

A College Course on Mindfulness and Self-Compassion: A Social and Emotional Approach to Facilitating Transformative Learning

TIMOTHY PEDIGO
Governors State University

ALBERT TUSKENIS
Governors State University

ALEC HAKENJOS

Abstract

Mindfulness and self-compassion can theoretically help students engage in transformative learning through socio-emotional effects such as enhanced attachment security, university belongingness, and academic self-efficacy. We created a college course called Mindfulness Studies that emphasizes the practice of mindfulness and self-compassion, with the purpose of enhancing students' social and emotional functioning in ways that may expand their potential for transformative learning. To assess whether the Mindfulness Studies course provides such benefits, we collected data with a sample of 70 students taking the course to compare pre-test and post-test measures of mindfulness, self-compassion, attachment security, university belongingness, and academic self-efficacy. Results showed significant improvements by the end of the course on all measures, suggesting that the Mindfulness Studies course helps students enhance their social and emotional functioning in ways that could facilitate transformative learning experiences. Additional data analyses showed that improvements in mindfulness and self-compassion each contributed to improvements in the other outcomes but suggested that mindfulness and self-compassion have somewhat different roles in promoting transformative learning. Future directions include more in-depth exploration of students' transformative learning experiences within the Mindfulness Studies course, as well as longer-term follow-up to assess how gains from the course affect students' transformative learning in the remainder of their university education.

Keywords: Mindfulness, Self-Compassion, Social and Emotional learning, Attachment and Learning, College Teaching

A College Course on Mindfulness and Self-Compassion: A Social and Emotional Approach to Facilitating Transformative Learning

Transformative learning is one of the most intensively researched theories in the field of adult education (Taylor, 2005, 2008; Taylor & Snyder, 2012). Mezirow's (1991) original definition of transformational learning is, "the process by which we transform our taken-for-granted frames of reference to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove truer or justified to guide action" (p. 7-8). Mälkki (2010) expanded Mezirow's theory to highlight emotion and focused on the concepts of "edge-emotions" and "comfort zone" to explain the dynamics of emotion and not just cognition, that arise in the process of critical reflection and transformation. Barner and Barner (2011) argued that the

emotional challenges needed for transformational learning require a base from which participants learn to regulate their emotions when their “edge emotions” arise, outside their “comfort zones” and that mindfulness can serve as such a base because it can help to establish the non-defensive openness to experience to be truly be able to challenge cherished assumptions and beliefs (Mälkki, 2010).

Mindfulness, Self-Compassion, and Attachment Security

Bishop et al. (2004) defined mindfulness as a process of relating to whatever arises in the field of awareness with openness and receptivity. Individuals seeking to improve their mindfulness focus first on attention training and learning to stabilize the mind so that it is not “tossed to and fro” by a continuous stream of thoughts and emotions. Although training in mindfulness can effectively stabilize the mind by helping to focus attention and reduce distractibility, a substantial amount of additional mindfulness practice may be needed before a person can work with more emotionally-intense internal experiences (Hildebrandt, et. al, 2019). It takes time and the strengthening of mindfulness before a person can learn to regulate emotions more successfully and not be overcome by emotional triggers that occur in day-to-day life and relational functioning. To significantly improve emotion regulation, Moodie et al. (2020) suggest that cognitive reappraisal, self-distancing, and attention deployment are all necessary strategies that need to be developed before emotional regulation is possible. Mindfulness helps to develop these strategies, which also helps to establish equanimity of the mind, so that it is possible to remain calm in the face of “provocative stimuli” (i.e., emotional triggers) and thereby maintain “meta-awareness” (Desbordes, et.al, 2015). Meta-awareness can be understood as a form of self-awareness that helps in noticing and being aware of emotional triggers as well as the reasons for being triggered, potentiating conscious awareness. Such awareness and understanding of one’s emotional triggers allows for more conscious and deliberate choices in how to react to and cope with the triggering experiences. This can prevent emotionally-triggering experiences from limiting one’s capacity for thoughtful reflection, self-exploration, and openness to new and diverse perspectives. In this way, mindfulness training and ongoing practice can increase the potential for transformative learning.

