheses concerning differences between demographic groups, no analyses will be presented that explore such differences.

Procedure

Within each class, individual students were randomly assigned to receive either the ethics education intervention or a control (non-ethics focused) educational module. This experimental design ensured that each student team was comprised of students from *both* the intervention and control conditions. Between the third and the 4th week of the semester, students were asked to independently watch an instructor-created 30-min video, based on their assigned condition: a video that contained ethics-related information (detailed description follows) or a video that contained innovation-related information (for the control group). During the 4th week's class, students in the experimental condition participated in a faculty-supervised discussion about the ethics material while, in a separate room, students in the control condition engaged in a faculty-supervised discussion of the topics of innovation and team functioning. The ethics education intervention was the only time that the course specifically addressed business ethics. Students were surveyed about ethics and their team's experiences in the 5th week of the semester. See Table 1 for a timeline of events.

Design of Ethics Intervention

The ethics intervention module was designed to incorporate pedagogical approaches from traditional ethics, behavioral ethics, and social psychology.² In the instructor-recorded video, ethical decision-making was examined at three levels of analysis: (a) individual-level, (b) organizational-level, and (c) industry-level (Ferrell and Gresham 1985; Hunt and Vitell 1986; Treviño 1986). Using the work of Hoyk and Hersey (2008) as a guide, the video introduced many different ethical 'traps' (e.g., obedience to authority, low self-esteem, self-serving biases, etc.) that might affect, or be affected by, variables at any of these levels. Of critical importance for the current research, the video and class discussion specifically focused on the fundamental attribution error (Jones and Nisbett 1972).

The fundamental attribution error is one of several psychological biases that captures how individuals perceive themselves relative to other people. Research on the fundamental attribution error suggests that individuals are more likely to attribute their own behavior to external forces, but that they are prone to attribute others' behaviors to their dispositions. In the domain of business ethics, this means that a person might excuse their own questionable behavior as merely the result of intense industry pressure, but hold someone else committing the same act accountable by deeming them 'an unethical person'. The fundamental attribution error is therefore closely related to the bias blind spot (Pronin et al. 2002), in that it is a self-perception bias. It is this component of the ethics training module that is distinct from other ethics educational approaches and that we believe facilitates student recognition of real-world ethical dilemmas and their own susceptibility to ethical transgressions.

² See Tomlin et al. (2017) for an extensive description of the ethics intervention (video and discussion content), which can be used as a guide for those interested in incorporating these pedagogical approaches into their classrooms.

Table 2 Summary of current research findings, demonstrating impact of ethics educational module on students' behaviors and self-perceptions

Outcome measure	Comparison of ethics intervention group to control group
General awareness of the presence and importance of ethical issues in business	No difference
Espoused intention to act ethically	No difference
Identification of ethical challenges on team's real-world project	Dichotomous yes/no: students who received the ethics intervention reported more ethical challenges Written comments: students who received the ethics intervention identified ethical challenges more often in their written responses
Acknowledgement of one's susceptibility to ethical transgressions	Students who received the ethics intervention reported greater personal susceptibility to ethical transgressions
Exploratory LIWC coding	Affect: students who received the ethics intervention used more affect (both positive and negative) in written responses to questions about ethics Temporal orientation: students who received the ethics intervention were less present-focused and marginally more future-focused in written comments about ethics

Evaluation of Ethics Intervention

At the end of the semester, 11 weeks after the training video and discussion session, a short survey was administered to all students enrolled in the course. The survey (see "Appendix") was designed to compare the effects of the ethics intervention versus the control condition with regard to students' ethical awareness and responses to ethical challenges in their semester-long team projects. Specifically, dichotomous yes/no questions and Likert-type scaled items measured: (a) general awareness of ethical issues at individual, organization, and industry levels and their potential influence on innovation processes; (b) individual *intentions* to behave ethically and avoid ethical transgressions; (c) identification of ethical issues on the students' team projects; and (d) students' awareness of their own susceptibility to ethical transgressions. During the second semester of data collection, open-ended questions were added to the survey as a means for allowing qualitative analyses to supplement the quantitative data and analyses.

