

The Use of Praxis in the Classroom to Facilitate Student Transformation

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Abstract Critical management education typically assumes that management courses that emphasize critical reflection—that is, courses that critique problematic systems and structures, and ask students to dialogue about and actively reflect upon these critiques—will foster student transformation. In contrast, critical theory typically suggests that transformation requires praxis, that is, critical reflection plus practical action where students enact their new knowledge in their everyday lives. We empirically test these assumptions by measuring student transformation in management classes that emphasize critical reflection and in other classes that emphasize praxis. We find no significant differences in three measures of student transformation in classes where only critical reflection is emphasized, but significant differences in all three measures when praxis is emphasized. In a content analysis of student praxis assignments, we find further evidence of the link between praxis and student transformation. Specifically, the majority of students value praxis, describe changes in their self-

understanding/consciousness thanks to assignments that emphasize praxis, and plan to continue new behaviors that address concerns raised by critiques of problematic systems and structures. Finally, we find that the greater a student's self-described effect of praxis, the greater that student's transformation. Taken together, the results suggest that the practical application dimension of praxis is a key “missing ingredient” in the teaching of business ethics as students move from (merely) critically reflecting on ethical issues, to actually becoming transformed by their knowledge.

Keywords Critical management education · Business ethics · Pedagogy · Student transformation · Critical reflection · Praxis

Introduction

Critical management education (CME) has emerged as an important area of research to critically examine what is taught in the management classroom and the resulting impact on students as future managers (e.g., Grey 2004; Perriton and Reynolds 2004). Rooted in critical management studies (CMS) (e.g., Fenwick 2005; Simpson 2006; Watson 2001), the purpose of CME is to enable students to critically analyze existing systems and management practices, rather than uncritically accepting them (Grey and Mitev 1995; Perriton and Reynolds 2004).

Arguably, the need to educate students to think critically about business theory and practice has never been greater, especially in light of a growing consensus that business activities are contributing to mounting socio-ecological crises (Kolbert 2014; Piketty 2014; Wilkinson and Pickett 2010). Further, more than enabling students to think critically, there is also a need for business students to become

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“transformed”—for example, to become more ecologically minded, less materialistic, and less individualistic—in order to increase the likelihood that they will use their critical knowledge as practitioners (Dyck et al. 2011, 2012).

There is some recognition in the CME literature that praxis—that is, “a dialectic of critical reflection and practical action”—may be the key to facilitating this sort of student transformation: “Without productive engagement in action, analysis is hollow and circular; without reflective critical analysis, action is empty activism” (Fenwick 2005, p. 32; see also Freire 1973, 2006; Morgan 2016). However, in our review of the 10 most-cited papers in the CME literature, only one discussed praxis (Fenwick 2005), whereas it and all the others discussed critical reflection in the classroom (Dehler 2009; Ford et al. 2010; Grey 2004; Perriton and Reynolds 2004; Reynolds and Vince 2004; Simpson 2006; Vince 2010; Watson 2001).

This focus on critical reflection but not on practical action is consistent with the variation of praxis that is evident in the larger CMS literature that CME is rooted in (Foster and Wiebe 2010). When CMS borrowed ideas developed by critical theory, and applied them to the organizational and managerial level of analysis, it de-emphasized the part of praxis that focuses on “practical action” in everyday life. For example, Benson (1977) recognizes both the critical reflection and practical action aspects of praxis that are evident in Marxist analysis of economic structures and their ramifications (pp. 5–6), but the emphasis on practical action seems watered-down when he suggests that “*organizational* praxis ... involves both the critique of existing organizational forms and [merely] the search for alternatives [for a better future]” focusing on critical reflection toward reconstructing organizational theory (pp. 16–18; emphasis added here).

Critical management education shares CMS’s relative emphasis on critical reflection rather than practical action (Foster and Wiebe 2010), and also the shift from the macro-economic realm to the organizational and managerial level of analysis, with a particular focus on students in the management classroom.

Our study is situated in the CME literature and its focus within the classroom (Dehler 2009; Fenwick 2005; Ford et al. 2010; Grey 2004; Perriton and Reynolds 2004; Reynolds and Vince 2004; Simpson 2006; Vince 2010; Watson 2001). We note the general lack of empirical studies in the CME literature and are not aware of any papers that have empirically examined the effect on students of taking courses that emphasize praxis, versus courses that emphasize critical reflection only. In particular, consistent with the classic understanding of praxis, our research question examines whether students are more likely to change when they take courses that offer praxis

(critical reflection *and* practical action), versus courses that emphasize critical reflection only.

Our findings suggest that courses offering mostly critical reflection and minimal or no practical action are not as likely to lead to student transformation as courses with assignments deliberately designed to foster praxis. Specifically, we found that students’ views about the environment, materialism, and individualism did not change from the beginning to the end of the term in a course where only critical reflection was emphasized, but did change significantly in courses where critical reflection and practical action were emphasized. In addition, analysis of students’ written reports showed that praxis was associated with a transformative movement away from uncritical acceptance of the profit-maximizing paradigm, and an increased likelihood that they would continue to engage in their new behaviors beyond the classroom.

These results are consistent with the larger process-based pedagogical literature that highlights the benefits of experiential assignments for enhancing business ethics (e.g., Jurkiewicz et al. 2004; Jones 2009; Lester et al. 2005; McWilliams and Nahavandi 2006; Solberg et al. 1995; Waples et al. 2009; Yorio and Ye 2012). Thus, we contribute to the CME literature by empirically demonstrating the merit in adopting assignments that promote praxis to facilitate student transformation, and the potential lack of transformation when critical reflection alone is used.

The paper is organized as follows. First, we provide an overview of CME and praxis, highlighting the distinction between critical reflection and praxis. We then describe our classroom experiment where critical reflection was emphasized in one “control” course, and praxis was emphasized in five “experimental” courses at two different universities. We describe the methods we used to measure student transformation and present the results of the experiment. The paper concludes with a discussion of the implications of this study for CME specifically, and for teaching business ethics generally.

Critical Management Education and Praxis

Critical Management Education

The focus of CME is to enable students to critically analyze existing systems and management practices, rather than uncritically accepting them (Grey and Mitev 1995; Perriton and Reynolds 2004). In the context of foundational ideas in the larger critical studies literature, CME’s basic approach can be seen to unfold in three basic steps or phases, where (1) providing students with a critique of the status quo leads to (2) student transformation which leads to (3)

students changing social structures and systems upon graduation. As we will discuss later, the CME literature suggests that the transition from the first to the second step will be facilitated by critical reflection, which is half of the two components associated with praxis (i.e., CME downplays the practical action component of praxis). The complete process (including the full understanding of praxis) is depicted in Fig. 1, which draws from and adapts seminal studies in the literature, especially Benson's (1977) four key principles underlying a dialectical view of organizing and Seo and Creed's (2002) four-phase dialectical process model of institutionalization and institutional change (see also Burns and Baldvinsdottir 2005; Burns and Nielsen 2006; Droege and Marvel 2010; Verbos and Humphries 2015; Foster and Wiebe 2010).