Empirical studies with college students have shown that the practice of mindfulness meditation can enhance their potential for academic success by improving concentration and effort and by minimizing emotional and personal distress (Shapiro, et al., 2008). Williams (2020), for example, found that mindfulness meditation helped to reduce college students’ test anxiety while improving their critical thinking and self-regulation of learning. In a more social respect, Martin (2018) found that including mindfulness meditation practices in college courses enabled students to connect with each other and engage in open discussion. Thus, based on such studies in the empirical literature, and the conceptual approaches of Mälkki (2010) and Barner and Barner (2011), mindfulness can serve as a foundation for the openness needed for transformative learning, not only by increasing cognitive factors such as focus and concentration, but also by enhancing emotion regulation and social connectedness.

Mindfulness can also serve as a basis for the development of self-compassion. When paired with mindfulness, self-compassion further impacts a student’s ability to regulate emotions when encountering academic frustrations and disappointment (Neely et al., 2009; Sirois, 2015; Terry, et al., 2013; Williams, et al., 2008), and to stay engaged in the learning process (Neff, et al., 2005). Self-compassion, moreover, helps students to see themselves more realistically, rather than with excessive shame and self-criticism (Hanley, et al., 2017).

Self-compassion may impact transformative learning by decreasing defensiveness due to fear of failure and criticism. According to Mezirow (1991) transformative learning can only occur with critical reflection. Critical reflection in this context does not refer to being harshly critical of one’s self, even though such self-criticalness may be a common experience for many college students (Fairlamb, 2020; McIntyre, et al., 2018). Rather, in the context of transformative learning, critical reflection that is grounded in mindfulness and self-compassion, helps shift the student’s orientation from defensively reacting to internalized harsh criticism, toward greater openness to self-reflection and non-defensive questioning of one’s beliefs and perspectives (Elphinstone et al., 2019; Im & Follette, 2016; Hildebrandt, et al., 2019). As opposed to being limited by a felt need to avoid painful emotions triggered by self-

criticism, students engaging in mindful self-compassion may experience greater openness to alternative views and perspectives that can impact views of self (Benda, et al., 2018; Hanley, et al., 2017; Kaurin, et al., 2018; Ross, et al., 2019).

Self-compassion-focused meditation may also affect attachment security. According to attachment theory, interpersonal relationships are crucial in providing emotional support and helping individuals with developing the ability to regulate emotions and maintain a positive, yet realistic view of self and others (Thompson et al., 2021). Due to differences in the quality of their interpersonal relationships, individuals can be categorized as having a secure or an insecure attachment style (Bartholomew & Horowitz, 1991). Within an academic context, students with secure attachment styles tend to have a greater sense of trust and openness with peers, as opposed to students with insecure attachment styles who feel less supported by their peers and experience greater emotional distress (Bernardon, et al., 2011). Those with insecure attachment styles are either anxious, experiencing their need for emotional support from others more frequently and intensely, or they are avoidant, denying their need for emotional support from others (Mikulincer & Shaver, 2005). In contrast, students with secure attachment styles are able to give and receive emotional support as needed and appropriate to the situation. With respect to mindfulness, attachment security is theoretically related to higher levels of mindfulness, in that both of these psychological tendencies are characterized by a realistic view of self and others that is relatively free of distortion due to defensiveness; this hypothesis has been supported empirically by studies showing that those with greater tendencies to be mindful also tend to experience greater attachment security (Shaver et al., 2007).

Regarding self-compassion and attachment security, Borphy and colleagues (2020) found that once self-compassion practice is deepened, attachment security increases. For those with insecure attachment styles, increasing their self-compassion lowers their tendency either towards anxiety and over-dependence on others for support, or for avoidance of emotion and the need for emotional support even when needed and appropriate. In this way students who practice self-compassion may feel more secure, engaged, and less anxious or avoidant. The students' experience of engaged calmness allows them to feel less alone and more connected with their fellow classmates so that they feel more "at home" in the university environment and more confident in the learning process (Gilbert & Procter, 2006; Hausmann, et al., 2009; Jarukasemthawee, et al., 2019; Larusa, et al., 2005; Tubbs, et al., 2019). Such improvements in students' social and emotional experiences within the academic environment should enhance their openness and potential to engage in transformative learning.

Purpose and Hypotheses

The purpose of this paper, besides presenting a conceptual basis for a college course on mindfulness and self-compassion, is to present outcome data on the course's effectiveness in enhancing social and emotional factors that may facilitate transformative learning. Secondly, we also assess whether mindfulness and self-compassion each uniquely contribute to enhancing students' potential for transformative learning in terms of social and emotional outcomes relevant to an academic context (viz., attachment security, university belongingness, and academic self-efficacy). If both mindfulness and self-compassion independently contribute to positive social and emotional outcomes, such results would support our position that pairing mindfulness training with self-compassion practices can enhance students' social and emotional well-being in ways that facilitate openness to transformative learning.

