

Using the Feldenkrais Method of Somatic Education to Enhance Mindfulness, Body Awareness, and Empathetic Leadership Perceptions Among College Students

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Abstract

We explored the potential of the Feldenkrais Method of somatic education as a tool for enhancing mindfulness, body awareness, and perceptions of transformational leadership capacities among college students. The intervention consisted of thirty-two, 1.25-hour long group sessions taught by a certified Feldenkrais instructor twice weekly to 21 undergraduates in the School of Film, Dance and Theatre of a southwestern state university. Students also were required to keep a journal in which they reflected on how they felt prior to and after each class, and then recorded three additional entries during the week with observations about their experiences with thinking, sensing, feeling, and moving. Repeated measures analysis of covariance (ANCOVA) was conducted to assess changes in levels of mindfulness, body awareness, and perceived leadership capacities using standardized scales administered at study baseline, midterm, and end of term. Over the semester, students evidenced significantly greater mindfulness, body awareness, and a domain of transformational leadership measuring empathy, controlling for their level of stress at the time of final exams. To meet the needs of today's

college students, our results suggest that the Feldenkrais Method shows promise as an intervention to promote mindfulness, body awareness, and empathic leadership.

Introduction

Our research examines the Feldenkrais Method of somatic education as a potential strategy for enhancing mindfulness, body awareness, and empathetic leadership perceptions among college students. The study we report on is part of a larger initiative to incorporate principles of mindfulness into the creation of a leadership curriculum in the School of Social Transformation at Arizona State University. This curriculum is designed to help students develop the leadership capacities needed for social justice advocacy and activism. While there is a growing body of research showing the benefits of mindfulness practices on a wide range of educational outcomes (Barbezat & Bush, 2014; Bush, 2010; Morgan, 2014. Robinson 2004), less attention has been paid to the effects of specific approaches to increasing mindfulness in college students with the goal of impacting their leadership abilities (Burrows, 2015; Ergas, 2013).

Somatic education involves using sensory-motor learning to acquire greater voluntary awareness and control over the movement of one's body through the environment (Eddy, 2009). Our attention is focused on the role of the Feldenkrais Method of somatic education, in which participants' enhanced awareness of bodily sensation, we believe, may uniquely support the relational capacities, such as openness and empathy, which are needed for advocacy and social change. Our ultimate goal is to promote embodied leadership, which we define as having a somatic sense of self that allows individuals to engage somatic cues in performing leadership in a manner that is experienced as authentic, both by the leader and by those he or she is attempting to lead (Ladkin & Taylor, 2010).

Contemplative approaches to learning encourage mindfulness practices that facilitate the integration of mind, body and emotions, and can include methods such as movement, meditation, reflection, visualization, and altering breathing patterns. One goal of these practices is to slow down the cognitive thought process so that the individual is more open and able to learn new ways of perceiving, sensing, and feeling that are conducive to remaining in the present. Leaders and activists who remain in the present are better able to put aside their own emotional responses to change and stay focused on the vision and goals of transformation (Burns, 1978). Such leaders may be perceived by others as more confident, more authentic, and better able to lead during periods of rapid change, uncertainty, and organizational upheaval (Ladkin & Taylor, 2010). Contemplative practices are also associated with the development of self-compassion and empathy, the first steps in being able to see the world from the perspective of others. Such practices can also lead to the reduction of stress that can block the creativity needed to find novel solutions to problems. The body can provide valuable information for learning how to be congruent with one's self-image and to act in the world with integrity (Schuyler, 2010). Thus, the purpose of our study was to test for changes in levels of mindfulness, body awareness, and leadership among college students who received Feldenkrais somatic education, and to explore the interrelationships among these three outcomes and their potential value for training transformational leaders.

