

Fostering Spiritual Intelligence: Undergraduates' Growth in a Course About Consciousness

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ABSTRACT: *Despite a growing interest among college and university students in exploring questions about spirituality through higher education, few are provided with opportunities to do so. An integral approach to the study of consciousness addresses this gap by examining theories of consciousness and spirituality from diverse epistemological perspectives, including Western science and non-Western wisdom traditions. This study explored the intellectual and personal effects of this approach for undergraduate students who were enrolled in an Honors course about consciousness at the University of Washington during Winter Quarter 2008. Results indicated that students became more open to diverse ideas about consciousness, more self-aware, and more committed to meditation and self-reflection. Implications for the growing discourse about spirituality in higher education and the development of spiritual intelligence are discussed.*

In 2004 we began an exciting and unexpected collaboration. William Green, who was then a freshman at the University of Washington in Seattle (UW), enrolled in an elective course offered through the UW Honors Program entitled "The Farther Reaches of (Human) Nature ("Farther Reaches"). The course was taught by Kathleen Noble, a professor of women studies at UW who is also a licensed psychologist trained in neuroscience and experienced in meditation. The title of the course was drawn from the pioneering work of Abraham Maslow (1971) which was compiled in a posthumous book, *The Farther Reaches of Human Nature*. For the purposes of the course, however, the word "human" was placed in parentheses to incorporate more recent research by Rupert Sheldrake (1999) and Jeremy Narby (1998) into animal and biospheric awareness.

Prior to taking “Farther Reaches,” Green had been completely unfamiliar with the questions raised by the study of consciousness; yet over the ten weeks of the quarter he became fascinated by them. He realized that no single academic discipline could answer them completely and that each discipline approached the same questions from different perspectives and arrived at unique answers. Further, the questions forced him to draw upon personal life experiences and examine beliefs and hidden assumptions that he had long held unquestioned. Green found that his relationship to and interpretation of the natural environment changed dramatically as a result of participating in “Farther Reaches”; he developed a passion for environmentalism that later led him to study sustainability in India and Greece. He also found that the course opened his eyes to the many blind spots in his own knowledge and fostered an insatiable curiosity to explore still further the myriad mysteries of consciousness.

At the conclusion of the course, Green wanted to continue studying consciousness and asked Noble to create an opportunity to do so. As a result, we conducted a year long reading group with six other students from Green’s 2004 class that delved deeper into the philosophies, theories, and relevance of consciousness to spirituality. In Spring Quarter 2005, Green served as a teaching assistant for another “Farther Reaches” course and in Autumn Quarter 2005 he organized a focus group, modeled after the previous year’s reading group, so that interested students could continue this exploration. He also continued to pursue his personal interest in consciousness through philosophy and contemplative practices.

Throughout these courses and reading groups we observed that many students were affected in similarly personal and powerful ways. This observation led us to wonder how and why studying consciousness from an integral perspective brought about such positive responses and whether we were witnessing the growth of students’ spiritual intelligence. These questions led to the study that we report in this article.

Spirituality and Spiritual Intelligence

There is a strong and growing interest among college and university students in exploring spirituality in academic settings. Recent surveys of more than 112,000 first year students at 236 colleges and universities, conducted by Alexander Astin and his colleagues at the University of California, Los Angeles, found “a high level of spiritual engagement and commitment among college students, with more than half placing a high value on ‘integrating spirituality’ in their lives” (Astin, A., Astin, H., Lindholm, Bryant, Calderone, & Szelenyi, 2004, p. 2). Respondents wanted to investigate the subject and content of spirituality through academic curricula and endorsed as “essential”

or “very important” life goals that included attaining wisdom, becoming a more loving person, improving the human condition, and developing a meaningful philosophy of life. However, “more than half (56%) say that their professors *never* provide opportunities to discuss the meaning and purpose of life...or encourage discussions of spiritual or religious matters” (p. 6, emphasis in original).

These findings are intriguing in light of a burgeoning conversation among psychologists, religious scholars, advanced meditators, and scientists about the role of spirituality in human evolution. Questions about the definition of spirituality, the range of experiences considered to be spiritual, neurological sites of spiritual activity, and the possibility of spirituality as a form of intelligence are at the heart of this multidisciplinary exploration. One has only to reflect on the unprecedented dialogue that took place at the Massachusetts Institute of Technology (MIT) in September 2003 among His Holiness the Dalai Lama, Buddhist monks and scholars, and neuroscientists (with a capacity audience of 1200 academics, scientists, students, and journalists and more than 2000 people on the waiting list) to appreciate the enormity of this interest (Harrington & Zazonc, 2006).

This conversation has significant roots in the pioneering work of Abraham Maslow, an architect of the fields of Humanistic and Transpersonal Psychology. Maslow coined the term “self-actualization” in 1950 to describe individuals who he believed demonstrated exceptional psychological health. “Self-actualization means experiencing fully, vividly, selflessly, with full concentration and total absorption...At the moment of experiencing, the person is wholly and fully human” (1971, p. 44). Maslow called this moment a “peak experience” characterized by a sense of the deep authenticity of one’s being as well as the perception of transcendent or unitary consciousness. After further study Maslow added to his theory of self-actualization the concept of “plateau experience” (a deeper and more sustained spiritual awareness) and identified two types of self-actualizing people: “those who were clearly healthy, but with little or no experiences of transcendence, and those in whom transcendent experiencing was important and even central” (p. 270). Transcending self-actualizers were those for whom the illusion between personal and ultimate reality was forever shattered. According to Maslow, these individuals were more than ‘merely healthy.’ For them, peak and plateau experiences were the most important experiences of their lives. They readily perceived the unity and sacredness in all Being, they were more consciously and deliberately motivated by values such as truth, beauty, goodness, and integrity, and they showed a strong positive correlation between increasing knowledge and an increasing capacity for awe. For transcending self-actualizers, the mysteries of the universe were “attractive and challenging rather than frightening” (p. 280) and inspired a deep sense of humility as well as sustained engagement with the spiritual questions of life.