Regarding the outcome data, our hypotheses are as follows. First, we expect that, through completing the mindfulness studies course, students will increase their tendencies to be mindful and self-compassionate. Second, we expect that students completing the mindfulness studies course will experience increases in the social and emotional factors of attachment security, university belongingness, and academic self-efficacy. Finally, we expect that both mindfulness and self-compassion will independently contribute to the increases in the other social and emotional outcomes.

Mindfulness Studies Course

To enhance students' potential for transformative learning by addressing social and emotional factors, we created a course called *Mindfulness Studies*. The focus of the course is for students to learn and practice mindfulness and self-compassion to increase their tendencies to be mindful and self-compassionate. Increased tendencies toward mindfulness and self-compassion, in turn, should address social and emotional factors that increase openness, comfort with critical self-reflection, and thus the potential for transformative learning; that is, social and emotional factors such as attachment security, university belongingness, and academic self-efficacy.

At the beginning of the course, students are encouraged to participate and co-create an atmosphere of mindfulness in the class, so they feel safe to self-disclose and to provide support to classmates as well as to receive it. The aim is for students to gradually feel more secure and open with each other, creating a sense of belonging and support which helps them to re-appraise shaming self-criticisms and engage more openly in self-exploration and consideration of new perspectives. The self-disclosure and sharing of experiences which occurs in the class allows students to feel they are not alone and that the issues they are struggling with are quintessentially human. As they share and connect with each other, the aim is for a transformation in how they feel about themselves and each other; as they process through emotional obstacles (e.g., self-doubt in ability to succeed academically), they experience belonging and greater confidence in achieving at the university. Consistent with the focus on students' emotional and social well-being, the course is taught largely with relational and experiential teaching/learning approaches. The following are the teaching strategies used in the course:

1. **Online Discussions on Questions from Textbook Chapters:** Chapter readings focus on various conceptions, research, and applications of mindfulness and self-compassion. Students post answers online to questions on the chapter readings and comment on other students' postings.
2. **In-Class Discussion on Chapters:** In addition to a brief lecture on the chapter, students are asked to speak and listen mindfully to each other in dyads. After the dyads finish their discussions, students are invited to share their experiences with the class as a whole.
3. **In-class Guided Mindfulness and Self-Compassion Practice:** After class discussion, the instructor leads guided mindfulness meditation and self-compassion practices using insight gained from the class discussion.
4. **Individual Guided Mindfulness Practices:** Students are asked to spend a minimum of five to ten minutes three to four times a week following a guided meditation or self-compassion practice from the instructor. Students are also encouraged to stop and breathe for a few minutes throughout their days, especially at stressful moments. Students journal once a week about their experience with mindfulness, meditation, and self-compassion.
5. **Small-Group Discussion on Mindfulness Practice:** Students meet three times a month for 45 minutes to discuss mindfulness practice (formal and informal) in groups of five and practice meditations at the end of the chapter for that week. Students take turns reading the guided meditation or self-compassion practice script. Once a month, the groups meet with the instructor for 45 minutes to discuss questions and difficulties with meditation, mindfulness, and self-compassion practices as well as engaging in guided meditations from textbook chapters.
6. **Day of Mindfulness:** Students meet for four hours for a day of practicing mindfulness, yoga, and self-reflection. During the four hours students focus on learning to calm themselves and relax, increase their self-compassion, and develop compassion for others based on their own struggles with emotional reactivity and self-compassion.
7. **Presentation in Class:** Student form groups around interest in a topic in mindfulness or self-compassion and make presentations on topics that have personal relevance to their own experience in applying mindfulness and self-compassion in their lives.

Method

Participants

Seventy undergraduate, upper-division (3rd or 4th year) students enrolled in one of four sections of the *Mindfulness Studies* psychology course at Governors State University across four semesters participated in this study. Typical class size of the four course sections was approximately 20 students; all four sections were taught by the same instructor (one of this paper's authors). Participant demographic data were not collected, but according to available demographic data for students enrolled at the university during a recent semester (Fall 2019), the average age of undergraduate psychology majors was 27.3 years, approximately 79% identified as female, and racial/ethnic make-up included 34% Black/African American, 31% White, and 20% Hispanic students. Regarding first-generation status, 44% of the undergraduate psychology majors enrolled during the Fall 2019 semester were first-generation college/university students, defined as neither parent of the student having completed a bachelor's degree or higher.