Literature Review

The Feldenkrais Method of Somatic Education. The Feldenkrais Method of somatic education was developed by the Israeli physicist and engineer Moshe Feldenkrais (1904-1984) who brought the method to the US in 1972 and trained hundreds of teachers who in turned trained hundreds of others (Reese, 2015). In 2014, there were 7,000 certified Feldenkrais instructors world-wide, national and international professional associations, annual conferences, and a research journal (International Feldenkrais Federation, 2016). Through touch and movement, the method creates learning situations that alter familiar patterns of action and promote change at the level of tacit knowledge whereby individuals learn to act effectively without the need to fully articulate the processes involved (Schuyler, 2010). The Feldenkrais Method can be administered in the form of group lessons in a process known as Awareness through Movement (ATM). Lessons consist of verbally directed, gentle movement sequences in which the Feldenkrais practitioner guides participants through precisely structured explorations that involve thinking, sensing, moving, and imagining. ATM lessons work by making individuals cognizant of their own habitual neuromuscular patterns and rigidities, and by creating options for new ways of moving while increasing sensitivity and improving efficiency. By experiencing the details of how one performs an action, the student has the opportunity to learn how to attend to the whole self, reduce stress, eliminate unnecessary energy expenditure, and mobilize intentions into action. This allows the brain to create new neuro-cognitive patterns and affords the individual new options for moving and being in the world.

Research suggests that the Feldenkrais Method induces relaxation (Wanning, 1993). It also can elevate mood, enhance the ability to learn, and increase clarity of thought (Lake, 1985). The method has been associated with reductions in negative emotional states such as stress and fearfulness (Kolt & McConville, 2000). An extensive summary of the research literature on outcomes of Feldenkrais interventions includes studies finding significant improvement in movement and flexibility, reduction in mental health symptoms such as depression and anxiety, enhanced self-efficacy and self-image, and positive increases in quality of life (Hillier & Worley, 2014; Smyth, 2012).

Mindfulness. Originally associated with eastern religions and philosophies, the concept of mindfulness has expanded its reach into a variety of areas including health and wellness, psychology, business, and law. A wide variety of mindfulness practices and programs can be found in schools, prisons, hospitals and clinics, the military, and business corporations. While meditation is perhaps the most commonly practiced form of mindfulness, mindfulness can take other forms including, dance, walking, breathing, visualizations, storytelling, reflection, journaling, yoga, tai chi, the Alexander technique, and Feldenkrais. The most widely cited definition of mindfulness is the one developed by Kabat-Zinn (1982) as a particular way of paying attention; on purpose, in the present moment, and nonjudgmentally. Mindfulness involves a moment-by-moment awareness of our thoughts, feelings, bodily sensations, and surrounding environment (The Greater Good Science Center of University of California at Berkley, 2015). We notice our thoughts and let go of judging them by moving away from ruminations about the past and anxieties about the future. This creates a mental space where we can slow down and become more aware of internal bodily sensations, and this awareness called “inner sensing,” interrupts our habitual thought processes. In a study of teachers conducted by

Burrows (2015), inner sensing allowed educators to develop a greater range of choices about how they responded to situations in their classrooms and instructional environments. “Many began to trust their instincts and creativity, pausing and thus avoiding a tendency to react on autopilot, thus opening spaces for new options” (Burrows, 2015, p. 7).

Ergas (2014) provocatively argues that educators need to shift from focusing on *what and how* to think which, although important, should not supersede a focus on *whether and when* to think. He argues that because our default state of mind is one in which our thoughts are wandering, we need to find ways to stop compulsive thinking in order for learning to take place. When our mind wanders we move away from being present in the moment and it becomes harder to make sound judgements in real time. Mindfulness brings back the wandering mind, yet we know little about the specific pedagogies useful for teaching about mindfulness in ways that do not involve cognition. Ergas (2014) argues that we need to go deeper into the place from which thoughts emanate and can be observed, and he suggests the need for a body-oriented pedagogy that cultivates bodily sensations. This orientation is the very countering of the mind’s tendency to wander, since it compels our attention to remain grounded in present bodily sensations. A qualitative study (Broome et al., 2015) of elders participating in Feldenkrais lessons found that they self-reported enhanced mindfulness as one of its benefits. We argue that Feldenkrais has the potential to enhance mindfulness in ways that help people remain in the present, enhancing their capacities for empathic leadership.