Results

Quantitative Analysis and Results

Quantitative survey data from both semesters were combined into a single dataset, as there were no changes to the intervention or experiment design between semesters. Data from one subject were removed because the post-survey responses were three standard deviations below the mean

for each question.³ Because random assignment to, and participation in, either the intervention or control group was conducted at the level of the individual student (i.e., not at the team-level), all results reported below are based on between-group individual-level analyses. See Table 2 for a graphic summary of the findings from the current research.

General Awareness of Ethical Dilemmas

Survey data revealed no statistically significant impact on students' ability to recognize ethical issues at the tripartite levels of analysis. Comparing the intervention to the control group, there was no difference in *general awareness* of ethical issues at the individual level ($F(1, 135) = .15, p = .70$), organization level ($F(1, 133) = .07, p = .79$), or industry level ($F(1, 135) = .03, p = .86$) in regards to students' team projects. Students, whether or not they had received the ethics intervention, expressed beliefs that ethics were important for innovation processes (innovation being the focus of the course), $F(1, 133) = .05, p = .83$. See Table 3 for means and standard deviations from the end-of-semester survey.

Intentions to Behave Ethically

Across both groups, students espoused a desire to "work to avoid ethical transgressions," $F(1, 132) = 1.29, p = .26$, indicating no difference in students' *intentions* to behave ethically.

³ Excluding these data makes our analyses more conservative, as the extreme responses were in the hypothesized direction.

Table 3 Means and standard deviations for students' Likert-Type Scale responses to the end-of-project ethics survey

	Received ethics intervention <i>M</i> (<i>SD</i>)	Did not receive ethics intervention <i>M</i> (<i>SD</i>)
General awareness of ethical issues		
Individual level	5.04 (1.93)	4.91 (1.72)
Organizational level	5.34 (1.77)	5.26 (1.33)
Industry level	5.00 (2.13)	4.94 (1.89)
Ethics impact innovation	5.57 (1.42)	5.62 (1.23)
Ethical intentions		
Work to avoid transgressions	6.31 (.91)	6.10 (1.17)
Self-perception		
Personal susceptibility to ethical transgressions	3.68 (1.70)	2.97 (2.03)

Table 4 Frequency of students' identification of ethical issues on their team project, comparing intervention and non-intervention groups (measured by question 1a of the end-of-project survey)

	Received ethics intervention		Did not receive ethics intervention	
	<i>N</i>	%	<i>N</i>	%
Student self-report (data from both semesters)				
Identified ethical issues ("yes" response)	29	43.3	12	17.1
Did not identify ethical issues ("no" response)	38	56.7	58	82.9
Total	67	100	70	100
Coding of qualitative responses (data from second semester only)				
Identified ethical issues	25	76.5	20	
Did not identify ethical issues	9	23.5	22	47.6
Total	34	100	42	100

Recognition of Ethical Issues on Team Projects and Personal Susceptibility

In response to the dichotomous yes/no question inquiring about whether ethical issues were uncovered in the team project, individuals in the ethics intervention treatment group were significantly more likely to identify ethical issues on their team project compared to individuals in the control group, $\chi^2(1, N = 137) = 11.16, p < .001$ (see upper portion of Table 4 for frequency/count data). This maps nicely onto Rest's (1986) steps of moral behavior, such that moral awareness and moral judgement are necessary antecedents to later ethical actions. This important difference (identifying vs. not identifying real-world ethical issues) was paired with a difference in self-reported vulnerability to ethical transgressions. Our data indicated that, compared to students in

the control group, students in the ethics intervention were more aware of their own susceptibility to ethical transgressions $F(1, 135) = 4.99, p = .027$ (see Table 3). In other words, students in the ethics intervention were more aware of their own 'ethical blind spots' than students in the control group, suggesting that the ethics education module facilitated a more open and accurate self-perception.