Measures

Mindfulness

The Five-Facet Mindfulness (Baer, et al., 2006) self-report measure was used to assess student-participants' levels of mindfulness. This questionnaire taps five dimensions of mindfulness: 1) "Observe," defined as the tendency to observe one's sensory experiences (e.g., "I pay attention to sensations, such as the wind in my hair or sun on my face"); 2) "Describe" defined as the ability to describe one's experiences with words (e.g., "I'm good at finding words to describe my feelings"); 3) "Act with Awareness" defined as attentiveness to current situation and experience, rather than being distracted (e.g., "I find myself doing things without paying attention" [reverse-scored]); 4) "Non-judgment," defined as not judging, but accepting, all of one's internal experience and emotions, including negative feelings (e.g., "I tell myself I shouldn't be feeling the way I'm feeling" [reverse-scored]); and 5) "Non-reactiveness," defined as ability to control one's reactions in stressful or distressing circumstances, without reacting impulsively (e.g., "In difficult situations, I can pause without immediately reacting").

Responses were on a 1-to-5 scale, with 1 = "never or very rarely true" to 5 = "very often or always true." Total Mindfulness scores for each participant were obtained by summing across the 39 items on this measure. Reliability of this measure in the present study as assessed by Cronbach's alpha was .928 for pre-test and post-test combined.

Self-Compassion

The Self-Compassion Scale (Neff, 2003) consists of 26 items tapping six dimensions of self-compassion: self-kindness, self-judgement, common humanity, isolation, mindfulness, and over-identification. Sample items include 1) "When I'm going through a very hard time, I give myself the caring and the tenderness I need" (Self-Kindness); 2) "I'm disapproving and judgmental about my own flaws and inadequacies" (reverse-scored; Self-Judgment); 3) "When things are going badly for me, I see the difficulties as part of life that everyone goes through" (Common Humanity); 4) "When I fail at something that's important to me, I tend to feel alone in my failure" (reverse-scored; Isolation); 5) "When I'm feeling down I try to approach my feelings with curiosity and openness" (Mindful Self-Compassion); and 6) "When I fail at something important to me, I become consumed by feelings of inadequacy" (reverse-scored; Over-Identification).

Responses were on a 1-to-5 scale, with 1 = "almost never" to 7 = "almost always." Reliability of this measure in the present study as assessed by Cronbach's alpha was .932 for pre-test and post-test combined.

Attachment Security

The Relationship Structures Questionnaire (Fraley, et al., 2011) is a self-report measure that was used to assess attachment security. Rather than being assessed directly, attachment security is usually

assessed in terms of low scores on attachment anxiety and attachment avoidance. Attachment anxiety and attachment avoidance are viewed as general orientations across various kinds of interpersonal relationships.

This measure consists of nine items, six assessing general attachment avoidance and three assessing general attachment anxiety. Sample items are 1) “I often worry that people do not really care for me” (Attachment Anxiety); 2) “I’m afraid that other people may abandon or reject me” (Attachment Anxiety); 3) “I prefer not to show others how I feel deep down” (Attachment Avoidance); and 4) “I talk things over with people” (reverse-scored; Attachment Avoidance).

Responses were on a 1-to-7 scale (1 = “strongly disagree” to 7 = “strongly agree”). Reliability, as assessed by Cronbach’s alpha in the present study, for pre-test and post-test combined, was .800 for attachment avoidance and .865 for attachment anxiety.

University Belongingness

Student-participants’ experiences of belongingness in relation to the university (with respect to student-peers, faculty, university community), was assessed with the Psychological Sense of School Membership Scale (Goodenow, 1993), which was re-worded to apply to university students (original scale assessed middle-school and junior high school students). Sample questions include 1) “I feel like I belong here at this university;” 2) “Other students at this university take my opinions seriously;” 3) “I can really be myself at this university;” 4) “Professors at this university respect me;” 5) “There is at least one professor or advisor I can talk to at this university if I have a problem.”

This measure consisted of 18 items responded to on a 1-to-7 scale (1 = “strongly disagree” to 7 = “strongly agree”). Reliability of this measure in the present study as assessed by Cronbach’s alpha was .872 for pre-test and post-test combined.