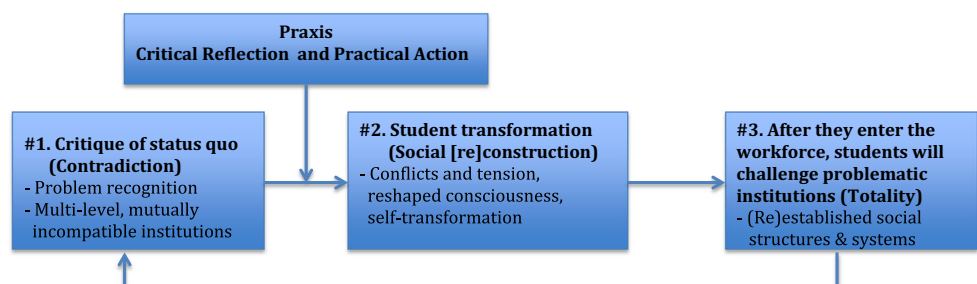
Critique of the Status Quo (Box #1)

Instructors provide students with a critique of the current dominant paradigm (i.e., CME points to “contradictions” that are embedded within a particular “totality”), and these contradictions—“ruptures, inconsistencies, and incompatibilities in the fabric of social life” (Benson 1977, p. 4)—enable students to recognize shortcomings within dominant social structures and systems. Contradictions also help students to see differences between a system's stated goals and its actual outcomes. For example, the profit-maximization paradigm may result in higher financial rewards for business owners, but lower salaries for rank-and-file members, resulting in income inequality and a reduced overall quality of life (Piketty 2014; Wilkinson and Pickett 2010). Similarly, economic systems like capitalism may have created unprecedented material wealth, but they have also contributed to harm in the ecological environment, resulting in costs associated with climate change and biodiversity loss (Dehler 2009; Pacala and Socolow 2004). Of course, capitalism is not alone in exhibiting dysfunctions with respect to issues like income inequality and environmental problems (e.g., Ekiert et al. 2017), and not all varieties of capitalism work in the same way (e.g., Hall and Soskice 2001).

Thus, for example, consistent with box #1, each of the courses in the current study provided a critique of the dominant capitalist paradigm evident in the country where the business school was located (Canada). Drawing on the varieties of capitalism literature (Aoki 2001; Crouch and Streeck 1997; Whitley 1992, 1999), the courses in our study critiqued “liberal market economies”—the form of capitalism found in the USA, Canada, the UK, Ireland, Australia, and New Zealand—which are characterized by their management-driven top-down hierarchies, competitive markets, and emphasis on supply-and-demand-associated neoclassical economics (Hall and Soskice 2001; Witt and Jackson 2016). This contrasts with “coordinated market economies” that are characterized by non-market relationships and coordination, collaboration, and strong networks and alliances (Hall and Soskice 2001; Witt and Jackson 2016). Coordinated market economies are found in Japan, Germany, Belgium, and Scandinavian countries such as Sweden, Denmark and Norway (which served as examples of alternative approaches that were referred to in all courses in this study). Note also that capitalism as practiced in Canada is closer to “social democratic capitalism” or “welfare-state socialism” than what is practiced in the US/UK (Reich 2014), and that the US' finance capitalism represents an extreme example and is unusual compared to older forms of managerial capitalism (Chandler 1984).

Our attention to economic systems like capitalism is unusual within CME. Like the CMS literature upon which it draws, CME focuses on the organizational and management level of analysis and, unlike critical theory, generally pays little attention to the larger political-economic level of analysis. For example, in our review of the ten most-cited articles in CME (Dehler 2009; Fenwick 2005; Ford Hay and Hodgkinson 2008; Grey 2004; Ford et al. 2010; Perriton and Reynolds 2004; Reynolds and Vince 2004; Simpson 2006; Vince 2010; Watson 2001), only three mentioned capitalism (Dehler 2009; Fenwick 2005; Perriton and Reynolds 2004), and those three did not describe the different varieties of capitalism. Because we see merit in bolstering the emphasis on larger economic

Fig. 1 Model of how praxis facilitates individual and social transformation



systems within CME, each of the courses in our study talked about capitalism and its different varieties.

Student Transformation (Box #2)

In addition to enabling students to question existing beliefs and systems (box #1), CME also invites students to examine their own views (Barnett 1997; Dehler 2009). Once students have learned to recognize problems and systemic issues related to the status quo (box #1), they are encouraged to work at resolving the resulting conflicts and tensions. This includes rethinking basic assumptions about what it means to be a good manager, what is the purpose of business, whether/how organizations should deal with the negative socio-ecological externalities they create, and so on. In thinking about how to deal with these issues, students are compelled to think about new ways of managing, and, more generally, the role of managers in socially (re)constructing the world they inhabit. The finger that points to the institutions that are the cause of problems (box #1) slowly begins to turn to individuals (box #2) as the actors who create and sustain the underlying institutions via their everyday actions (box #3). The emancipation that began with the critical questioning of external systems (box #1) moves internally (box #2) before again going external (box #3) in a cyclical and ostensibly continuous process of better understanding, and then changing, beliefs and assumptions.

Thus, CME challenges the dominant homogenizing view of education that was criticized by the famous child psychologist Jean Piaget, who said: “Education, for most people, means trying to lead the child to resemble the typical adult of his society” (Collin et al. 2012, p. 265). Beyond merely agreeing with Piaget that homogenization should not be the goal of education, CME goes further and tries to improve institutionalized systems and structures via transformed students seeking macro level social changes through microlevel individual changes. The contradictions and critique offered to students encourage them to investigate their own beliefs and their information sources, viewing them as possible means of homogenization versus emancipation (Ruggunan and Spiller 2014).

Challenge Problematic Institutions (Box #3)

Upon graduation, transformed students draw on their new worldviews to actively challenge and improve problematic institutionalized structures and systems. Students who are informed by the shortcomings associated with the status quo (box #1), and who subsequently transform their worldview (box #2), will be motivated to go into the workforce and change problematic structures and systems (box #3). No combination of institutions (“totality”) can

ever be perfect—there will always be shortcomings to be critiqued—but some totalities are less problematic than others (Dehler 2009; Foster and Wiebe 2010). Although box #3 goes beyond the CME classroom, we include it in Fig. 1 because it gives meaning to the theory and agenda underlying CME. In other words, CME prepares graduates to challenge and improve social structures and systems; this completes the emancipation it seeks.

Taken together, the three phases shown in Fig. 1 are consistent with a long-standing CME assumption that imparting counter-cultural knowledge (e.g., critique; box #1) leads to changed “being” (e.g., transformed students; box #2), which then informs subsequent “doing” (e.g., future practical actions of students; box #3). This three-phase process goes back to the time of Plato, who argued that a good education makes good people, and that good people act nobly (McWilliams and Nahavandi 2006, p. 423). However, this is an oversimplified view that requires the addition of a fourth enabling condition, praxis.

Praxis Versus Critical Reflection in the Classroom

The fourth and final component of the model—praxis—enables movement from one phase to the next. As stated by Prasad and Caproni (1997, p. 289): “Although praxis may well be the most difficult element to accomplish within critical theory, it also remains the most important.” A similar sentiment is echoed in Fenwick (2005, p. 41): “Perhaps the most central principle in critical education historically has been praxis: the dialectic of action and reflection.”

Although the idea of praxis is nuanced, rich, and debated (Bernstein 2011), we will here follow those who suggest that, in simple terms, praxis can be seen as a combination of critical reflection and practical action (Fenwick 2005), or as having a reflective moment and an active moment (Seo and Creed 2002). Praxis is a central component in critical theory from Aristotle, to Marx, to Freire, to more recent scholars. As stated by Prasad and Caproni (1997, p. 288): “Above all, critical theory is committed to praxis.”

Originating in Greek philosophy, for Aristotle praxis refers to the actions of people who are free (e.g., critically reflective) and guided by a disposition that is moral and right, with the goal of enhancing human flourishing (White 2007). Thus for Aristotle, if an action is positive but not motivated by ethical self-reflection, it is not praxis (Eikeland 2008, p. 87). Such an understanding that praxis seeks to make the world and the actor developmentally better is also evident in the work of several scholars, including Freire (2006, p. 126, emphasis added, who defines praxis as holistic and inclusive “*reflection and action directed at the structures to be transformed*”), Arendt (1959, who sought a balance between the contemplative life and the active life),

liberation theologians (e.g., Herzog 1994 who draws on Freire), and the younger and older Marx. Marxism, which has been called a philosophy of praxis, suggests that: “the thought and actions of individuals produce and transform the culture which produces and transforms them” (Kain 1988, p. 27). But Marx’s understanding is not always consistent. In his earliest writing he argues that ideas have more power than mass action, and at other times he argues that ideas are formed by material practice (e.g., Kain 1988, pp. 49 and 89).