Qualitative Analyses

During the second semester of data collection (i.e., approximately half the total sample), open-ended questions were added to the survey to supplement the quantitative responses.⁴ As these open-ended questions were optional, the number of responses (and thus, the sample sizes) varied across questions. The majority of students offered at least one response to the optional open-ended questions; more specifically, one (or more) qualitative comment(s) was provided by all (100%) of the students in the ethics intervention/condition, and by all but five students in the control condition. The qualitative responses to these survey questions are documented in their entirety in Tomlin et al. (2017) and are discussed in that paper in an exploratory narrative. We chose to return to these written comments in the current analysis, to more systematically examine the content of students' responses in light of the aforementioned quantitative results.

Recognition of Ethical Issues on Team Projects

The first survey question asked students to indicate whether they identified an ethical issue on their real-world projects and to comment on the presence or absence of ethical issues on the team. These qualitative comments complement the dichotomous response to the same question (discussed above), which constitutes a key outcome of the current study. These open-ended responses were independently content-coded by two raters (one of the current authors, who was blind to study condition, and a trained research assistant, who was blind to both study condition and the current research questions). Qualitative comments in response to this question were coded dichotomously as either acknowledging (e.g., "*Client giving personal/credit card information to the team. Great trust, but not comfortable with having that information...*") or dismissing (e.g., "*We uncovered nothing unethical relating to the project...*") the presence of ethical issues on their real-world projects. Initial inter-rater agreement for the two independent coders was 93.4%;

⁴ The free-responses from these same students are featured in Tomlin et al. (2017) as suggestive evidence that the ethics intervention is effective, but are analyzed for the first time in comparison to the control group in this paper.

coding discrepancies were discussed and resolved to reach 100% interrater agreement. A Chi square test of independence compared the frequency of students' acknowledgement versus dismissal of ethical issues between the intervention group control group, $\chi^2(1, N=76)=4.69, p=.03$ (see lower portion of Table 4 for frequency data), indicating that the intervention group acknowledged real-world ethical issues to a greater extent. Again, on this key outcome, students' free-responses reinforce the notion that students who received the ethics educational module were better able to identify ethical issues in a real-world work scenario.

Exploratory LIWC Analyses: Affective Processes and Time-Orientation

Open-ended responses were coded and analyzed using the Linguistic Inquiry and Word Count (LIWC) text analysis software (Pennebaker et al. 2015). According to Pennebaker and colleagues involved in the development of the LIWC, "the ways people use words in their daily lives can provide rich information about their beliefs, fears, thinking patterns, social relationships, and personalities" (Pennebaker et al. 2015, p. 1; see also Gottschalk and Gleser 1969). Today, thanks to modern technologies, the word usage of individuals can be recoded into, and then analyzed as, quantitative data. In the case of the LIWC, Pennebaker and colleagues established 'dictionaries' of terms for different aspects of language, such as emotional words/expressions versus cognitive-logical expression, or the use of past-tense versus present- or future-tense in a particular communication. As described in more detail in the LIWC manual and elsewhere by Pennebaker et al. (2015), the LIWC output/analyses includes 93 factors which are coded 'automatically' (i.e., by default, using the standard dictionary offered within the program; users are also able to create/develop additional dictionaries for their analyses within the LIWC program). Scores generated by the LIWC program generally are reported as percentage(s) of total words within a text.