As Maslow and others (e.g., Emmons, 2000; Noble, 1987, 2000, 2001) have articulated, spirituality defies easy definition or explanation. The experiences encompassed by this concept are complex phenomena with cognitive, emotional, biological, religious, and cultural components. They are extremely diverse, and have been reported in every culture and era. They are also unavoidably subject to individual interpretation. Some experiences involve contact between individuals and the sacred, or what they perceive to be God, the Creator, or ultimate reality. Others are more prosaic, and include extrasensory perceptions, dreams, and altered states of consciousness, such as shamanic and out-of-body experiences. Spiritual phenomena arise in a plethora of ways and contexts, including meditation, listening to music, being in nature, attending religious services, psychological and physical trauma, sensory deprivation, and the ingestion of psychoactive plants or drugs. Some arise spontaneously, while others result from committed contemplative practice.

Kathleen Noble (2000, 2001) has argued that spiritual experiences not only facilitate self-actualization but are precursors to spiritual intelligence, a construct that has both theoretical validity and practical implications. In separate studies, she and another psychologist, Robert Emmons (2000), delineated key characteristics thought to be at the core of spiritual intelligence. For Emmons, these include the capacity for transcendence; the ability to enter into heightened spiritual states of consciousness; the ability to invest everyday activities, events, and relationships with a sense of the sacred; the ability to utilize spiritual resources to solve problems in living; and the capacity to be virtuous and to engage in virtuous behavior. Noble added two additional features: the conscious recognition that physical reality is embedded within a larger, multidimensional reality, and the choice to develop psycho-spiritual awareness in order to promote the health of both the individual and the global community. Her research suggests that in order for spiritual experiences to evolve into spiritual intelligence, an individual must seek to understand the meaning of those experiences and integrate them mindfully into the totality of his or her personal and community life. Intelligence, she argues, is critical to this process because the experiences can have profound effects biologically, psychologically, intellectually, and interpersonally – not always positive. Further, individuals must learn to tolerate uncertainty and paradox, and recognize that all religions, wisdom traditions, and spiritual experiences contribute important and unique insights into the larger phenomena of consciousness and ultimate reality.

The theory of spiritual intelligence is in the early stages of development and understandably controversial. Two psychologists, John Mayer (2000) and Howard Gardner (2000), disagree with the concept albeit for different reasons. Mayer proposes that spirituality is heightened consciousness rather than an intelligence, and that the paradigm of intelligence is too limiting because spirituality is more than abstract reasoning, a core feature of intelligence. Further, he does

not distinguish spiritual intelligence from spirituality itself. Gardner, on the other hand, disputes the concept of spiritual intelligence in part because it cannot be supported by experimental psychological investigations or psychometric findings, two of his criteria for distinguishing an independent intelligence.

Can spiritual intelligence be empirically measured? This is a difficult and complicated endeavor. Much of the difficulty lies in defining what a spiritual experience might be. Different cultural and religious traditions have unique vocabularies for depicting what could be identical experiences, and there is much disagreement about what constitutes a spiritual experience. Quantitative measures of the incidence, prevalence, and effects of spiritual experiences have been developed, although each uses its own definitional and metaphorical language. MacDonald, Friedman, and Kuentzel (1999a, 1999b) published an extensive literature survey of measures of spiritual and transpersonal constructs, updating earlier research about different instruments reported by MacDonald, LeClair, Holland, Alter, and Friedman (1995). They described 30 instruments that measured a wide range of experiences and concepts and concluded:

When we consider the status of research on the aforementioned tests, although it is apparent that numerous research topics have been investigated, certain topics, as well as measures, appear to have garnered the most attention. In particular, topics such as non-ordinary states of consciousness (e.g., meditative, hypnotic, dissociative, and the like), coping, health and wellness, and the implications of spiritual and transpersonal phenomena for therapeutic interventions, seem to represent the majority of literature we uncovered.

(1999a, p. 147)

Spiritual intelligence has only recently emerged as a theoretical construct and has not yet generated a body of research that would recommend the use of a particular instrument to measure it.

Since Maslow published his ground-breaking research, however, several studies have supported his claim that spiritual or transcendent experiences are related to positive psychological well-being in both children and adults (e.g., Delmonte, 1980; Jewkes & Baruss, 2000; Lukey & Baruss, 2004; Morse, 1990; Noble, 1987, 2001; Ring, 1980). Jewkes and Baruss (2000), for example, found that students who held transcendent rather than materialist beliefs were “more curious about the world, more open to experience, strive more conscientiously toward goals in life, and are less concerned about what others think of them than those with materialist beliefs” (p. 97). Lukey and Baruss (2004) studied the relationship between transcendent beliefs and measures of intelligence and personality characteristics. They reported:

Not only are transcendent beliefs associated with greater proficiency in the acquisition and use of acquired knowledge, but also with better psychological abilities that are required to

work with novel situations. These abilities include memory, speed of information processing, visualization, perceptual analysis, rapidity of imaginal processing, critical judgment, motivation, and persistence.” (p. 269)