Academic Self-Efficacy

The Academic Self-Efficacy Scale (Zimmerman, et al., 1992) consists of 11 items assessing students’ confidence in successfully engaging in and performing various academic tasks (e.g., studying, completing homework assignments, organizing, scheduling, and concentrating on academic tasks, motivating oneself to study, and participating in class discussions).

Responses were on a 1-to-5 scale, with 1 = “no confidence at all” to 5 = “complete confidence.” Reliability of this measure in the present study as assessed by Cronbach’s alpha was .850 for pre-test and post-test combined.

Procedure

Students in the Mindfulness Studies undergraduate psychology course at a public university in the mid-western United States were invited during the first week of the semester to participate in the study on a volunteer basis. Students who consented to participate completed the questionnaire measures on paper either during or outside of class time. Response data were kept confidential by not recording student names or any other directly identifying information on the questionnaire response forms. This procedure was repeated at the end of the semester (last week of classes) for post-test data collection.

Results

Outcomes of Mindfulness Studies Course

We hypothesized that, at the end of the course on Mindfulness Studies, in comparison with the beginning (pre-test to post-test comparison), students would report increased levels of mindfulness, self-compassion, attachment security (as decreases in attachment anxiety and avoidance), belongingness to the university, and academic self-efficacy.

As expected, students reported improvements in all the outcomes (see Table 1). Specifically, there were improvements in students' mindfulness, $t(65) = 5.72$, $p < .001$, Cohen's $d = 0.70$; university belongingness, $t(67) = 5.02$, $p < .001$, Cohen's $d = 0.61$; self-compassion, $t(64) = 5.75$, $p < .001$, Cohen's $d = 0.71$; and academic self-efficacy, $t(69) = 3.05$, $p < .003$, Cohen's $d = 0.37$. Student-participants also reported increases in attachment security, as measured in terms of decreases in attachment avoidance, $t(69) = -5.13$, $p < .001$, Cohen's $d = 0.62$; and attachment anxiety, $t(69) = -3.58$, $p < .001$, Cohen's $d = 0.43$. In terms of usual interpretations of the size of Cohen's d , these effects range from small (between $d = 0.2$ and $d = 0.5$) and the larger side of medium effect sizes (between $d = 0.5$ and $d = 0.8$).

Table 1: Outcomes of a Mindfulness Studies Course

Measure	Pre-test		Post-test		Pre-test – Post-test comparison			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
Mindfulness	119.77	20.48	136.50	21.28	65	5.72	<.001	0.70
University Belongingness	94.10	13.81	100.75	11.81	67	5.02	<.001	0.61
Attachment Avoidance	21.77	5.87	18.39	5.85	69	-5.13	<.001	0.62
Attachment Anxiety	13.08	4.89	11.17	4.88	69	-3.58	.001	0.43
Self-compassion	76.77	18.41	89.02	17.10	64	5.75	<.001	0.71
Academic self-efficacy	41.48	7.10	44.01	6.54	69	3.05	.003	0.37

Unique Contributions of Mindfulness and Self-Compassion to Outcomes

We assessed whether mindfulness and self-compassion each uniquely contributed to the improvements in the other outcomes measured in this study. If both mindfulness and self-compassion contributed to students' improvements in social and emotional outcomes, it would support the idea that both mindfulness and self-compassion contribute to facilitating transformative learning. This analysis was done by addressing the possibilities that 1) the beneficial effects of improved mindfulness can actually be attributed to (i.e., mediated by) improvements in self-compassion, and 2) that the beneficial effects of self-compassion can actually be attributed to (i.e., mediated by) mindfulness.

To conduct these meditational analyses, we used an approach based on partial correlations (Garson, 2017). This approach consists of comparing a correlation between two variables (e.g., mindfulness and academic self-efficacy) with a partial correlation between the same two variables in which a third variable is statistically controlled for. An example from the present study is adding self-compassion as the control variable to compute a partial correlation between mindfulness and academic self-efficacy. If the results of the partial correlation show that the correlation between the original two variables (i.e., mindfulness and academic self-efficacy) is no longer present when the third variable (self-compassion) is controlled for, it suggests that the third variable mediates (is actually responsible for) the relationship between the original two variables – in this example, that self-compassion is actually responsible for the improvements in academic self-efficacy, with mindfulness having no effect.