In the current research, we focused our exploratory analyses on a small subset of the possible 93 variables: affect (including both positive and negative emotion) and the extent to which responses were present time-focused or future time-focused. This subset of variables was selected based on their theoretical relevance to behavioral ethics, but without a priori hypotheses. We compared the degree of language use for these variables (affect and time-orientation) between the educational intervention group and the control group. All comments from across the student surveys were included simultaneously in the LIWC analyses, rather than assessing factors of interest on a question by question basis (which helped address unequal response rates between questions). Thus, in these exploratory analyses we examine the *broader tendencies* of the students in

Table 5 Means and standard deviations for LIWC coding of qualitative responses to the end-of-project survey (data from second semester only)

	Received ethics intervention <i>M</i> (<i>SD</i>)	Did not receive ethics intervention <i>M</i> (<i>SD</i>)
Affect		
Affect (overall)	7.94 (8.92)	4.70 (6.45)
Positive affect	4.45 (6.28)	2.65 (4.90)
Negative affect	3.40 (7.74)	1.94 (4.24)
Temporal orientation		
Present-orientation	11.99 (10.29)	14.10 (10.81)
Future-orientation	2.07 (5.03)	1.32 (3.13)

how they 'talked' about ethics based on their exposure to the educational ethics module or the control module. In total, 409 qualitative responses (187 from the control group; 222 from the intervention group) were included in the LIWC analyses (see Table 5 for LIWC means and standard deviations). The total number of responses exceeded the total number of students in the study for this reason and because qualitative/open-ended questions were optional on the survey (the result being that some participants provided multiple responses across the survey, and others provided no responses at all).

Given increasing recognition of affective influence on ethical decision-making (e.g., Gaudine and Thorne 2001; Haidt 2001; Tenbrunsel and Smith-Crowe 2008), we conducted analyses on affective language present in the students' qualitative responses. Compared to the control condition, qualitative comments made by participants who received the ethics education intervention conveyed more emotional/affective processing, $F(1, 407)=17.12, p<.001$. Further exploratory analyses on the affective content of responses revealed that the intervention group expressed both more positive emotion/affect ($F(1, 407)=10.08, p=.002$) and more negative emotion/affect ($F(1, 407)=5.35, p=.021$) than the control group.

Ethical awareness and decision-making rely, in part, on thinking beyond the current moment to consider future impacts on stakeholders (Alas 2006). As such, we assessed whether language from the intervention group might be more future-oriented and less present-oriented than language in control group responses. Results supported this line of reasoning for the latter (present-time orientation), $F(1, 407)=4.09, p<.044$, such that the control group students used language that was more focused on the present. Results for future-oriented language were not statistically significant at the traditional .05 level, $F(1, 407)=3.14, p=.077$; however, the (non-significant) direction of the means suggested marginally more future-oriented language in the intervention group than the control group.

Although exploratory in nature, the LIWC analyses of affect/emotional content of students' qualitative comments are in line with current research recognizing ethical decision-making as a dual-process which combines cognitive and affective/mood components (e.g., Guzak 2015). Indeed, the current findings demonstrate the great emotion content present in the comments of students receiving the ethics intervention compared to students in the control condition. Given the exploratory nature of these analyses and marginally significant findings, however, we take caution in interpretation with regard to the meaningfulness and implications of the time-orientation of students' comments about ethical issues in their projects. Future researchers may wish to more systematically examine hypotheses regarding time-orientation and ethical awareness and behavior (see Nevins et al. 2007).

Discussion

Students in both the ethics intervention and control condition were equally aware of the *possibility* and importance of ethical dilemmas and espoused an *intention* to generally avoid unethical behaviors. However, students in the ethics intervention were significantly more likely than control group students to *identify real-world ethical challenges* in their work. This difference in identification signals that they were better able to apply their ethical knowledge to real-world team projects and this pattern of results is a critical new finding that builds well-beyond the prior exploratory work of Tomlin et al. (2017).