Noble (2000, 2001) used qualitative methods to explore the relationship between spirituality, resilience, and psychological growth in the lives of adults from different cultural and religious backgrounds. Participants reported a diverse array of spiritual events, including near death experiences, profound states of awareness achieved through meditation or prayer, spontaneous physical healing, and powerful dreams that showed them how to positively reorient their lives. Noble found that these experiences transformed participants’ ideas about consciousness and reality and led to a marked improvement in their psychological and emotional health. They developed a deeper sense of meaning and purpose, lived their lives more deliberately, and became more compassionate and tolerant of individual differences. They also became more accepting of all parts of themselves—both the good and the bad. Her study suggested that spiritual experiences, integrated intelligently into a person’s life, could lead to a greater understanding of and ability to endure adversity, a conscious rejection of self-destructive attitudes and behaviors, a newfound or renewed ability to recognize and utilize inner resources such as intuition, an enhanced acuity of feeling, particularly empathy and humility, and a commitment to participate more fully in life.

Unfortunately, research in this area is limited by the small number of investigators who study these questions and by the fact that spirituality is irreconcilable with materialist models of reality that dominate contemporary Western science. Nonetheless, neither the experiences nor their theoretical implications are likely to go away, as demonstrated by the strong interest of college and university students in Astin et al.’s studies and the participants and attendees at the MIT conference. These issues are highly relevant to many areas of inquiry, including creativity, biomedical research, neuroscience, and deep ecology. They are important to the training of health and educational professionals, and they have great potential for helping to address the seemingly intractable problems of ethnic and religious strife and the unending quest for social justice.

How can opportunities be created for college and university students to explore the concepts of spirituality and spiritual intelligence in a secular academic environment? To do so, an appropriate platform must be created so that individuals from diverse backgrounds and perspectives can delve into these issues in an intellectually rigorous way that also encourages them to be self-reflective and insightful. An integral approach to the study of consciousness is an ideal platform because it encompasses a multidisciplinary field of inquiry in which big questions and bigger mysteries cannot be avoided.

An Integral Approach to Consciousness Studies

What is consciousness? Few questions have eluded scientific and philosophical inquiry as much as this one or inspired such sustained debate. Three excellent analyses of this debate are offered by Sarath (2006), Wilber (1977, 1998), and Blackmore (2005). These works discuss the controversies and theories about consciousness at a depth that is beyond the scope of this article. Briefly, there is no definitive, all-encompassing definition or description of consciousness, although the emerging field of consciousness studies seeks to arrive at one. Currently this field is dominated by at least two schools of thought. One, favored by Western science, relies on materialist theories that argue, for example, that consciousness is constituted by the physiological structure of the brain and can be reduced to its neural activity, or that it is an emergent product of complex neural networks. By contrast, non-Western traditions claim that consciousness is ontologically primary to physical matter, an idea that underlies most of the world's wisdom traditions, including Taoism, Buddhism, Vedanta, and Yoga (Rao, 2002). These traditions explore consciousness through direct experience achieved through contemplative practices such as Qigong, Zen and Insight meditation, and Raja Yoga, which teach the practitioner to achieve a state of mental quiescence in order to comprehend reality in its nonphysical manifestations and so achieve a state of unity with the ultimate ground of being.

The integral approach to consciousness studies developed by Ken Wilber (1977, 1998) integrates both Western and non-Western ideas. Wilber likens consciousness to the electromagnetic spectrum and suggests that different theories of consciousness offer valid interpretations of the same phenomena, but at different frequencies. The integral approach rejects materialist explanations of consciousness that exclude the possibility of spiritual dimensions and draws upon insights gleaned from contemplative practices that are grounded in direct experience. According to Wilber (1998), "...Zen and the great contemplative traditions are, in every sense of the word, a deep science of spiritual interiors and they have universally concluded that there are *levels of interior experience*" (p. 203, emphasis in original). Sarath (2006) has argued that the most important benefit of an integral approach is its ability to unify a large number of disparate, yet viable, theories about consciousness. Further, it respects these theories as providing unique and valid perspectives on phenomena that defy a single, all-encompassing explanation. Another advantage of this approach is that it uses three methodologies to study consciousness: first-, second-, and third-person. Whereas third-person knowledge consists of objective, rational, and analytical inquiry and second-person is dialogical, first-person is experiential and "increases an individual's sensitivity to his or her own experience

through the systematic training of attention and self-regulation of emotion” (Harrington and Zazonc, 2003, p. 22). Contemplative practices are first-person methods that produce deep relaxation, increased concentration, receptivity to phenomena like dreams and intuition, and access to spiritual dimensions of consciousness.

The integral approach to the study of consciousness is the basis of the “Farther Reaches” course. This ten-week course offers students a structured opportunity to read and discuss consciousness from scientific, psychological, anthropological, and spiritual perspectives, as well as to practice meditation. It is organized in a lecture/discussion format and meets two times a week for two-hour periods. Each class begins with a ten-minute session of a secular breathing meditation taught by Noble at the outset of the course. Students read four books (Wilber, 1998; Mayer, 2007; Sheldrake, 1999; Narby, 1998) and other literature (Van de Castle, 1994, Van Lommel, 2006) that address the central questions of the course: “What is consciousness? Is it dependent on, independent of, or interdependent with physical reality? Why do non-Western wisdom traditions and Western scientific perspectives disagree so completely in their ideas about it? Do animals have consciousness? Do plants? What do experiences such as dreams, intuition, creativity, placebos, spiritual and near death events tell us about the plasticity and range of consciousness?” Students also work in small groups to investigate an aspect of consciousness that has not been dealt with in class and present their findings to the rest of the class. The goals of the course are four-fold: to expose students to the integral study of consciousness and spirituality; to increase their ability to think, write, and converse about these ideas; to help them better understand their personal beliefs about consciousness; and to teach them skills of self-reflection, introspection, and contemplation.