Critical Reflection

The CME literature emphasizes “critical reflection” but not practical action. Within the CME literature, the notion of “critical reflection” focuses on having students dialogue about, reflect on, and contribute to critiques of problematic systems and structures. It is based on having students reflect on principles like questioning the taken-for-granted assumptions that underpin business practice, raising issues related to power and ideology, adopting a non-individualistic perspective, and aiming to realize a more just society (e.g., Reynolds 1999). Critical reflection in the classroom refers to students putting new *ideas* into *reflective* practice (which is different from putting them into *behavioral* practice) (e.g., Benson 1977). For example, this might include “thought experiments” describing what business practices might look like from a triple-bottom-line perspective. Such an emphasis on critical reflection is the dominant approach in the CME literature (Dehler 2009; Ford et al. 2010; Grey 2004; Perriton and Reynolds 2004; Reynolds and Vince 2004; Simpson 2006; Vince 2010; Watson 2001).

While we know of no study that explicitly measures the effect of critical reflection on managing the transition from critique (box #1) to student transformation (box #2), a study by Monaghan and Cervero (2006) examines the impact of critical management courses on students’ attitudes and beliefs. Their study does not mention praxis *per se* (consistent with the larger CME literature), but it does describe courses with pedagogies that are consistent with critical reflection alone:

...the instructors employed a pedagogical strategy that exposed the learners to new critical concepts and then allowed for discussion and exploration of these topics as alternatives to the current thinking in mainstream management. Presentations, summaries, group work and final written papers were used to help the learner to articulate both (p. 384).

They conclude that, although all the students in their critical reflection CME courses

exhibited heightened critical awareness about management” (box #1), students were unlikely to experience “a change in attitudes and beliefs (box #2).

Kearns and Springett (2003) provide another example of a CME approach to critical reflection that de-emphasizes the practical action component of praxis:

Here, students can be asked to *think* what they *could* do to act in ways that are more sustainable, how they can facilitate their homes, communities, and organizations they are involved with to become more sustainable, and what actions they *could* take locally and professionally as *potential* change agents ... A more *minor* but importantly *symbolic* aspect of organizing education for sustainability is to *practice* what we preach within our courses in terms of focusing on nonmaterial means of meeting nonmaterial needs (pp. 194, 197; emphasis added).

Practical Action

Glimpses of the practical action component element of praxis—but with an uneven commitment to critical reflection—are evident in areas such as experiential learning (Kolb and Kolb 2005), service learning (Yorio and Ye 2012), and the emerging “Know/Do/Be” framework (Datar et al. 2010). First, experiential learning has been described as “a process of constructing knowledge [of]...experiencing, reflecting, thinking, and acting” (Kolb and Kolb 2005, p. 194). Experiential pedagogies have been shown to increase student engagement (e.g., McWilliams and Nahavandi 2006, p. 425), and ethics scholars have found that experiential learning via cases is effective for teaching self-awareness and ethical decision-making (Jones 2009, p. 369; Waples et al. 2009). Positive outcomes may be especially likely with “live cases” (McWilliams and Nahavandi 2006). Other experiential pedagogies help students to “live ethics” and apply them in the real world, not simply learn about ethics in the classroom (Jurkiewicz et al. 2004, p. 283; Solberg et al. 1995).

Although the reflecting component of experiential learning is sometimes consistent with the idea of *critical* reflection (e.g., Kayes 2002), and although calls have been made for CME scholars to couple action-based learning with critical reflection (e.g., Reynolds and Vince 2004), for the most part experiential learning theory appears to have a more instrumental and individualistic character (Kolb and Kolb 2005, p. 196). Thus, while experiential learning theory and praxis may build on a similar rationale, they differ in that experiential learning’s idea of “doing” is to “test in action” course material (i.e., reinforce abstract conceptual learning), rather than to have “doing” help students to

transform their worldviews (and subsequently to transform structures and systems) based on the learned concepts (Kolb and Kolb 2005, p. 208).

Second, praxis also overlaps somewhat with service learning, which is a variation of experiential learning (Lester et al. 2005). Service learning typically refers to courses where students spend some time working in non-profit organizations in a way that enhances what has been taught in the classroom and provides students with opportunities to reflect on their experience (Kenworthy-U'Ren and Peterson 2005; Yorio and Ye 2012). Service learning is associated with increasing students' civic engagement and moral responsibility (Godfrey et al. 2005), and their understanding of social issues, personal insight, and cognitive development (Yorio and Ye 2012).

Service learning provides four Rs: *Reality* (students apply academic content in a real-world setting), *Reflection* (students are asked what the experience meant to them), *Reciprocity* (both students and service recipients gain from the experience), and *Responsibility* (students think about their responsibility to the economy, environment, and society) (Godfrey et al. 2005). A meta-analysis carried out by Yorio and Ye (2012) found that service learning has a positive effect on students' understanding of social issues (moral awareness and ethical reasoning skills), personal insight (awareness of one's strengths, weaknesses, and self-esteem), and cognitive development (development of management skills and critical thinking skills). In some cases, the reflection component of service learning is consistent with the idea of critical reflection, but in others there is little emphasis on critical reflection that either transforms students' worldviews or motivates students to implement new structures and systems that provide an alternative to the mainstream profit-maximizing paradigm characteristic of liberal market economies. For example, the service learning emphasis on Responsibility (regarding the moral purpose of business) seems to focus not on *questioning* the profit-maximization paradigm, but rather on *applying* mainstream business thinking and skills in non-business settings:

Responsibility holds that *in addition to* their wealth-creation goals students should assume the obligations of citizenship; there is a moral imperative for them to use their business skills, talents, and knowledge to better those communities where they live and work (Godfrey et al. 2005, p. 318; emphasis added).

Third, praxis may be viewed as a critical or counter-cultural variation of the mainstream "Knowing, Doing, and Being" movement being promoted in business schools (e.g., Datar et al. 2010; Snook et al. 2012). The gist of this framework is that business schools should not be content

with simply providing students with theory, facts, and frameworks (*knowing*). As Datar et al. (2010, pp. 7–8) observe, students should also be given more opportunities to develop practical managerial skills, techniques, and competencies (*doing*), and to develop the values, beliefs, and attitudes that form a manager's professional identity and worldview (*being*). Rather than the traditional narrow focus on knowing, adding emphasis on "doing" and "being" provides business students with more opportunities to practice responsible and ethical decision-making as part of their studies, which will raise their confidence levels and their ability to deal with value-based conflicts (Datar et al. 2010, p. 328). Note that a praxis-based variation of the knowing, doing, being paradigm would emphasize "knowing" about the shortcomings of the profit-maximizing paradigm (box #1 in Fig. 1) coupled with "doing" (practical action) to evoke changed "being" evident in student transformation (box #2), which in turn influences subsequent doing that replaces problematic structures and systems (e.g., box #3).

There is a common assumption in the CME literature that critical reflection (without the need for practical action) will be sufficient to facilitate the transition from box #1 to box #2 (McWilliams and Nahavandi 2006). This is in contrast to the complete model depicted in Fig. 1, where praxis includes both critical reflection *and* practical action, and suggests that both are required to facilitate the transition from box #1 to box #2. Arendt (1959) notes a similar tendency in Western philosophy to focus on critical reflection (*vita contemplative*) but not enough on practical action (*vita active*). In sum, it seems that in taking the general ideas of critical theory and applying them at the organizational level of analysis, the "practical action" component of praxis got lost, something that is lamented by Foster and Wiebe (2010).