Body Awareness. Body awareness involves attending to internal bodily sensations and learning how to interpret the meaning of these sensations, which are considered to be mutually constitutive with attitudes, affect, memories, and beliefs. By directing the student’s attention to bodily experiences such as movement, gestures, internal physical sensations, and breathing, Feldenkrais is a method for increasing body awareness. The method has been shown to increase body awareness in fibromyalgia patients who reported greater ease of movement, along with increased flexibility and reduced stiffness (in Smyth, 2012, pg. 59). Similarly, in a study of chronic pain sufferers (Ohmann et al., 2011), Feldenkrais participants reported feeling “more present in the body.” Some research has suggested that Feldenkrais can improve self-image and enhance positive perceptions of one’s body (Malmgren-Olesson et al., 2001). There is evidence that body awareness is related to mindfulness skills such as sustained attention, concentration, non-reactivity, and non-judging of experience (Mehling, et al., 2011).

Empathetic Leadership for Social Transformation. Transformational leadership involves the ability to inspire action, motivate change, and envision “what has not yet been brought into the world” (Kuepers, 2011, p. 29). The distinction between leader and follower is lessened, allowing for mutual influences that can convert followers to leaders and leaders to moral and ethical agents (Burns, 1978). Transformational leaders conceive of a world that operates according to principles of fairness, and are drawn toward the use of direct action and multiple forms of advocacy in order to bring about positive change. They seek, in other words, to become socially engaged and empathic leaders.

According to Kuepers (2011) embodiment, emotions, and aesthetics are important elements of transformational leadership--three elements that we argue can be addressed through somatic education such as Feldenkrais. Emotions are important because they help to mobilize

potential change agents to care about an injustice, to believe that something can be done about it, and to become willing to act to change the situation. Emotions are also important because regulating one's emotions is important to staying in the present, listening to others, and finding flexible solutions--all part of being an effective leader. Body-awareness provides the individual with the opportunity to connect bodily sensations to affective states. The expression of self in the ways that are congruent with purpose, goals, and ideals helps to create authenticity and brings into play the ethical dimension of a leader's behavior.

Empathy or the ability to understand the perspectives of others who do not share one's point of view is crucial to transformational leadership. In one study (Kellett, et al., 2009) people rated as highly empathic were more likely to be regarded by their peers as leaders. In addition, empathy was related positively to both task leadership and relational leadership and mediated the effect of other emotional skills such as the ability to identify others' emotions and one's own.

To our knowledge, only one author has proposed that Feldenkrais education has the potential to contribute to transformational leadership training. This is Kathryn Goldman Schuyler (2010) who argues that Feldenkrais can lead to greater awareness of physical sensations that accompany decision-making or acting. She argues that attending to physical sensations rather than ignoring them, allows for more authentic performances of leadership as people become more comfortable and effective in their bodies. By grounding individuals in the present, Feldenkrais can free them from worries, fears, and ways of acting that are based on past negative experiences or unhelpful expectations. Remaining in the moment may enable individuals to act powerfully and effectively as leaders (Schuyler, 2010; Schuyler, 2012; Schuyler, 2013).

Given the foregoing evidence and theorizing, we hypothesize that college students who participate in a multi-session Feldenkrais Method intervention will show significant increases in mindfulness, body-awareness, and self-perceived empathetic leadership capacities from pre- to post-intervention. These changes, in turn, may promote better student learning outcomes and help students develop the capacity to become transformational leaders.

Method

Participants. A convenience sample of 21 undergraduate students in the Arizona State University School of Film, Dance and Theater was recruited for this study. All participants were enrolled in a 16-week semester-long class (DCE 117) entitled Feldenkrais Awareness through Movement (ATM). Participants' gender distribution was 81% (n=17) female, 5% (n=1) male, and 14% (n=3) who chose not to disclose their gender.