In Winter Quarter 2008 we conducted a study to ascertain whether students’ beliefs about consciousness and spirituality changed as a result of studying consciousness from an integral perspective. We also wanted to explore the pedagogical conditions that helped their understanding to become more comprehensive and insightful. Finally, we wondered how an integral approach to the study of consciousness could contribute to the growing discourse about spirituality in higher education and foster the development of spiritual intelligence.

Method

Participants

“The Farther Reaches” was an elective course open to students in the UW Honors Program during Winter Quarter 2008. All students who enrolled in it ($n = 24$) were invited to participate anonymously and voluntarily in this study. Nineteen students (79%) chose to

participate although only 14 (58%) completed the study. This final group included seven females and seven males. Seven were seniors, five were juniors, one was a sophomore, and one a freshman. Three participants reported that their primary major was in the arts and humanities, two were majoring in the social sciences, one in the life sciences, six in the natural sciences, and two were majoring in engineering. Only one participant reported holding traditional religious beliefs; three held their own beliefs, and ten reported having no religious beliefs. No information about race, ethnicity, or religious upbringing was collected in the interest of preserving participants' anonymity. Five students claimed that they had carefully examined their fundamental beliefs about consciousness and reality prior to the course, six had not given much thought to them, and three felt that they were aware of their beliefs but that it was unnecessary to examine them.

Measures

The "Beliefs about Consciousness and Reality Questionnaire (BACARQ)" was used as a pre- and post-test measure of participants' beliefs about consciousness and reality. The BACARQ was developed by Imants Baruss, a professor of psychology at King's College, University of Western Ontario, and Robert Moore, a professor of psychology at Champion College, University of Regina, to explore the relationship between personal beliefs about reality and ideas about consciousness and spirituality. After reviewing more than 150 academic books and articles about consciousness in the sciences and philosophy, Baruss and Moore (1992) created the BACARQ, which situates these beliefs on a philosophical continuum that ranges from materialism (the belief that the physical universe is the sum total of reality) to conservative transcendence (the belief that there are both physical and spiritual dimensions to reality), to transcendence (the belief that there is a universal, non-physical consciousness that precedes physical reality).

The BACARQ consists of 38 items that ask respondents whether they agree or disagree with statements such as "I think about the ultimate meaning of life," "Personal consciousness continues after physical death," and "The accepted methods of science are the only proper way in which to investigate consciousness." Answers to these questions are given in 4-point and 7-point Likert format. All but five items are scored in the direction of the transcendent dimension. An increase in the mean score for each of these items indicates that a person is more likely to agree—and to agree more strongly—with the statement. For example, the response "Strongly Agree" corresponds to a score of 3 whereas "Strongly Disagree" corresponds to -3. The remaining five items are scored in reverse; an increase in mean score indicates the strength of a person's disagreement with the statement.

The BACARQ yields seven scales that measure specific psychological constructs, which were determined by extensive

statistical analysis based upon the original studies that mapped the relationship between ideas of consciousness and beliefs about reality. These scales have high reliability, with Cronbach's alpha values ranging from .77 to .95 (Baruss & Moore, 1992). The Global Beliefs Scale is comprised of all 38 items and measures the extent to which a person endorses statements along the material-transcendent dimension. Six additional subscales are comprised of seven to 12 items each and provide a more detailed interpretation of the Global Beliefs Scale. The Antiphysicalism subscale gauges a person's belief that reality is not entirely physical. The Meaning subscale measures the extent to which a person believes that meaning and spirituality must be a part of reality. The Religiosity subscale assesses beliefs that are connected to religion, especially the belief in a specific God and absolute truth. The Extraordinary Experiences subscale gauges whether a person has had transcendent, out-of-body, and/or anomalous experiences, whereas the Extraordinary Beliefs subscale measures beliefs in ideas such as reincarnation and a universal consciousness. The last subscale, Inner Growth, measures whether a person believes that contemplation and inner exploration are necessary to change him- or herself.

In addition to the BACARQ, a brief demographic questionnaire asked participants for undergraduate year, major and minor degree programs, gender, and religious affiliation (none; traditional; own beliefs). The questionnaire also asked participants to respond to three statements about the level to which they had thought about their fundamental beliefs about reality: "1) I feel that I have carefully examined my fundamental beliefs about reality; 2) I am aware of my fundamental beliefs about reality but have not found it necessary to examine them; 3) I have not really given much thought to my fundamental beliefs about reality." Categories of religious affiliation and statements about beliefs were designed and used by Baruss and Moore (1998) in a study conducted at the 1996 Toward a Science of Consciousness conference at the University of Arizona.

Three qualitative methods were also used to explore the impact of studying consciousness on students' academic and personal experiences. These included personal journals, a two hour group discussion at the end of the course, and ethnographic observations throughout the course conducted by the first author.

Procedures

In order to comply with the requirements of Human Subjects Approval, to avoid any appearance of coercion, and to decouple students' grades from their participation, Green introduced the study to students and collected all the data. The second author was kept deliberately unaware of the identity of participants both during and after the study. At the end of the first day of class, Green read through an information statement handed out to all students that explained the details of the project. At the conclusion of his introduction, students who volunteered to participate in the study completed the demographic

questionnaire and the pre-test BACARQ. Green then asked participants to keep a journal throughout the course. Instructions about the journal were simple. Participants were asked to write one to two pages per week about their personal experiences and insights while studying the material presented in the course, but told they could write more if they wished. They were also asked to type their journals and submit them, anonymously, to Green at the end of the course. On the last day of class participants completed the BACARQ as a post-test measurement of belief change and engaged in a two-hour group discussion facilitated by Green. During this discussion they were asked to reflect on what they had learned in the course, whether keeping a journal was helpful to them in understanding the material, and what areas of consciousness studies they would like to explore further. This conversation was audio-recorded and transcribed by him, after which the audio file was destroyed to protect participants' anonymity.