Methodology

Our study is based on data collected in six upper-level undergraduate courses taught in the fall of 2015. Each of these six courses critiqued the profit-maximizing paradigm associated with liberal market economies (box #1 in Fig. 1). The courses included one section of a Seminar entitled "Management and Capitalism" (the control group), three sections of "Corporate Social and Environmental Responsibility," and two sections of "Business Ethics" (these latter five sections were the experimental group). These courses were taught at two different mid-size Canadian universities in different provinces. The course in the control group used a pedagogical approach that emphasized critical reflection, whereas the five sections in the experimental group emphasized praxis.

These courses were purposefully selected given the strong similarities in the teaching philosophies and approaches that sought to improve students' critical reflection as they were led to question the existing liberal market economic system. Specifically, the courses in both the control and experimental conditions had the following similarities: (1) the large majority of students were in their third or fourth year of university, (2) the proportion of males and females was roughly equal, (3) a large majority of students were from urban settings and were in their early twenties, (4) course requirements were similar in terms of the length of written assignments, (5) the interconnection of business with society was emphasized, and how business could be part of solving societal problems, (6) "contradictions" were used to motivate students to consciously question existing beliefs and practices, (7) a seminar style was used to encourage student engagement and critical thinking, (8) the negative and positive aspects of the existing liberal market economic system were contrasted with the negative and positive aspects of alternative paradigms, (9) all courses discussed the concentration of profits in the financial sector, differences between short-term versus long-term measures of financial well-being, executive compensation and social inequality, (10) all courses also emphasized the benefits of the existing liberal market economic system where students were located, and the need for profits to sustain businesses, and (11) students were asked to reflect on their experience in the course.

The sampling frame allowed us to measure the amount of student transformation that took place during one academic term, and to compare the changes for students in the control course that emphasized critical reflection versus students in the experimental courses that emphasized praxis. We measured student transformation via a questionnaire administered in the first and last week of the term. The questionnaire contained three scales that were used to measure student transformation vis a vis their commitment to the profit-maximizing paradigm associated with liberal market economies. In addition to questionnaire-based data, we also coded and analyzed student written assignments in courses that incorporated praxis to study the student-described effects of praxis, thereby addressing a gap in the literature that moves us beyond the educator's viewpoint and instead examines students' viewpoints (Elliott 2003; Hagen et al. 2003; Mingers 2000; Monaghan and Cervero 2006).

Critical Reflection in the Control Group

Each of the three major assignments in the control group emphasized critical reflection. In assignment #1, students were asked to briefly review (two pages) and then critique (six to eight pages) Roger Martin's (2011) "Fixing the

Game" (a book about "the sorry state of American Capitalism" that also suggests how it can be improved). In assignment #2, students were asked to choose a book that was critical of the liberal market economy that dominates the American and/or Canadian business communities, and then prepare a 7–12 page "critical examination of the ideas the writer or writers present." In assignment #3, students were asked to choose a novel written in the past two decades and write a reflective response that described how management and/or capitalism were depicted in the book in a way that demonstrated the student's ability to think about individuals, systems, and how decision were framed (9–12 pages). In addition to reading three books, students were required to read a shorter critical work entitled "Beyond Selfishness" (Mintzberg et al. 2002; also Mintzberg 2010), and several others that focused on the varieties of capitalism (Hall and Soskice 2001; Hall and Thelen 2009; Hall 2009).

As with the courses in the experimental condition, the course in the control condition used a seminar style format to facilitate critical reflection, as explained in the course syllabus.

A seminar course relies upon the contributions of each and every participant. Ideas are put onto the table to be explored. Each member of this seminar will have the opportunity to lead part of the discussion and the responsibility to participate fully when others are taking the lead. The instructor acts as a course facilitator instead of 'expert.' We know a seminar course takes off when we find ourselves discussing the issues outside of class.

Praxis in the Experimental Group

The key difference between the control and experimental group was that all five sections in the experimental group had at least one assignment that emphasized praxis. The assignment asked students to conduct a hands-on "Experiment Outside the Classroom" on a topic that interested them, and which represented an active response to the critical knowledge discussed in the course. In the syllabi and in the classroom, students were encouraged to develop their own experiments, but suggestions were provided to help them generate ideas. Suggestions included volunteering at a local charity or nonprofit organization for three sessions; abstaining for a week from an activity associated with negative externalities (e.g., coffee, alcohol, meat); measuring and reducing the amount of garbage they produced each week; cycling or walking for a week to reduce their usage of fossil fuels.

Although most students who completed this assignment did not focus directly on a specific business (recognizing that this can be very challenging in an undergraduate course; Fenwick 2005), throughout all courses the inter-connection of business with society was emphasized, and courses were designed to expose students to societal issues and how business can be part of the solution via “everyday activities of people” (Benson 1977, p. 9). The assignment gave students the opportunity to think about their own role in society (and the waste they create for example), and how business (and thus they themselves as future managers/business leaders) can be both part of the problem but also part of the solution. The assignment was designed to help students develop into well-rounded leaders concerned with more than just profit maximization. After completing their experiment, students were required to submit a written report (up to 1000 words) describing three or more experiences they had during the experiment, insights they gained about themselves, and the implications of their experience.

Measuring Change in Students’ Worldviews

We used two methods to measure the extent to which students’ worldviews changed from the beginning to the end of the term (i.e., evidence of change in box #2 of Fig. 1). The first was a questionnaire administered in the first and last week of the courses that measured students’ emphasis on materialism and individualism, and their perspective on the ecological environment. The second involved a content analysis of students’ “Experiments Outside the Classroom” assignments.

Questionnaire

A questionnaire with five-point Likert-type scales was used to measure the degree of student transformation during the course. The questionnaire was administered at the beginning and end of the term for each class in both the control and experimental groups. The first five questions measured the extent to which students perceived that humankind is facing the following crises: an ecological crisis, limited resources, an ecological catastrophe, a threat to the balance of nature, and an abuse of the environment. These questions related to the New Environmental Paradigm (NEP; Dunlap 2008; Dunlap and Van Liere 1978), which “has become the most widely used measure of environmental concern in the world and been employed in hundreds of studies in dozens of nations” (Dunlap 2008, p. 3).

The next four questions measured materialism. This scale has been used in previous business classroom studies, and examines how teaching course content that provides an alternative to the dominant mainstream paradigm is related

to enhanced ethical and critical thinking (Dyck et al. 2011, 2012). The questions measured student perceptions about how important it is for effective managers to *maximize* organizational profitability, efficiency, and productivity. We expected high materialism scores to be associated with strong support for the mainstream profit-maximizing paradigm characteristic of liberal market economies.

The final four questions measured individualism. This scale has also been used to examine how teaching course content that provides an alternative to the dominant mainstream paradigm is related to enhanced ethical and critical thinking (Dyck et al. 2011, 2012). The (reverse-coded) scale measured student perceptions about the importance of the following factors in effective management: caring for others, being kind-hearted, being a loyal person, and being a generous person. We expected high individualism scores to be associated with strong support for the mainstream profit-maximizing paradigm characteristic of liberal market economies.

To ensure the quality of our survey data, we analyzed only those questionnaires where each respondent had answered all 13 questions, and had completed the survey at both the beginning and the end of the term. Following Dyck et al. (2011), we checked the validity of items using factor analysis with maximum likelihood extraction and a varimax rotation; we dropped items with factor loadings lower than 0.40. This process led to one item being dropped from the New Environmental Paradigm scale. Thus, the NEP, materialism, and individualism scales each contained four items; their alpha scores were 0.64, 0.82, and 0.79, respectively. The factor analysis confirmed that the scales were valid and reliable.