While Tomlin et al. (2017) was able to speculate about the impact of the current ethics educational module, the current research clearly demonstrates significant differences between students who received the ethics intervention and those who did not. These differences, such that students who received the ethics intervention more readily identified ethical issues, emerged not only in the students' dichotomous yes/no responding when directly asked if their team experienced ethical challenges, but also in their freely generated comments. Some students described specific details about the ethical challenges present on their real-world team projects (e.g., "*There were ethical issues regarding our team and action to be taken against those failed to contribute. Additionally, ethical issues regarding the promotion and our course of action with social media.*" or "*More so ethical issues from others, such as reselling the product, that we need to account for.*"), while others very succinctly acknowledged that there were issues, but did not provide details (e.g., "*Brought to my attention a recent issue in the team.*"). In either case, the increased awareness of ethical issues is a critical antecedent (e.g., Rest 1986) for developing real-world ethical behaviors among students.

Additionally, students in the intervention condition were more likely than students in the control condition to recognize their *own susceptibility to ethical transgressions*—this key finding is critical for reducing ethics blind spots that affect behaviors beyond the classroom. Though not directly established by this research, we believe it was the students' increased ability to recognize their own ethical fallibility that rendered them more willing and able to see the real-world ethical challenges inherent in their projects.

Qualitative analyses provide insight into the impact of the intervention on the ethical reasoning and rationale of participants; specifically, these analyses revealed that participants in the ethics intervention wrote about their experiences in a way that was more emotional (in terms of both positive and negative affect) and less focused on the present moment (as opposed to future-oriented) than their peers in the control group. Taken together, these data suggest that students' perceptions were altered following the ethics training module, suggesting it may be a simple and viable option for improving responses to ethical dilemmas and catalyzing affective, and future-focused, introspection among participants.

This experiment took place in a complex real-world environment, which we believe is a strength of the current research, as students varied in terms of their backgrounds, majors, and project-focus, yet our intervention came through the with predicted results. This signals the generalizability of this intervention, beyond any single sector or industry. The current study's findings are particularly noteworthy because assessment of the educational module's impact took place 11 weeks after the intervention was delivered (a marked improvement over similar studies in which students/participants are assessed immediately following an educational intervention), suggesting durability of the intervention, at least in the context within which it was delivered. Once students recognized the ways they might be susceptible to unethical behavior, their awareness of ethical issues was increased across the course of the semester-long project.

Lessons for Behavioral Ethics Education

Lesson 1: Aim for More Than General Awareness of Ethical Challenges

Our data suggest that general awareness of ethical issues is not lacking among students. Our data revealed no differences between the control and intervention conditions in terms of general ethical awareness, nor in terms of ethical intentions. This suggests that either (a) students are aware of ethical challenges *without* any ethics education⁵ or (b)

⁵ It is important to note that we have no data to assess the extent to which students experienced ethics education in other courses. It is possible that students in both conditions may have covered ethics in

ethical awareness was contagious between team members (that is, students in the intervention condition conferred their ethical awareness upon students from the control condition). However, a 'contagion explanation' is discounted by the fact that there were differences between the intervention and control group on the critical behavioral and self-report measures (i.e., identification of real ethical issues, seeing oneself as fallible and biased, writing about ethical issues in a more emotional and future-focused manner). While Tomlin et al. (2017) speculated about the benefits of the ethics training module, this new study provides empirical evidence of its significant impact on students.

The lack of differences between the intervention and control conditions in terms of general awareness and intentionality is not at all surprising, given what we know from behavioral ethics. In fact, this finding reinforces the important difference between traditional and behavioral ethics approaches—intending to 'do good' is fairly universal but may not be sufficient to actually drive ethical behavior. However, if the outcome we seek is actual real-world improvement, the key may be to go one step further and to pull back the veil of ignorance regarding our susceptibility to biases. Because psychological biases and traps account for much of the unethical business behavior seen in society today, they must be directly addressed and destigmatized as part of ethics curricula.

The empirical analyses in this paper confirm the suggestions from Tomlin et al. (2017) that focusing on the self is the best way to reduce ethical blind spots. The hope is that students who experienced the ethics training module continued to internalize this vulnerability as they moved beyond the confines of the course, thus helping them to avoid falling into the psychological traps that perpetuate unethical behavior. The current results paint a compelling picture that educators can effectively reduce individuals' perceived immunity from bias, with the hope that this facilitates more effective handling of real-world ethical dilemmas.