This approach to assessing mediation of the relationships of mindfulness and self-compassion and the other study outcomes, was done as follows. Before computing the correlations among study variables, the variables were transformed into improvement scores by calculating differences between post-test and pre-test results on each outcome in the Mindfulness Studies course (e.g., post-test minus pre-test Mindfulness scores as representing improvements in mindfulness). We then computed correlations among the improvement scores. The results of the correlations, as seen in Table 2, indicate that the relationships between improvements in mindfulness and improvements on the other study variables were generally strong (4 out of 5 of the r 's > .50).

Table 2: Correlations among Study Variable Improvement Scores

Improvement Score	1.	2.	3.	4.	5.	6.
1. Mindfulness	–					
2. Self-Compassion	.80**	–				
3. Attachment Avoidance	.41**	.57**	–			
4. Attachment Anxiety	.73**	.72**	.52**	–		
5. University Belongingness	.65**	.54**	.38**	.54**	–	
6. Academic Self-Efficacy	.59**	.47**	.09	.41**	.32*	–

Note. Improvement scores consist of post-test scores minus pre-test scores. Attachment avoidance and attachment anxiety represent the inverse of attachment security; thus, improvement is indicated by negative scores (i.e., decreases in avoidance or anxiety) but for consistency with other variables in denoting improvement as a positive value, table entries for attachment avoidance and attachment anxiety do not include minus signs unless there was an actual increase (i.e., worsening) in avoidance or anxiety

* $p < .05$. ** $p < .01$

Next, we computed partial correlations between mindfulness increases and increases in other study outcomes, with increases in self-compassion as a control variable. As seen in Table 3, results of partial correlation analyses between increases in mindfulness and other study outcomes were reduced in strength (mostly from strong to medium) but still present when increases in self-compassion were statistically controlled for. Thus, according to these partial correlation results, self-compassion did not fully mediate (i.e., was not responsible for) the relationship between mindfulness and improvements in university belongingness, academic self-efficacy, and attachment security. This result indicates that mindfulness contributed to these outcomes independently of any contributions of self-compassion.

Table 3: Partial Correlations among Improvement Scores Controlling for Self-Compassion or Mindfulness

Control Variable	Improvement Score	1.	2.	3.	4.	5.
Self-Compassion	1. Mindfulness	–				
	2. Attachment Avoidance	–.12	–			
	3. Attachment Anxiety	.35*	.20	–		
	4. University Belongingness	.42**	.08	.23	–	
	5. Academic Self-Efficacy	.40**	.25	.10	.07	–
Mindfulness	1. Self-Compassion	–				
	2. Attachment Avoidance	.46**	–			
	3. Attachment Anxiety	.34*	.37**	–		
	4. University Belongingness	.06	.15	–.11	–	
	5. Academic Self-Efficacy	.00	.21	.04	–.12	–

Note. Improvement scores consist of post-test scores minus pre-test scores. Control variables are also improvement scores. For attachment avoidance and attachment anxiety, improvement is indicated by negative scores (i.e., decreases in avoidance or anxiety), but for consistency with other variables in denoting improvement as a positive value, table entries for attachment avoidance and attachment anxiety do not include minus signs unless there was an actual increase (i.e., worsening) in avoidance or anxiety.

Lastly, to assess whether self-compassion uniquely contributed to the outcomes independently of mindfulness, we computed partial correlations between self-compassion increases and other study outcomes with mindfulness increases as a control variable. As seen in Table 2, the correlations between increases in self-compassion and increases in the other study variables were generally strong (4 out of 5 of the r 's > .50). Regarding partial correlation analyses, results showed that some of the relationships between increases in self-compassion and other outcomes were reduced and no longer statistically significant when increases in mindfulness were controlled for (see Table 3). Other results of partial correlation analyses, however, showed that increases in self-compassion did uniquely contribute to study outcomes. Specifically, increases in self-compassion were still significantly related to decreases (i.e., improvements) in attachment avoidance and attachment anxiety (r 's = $-.464$ and $-.337$, respectively), indicating that increases in self-compassion were uniquely related to improvements in attachment security even when mindfulness was controlled for.