Content Analysis of the “Experiment Outside the Classroom” Assignment

Students in the experimental sections completed an “Experiment Outside the Classroom” assignment near the end of the academic term. (Given that the control course did not have a praxis component, this assignment was only administered to students in the experimental condition.) Students’ written assignments were coded by a management scholar with a wealth of related experience, including having co-authored multiple papers in FT 40 journals, multiple editions of successful textbooks, and several papers on pedagogical matters. The coder was unaware of the student responses to the questionnaire-based items, and was unaware of the model presented in Fig. 1. The coder read each “Experiment Outside the Classroom” report and used a rubric to code it for the three measures described below. Part of the training for the coder involved coding an initial set of reports independently from one of the authors.

The coder and the author then met to discuss any differences in their coding and to fine-tune the rubric.

First, the reports were coded for students' self-described evidence of praxis; that is, students whose written reflections about their actions indicated that they had learned something about enhancing social structures and practices. The coder was asked to include any mentions by students that they had gained practical knowledge and learning regarding how social structures and systems could be improved in ways that enhance human well-being and the good life, especially mentions of learning that went beyond what could be achieved via a book or lecture. Each student report was coded on a four-point scale as follows: 0 = none (no evidence of praxis); 1 = low (marginal evidence of praxis); 2 = moderate (good/clear evidence of praxis); and 3 = high (strong evidence of praxis). We wanted to test whether, as indicated in Fig. 1, increased levels of students' self-perceived praxis were related to higher levels of changes in students' worldviews as measured in their combined questionnaire-based measures.

Second, the reports were analyzed for students' self-described transformations (box #2 in Fig. 1). Student reports were coded on a four-point scale, as follows: 0 = none (no evidence of transformation); 1 = low (marginal change in student's self-understanding/consciousness/mission); 2 = moderate (good/clear evidence of change); and 3 = high (strong evidence of change). We wanted to determine if students' perceived transformations were, as indicated in Fig. 1, positively related to changes in students' worldviews as measured in their combined questionnaire-based measures.

Finally, the reports were coded for students' mentions of plans to continue their experiments in the future. While this is not a true measure of box #3 in Fig. 1, it is a rough indicator of how the course might change students' future behaviors. Student reports were coded on a four-point scale, as follows: 0 = none (no indication that the student was going to continue with the experiment); 1 = low (little chance of continuing); 2 = moderate (some chance of continuing); 3 = high (a strong commitment to continue). These responses allowed us to test whether, as indicated in Fig. 1, students' self-described transformation (box #2) was positively related to the likelihood that they would continue their "experiments" in the future (proxy measure for box #3).

In order to examine the relationship between the students' report-based "degree of student transformation" scores and the three measures included in the questionnaires, we combined all three measures in the questionnaire data into a measure we called "total change away from the profit-maximizing paradigm." This composite measure was based on the differences in students' questionnaire responses from the beginning (T1) to the end of the term (T2). In particular, student "total change away from the

profit-maximizing paradigm" scores increased along with their (1) increased commitment to the New Environmental Paradigm, (2) reduced materialism scores, and (3) reduced individualism scores, calculated as follows: $(T2\ NEP - T1\ NEP) + (T1\ Materialism - T2\ Materialism) + (T1\ Individualism - T2\ Individualism)$.

Results

We first examine the questionnaire-based results that contrast and compare the experimental and control group conditions, and then present results based on the written reports prepared by students in the experimental groups. Means, standard deviations, and correlations between all questionnaire-based measures for the full sample are provided in Table 1.

Questionnaire-Based Measures

We compared the differences between student scores at the beginning and end of the term for the control group (critical reflection only) and the five experimental groups (praxis). We report the mean and median value comparisons in Table 2. Consistent with our prediction, for the control group we found no significant changes in NEP, MAT and IND from the beginning to the end of the term. None of the *t* tests and rank sum *z* tests statistics were significant.

In order to examine whether the nonsignificant results for the control group were related to the relatively smaller sample size ($N = 34$), we performed a bootstrap simulation 1000 times by randomly resampling the same number of observations from the original control sample (with replacement). The bootstrap simulation analysis was conducted under a regression where we used NEP, MAT, and IND as alternative dependent variables and a time dummy (T2) as an independent variable. We still found no significant change from T1 to T2 for the control group based on the bootstrapping simulation results.

In contrast, for the experimental group, we found significant changes from T1 to T2. The mean value for the perceptions of the ecological environment (NEP) increased from 3.78 at T1 to 4.05 at T2. Similarly, the materialism (MAT) and individualism (IND) scores declined from 4.15 and 1.73 to 3.87 and 1.56, respectively. These changes for the experimental group were all significant at less than the 5% level. This univariate evidence suggests a significant change in NEP, MAT, and IND scores from T1 to T2 for the experimental group, but not for the control group.

Next, we used regression analysis to enhance our understanding of such changes. Our dependent variables were NEP, MAT or IND. Independent variables included: Experiment (where 1 = the experimental group and

Table 1 Correlations, means, and standard deviations for full sample (control and experimental groups)

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) NEP (T1)	3.76	0.56									
(2) NEP (T2)	4.00	0.64	0.62***								
(3) NEP (T2 - T1)	0.24	0.53	-0.30***	0.56***							
(4) MAT (T1)	4.17	0.61	-0.18**	-0.13	0.03						
(5) MAT (T2)	3.90	0.64	-0.18**	-0.23***	-0.08	0.57***					
(6) MAT (T1 - T2)	0.26	0.58	0.01	0.12	0.13	0.43***	-0.50***				
(7) IND (T1)	1.73	0.56	-0.17**	-0.14	0.02	-0.12	-0.14*	0.03			
(8) IND (T2)	1.61	0.57	-0.23***	-0.24***	-0.05	-0.01	0.02	-0.03	0.61***		
(9) IND (T1 - T2)	0.12	0.50	0.07	0.12	0.07	-0.12	-0.18**	0.07	0.42***	-0.46***	
(10) NEP (T2 - T1) + MAT (T1 - T2) + IND (T1 - T2)	0.63	1.01	-0.12	0.42***	0.63***	0.20**	-0.42***	0.68***	0.23***	-0.27***	0.57***

Significance level is reported beside the pairwise correlation coefficients (*, **, *** represent the significance level at the 10, 5, and 1% level, respectively)

0 = the control group) and the interactive term of Experiment \times T2 (where 1 = T2 and 0 = T1). We did not include T2 in the regression because the correlation between T2 and Experiment \times T2 was very high ($0.88, p < .01$), potentially leading to multicollinearity. We report this evidence in Table 3. Our regression employs robust standard errors with clustering by correspondents to avoid cross-sectional dependence in the panel data.

We first conducted subsample analysis in columns 1–6. In columns 1–3, we show that during T1, the coefficient of Experiment was not significant at any level regardless of whether the dependent variable was NEP, MAT, or IND. This result suggests that in the beginning of the term students’ worldviews were very similar in the control and experimental groups. In T2 (columns 4–6), we found that the coefficients of Experiment were 0.38 ($p = 0.018$), -0.30 ($p = 0.019$), and -0.33 ($p = 0.013$) under the dependent variables of NEP, MAT, and IND, respectively. This result echoes our univariate evidence in Table 1, that is, the experimental group exhibited significantly higher perceptions of the ecological environment and lower materialism and individualism scores relative to the control group. Finally, we pooled T1 and T2 data in columns 7–9. The coefficient on Experiment tests whether the worldviews differed between the control and experimental groups in T1 and the coefficient on Experiment \times T2 tests whether the experimental groups significantly changed their worldview in T2 relative to T1. We found that the coefficients on Experiment remained insignificant while the coefficients on Experiment \times T2 were all significant at less than the 1% level. These results indicate that there were no significant differences in three measures of student transformation in classes where only reflective critical reflection was used, but there were significant differences in all three measures where praxis was used.

Measures Based on Students’ “Experiment Outside the Classroom” Reports

Content analyses of the written reports prepared by students in the experimental groups allowed us to triangulate and expand our findings, and to move beyond the educator’s viewpoint and instead examine students’ viewpoints. Recall that the coder of the student papers did not know the theory behind the paper nor the student “scores” on the questionnaire items.