Procedures. During the first class of the semester, the researchers delivered a presentation describing the purpose of the study, detailing what research participation would involve, and emphasizing its voluntary and anonymous nature. The instructor for the course was not present during this session. Students were told that they did not have to participate in the research in order to take the class, and that they could leave the study at any time without negatively affecting their relationship with the instructor or their grade. After giving students an opportunity to ask questions, they were invited to participate by completing the study's pretest protocol consisting of paper and pencil questionnaires (described below). All but one student

consented to enter the study, for a response rate of 95% (21/ 22). Participants completed the study protocol again at mid-term (week 8) and at the time of the final classroom session (week 16). At the third and final follow-up time period, 15 of the participants completed the study's post-test protocol, for a follow-up rate of 71% (15/21). We tested to see if the follow-up rate varied by gender category (male, female, other) and found that it did not (chi-square = 0.064, $p=.967$). All study procedures, including those concerning the provision of verbal informed consent, were approved by the Arizona State University Institutional Review Board.

Intervention. The intervention consisted of thirty-two, 1.25-hour long ATM group sessions taught by a certified Feldenkrais instructor twice weekly. Students were also required to keep a journal in which they reflected on how they felt prior to and after each class, and then recorded three additional entries during the week with observations about their experiences with thinking, sensing, feeling and moving.

Each classroom session began with a discussion segment during which students were encouraged to share experiences of the previous session, reflecting on what was notable from the last class, and what they did and did not enjoy. Students were also asked to reflect on any subsequent changes they may have experienced in bodily sensations (e.g., when playing sports, musical instruments, walking, biking) as well as any alterations they noticed in their sleep patterns. This segment typically included a brief didactic presentation by the instructor, focused on the theoretical work of Moshe Feldenkrais and related neuroscience literature, and a question and answer period. Next, lessons turned to body work, with four weeks spent on each of four topics in the following order: 1) coordinating flexor/extensor muscles; 2) breathing; 3) spatial orientation; and 4) eye and hand movement. These segments began with participants lying on the floor so that they could create a baseline feeling of where their bodies were in space by using the floor as the reference point. Next, the instructor moved students through a "body scan," asking them to notice where each body part touched the floor. This same scan was done at the conclusion of each lesson, to allow students to become aware of any changes between baseline and end-of-class. Flexor/Extensor lessons were designed to help students understand how they might be overusing their flexor and extensor muscles, and to provide easier and more natural alternative ways of moving that would reduce unnecessary muscle contractions. Breathing lessons were intended to help students uncover habits in their breathing and to identify various ways of using the breath related to different functions such as talking, sitting, singing, dancing, and swimming. These lessons help participants to differentiate the length, ease of movement, and effort of each part of the breathing cycle and the different parts of body parts that are used in association with that particular part of the breathe. Lessons concerning spatial orientation allowed students to become more aware of where they were in space, and provided alternative movement options that allowed the distribution of effort to be spread more evenly throughout the organism. Eye and hand lessons were designed to teach participants how to reduce information overload taken into the organism through the eyes and hands. Participants were asked to direct their attention to how the effects of small movements of the hand and eye affect other parts of the body and how this might lead to the reduction of strain.

Measures

In accordance with the study's conceptual model, three intervention outcomes were assessed using published measures. Body awareness was measured with the 20-item Scale of Body Connection (SBC) (Price & Thompson, 2005), a self-report measure comprised of two subscales. One assesses body awareness and the other bodily dissociation. We used the 12-item body awareness subscale that rates perceptions of body states along a 5-point Likert-type scale ranging from 1 (not at all) to 5 (all of the time). Sample items included "I notice feeling different after peaceful experiences," "I notice how my body changes when I am angry," and "I take cues from my body." In our study, the measure demonstrated good reliability as determined by Cronbach's alpha ($\alpha = .84$).