Finally, Green attended all class lectures and discussions and took extensive ethnographic notes, thereby accumulating a daily record of the comments, experiences, and concerns expressed by students as they were exposed to course material. No names of participants were recorded in his notes.

Data Analysis

Pre- and post-test BACARQ scores were calculated for the Global Scale and six subscales and analyzed statistically using paired sample T-tests. A significance level was set at 0.05. The Benjamini-Hochberg procedure was applied to control for false discovery rates in multiple comparisons as described by Thissen, Steinberg, and Kuang (2002). According to Thissen et al.:

this procedure yields much greater power than the widely used Bonferroni technique that limits the familywise Type 1 error rate...(and) has been adopted for use in reporting results from the National Assessment of Educational Progress, as well as in other research applications. (p. 77)

The journals, group discussion, and Green's ethnographic notes were content analyzed for themes. Because responses in the journals and group discussion were extremely varied and defied categorization, they were reviewed by the authors and selected by consensus to illustrate findings. In the interest of space, only a few are included herein.

Both quantitative and qualitative data are presented below in response to two principal questions: 1) Do students' beliefs about consciousness and reality change as a result of studying consciousness from an integral perspective? If so, how and under what conditions does this occur? 2) What helps understanding about consciousness to become more comprehensive and insightful?

Results

Principal Questions:

1. *Do students' beliefs about consciousness and reality change as a result of studying consciousness from an integral perspective? If so, how and under what conditions does this occur?*

Participants' pre- and post-test mean scores on the Global Beliefs Scale showed a significant difference ($t = -3.776$, $df = 37$, $p = .001$), suggesting that their beliefs about consciousness and reality shifted towards the transcendent end of the material-transcendent dimension. [Degrees of freedom are determined by the number of items ($N=38$) contained within the Scale.] This indicates that they were less likely to believe that consciousness and reality could be explained in purely physical terms at the end of the course than they were at the beginning.

Table 1: Benjamini-Hochberg results for BACARQ scales

Scale	t	df	p value	Index	B-H critical	Value
Extraordinary Experiences	-1.485	11	.083	1	.025	
Religiosity	-1.789	6	.062	2	.021	
Inner growth	-2.235	9	.026	3	.018	*
Meaning	-3.378	7	.006	4	.014	*
Global Beliefs	-3.378	37	.000	5	.011	*
Extraordinary Beliefs	-4.93	11	.000	6	.001	*
Antiphysicalism	-6.98	6	.000	7	.004	*

Note. *Indicate comparisons for which the direction of the difference is confidently interpreted at the $\alpha/2$ level.

Using the Benjamini-Hochberg (B-H) procedure, Table 1 suggests that participants' pre- and post-test scores on four of the six BACARQ subscales (Inner Growth, Meaning, Extraordinary Beliefs, and Antiphysicalism) were instrumental to the direction of change represented by their Global Beliefs scores. According to Thissen et al. (2002), the B-H procedure controls the false discovery rate by sequentially comparing the observed p value for each of a family of multiple test statistics, in order from largest to smallest (Index), to a list of computed B-H critical values. The B-H critical value is computed for each test statistic. The last value (Value) is the Bonferroni critical value. Degrees of freedom are determined by the number of items contained within each scale or subscale.

These data suggest that at the conclusion of “Farther Reaches,” participants were more likely to think about the ultimate meaning of life, to feel more of a need to find meaning and purpose in their lives, and to believe that introspection was necessary to the investigation of consciousness. They were more aware that their spiritual beliefs influenced their approach to life and they were more likely to believe that consciousness was evidence of a spiritual dimension within each person. They were also more open to the possibility that consciousness was not dependent on the brain for its existence and that individual consciousness continues after death.

Several of these changes were mirrored in participants’ journals and in their responses during the group discussion. For many, the ideas about consciousness introduced during the course led to a close examination of fundamental beliefs that they had never previously considered. The two most common themes involved ideas about states of consciousness beyond rational thinking and how students thought about the meaning and purpose of their lives. For example, one student said:

this class has already really altered my thoughts on reality and consciousness. I had never heard anything about...another realm of reality where a healer moves into a patient on a cellular level.

Another student explained that he had often looked for meaning through science but felt that:

according to science, life is nothing special, just a certain way that chemicals react to each other and particles collide in “predictable,” not counting quantum, ways. It does take the meaning out of life.

On the other hand, two students stated during the group discussion that although they had examined their assumptions about consciousness and reality, they continued to question the existence of transcendent states of consciousness and to believe that science had the potential to answer all questions about the meaning of life.

According to participants, a safe environment was essential for challenging their beliefs and opening their minds to new ideas. Several lamented during the group discussion that they had not found in their other college experiences a setting where it was acceptable to talk about these larger issues. One student remarked:

I just started to forget about [the larger questions] and not think about them as much, because it’s much easier to study science and have explanations of reality that come from science, and so it was good to get back into a context where it was safe and ok to talk about these things.