Tables 4, 5 and 6 provide multiple illustrative quotes from students’ reports indicating low, moderate, and high levels of evidence for each of the three measure being considered (NEP, MAT, and IND). The 36 quotes are drawn from 36 different reports. As is evident in the quotes, the scales we used were quite demanding, where even a low score provides some evidence of the measure being examined.

Table 2 Students’ worldviews in the beginning (T1) and at the end (T2) of the course (mean and median values)

Groups	Variables	T1		T2		Difference tests	
		Mean	Median	Mean	Median	<i>t</i> test	<i>z</i> test
Control group (<i>N</i> = 34)	NEP	3.60	3.75	3.66	3.50	0.30	0.85
	MAT	4.31	4.25	4.16	4.00	0.90	0.76
	IND	1.74	1.50	1.90	2.00	0.85	0.80
Experimental group (<i>N</i> = 236)	NEP	3.78	3.75	4.05	4.00	3.42***	3.42***
	MAT	4.15	4.00	3.87	4.00	3.36***	3.39***
	IND	1.73	1.75	1.56	1.50	2.24**	2.52**

Under *t* test and rank sum *z* test, we report the absolute value of these test statistics and their corresponding significance level (*, **, *** represents the significance level at the 10, 5, and 1% level, respectively)

Table 3 Regression analysis

	T1			T2			T1 and T2		
	NEP (1)	MAT (2)	IND (3)	NEP (4)	MAT (5)	IND (6)	NEP (7)	MAT (8)	IND (9)
Experiment	0.18 (0.185)	-0.16 (0.217)	-0.01 (0.965)	0.38** (0.018)	-0.30** (0.019)	-0.33** (0.013)	0.15 (0.291)	-0.09 (0.447)	-0.09 (0.496)
Experiment × T2							0.26*** (0.000)	-0.28*** (0.000)	-0.17*** (0.000)
Constant	3.60*** (0.000)	4.31*** (0.000)	1.74*** (0.000)	3.66*** (0.000)	4.16*** (0.000)	1.90*** (0.000)	3.63*** (0.000)	4.24*** (0.000)	1.82*** (0.000)
Observations	135	135	135	135	135	135	270	270	270
<i>R</i> -squared	0.012	0.008	0.000	0.040	0.024	0.037	0.065	0.056	0.028
<i>F</i> -statistics	1.77	1.54	0.00	5.75	5.63	6.27	15.40	14.51	7.60
Prob > <i>F</i>	0.1854	0.2168	0.9654	0.0178	0.0190	0.0135	0.0000	0.0000	0.0007

Robust *p* value in parentheses (*, **, *** represents the significance level at the 10, 5, and 1% level, respectively)

Students’ Self-Described Evidence of Praxis

The mean score for students’ self-described evidence of praxis was 2.06, with a standard deviation of 0.55. In terms of the distribution of the four categories in the measurement scale: “0” (no mention) = 12.5% of reports; “1” (low) = 19.1%; “2” (moderate) = 43.4%; and “3” (high) = 25.0%. Thus, on average students reported “good/clear evidence of praxis,” with more than two-thirds in the moderate to high range (68.4%).

In terms of triangulating our results from the questionnaire-based data and students’ written reports, consistent with Fig. 1, as shown in Table 7, we found a marginally significant positive correlation between “student self-described learning from praxis” and their questionnaire-measured “total change away from the profit-maximizing paradigm” (*p* < .10). This suggests that students’ self-described praxis was positively related to changes in their combined worldview (NEP, MAT, and IND); the greater the saliency of praxis for students, the greater the change in students’ worldviews.

Students’ Self-Described Transformations (Box #2 in Fig. 1)

The mean for students’ self-described transformations was 1.96 with a standard deviation of 0.46 (“0” = 9.6% of reports; “1” = 19.1%; “2” = 55.1%; “3” = 16.2%). Taken together, over 70% of students reported moderate to high levels of transformation.

Consistent with Fig. 1, as shown in Table 7, we found a significant positive correlation between “student self-described learning from praxis” and their “self-described student transformation” (*p* < .01). This suggests that students’ self-described praxis was positively related to how much they felt transformed.

Students’ Self-Described Likelihood of Change Going Forward (Box #3 in Fig. 1)

The mean score for students’ planning to continue their experiments was 2.04 with a standard deviation of 0.58 (“0” = 24.3% of reports; “1” = 14.7%; “2” = 39.7%;



Table 4 Examples of students' self-described praxis

Low: Marginal evidence of praxis. For example, students recognize that their first-hand experience (action) taught them something valuable about improving social structures and systems, but are not clear what new insights were gained (reflection).

"[student who cooked sustainable meals for three different groups of people] After having conversations with my guests, I found myself not putting enough effort to care about the world. ... I wish I could put more effort to care about the world, for example by reading news regularly and volunteering"

"I have seen documentaries on farmers who are passionate about organic food etc., but it was refreshing to talk to people working at [name of store] who shared that passion and are actively trying to reduce their footprints on this earth"

"Helping others can make myself feel the important benefits of this experiment"

"I learned that many good habits are good for oneself and also good for the environment from this experiment. I believe that we should not wait to change"

Moderate: Good/clear evidence of praxis. For example, students recognize that their first-hand experience (action) taught them something valuable about improving social structures and systems, but their new insights could be elaborated more fully (reflection)

"Another key thing I learned about other people is that there are many people who do not readily welcome new ideas. When I was distributing my home-made dish-washing soap to other people, there were those who could not buy into the idea and totally rejected my offer to give them free organic dish-washing soap"

"After this experiment, I experienced the tiredness of doing [household] cleaning and [now] I want to share those burdens with my parents. As a member of the family, I should take responsibility on household cleaning"

"... the volunteers [who knit warm wool scarves for homeless people] themselves find a community of support and a feeling of belonging by joining the initiative. It is a mutually beneficial initiative"

"I am very glad I experienced an experiment such as this where I can actually see my impact on the environment. I have never done anything like this before and it helps me realize how much I contribute to our landfills, as well as it opens my eyes to how much we contribute as a whole"

High: Strong evidence of praxis. For example, students recognize that their first-hand experience (action) taught them something valuable about improving social structures and systems, and offer a fairly well-developed description of their insights (reflection)

"While conducting the experiment I had to find local chicken. I discovered that one of my friends at school raised chickens just outside the city. I had the opportunity to go pick two that I used for the meal. I asked a lot of questions for my experiment and she was pleased and gave me vegetables from her garden. At first it was hard to imagine that I would be able to eat these chickens. Luckily, I went a couple of days before I had to cook the meal, and I was perfectly OK cooking them days later. *One insight that I gained from this experience was that it is very important to go yourself and see where the animals you are eating are being raised.* I never particularly questioned where my chicken was coming from. *Even after watching a documentary it did not resonate with me until I went myself and saw the chickens.* I feel that if I was to go to an industrial environment where animals are being raised it would definitely have an even more profound impact. If everyone had to do this I think consumers would think twice before purchasing their meats"

"This experiment really changed my view of the [homeless] people. *Many friends of mine told me* that leave the homeless people alone because they may rob or even murder people. However, *after I saw* one of the homeless people sharing his pizza with others when he was really hungry, I was impressed. He taught me that never judge others by the appearance.... The [homeless] people [I met and talked to] who were abandoned by their families also need our attention. Most of them are young people and they are still kind-hearted. However, if the people kept making fun of them and the society continued to ignore these problems, they may tend to be a criminal and ruin their lives"

"You don't really know if the marginalized people you think you are helping by [your] giving actually benefit from your gift, or if they appreciate it. Looking critically at this experiment, I have conflicting views on giving to others. I want to continue future acts of giving, but *this experiment has given me the insight* that my perception of giving may be naive and may not be helping as much as I think"

"While realizing how easy it was to unplug myself from my technology was a refreshing experience, it was also a sobering experience. It is worrisome to think that intentionally foregoing technology for a mere hour a day is such a rare concept for my generation, it had to be an 'experiment' for me to try. ... As I sat down at my favourite local coffee shop to enjoy a latte with my Mom, I was startled to notice that we were the only two people in the shop who were not using some form of technology, whether it be a laptop, smartphone, or iPod. *This moment during the experiment opened my eyes* to the experiences we miss when we are absorbed by technology, and it made me even more thankful for the quality time I spent that afternoon chatting with my Mom"

"3" = 21.3%). Thus, 61% of students reported moderate to high levels of planned changes in future behavior.