The second outcome was mindfulness, assessed using the Mindful Attention Awareness Scale (MAAS) (Brown & Ryan, 2003), a 15-item self-report measure designed to measure mindfulness in terms of present-centered attention-awareness. Participants rated each item using a 6-point, Likert-type scale ranging from 1 (almost never) through 6 (almost always). Sample items included "I find it difficult to stay focused on what's happening in the present," "I find myself preoccupied with the future or the past," and "I rush through activities without being really attentive to them." Similar to the previous measure, the MAAS also demonstrated good reliability in the present study ($\alpha = .87$).

The third outcome was ethical competence in leadership, assessed using the Ethical Leadership Scales (ECS) which are three separate scales designed to encourage self-assessment of one's mind-set regarding the use of ethical behavior during social interactions with others in leadership situations (Berghofer & Schwartz, 2008). We used a 13-item subscale called the Social Ethical Competence Subscale that measures the extent to which individuals perceive that they "act to induce desirable, ethically grounded responses in others" (referred to as communicative leadership) and "strive to understand and appreciate the worth of others" (referred to as empathetic leadership). Sample items for communicative leadership include "seeking to be clearly understood," "dealing with difficult issues straightforwardly," and "welcoming full sharing of information." Sample items from empathetic leadership include "being able to walk in someone else's shoes," "being attentive to emotional cues," and "being sensitive to others' feelings and perspectives." Respondents used a 5-point, Likert-type scale ranging from 1 (never) to 10 (always) to rate their self-perceived leadership competencies. This 13-item subscale demonstrated good reliability for its total score ($\alpha = .77$) and communicative subscale score ($\alpha = .82$), and lower reliability for the empathetic subscale score ($\alpha = .49$).

We assessed one additional feature as a control variable, and this was participants' level of stress, measured using the Undergraduate Sources of Stress Questionnaire (USSQ) (Blackmore et al., 2005). From the 4 subscales of the USSQ, we chose the 6-item Personal Issues Subscale that measures stress in mood, health, and social relationships. Respondents rated the extent to which each potential stressor was a source of stress to them using a 5-point Likert-type scale ranging from 0 (not at all) to 4 (a great deal). Sample areas queried included "relationships with family members," "psychological health," and "loneliness." In this study, the subscale exhibited moderate reliability ($\alpha = .62$).

Analysis

Frequency distributions and univariate statistics were calculated. It was hypothesized that the intervention would increase mindfulness, body awareness, and self-perceived leadership capacities over time. We wanted to control for students' level of stress which we expected to be elevated at the end of the semester due to final exams. Thus, we conducted a repeated measures analysis of covariance (ANCOVA) co-varying stress, to determine the changes in our three dependent measures across the three time points. Finally, we examined correlations between the three outcome variables at post-test, using two-tailed Pearson correlations without hypothesized directions.

Results

Repeated measures analysis of covariance (ANCOVA) were conducted to assess changes in the three intervention outcomes, adjusting for stress as a covariate. The independent variable, time, had 3 levels: baseline, mid-term, and post-intervention. The dependent variables were mindfulness, body awareness, and leadership at follow-up. The basic measurement and distribution assumptions of ANCOVA were met; in addition, the homogeneity of the regression effect was evident with no significant interaction between stress and time, and a linear relationship between stress and dependent variables.

Table 1 presents baseline means and standard deviations for all variables, along with the results of the repeated measures ANCOVA analysis. Results indicated that there was significant improvement over time in participants' level of mindfulness. This is shown by the significant time effect for this outcome (Wilks's $\Lambda = .43$, $F(2,9) = 6.04$, $p < .05$), with a mean increase in mindfulness from baseline to post-intervention of +0.44. Results also showed that there was a significant improvement over time in students' body awareness with a significant time effect for this outcome (Wilks's $\Lambda = .49$, $F(2,9) = 4.74$, $p < .05$), and a mean increase from baseline to post-intervention of +.038. Finally, although there was an average increase over time in participants' Total Leadership scores of +0.14, and an average increase in the participants' Communicative Leadership subscale scores of +.05, these were not statistically significant. However, there was a significant increase in the Empathic Leadership Subscale (Wilks's $\Lambda = .45$, $F(2,9) = 5.40$, $p = .031$), increasing on average by +0.35 between baseline and follow-up.