Students said that a safe environment was necessary because ideas about consciousness related to important aspects of their inner lives that they rarely shared with others in or outside the academic environment. In fact, one student expressed frustration that in other classes “people hold back from expressing their emotions and intuition

to others simply because of the fear of being criticized and judged.” During the progression of the course students became more comfortable disclosing personal information about dreams and life experiences. For example, during the class session about near death experiences, several students shared intimate stories of personal loss with the class, reflecting on the experiences and thoughts they had during those times. In their journals, students expressed gratitude that they were not judged for their beliefs and were given the opportunity to relate to each other on a personal level in class.

However, class sessions were often punctuated by arguments over controversial issues that sparked intense emotions. For example, many students clashed with one another verbally over the possibility that Ashinican shamans in Peru could communicate directly with the biospheric consciousness of the Amazon rain forest (Narby, 1998). Several said that it was frightening to challenge their beliefs about this aspect of reality in such a profound manner. Participants later reported in their journals and the group discussion that the idea that plants might have consciousness was too difficult to entertain, and many found it challenging to accept even at the end of the course. The importance of an environment wherein students felt safe during the vulnerable process of exploring contentious subjects was a common sentiment shared by all respondents.

In addition, participants said that simply having the opportunity to be exposed to many ideas about consciousness and reality gave validity to controversial issues often dismissed in higher education. Although many students said that they had thought about some of the topics presented in “Farther Reaches” prior to enrolling in the course, most said that they had never been given the chance to talk about them during their college experience. For example, during the group discussion one respondent said, “I had thought a lot about these ideas before, but I have never had a class where I could sit down and discuss it with other people.” Another added:

this class actually showed that it was ok to discuss these kind of things. In a lot of places, even in your home when you talk about these things with your family, sometimes its dismissed, or we say we don't think about that, don't worry about it. But this class brought it to the forefront and that's kind of what I wanted and what I have been waiting for, especially since I got to college.

The validation of disparate ideas about consciousness and reality was as important an element to respondents' learning as was a safe setting in which to talk about them. Some felt frustrated that their science courses often dismissed as impossible ideas that did not conform to accepted scientific norms. Because these ideas often related to respondents' personal lives, it bothered them when they were dismissed out of hand.

2. *What helps understanding about consciousness to become more comprehensive and insightful?*

According to participants, the study of consciousness fostered a process of inner exploration that forced them to recognize, examine, and challenge many of their basic assumptions about consciousness and reality. As a result, students gained a greater awareness of how these assumptions influenced their lives. During the group discussion one student said:

I've been trying to be more aware of myself lately – my feelings, my preferences, my intuitions, my dreams. I think I have been making progress, too, becoming more aware of what and when I am aware.

Another reflected that “[the course] opened my mind to a different point of view and to considering things I had never thought about before.” Several students majoring in the natural sciences said that this helped to reveal biases they held about these ideas and that as scientists it was important to remain as objective as possible.

Meditation was cited as a principal catalyst for inner exploration that provided students with the knowledge and opportunity to experience consciousness directly. In fact, the in-class meditation became very important for students despite their initial misgivings. Respondents said that having their fundamental beliefs about reality challenged was a destabilizing experience and that doing so in such a short time period was very stressful. Meditation and journaling helped them to grapple with and integrate difficult ideas and to maintain a sense of being grounded. Additionally, many found meditation to be helpful outside of the classroom. One student reported:

that is what meditation really helped me to do; it just slowed down my life, it gave me some time for myself and I've taught it to a lot of other people...it's a really calming feeling to know that there is some stability in such an unstable world.

Another said:

I think this class was the most life relevant class I have taken, where it changed not how I write a paper or how I read a text, but how I live my life and the way I think about the things that go on every day.

Still others stated that the possibility that other living beings besides humans might have consciousness affected how they perceived their relationship to those beings and fostered a greater sense of connectedness to the world around them. In the words of one student:

for me, it was just really exciting to kind of get out of myself and realize that it wasn't just about me because I feel so much of our society is like “think about yourself or your family or your friends and that's it” and you don't consider other people who aren't immediately connected to you and you don't sit down and consider plants and animals.

Several students expressed similar feelings during the group discussion. Ethnographic observations during the class sessions about the possibility of animal consciousness revealed that students spent the entire time talking about ethical issues. Many students felt that

acknowledging consciousness in animals would affect how they treated animals and would have a profound impact on environmental issues. According to one student:

you can have a really humbling experience from thinking about your possible connectivity with all of these other beings, plants or animals or whatever it might be, and I thought that that was really interesting because not only does this affect the way we relate to animals and the way we treat natural resources...but I think it also affects our own individual lives.

Finally, there were many ideas that were intellectually and personally challenging for students, particularly those that disagreed with materialist assumptions about consciousness and reality. Two ethnographic observations illuminated the difficulty students had with these ideas. First, it was easier for students to challenge a fundamental belief about consciousness or reality when they had personal experience with the issue. During a class period devoted to discussing anomalous experiences, one student said, "It's not that I necessarily doubt them, but it's hard to feel in my gut that they're real because I haven't had my own experience like that." Second, students were unfamiliar with and uncomfortable thinking beyond rational, scientific inquiry. Students approached each new idea with the assumption that it could be understood logically within a rational framework. For example, throughout the course students struggled with the idea that consciousness might exist independently of the brain. When students were asked to define consciousness on the second day of class, the most common response was that it was a product of the brain, and that emotions, thoughts, and personal experiences were a function of neural activity. As the course progressed, however, students began to challenge this notion and to entertain the possibility that there was more to consciousness than physical processes. One student remarked during the sixth week of the course, "I don't believe that I'm only chemicals. How does everything in life relate to chemistry?" By the end of the course all students were discussing the mysteries of consciousness from an integral perspective.