Consistent with Fig. 1, as shown in Table 7, we found a significant positive correlation between students' "self-described transformations" and their "intention to continue their experiment going forward" ($p < .05$).

Taken together, these results suggest that acquiring knowledge that challenges the dominant profit-maximization paradigm of liberal market economies, when coupled with praxis, leads to student transformation, and that self-described student transformation in turn leads to the intention to continue to behave in ways that address

Table 5 Examples of students' self-described transformation

Low: Marginal evidence of change in self-understanding/consciousness/mission. For example, students state at best a marginal change in worldview, but note a personal insight/self-understanding they gained from the experiment (or vice versa)

"I would be lying if I said I will be able to continue on with it [i.e., being a vegetarian]. ... But being a vegetarian (for a brief time) has given me a much greater respect for vegetarians as well as vegans"

"This experiment did not necessarily change my worldview. ... I feel like I have a better understanding of why being vegan offends some people or does not interest them"

"Whether a person chooses to be a vegetarian for religious, environmental, or health reasons, I respect them more now that I have tried it for a week. [However] My lifestyle going forward will not be altered greatly from this experience"

"Another insight at work was how much waste is produced by the company. Although I recycle a lot both at home and at school, it is difficult at work. There is an industrial sized recycling bin behind our building, but it would be easier to have a recycling bin inside that we could empty at the end of the night. The amounts of plastic hangers, paper, packaging from clothes and lunches, and coffee cups thrown into the trash highlights the fact that businesses and industries are the biggest contributors of the world's pollution problem"

Moderate: Good/clear evidence of change in self-understanding/consciousness/mission. For example, students state they had a change in worldview thanks to the assignment, but do not offer a very clear description of the specific content of that change (or vice versa)

"This experiment helped me realize how helping others and volunteering can improve the quality of your life. When I started the project, I thought it would be more of a chore, but I couldn't be more wrong. Instead, I felt more relaxed and content while carrying out the experiment"

"Of the two experiments, going on the walk gave me a more lasting and insightful experience. As someone who identifies as a Buddhist, inner peace is something I value highly and these walks have given me the opportunity to reflect inward. I think it is important to set aside time to meditate and reflect in"

"This experiment has changed how I look at accomplishing change in the world I live. I can now see that the world is changed by my example, not by my opinion. In order to truly create change, like the happiness of the people I care about, I need to put my beliefs into action"

"From my personal experience of not showering for a week, I have personally concluded that I do not require daily showers in order to remain hygienic and desirable"

High: Strong evidence of change in self-understanding/consciousness/mission. For example, students state they had a change in worldview thanks to the assignment and provide a specific example of the content or implications of that transformation

"I am glad that I chose to do this experiment because it really hit me how much I, as a single person contribute to the landfill. ... It will be tough, but I hope that I will have the courage to stand up for the environment to my superiors at the particular organization I end up working for. I think I will because I will feel too guilty if I do not. ... If everyone did this experiment there would be no way that people wouldn't change unless they were genuinely selfish. I wish there was a way that everyone in Canada would be forced to do this for two weeks so that they could see how much they contribute [to landfills]"

"After [my experiment], my thoughts changed totally regarding aboriginal people, and bias in my thoughts got eradicated. ... This was the first time I, actually, served food to someone [else paid for] with my own money. I felt deep pleasure doing that because providing free food to everyone is a big part of my [religious] culture. I, with my friends, pledged to continue this in future. ... When I told my friends about this experiment, they all agreed happily to help me. They showed me that there are many people like them who want to bring positive change to society. Sometimes they just need an approach from someone with similar interest so that they can work together to bring that change"

"This experiment has really opened my eyes to things that I once thought was the best idea ever, and has made me realize that I only thought it was a great idea because it saved time and effort. I feel as though I have almost been brainwashed into this [unsustainable] way of thinking based on technology and the conveniences it provides us with"

"During this experiment I learnt not to be so judgmental of others and their circumstances. I don't know the true motives these individuals have and I found I was often judging them for being presumably being alcoholics or drug addicts. This is often not the case and I really learned to treat people less fortunate with more initial respect"

shortcomings associated with the mainstream profit-maximizing paradigm.

Discussion

We empirically examined the effect of critical reflection (control group) versus praxis (experimental group) on student transformation in the classroom. When only critical

reflection was used, there were no significant changes in students' views about the ecological environment, materialism, and individualism. This finding is consistent with Monaghan and Cervero (2006), and it suggests a problem with the commonly held assumption in the CME literature that (merely) critiquing dysfunctional institutions and systems (i.e., box #1 in Fig. 1), coupled with critical reflection, will be sufficient to provoke changes within students (box #2) (McWilliams and Nahavandi 2006). Without

Table 6 Examples of students' self-described plans to continue new behavior in future

Low: Marginal evidence that the assignment will influence student's behavior going forward. For example, student says: "I *might/should* continue ..."

"The implications for myself going forward are going to be *minor*"

"I *should* feel obligated to contribute [to helping people]"

"I am *hoping* to continue volunteering"

"I *hope* to continue to reduce meat consumption when possible"

"Given what I've learned about the 'hidden price tag' of many products and services, *perhaps* I will check these more often in the future to better understand the various externalities that these companies create"

Moderate: Good/clear evidence that the assignment will influence student's behavior going forward. For example, student says: "I *plan/intend* to continue" and gives specific examples/evidence

"I have made a *plan* to volunteer at [organization] at least once a month from now on"

"I will *try* to make a concentrated effort to limit my resource consumption on a regular basis"

"Going forward, I fully *intend* to continue this journey as a pescatarian, possibly a vegan, and look forward to sharing my experiences with others"

"I will *try* to find a profession that allows me to do this [helping others] when I graduate"

"I have found great appreciation for meditation. I do *plan* to continue to practice meditation! ... I *plan* to continue experimenting with different meditation practices and areas of specialization. Different areas include guided vs. unguided sessions ..."

High: Strong evidence that the assignment will influence student's behavior going forward. For example, student says "I *will* continue/*am* continuing" and gives examples what already has been done to continue or commitments made to continue

"I *am* going to continue to eat more sustainably and track my food intake on a weekly basis so that I am only eating meat 2–3 times per week. When I do eat meat I am also going to make an effort to ensure that the meat was raised humanely and naturally. I think by keeping a log on what I am eating very day it will be easy to see when I can and when I can't have meat"

"Going forward, I *will* continue to volunteer at [name of two organizations] in their after-school program. In addition, I *will* attend [name of organization] International Forum in Ottawa next January ..."

"I *will* *definitely* keep using the [environmentally friendly] products"

"I *will* initiate more green experiments with my friends. ..."

student transformation, we cannot reasonably expect graduates to promote change in problematic institutions, an end-goal of CME (box #3). In contrast, in courses that emphasized praxis, there were significant changes in students' worldviews about the ecological environment, materialism, and individualism (box #2), and in students' expectations regarding subsequent action (box #3) (Foster and Wiebe 2010; Reynolds and Vince 2004). The implications of these findings for future research and praxis in both the classroom and workplace are discussed below.