Table 1. Repeated Measures Analysis of Covariance: Post-intervention change in Mindfulness, Body Awareness, and Leadership controlling for Level of Stress

Time Effect	Wilks's Lambda Λ	F (degrees of freedom)	1-sided p-value	Baseline mean (standard deviation)	Pre to Post Mean difference (standard error)
Mindfulness	0.43	6.04 (2,9)	.011	3.45 (0.74)	+0.44 (0.14)
Body Awareness	0.49	4.74 (2,9)	.020	2.52 (0.79)	+0.38 (0.16)
Total Leadership	0.79	1.22 (2,9)	.170	2.90 (0.42)	+0.14 (0.10)
Communicative Leadership	0.91	0.44 (2,9)	.328	2.75 (0.60)	+0.05 (0.10)
Empathic Leadership	0.54	3.90 (2,9)	.030	3.13 (0.41)	+0.26 (0.13)

We also examined associations between the three outcomes following the intervention. At post-test, body awareness was significantly correlated with total leadership and empathic leadership scores (Pearson's $r=0.53$, $p=.044$ and $r=0.48$, $p=.049$, respectively). However, mindfulness was not correlated with either body awareness or leadership, suggesting that this may be an independent outcome dimension.

Discussion

Our goal was to determine whether college students participating in Feldenkrais Awareness through Movement lessons experienced self-perceived increases in body awareness, mindfulness, and transformational leadership capabilities. This specific study is part of a larger project related to understanding the specific capacities needed by student leaders for social transformation and the pedagogical strategies needed to develop those capacities. Our ultimate goal is to create a research and training center for transformational leadership and embodied activism in the School of Social Transformation at Arizona State University using meditation, journaling, and discussion, and the Feldenkrais method of somatic education. We seek to create a learning environment where students can translate what they are learning in the classroom into skills useful for advocacy and social action required by transformational leadership.

Our study found that over a 16-week semester during which students received somatic education using the Feldenkrais Method, undergraduate college students evidenced significantly greater body awareness, mindfulness, and a domain of leadership measuring the capacity for empathy, controlling for their level of stress at immediate post-intervention, which coincided with the time of final exams. This suggests that the Feldenkrais method of somatic education may be a useful pedagogy for increasing student awareness of bodily sensations and the importance of such awareness for interrupting habitual patterns of thought and movement which are important for staying in the present moment. Greater body awareness can help students to recognize when situations are triggering unhelpful emotions, which sets the stage for engaging in emotional self-regulation. We also found that there was a significant increase in mindfulness at the end of the semester suggesting that Feldenkrais may be an effective way of teaching college students mindfulness. While we did not find a direct link between mindfulness and leadership as measured in this study, we do know from previous research that mindfulness can reduce stress

and compulsive thinking, increase focus, enhance clarity, improve concentration, and induce a state of calm (Chiesa & Serretti, 2009; Hanstede et al., 2008; Christopher & Maris, 2010). These, in turn, are capacities that are useful to individuals seeking to engage in transformational leadership and learning.

The cultivation of empathy is also crucial for transformational leadership and we found that Feldenkrais participants showed significant increases in the degree to which they saw themselves as capable of empathy in leadership situations. Empathy or the ability to “put yourself in the shoes of others” and see a situation from the perspective of others is fundamental to building leadership relationships with people. Empathy is also a particularly important skill to have in settings characterized by levels of cultural, racial and gender diversity. This is important to transformational leadership because inspiring change and mobilizing others to bring change about often requires building relationships with disenfranchised groups of people who may not be immediately ready for action.