Discussion

How did the study of consciousness from an integral perspective impact the academic and personal lives of undergraduate students in the "Farther Reaches" course? The results from this study indicate that there were two principal effects: students' beliefs about consciousness and reality became more transcendent; and students became more open-minded, more introspective, and more aware of their conscious and unconscious assumptions about consciousness and reality. What are the implications of these results for the discourse about spirituality in higher education and the fostering of spiritual intelligence?

First, it is important to understand the significance of students' belief change during the 10 weeks of "Farther Reaches." At the outset of the course the majority of respondents said they had never thought about their fundamental beliefs, or if they had, it was unnecessary to examine them. By the end of the course they had changed many of the fundamental beliefs that shape their lives and their relationship to the world. Respondents' lower pre-test scores on the Global Beliefs Scale indicated that, as a group, their beliefs about consciousness and reality fell within the materialist category. This means that they held strong beliefs that consciousness and its manifestations could be explained in purely physical terms. After the course, participants' scores increased significantly on this scale. This suggests that students' beliefs became more transcendent and included the possibility that there are both physical and spiritual dimensions to each person. These data were supported by students' own words in their journals and the group discussion. After studying consciousness for 10 weeks, participants were more willing to engage with controversial and often contradictory theories about consciousness, and they brought a greater depth and breadth—both intellectually and emotionally—to this conversation. They became more open to a wider range of ideas, more tolerant of ambiguity and uncertainty, and more confident about challenging their own beliefs as well as each others'.

However, not all of their beliefs showed similar change. Respondents' scores on the Extraordinary Experiences and Religiosity subscales did not appear to contribute significantly to their post-test Global Scale scores. In class discussions students revealed that most had little knowledge prior to the course about nonphysical dimensions of consciousness and reality and that few had direct, personal experience with them. It is possible that a longer course would have given students more opportunities for such experiences to arise. Further, 70% of respondents (n=10) reported at the beginning of the study that they had no religious beliefs, so it is not surprising that their scores relative to religiosity did not change.

The changes in beliefs about consciousness and reality that did occur are important to consider in the overall context of participants' academic and personal lives. Baruss and his colleagues found a strong relationship between more transcendent beliefs and positive intellectual and personality traits such as curiosity, open-mindedness, and understanding (Jewkes & Baruss, 2000; Lukey & Baruss, 2004). Although our data support their findings, we believe that the *process* of challenging and exploring fundamental beliefs may be more important than the content of specific beliefs because it encourages the development of these traits. For example, many students said in their journals and during the group discussion that studying consciousness was a catalyst for deeper self reflection. This helped them to become more aware of their hidden assumptions about reality and more comfortable with not knowing the answers to many of the questions raised in the course. This, in turn, allowed them to be more open to

different interpretations of consciousness and more appreciative of the complexity of their own selves. However, letting go of the certainty that unchallenged beliefs afford can be an emotionally difficult experience. As several students said during the group discussion, challenging their fundamental beliefs in such a short time period was very stressful. This is not surprising given the nature of the beliefs that students were exploring.

What, then, allowed participants to change many of their beliefs in such profound ways? The results of this study suggest three possible reasons. First, students were provided with a safe setting in which to discuss issues that were already important to them. Astin et al. (2004) reported that many undergraduates wanted to explore issues of spirituality and meaning in their lives in the context of higher education but were rarely given a chance to do so. Students in the “Farther Reaches” course said they had never had these kinds of discussions in their other classes and many had felt afraid to express openly their interest in doing so. “Farther Reaches” encouraged this exploration because it underlies the integral approach to the study of consciousness. Students were able to share their thoughts, experiences, and confusions about consciousness without fear of recrimination. This gave them a secure platform from which to engage each other in a constructive dialogue about consciousness and to voice their fears about challenging fundamental beliefs. That not a single student dropped the course and that each class session regularly had full attendance were powerful indicators of the intellectual and emotional security of the environment. As participants said during the group discussion, this sense of safety was one of the principal reasons they engaged with the course material, both intellectually and personally.

Second, students were introduced to the study of consciousness through an integral approach that validated both Western and non-Western epistemologies. Nineteen of the 24 students enrolled in the “Farther Reaches” course were majoring in science or engineering; most had never been exposed to any epistemology other than scientific materialism nor had they been exposed to ideas that stretched the boundaries of this paradigm. Many students expressed shock throughout the course that credible and well-researched evidence for ideas espoused by non-Western wisdom traditions were routinely rejected by the scientific mainstream. This blind spot in Western science and the modern academy, addressed at length in course readings, was a central and recurring topic throughout the course. We believe that the integral approach to the study of consciousness gave students the latitude to debate these ideas with peers and their professor, and thus a greater willingness to challenge their own blind spots.

Third, the “Farther Reaches” course encouraged not only an intellectual exploration of the controversies and paradoxes of consciousness, but also—and just as importantly—an experiential one. Students were taught a simple breathing meditation that gave them

first-hand experience with contemplative practice. They were also encouraged in class and in their journals to share their dreams and any anomalous experiences that occurred during the course. As a result, they began to pay more attention to these parts of their lives, which many said they had previously ignored. First-person engagement with the issues discussed in a course about consciousness is vital because many of the ideas cannot be understood through rational processes, or simply through third- and second-person perspectives. For example, students were introduced to the idea that there are states of consciousness that can only be accessed through years of sustained contemplative practice (Wilber, 1998). They were more willing to entertain the viability of contemplation as a legitimate way of knowing after they had spent several weeks practicing meditation. Many students also said that meditation was an important tool for dealing with the stress and fear that arose in association with course material. Further, students said that meditation provided them with a time for quiet self-reflection, an experience many found relaxing and all too rare in the face of rigorous demands made by their undergraduate education.