Praxis in the Classroom

Incorporating praxis in the classroom is important for CME in particular, and for enhancing business ethics education in general. Regarding the latter, our emphasis on praxis is a variation of the argument made by McWilliams and Nahavandi (2006, p. 423) that "focusing on making students more ethical is the wrong approach." Instead, they argue that "the focus should be on understanding and correcting the dysfunctional systems that engender and encourage ethical violations." We suggest that developing course-based assignments that invite students to actively

engage in praxis (e.g., via experiments that address problems caused by problematic systems) will inform and often transform students' ethics so that social structures and systems will be improved. This is consistent with the larger process-based pedagogical literature that highlights the benefits of experiential assignments for enhancing business ethics (e.g., Jurkiewicz et al. 2004; Jones 2009; Lester et al. 2005; McWilliams and Nahavandi 2006; Solberg et al. 1995; Waples et al. 2009; Yorio and Ye 2012).

Future research should examine whether the level of prescriptiveness of the praxis assignments affects students' transformation. In the courses examined here, students were given considerable leeway in choosing the content of their "Experiment Outside the Classroom." This may have increased their ownership of the assignment, which may in turn have increased the effect of their transformation. Our results may have been different if, for example, we had specified that each student should volunteer for at least 20 hours at a particular organization, such as might be evident in a service learning course.

Future research should also examine what might happen if more emphasis is placed on praxis throughout the business school curriculum. For example, what might happen if

Table 7 Correlations, means, and standard deviations (for students whose “Experiments Outside the Classroom” were analyzed)

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) NEP (T1)	3.81	0.55												
(2) NEP (T2)	4.02	0.56	0.68***											
(3) NEP (T2 – T1)	0.21	0.44	-0.37***	0.42***										
(4) MAT (T1)	4.06	0.62	-0.08	0.03	0.13									
(5) MAT (T2)	3.79	0.72	0.10	0.22*	-0.16	0.67***								
(6) MAT (T1 – T2)	0.27	0.55	0.04	0.32***	0.35***	0.23*	-0.56***							
(7) IND (T1)	1.69	0.56	-0.39***	-0.19	0.25**	-0.23*	-0.21*	0.02						
(8) IND (T2)	1.53	0.54	-0.35***	-0.29**	0.08	-0.17	-0.08	-0.10	0.64***					
(9) IND (T1 – T2)	0.16	0.47	-0.06	0.11	0.21*	-0.07	-0.17	0.14	0.45***	-0.41***				
(10) NEP (T2 – T1) + MAT (T1 – T2) + IND (T1 – T2)	0.63	1.03	-0.16	0.41***	0.72***	0.15	-0.45***	0.75***	0.33***	-0.21*	0.63***			
(11) Self-described evidence of praxis	2.06	0.55	0.11	0.22*	0.13	0.12	-0.07	0.22*	-0.18	-0.31**	0.14	0.24*		
(12) Self-described evidence of praxis	1.96	0.46	0.02	0.12	0.11	0.11	-0.01	0.12	-0.14	-0.31**	0.19	0.20	0.37***	
(13) Likelihood of continuation of experiments	2.04	0.58	0.06	-0.04	-0.12	-0.11	0.01	-0.12	-0.02	0.01	-0.03	-0.13	-0.16	0.28**

Significance level is reported beside the pairwise correlation coefficients. (*, **, *** represent the significance level at the 10, 5 and 1% level, respectively)



at least 50% of courses had a praxis type of assignment? Is there a rate of diminishing returns in terms of the benefits of praxis?

Perhaps the greatest need is for future research with a longitudinal dimension that extends beyond graduation. Given that our study is an empirical examination of praxis in the classroom, we did not measure whether students actually challenged the dominant profit-maximizing paradigm in the workforce after they graduated (box #3). Thus, our measure of box #3 was merely suggestive, and based on students' self-described intentions and commitment to implement counter-cultural practices going forward. We are aware of only one study that actually measured whether the counter-cultural nature of undergraduate students' worldviews (box #2 in our model) was predictive of their subsequent behavior in the workplace (box #3). Walker (2006) examined the outcomes of a course where undergraduate business students were: (1) challenged to consider pros and cons of the mainstream profit-maximizing paradigm; (2) given written assignments asking them to indicate their future aspirations regarding working in such organizations; and (3) contacted several years after graduation and asked what sorts of jobs and organizations they had actually chosen for their career at that point. The study found that the business students who had rejected the mainstream profit-maximizing paradigm in their written coursework were more likely after graduation to be working in jobs that eschewed the profit-maximization paradigm of liberal market economies. This finding lends support to our speculation that students in our study who reported that they experienced a transformation in the classroom were more likely to continue in their careers to address shortcomings in traditional social systems and structures.

Lastly, we encourage future research that examines the effects of using praxis in teaching courses in critical theory at the political-economics level, and also encourage CME scholars to pay greater attention to teaching about the larger political-economic systems. In our courses, we accomplished this by introducing students to the varieties of capitalism literature, discussing the historical changes in different countries, and in general pointing to the role of government in perpetuating and changing the conditions under which managers and organizations operate. We believe that a key advantage to looking at, for example, the varieties of capitalism literature is because this creates a larger space for students to think outside the box about alternative ways of managing businesses (consistent with Freire 2006). We speculate that students who have taken a course with praxis and learned about the political-economic context are more likely to engage in social entrepreneurship than other students. Further, even our relatively nuanced investigation of capitalism using the

varieties of capitalism framework is a simplification. Future research might dig deeper into the different types of capitalism, perhaps helping students to learn about and even develop their own methods for managing.

Praxis in the Workplace

Future research could also examine how to encourage "experiments with socio-ecological sustainability" in the workplace. Just as some organizations (e.g., 3 M, Google) encourage employees to spend up to 20% of their time "experimenting" with new business ideas, so also firms could encourage employees to spend up to 20% of their time "experimentally" putting into practical action initiatives that enhance workplace ethics and challenge shortcomings of the dominant paradigm. This may well have a positive impact on triple-bottom-line measures of well-being within the firm, and on reducing negative (and enhancing positive) socio-ecological externalities outside the firm. Similar changes could also take place in academia where, for example, the top scholarly business journals could commit to ensuring that 20% of published articles examine instances of praxis in the workplace. We also welcome future research that enables students to do "experiments" in the workplace. Because many undergraduate students may not have direct access to workplaces, such research might be easier to do in MBA classes, and/or it might be something that could be integrated into co-op programs and other practicum experiences.

Limitations

Our study has two main limitations. First, despite the similarities in the teaching approaches and topics discussed in the control and experimental groups, we cannot know for certain that the use of praxis was the primary cause of the transformation in student views in the experimental group. Our sample of six courses involved three different professors at two different universities teaching similar courses, but since we could not control for all differences across the six sections, it is possible that the differing results for the control and experimental groups may be at least partially related to unexplored factors. Even so, it is striking that the worldviews of students in the control group did not change, while the worldviews of students in the experimental group changed significantly for all three measures.

Second, this research focused primarily on shortcomings that are associated with liberal market capitalism (which has both strengths and weaknesses compared to other paradigms). We believe that our focus on liberal market capitalism will be of interest to many readers, because of its dominant place in the global management and business literatures. However, research in other countries could

employ a similar approach to critique and improve whatever the dominant paradigm is in their settings (e.g., coordinated market economies, communism, pre-modern political economies).

In conclusion, our study offers a new way of thinking about the saying that “praxis makes perfect” (e.g., Eikeland 2008; Foster and Wiebe 2010). In a sense, our study represents an example of praxis about praxis. We invite other instructors to experiment and facilitate the kind of praxis that enhances the positive development of students, society, and business.

Compliance with Ethical Standards

Ethics Standard This research involved human subjects and ethics approval was received from both research ethics boards at the University of Windsor and the University of Manitoba.

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