Lesson 2: Lack of Learning by Osmosis

Researchers and educators have proposed that organizational culture can be broadly affected by targeting key individuals [vs. all organizational members (Mittendorf 2008)], but our research suggests that this approach may be insufficient. Specifically, even if students in the control group gained awareness of ethical issues through contagion from students in the ethics intervention (see "Lesson 1: Aim for More Than General Awareness of Ethical Challenges" above), there was

little or no transmission of the self-perception changes (e.g., their ethics and bias blind spots). If contagion had occurred, the observed differences between groups on the critical measures (i.e., identifying ethical issues in their projects, perceiving the self as fallible, and discussing ethics in their writing) would not have been present. This suggests that, rather than relying on a chosen few to spread ethics through an organization, a more inclusive approach to ethics training is desirable.

Though this intervention took place in a classroom setting, its lessons are relevant for all organizations. One of the cautions discussed by Pfeffer and Sutton (2000) is that talk can perversely substitute for action. While it is now very common (and commendable) that organizations publicly promote their ethical values and intentions (Sharma 2018; Turner et al. 2019), our findings suggest that such efforts may be insufficient for the maintenance of an ethical organization. Instead, there may need to be a more personalized and direct approach with each employee/member to ensure that organizations' talk does not substitute individuals' ethical actions.

Because direct exposure to the ethics education module may be key, this could seem like a daunting requirement for its implementation. However, the good news is that the ethics module was a fairly small-scale, one-time intervention that only entails minor costs for educators or businesses. Thus, brief and contextualized reminders about individuals' susceptibility to psychological biases and traps may be sufficient to effect widespread organizational change. Even more promising, recent research suggests that personalizing these intervention *even* further, by providing feedback about the extent of individuals' bias blind spots [e.g., utilizing a bias blind spot measure (Scopelliti et al. 2015)], may further improve the effects of these interventions (see related discussion in Future Directions).

Lesson 3: Focus on Ethical Vulnerability, in Addition to Ethical Confidence

Much of the recent literature on business ethics education focuses on the need to foster moral courage and ethical confidence (e.g., Christensen et al. 2018; Comer and Schwartz 2017; May et al. 2014). Moral courage is the "fortitude to convert moral intentions into actions" and helps individuals "stand up to strong situational pressures and maintain their commitment to do the right thing" (May et al. 2003, p. 255). Similarly, ethical confidence is "the courage to exhibit leadership in ethically confusing environments by confronting and engaging with ethical issues" (Robbins 2012, p. 143). In fact, the widely adopted *Giving Voice to Values* curriculum is grounded on the assumption that confidence is a key missing piece in the puzzle to shape ethical individuals—that people generally have good intentions but often lack the

Footnote 5 (continued)

another class, which might account for the generally high level of awareness of ethical issues.

courage and skill to take ethical action (Arce and Gentile 2015).

Courage and confidence are surely needed to affect behavioral change—however, the current work approaches the question of how best to produce ethical behavior by teaching students about their ethical *vulnerability* instead. Revealing one's blindness to their own biases and destigmatizing their susceptibility to ethical transgressions may be necessary to avoid moral 'overconfidence'. Again, the literature on the knowing-doing gap cautions that talk can substitute for action (Pfeffer and Sutton 2000) and research demonstrates that individuals often overestimate their abilities (e.g., Kardas and O'Brien 2018; Kruger and Dunning 1999). In the domain of business ethics, frequent talk about ethics codes or good intentions may exacerbate individuals' ethics blind spots, making it even more likely that they fail to voice their values when faced with a dilemma. Therefore, in order to avoid falling into ethical traps, one must first admit being *at risk* of falling. We suggest that this ethics educational module, which emphasizes students' fallibility and removes the 'blinders' for psychological traps, will be well served when presented alongside curricula that subsequently build skillful responding in ethical dilemmas. Before building students' or employees' skillful ethical responses and confidence, first convince them that they both need to improve, and possess the ability to improve, in that area.