Fostering Spiritual Intelligence through the Study of Consciousness

The impetus for creating the original “Farther Reaches” course in 2001 came from Noble’s investigations into the relationship of spirituality to resilience and psychological growth, and her hypothesis that an integral approach to the study of consciousness could contribute to the development of spiritual intelligence. Her research (2000, 2001) found that many individuals had spiritual experiences that they wanted to better understand and integrate into their lives but that most had no place to do so, especially when these experiences challenged the orthodoxy of their religious traditions or scientific training. She created the first “Farther Reaches” course at the UW to introduce undergraduates to Western and non-Western ideas about consciousness, and to engage them in a far-reaching exploration of the mysteries of their own lives. Students responded enthusiastically to this adventure and so “Farther Reaches” has continued and evolved, resulting in the study reported above.

The hallmarks of spiritual intelligence are compassion, empathy, humility, and a willingness to engage deeply with one’s own life and with others. They also include the cultivation of inner resources, openness to the richness of one’s inner life, and an appreciation for different ways of knowing. Spiritual intelligence requires the ability to tolerate uncertainty and paradox and to accept that the whole is greater than the sum of the parts, no matter how cherished a part might be. Although it likely takes at least a lifetime to fully develop this frame of mind, we all have to start somewhere. For contemporary college and university students, a promising start can be made via an integral approach to the study of consciousness. Such an approach

embraces both their hearts and their minds and promotes a deeper sense of intellectual and contemplative engagement with the challenges and opportunities afforded by their lives.

Many new curricula within higher education are seeking to emphasize students' inner development, thereby teaching them to reflect upon their educational experience and incorporate what they learn into their lives in the university and beyond (Astin, 2004). This reflection can nurture a powerful sense of connectedness with others, something that occurred in the "Farther Reaches" course. By mid-quarter students had established a deep sense of community despite differences in their beliefs and levels of comfort with the questions of consciousness. Many said that this was the first time they had had this experience since entering university. It is interesting to note that several weeks into the quarter three students approached Noble and asked if she would create a seminar to continue the conversation the following quarter. Twenty of the 24 students elected to take this seminar, most having to overload their schedules to do so.

A theory of spiritual intelligence may be in its infancy, but its central premise—"that the universe is not a dead machine but a living presence, that in its essence and tendency it is infinitely good, and that individual existence is continuous beyond what is called death" (Bucke, 1972, p. 79)—has guided the thoughts and behaviors of humankind's most gifted philosophers, artists, teachers, and scientists since ancient times. Given the unprecedented and overwhelming challenges we face on environmental, political, individual and global levels, the promotion of spiritual intelligence through an integral approach to the study of consciousness can help college and university students tackle these challenges with greater confidence and efficacy.

Limitations

There are several limitations to keep in mind when interpreting the results of this study. The UW is a large, secular, research university. Participants were members of the highly selective UW Honors Program who chose to take this elective course as a partial fulfillment of their degree requirements. We do not know how students enrolled in the regular UW curriculum would have responded to the content of the course or to the study, or whether participants' responses would differ from those of students who matriculate at private, religious colleges or universities.

The number of participants in this study was small. Even though 58% of the students from the "Farther Reaches" course chose to complete the study, a higher participation rate would have made the data more robust and would have enabled a more nuanced understanding of the changes in students' beliefs. Because participants were students who were being graded by the second author for their academic performance in the course, their voluntary participation was known only to the first author and caution had to be exercised in recruiting them. Additionally, the study began on the first day of the

course and it was not possible to admit students who wanted to join the study after it began. Five members of the original group of 19 participants did not complete the study. This may be the result of response-fatigue. Students who dropped out of the study found the journal requirement to be onerous and did not keep theirs up to date. More explicit instructions about the journals as well as periodic check-ins with participants might have increased the response rate. Green's ethnographic role throughout the quarter and his facilitation of group discussions might also have biased students' responses.

We do not know whether changes in beliefs that occurred during "Farther Reaches" will endure. For that, longitudinal data are needed, which this study cannot provide. Will participants continue to practice meditation, to cultivate their inner resources, to find new ways of integrating these insights into their academic and professional lives? Are there other approaches to the study of consciousness that might affect students in similarly positive ways? How do students' academic, religious, and cultural backgrounds influence their response to the study of consciousness? These questions provide fruitful directions for further research and promising potential for exploring the development of spiritual intelligence within the context of higher education.

Conclusion

After four years our collaboration has reached its end. This study, for which Green received a UW Mary Gates Undergraduate Research Scholarship and which formed the basis for his senior Honors thesis, enabled him to graduate with his Bachelor's Degree in Comparative History of Ideas in June, 2008. As he reflected on the past four years he came to realize that what he was taught inside the classroom meant little unless he took seriously the task of integrating it into his life. He became convinced that studying the mysteries of consciousness enhanced his curiosity and passion for learning, sparked his imagination, and encouraged him to delve into all his academic subjects with more enthusiasm and commitment than he would otherwise have brought to his undergraduate education. He also began to explore how his actions and beliefs affected others and this, in turn, dramatically changed his relationship to himself and to the world. Our collaboration has had equally positive effects on Noble. Currently she is attempting to create a consciousness studies program at UW as well as more research opportunities that enable undergraduates to explore the complexities of consciousness from an integral perspective. Like the development of spiritual intelligence this is an uphill struggle, but the results of this study suggest that it's worth it.

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