Discussion

The outcome results of our Mindfulness Studies course clearly showed that students completing the course significantly increased their tendencies to be mindful and self-compassionate. Results also

showed improvements in other areas of social and emotional functioning, namely, attachment security, university belongingness, and academic self-efficacy. Overall, these results suggest that the Mindfulness Studies Course positively affected students' social and emotional functioning, especially within the academic context. As a consequence of training in mindfulness and self-compassion, students appeared to feel greater attachment security, university belongingness, and academic self-efficacy. In other words, experiencing enhanced mindfulness and self-compassion seemed to help students be less self-critical and to see themselves as being more capable academically and more interpersonally connected and trusting toward fellow students and peers than they did at the beginning of the course. These improvements are transformative, in that the perceptions of students in the Mindfulness Studies course of themselves and others, as well as their interpretations of their experiences, were arguably transformed to be more open and reflective, and less constricted by negative self-appraisals. Such transformative experiences, moreover, may pave the way for further transformative learning as the students continue in their university education.

Regarding the relative contributions of mindfulness and self-compassion in transforming student learning, our results suggested somewhat different roles for mindfulness and self-compassion. As seen in the partial correlation analyses, improvements in mindfulness seemed to play a role both in improving students' confidence in their ability to study and successfully apply their academic skills (i.e., academic self-efficacy) as well as in their social and emotional functioning within the academic context (i.e., university belongingness and attachment security). In contrast, improvements in self-compassion seemed to benefit students more with respect to their social and emotional functioning (i.e., attachment security) than with respect to their ability to study succeed academically (i.e., academic self-efficacy).

The differences in the findings for self-compassion as compared with mindfulness may be understandable within the context of recent literature on the role of self-compassion in student learning, which indicates that the role of self-compassion is complex and depends on other factors such as students' academic resourcefulness (Martin, et al., 2019). Such research on self-compassion in learning, moreover, has tended to focus on academic self-efficacy and performance outcomes more narrowly, rather than on the broader conception of transformative learning, with its greater emphasis on emotional factors, openness, dialogue, and willingness to engage in deep reflection and challenging of personal beliefs. Thus, the ability to engage in transformative learning is perhaps more affected by a student's level of self-compassion than his or her level of mindfulness, as the capacity to engage in learning that is more transformative may be especially facilitated by the sense of security and non-defensive openness that is enhanced by self-compassion. Thus, as discussed further below, a promising line of further investigation would be to study the contributions of self-compassion (as well as mindfulness) to students' capacity to engage in the social and emotional aspects of transformative learning, such as openness to experience and willingness to engage in dialogue with those who they may disagree with and to consider views different from the ones they presently hold.

Limitations and Future Directions

Due to this study's correlational design, without a control group or random assignment, a primary limitation is the possibility that the observed improvements are due to extraneous or confounding factors, such as students' positive expectancies or a lessening of anxiety due simply to progressing through the Mindfulness Studies course. A research design with random assignment and greater control of other factors that could influence the results would address this limitation, though it may have other weaknesses, such as ethical concerns due to not providing a control group of students with the same beneficial experiences provided to the experimental group. A further weakness of an experimental approach would be that greater control over the learning environment for research purposes could jeopardize the authenticity (i.e., external validity) of the learning experience such that it does not reflect student's actual experiences in a more realistic or typical classroom setting.

Although the improvements observed in this study in students' mindfulness, self-compassion, attachment security, and the other outcomes may be considered transformative in and of themselves, our aim is more extensive. We aspire to prepare students to be more comfortable with, and be better able, to

engage fully with learning at the higher education level that challenges assumptions about one's self and others as well as understanding of the world in ways beyond the outcomes assessed in the present study. While our results support the notion that a college course can help students enhance aspects of their social and emotional functioning in ways that are transformative, this is only a first step in investigating the broader conception that teaching students to be more mindful and self-compassionate will increase their potential for engaging in self-exploration, dialogue, and open-minded consideration of diverse and conflicting perspectives, particularly for emotionally-laden, self-relevant, and controversial topics. One way to study the effects of mindfulness and self-compassion training on transformative learning in this broader sense would be to conduct more detailed, deeper explorations of students' efforts in applying mindfulness and self-compassion to their understanding of themselves (e.g., by studying the content of the journal entries they wrote as part of the course).

To further study the beneficial effects of mindfulness and self-compassion training on transformative learning in a broader sense, an important future direction is to follow students' progress in their university education after they have completed the Mindfulness Studies course. Such a longer-term approach would address whether students are able to maintain the gains they achieved in mindfulness, self-compassion, and the other aspects of social and emotional functioning that we assessed while they were taking the course. Any longer-term benefits of taking the Mindfulness Studies course, while beneficial to students and significant in their own right, would be necessary if such a course can truly provide a foundation for the kinds of transformative learning experiences that would enable students to receive the greatest benefits possible from their college or university education.

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