Limitations and Future Directions

Given that the data were completely de-identified to encourage honest and open responding from students, we cannot examine team-level effects. This trade-off was made to protect students, as the instructor for the course was also one of the researchers—students may have had concerns about their grades being affected by their participation or by their responses. While the individual-level effects outlined above are powerful in their own right (i.e., the identification of real-world ethical issues and reduction of bias blind spots) it would also be useful to study group-level performance (e.g., by using a nested design and utilizing Hierarchical Linear Modeling) to assess potentially important group-level effects.

Perhaps more importantly, the anonymized survey responses and the myriad of real-world situations inherent in the course design limited our ability to confirm the *accuracy* (or inaccuracy) of the students' responses. Therefore, while a PBL setting was ideal for ensuring the real-world generalizability of this research, it resulted in an unavoidable lack of control and an inability to assess the presence or absence of ethical challenges on each team. Future assessments of similar ethics educational modules may be well served to utilize a more controlled, rather than field-based, design, as there is potential value from capturing and comparing

the actual challenges on each survey respondent's particular team. Replicating the current findings in a non-classroom setting may be merited, as it would allow greater flexibility both in terms of collecting identifying information and monitoring team events.

As discussed in Tomlin et al. (2017), only about 50% of the students in the experimental group watched the video as instructed. The instructor took steps to compensate for this prior to the in-class discussion, by assigning those students who watched the video to relay key points to their classmates. Though the rate of viewership was lower than expected, we nevertheless found statistically significant benefits from the module, indicating the robustness of the intervention. However, other educators might encourage higher viewership, and presumably larger effects, by grading students' completion of this video portion of the ethics module.

Although students in the intervention group identified more ethical challenges and were better able to talk about real-world ethical issues, our ability to gage their actual ethical behaviors remains limited. Once again, because the data were anonymous and because we cannot confirm the presence or absence of specific ethical challenges on each team, we cannot confirm all of the different ways that students may have responded to the ethical challenges while they worked with their teams. This is a particularly exciting area of future study and researchers should further explore if and how the awareness of one's own susceptibility to psychological traps and the identification of ethical challenges translates into quantifiable real-world behaviors. For example, a future study could ask students not only to identify ethical issues they encountered, but what specific actions they took with respect to those challenges.

In addition, we suggest that the students who did not receive the ethics intervention also did not benefit through positive contagion. However, because students were randomly assigned to condition (ethics intervention vs. control) across each team, we do not have a condition where *no* group members received the ethics intervention. Thus, we also do not have a pure baseline for comparison and cannot rule out some small degree of contagion. However, we can confidently say that the direct individual-level experience of the intervention was more effective at producing self-perception change and ethical behavior, compared to any possible subtle contagion which may have occurred.

In particular, we recommend that future work in the area of ethics educational interventions should take advantage of the research by Scopelliti et al. (2015). Our current findings indicate that a simple and contextualized training module (i.e., a pre-recorded video lecture and brief in-person discussion) had a significant impact on students' self-perceptions and ability to recognize real-world ethical dilemmas. However, our analyses are limited to simple between-group comparisons (i.e., ethics intervention vs. no intervention) and

we cannot speak to the likelihood of preexisting individual differences. Scopelliti et al. (2015) provide a validated individual difference measure of the bias blind spot. This simple 14-item measure provides insight into the extent to which individuals believe they are less susceptible to biased reasoning relative to others (i.e., reveals the size of their personal bias blind spot). Importantly, Scopelliti et al. (2015) specifically tested the differential impact of de-biasing training on those with large versus small bias blind spots. They found that a de-biasing intervention (in the form of an educational article) did have a positive impact on those with relatively small bias blind spots, but did not benefit those with a larger bias blind spot. The authors summarize their findings by saying, “a high susceptibility to the bias blind spot may constitute a barrier to bias reduction” (p. 2482).