Limitations

Our study design has a number of limitations that should be mentioned. The first is that the students who participated in the research were not nationally representative of all college students since they were recruited from a single, large, Southwestern state university. The second is that we did not include a control group in our study design and thus, we cannot attribute the significant changes in mindfulness, body awareness, and empathetic leadership that we observed to participation in the intervention itself. Third, without the ability to conduct follow-up testing, we are unable to determine whether the improvement that we noted in each domain persisted over a longer period of time beyond the immediate post-intervention period. Fourth all of our outcome measures were self-report in nature, and this may have introduced positive response biases given that students may have wished to portray themselves in a more “mindful” and “empathetic” light. Fifth, our attitudinal measures may not have adequately and accurately captured the outcome domains we sought to measure, which are highly subjective and require an advanced degree of self-awareness. Sixth, the students who chose to enroll in the class and then agreed to participate in the research may have been individuals who were more inclined to change their feelings and attitudes than the general college student population, creating a selection bias that artificially inflated the likelihood of pre-post differences. Finally, our small sample size limited the types of statistical analyses we could perform. While all of these weaknesses call for caution in interpreting our findings, our study was developmental in nature since we seek to document empirical associations between the processes we envision as important to the leadership training we are developing. We also feel that the critical lack of knowledge in this area makes our results worthy of attention and further exploration.

Conclusions and Future Directions

While there are many venues on campus in which students may develop leadership skills such as athletics, campus organizations, community service, and volunteering, college education has become more intentional about training students for leadership. This has led to the growth of formal curricula such as the designation of leadership majors and development of leadership certificate programs. While the evidence for the effectiveness of college leadership training

programs is mixed, there are new studies that clarify the elements of successful programs (Fischer, et. al. 2015, Ho and Odom 2015, Soria et.al. 2015). These include coupling the training with internships and student employment, and developing a curriculum that is sequenced and builds on the students' maturation and intellectual progression over multiple years of college attendance. Some of the apparent contradictions in this literature may result from a lack of clarity in defining leadership, and from the failure to contextualize different types of leadership for specific demographic populations, situations, and purposes. For example, leadership skills that are successful in business settings may differ greatly from those needed in economic and political community empowerment contexts. This suggests the need for a leadership curriculum that is more precise in terms of learning objectives, desired outcomes, and the pairing of pedagogical strategies to sought-after outputs. What type of leadership is needed? For what purposes and for whom? How it is best delivered?

The research of Fisher and colleagues (2015) found that a leadership certificate program did over time lead to changes in leadership attitudes and beliefs among student employees, for whom the program was compulsory. However, these authors also note the need to identify specific methods and strategies that are effective in developing leadership skills for students who voluntarily participate. Ho and Odom (2015) contend that the biggest challenge facing leadership education is clarifying leadership complexity. They argue that it is important to move students away from hierarchal thinking in which leadership is conceived of in terms of a hierarchy of roles and positions, formal lines of communication, and fixed traits. Instead, leadership education should involve helping students to think systemically with an awareness that they are embedded in teams and need an understanding of the interdependent nature of leadership. Their research found that students near the completion of a curriculum designed to move them from hierarchical to systemic thinking about leadership were in fact in the midst of making such shifts.

We propose that studying the effects of a mindfulness education method, Feldenkrais Awareness through Movement, is a promising way to gain greater specificity about promising pedagogical techniques for developing transformational leadership, which emphasize systematic thinking about leadership. We go a step further in making the claim that not all approaches to leadership need be exclusively cognitive, and argue that somatic education may be an additional ingredient of a truly effective curriculum. A holistic approach to leadership education requires a better understand of how awareness of bodily sensations plays a role in developing more mindful leaders with the empathy to build complex interpersonal relationships that serve as a foundation for social and political change. We call for more explorations of the Feldenkrais Method with different populations, using more precise measures of mindfulness and leadership, and employing more rigorous study designs such as random assignment, in order to move the field forward.

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