As educators continue to work to increase students' awareness regarding their susceptibility to ethical biases and traps, it would be useful to also measure their individual tendencies on the meta-bias of the bias blind spot. First, from a research and pedagogical perspective, this would allow a deeper understanding of the impact of any ethics intervention and would allow for refinements or tuning to improve such efforts. Secondly, recent research suggests that de-biasing interventions may be more effective when they provide personalized feedback. Morewedge et al. (2015) tested two training interventions aimed at reducing individuals' biases—an educational video and an interactive educational game. The video simply provided information about the bias blind spot, fundamental attribution error, and confirmation bias, whereas the game provided such education in addition to practice avoiding biases and *personalized feedback* about the extent of one's biases. Both the video and interactive game reduced individuals' susceptibility to the bias blind spot, fundamental attribution error, and confirmation bias, but the interactive game produced greater benefits (presumably because of its targeted reinforcement of key concepts). Importantly, the training methods appear to have lasting impacts, providing benefits immediately following the training and when tested 2-months later.

Administering the bias blind spot scale is low cost in terms of both time and effort, but may yield valuable information. Thus, educational attempts to reduce susceptibility to ethical traps may benefit by measuring and providing personalized feedback about students' bias blind spots, to help them recognize the need for improvement in this domain (see “[Lesson 3: Focus on Ethical Vulnerability, in Addition to Ethical Confidence](#)” above about focusing on ethical vulnerability). Rather than expecting students to automatically embrace their susceptibility to ethical traps, they could be provided with scientifically validated feedback about their personal level of susceptibility, hopefully breaking down their ‘barriers’ to intervention. As Scopelliti et al. note (2015, p. 2470), “analogous to interventions aiming to curb

addiction, where awareness of the problem is a necessary first step in facilitating corrective action, awareness of bias may be an important precursor to bias mitigation.”

Conclusion

Responding effectively to ethical dilemmas and temptation is difficult, and students deserve the opportunity to practice real-world ethics as part of modern business school curricula. We suggest, based on the evidence presented above, that direct education about the ways that human beings are rarely rational and often fallible (particularly in terms of their susceptibility to biases) is one key step towards equipping students for success and represents an important complement to current behavioral ethics interventions. Simulations, case studies, and testimonials likely cannot replace the value of being faced with a real-world ethical dilemmas, making choices, and then deliberately assessing those actions and their consequences. We encourage those charged with business ethics education, whether housed within an academic setting or a within corporation, to use the intervention presented in this paper as a guide to developing the ethical behavior of those in their charge.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Appendix: Survey Administered to Students in Week 15 of the Course (11 Weeks After the Ethics Intervention)

- 1a. We uncovered potential ethical issues on our team's innovation project.
- 1b. If you answered yes to the previous question, do you agree that the ethical issues uncovered will affect your client's ability to innovate?
2. Ethical issues exist at individual levels that may affect innovative processes. These might include personality issues and/or “traps” that anybody can fall into (e.g., conflicts of interest, peer pressures, etc.) that cause people to behave unethically.
3. Ethical issues exist at organizational levels that may affect innovative processes. These might include poorly defined standards and expectations, a lack of ethical

leadership, or an emphasis on market performance at the expense of stakeholder value.

4. Ethical issues exist at industrial levels that may affect innovative processes. These include industry-wide issues that affect one or more stakeholders of the industry.
5. Ethics are influential for processes of innovation.
6. I am personally susceptible to ethical transgressions.
7. I will work to avoid ethical transgressions.

Note: Question 1a was a dichotomous choice between “Yes” or “No”. The remaining questions were a Likert-type scale from 0 = Strongly disagree to 7 = Strongly agree. In the second semester of data collection, all items were followed by a prompt to write a brief explanation of their selection.

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