

Article

Buddhism and Cognitive Sciences in Dialogue: Pedagogical Reflections on Teaching across Disciplines

Eyal Aviv * and Kaleigh Spires *

Department of Religion, George Washington University, Washington, DC 20052, USA

* Correspondence: aviv@gwu.edu (E.A.); kaleighspires@gwmail.gwu.edu (K.S.)

Abstract: In this essay, we, a professor and a student, share our experience of teaching and learning in a class on Buddhism and cognitive science at George Washington University. Our goal is not to argue for one approach over others, but to present a guide on this particular class experience. We offer a description of the course and deliberate on the complexities related to the subject matter. Using empirical data from a survey conducted after the commencement of the course, we reflect on the strengths and weaknesses of the class and how it could improve. This essay provides a possible template for other faculty members interested in teaching a similar course to extend the dialogue to a new generation of young scholars.

Keywords: Buddhist philosophy; Buddhist practice; cognitive science; meditation; Buddhist Modernism; consciousness; selfhood; Buddhism-Cognitive Science Dialogue



Citation: Aviv, Eyal, and Kaleigh Spires. 2021. Buddhism and Cognitive Sciences in Dialogue: Pedagogical Reflections on Teaching across Disciplines. *Religions* 12: 303. <https://doi.org/10.3390/rel12050303>

Academic Editor: Beverley Foulks McGuire

Received: 24 February 2021

Accepted: 22 April 2021

Published: 26 April 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Higher Education is undergoing significant transformation. A changing job market, financial uncertainties, and the unknown aftermath of COVID-19 are changing our classes and the students who take them. Students are under growing pressure to adapt to the new market, which is becoming increasingly more technology and science oriented. While science and technology advance at a staggering pace, we need the critical analysis of the humanities and social sciences to question how we should use these technological innovations, whether we need them, and who exactly they serve¹. Of course, there is little doubt that the humanities and social sciences remain urgently relevant to the challenges of the 21st century. There are different ways to engage the students of tomorrow with courses in these disciplines. This essay is about one such example: a course dedicated to the dialogue between Buddhist thought and practice, and cognitive sciences. This dialogue is both exciting and fraught with pitfalls. Many practitioners and scholars follow the Dalai Lama and others, citing Buddhism as the “science of the mind” (Nyanaponika 1973, pp. 23–24; Tsomo 2006; Jinpa 2017, see the preface and the Dalai Lama’s introduction), and some see clear parallels between Buddhism and cognitive science (Waldron 2017). Yet, others are quick to warn us that we should not confuse Buddhism with modern science and that a conversation between the two is not as simple as some claim (McMahan 2008; Faure 2012; Thompson 2020). The debate about the relationship between science and religion, particularly between science and Buddhism, is multifaceted and nuanced. It has a long and tumultuous history that involves colonial interests, cultural misunderstanding, and, more recently, scientific fascination with Buddhist thought and practice.

We are not attempting to offer new insights about the dialogue here; others did so with much-needed skill and care (Lopez 2009; Wallace 2009; Cho and Squier 2015). Instead, we reflect on pedagogical considerations in an undergraduate course on Buddhism and science. These considerations include questions about how to address common assumptions, such as the authority of science in contemporary culture, how to highlight dynamics of power between scientists and Buddhists, how to balance introducing students to the history of the dialogue with actual case studies, and whose concerns we address with our choices of

discussion topics. We base this essay on the experience of teaching and studying in a course on Buddhism and cognitive science in the spring of 2020. The reality of the COVID-19 pandemic only compounded the difficulties of the subject matter, as we had to move to remote learning. Yet, despite the complexities of the topic and the historic pandemic, it was a gratifying experience. In this essay, we explore the challenges we faced and the benefits of such an endeavor. Given the nature of the course, we limit the discussion to cognitive science, but one could easily think about courses on Buddhism and modern physics, the problem of time, or theories of causality. We describe how the course unfolded, the major themes discussed, and the assignments used. Toward the end, we also reflect on how the course could be improved. The paper is co-written by the instructor (Eyal Aviv, hereafter EA) and a student in the course (Kaleigh Spires, hereafter KS). We hope that it provides a broader perspective, from both sides of the lectern.

We argue that a key approach to making a course like this successful is to treat science and Buddhism as equal partners in an ongoing dialogue. Robin Wall Kimmerer, a scientist and Indigenous author, wrote, “There is a barrier of language and meaning between science and traditional knowledge, different ways of knowing, different ways of communicating” (Kimmerer 2015, p. 158). There are similar challenges in the languages, goals, and methods between science and Buddhism. Instructors should resist the primacy that our culture awards science and scientific findings. Students learn the most when they fully realize the complexities of the dialogue, examine the underlying assumptions, and investigate the philosophical building blocks of these two domains. They benefit from the realization that these two ways of knowing share some important assumptions but diverge in other meaningful ways. Finally, students must come to terms with their own underlying views about the place of science and religion in modern society and how these two ways of knowing should relate. Our goal here is not to advance a certain pedagogical approach over another, but rather to present an overview of the principles we found useful when teaching such a course—more precisely, what conclusions we reached from teaching and learning the subject matter and what we observed in the process.

We begin with the structure of the course and the assignments. We then discuss the complexities encountered. Finally, we consider what we have learned from students’ feedback and what could be improved. Throughout the paper, we will use data from a survey that we circulated among the students roughly six months after completion of the course. We received a response rate of 50% of class participants, which provided us another means by which we analyzed the strengths and weaknesses of the pedagogical approaches used during the course—when referring to data from the students, we mean the data that came from this survey (see Appendix A).

2. Outline of the Course’s Content

The class started with a brief historical survey of how colonial fascination with Buddhism led to its popularity in the West. Based on this foundation, the class moved to sessions that examined five main themes: consciousness, self, Yogācāra’s constructivism, emotions, and Buddhist meditation. We began the semester with the contours and complexities of the science–Buddhism dialogue. It is common for many students to begin the exploration with a naïve assumption that Buddhism and science agree about most issues. This assumption is unsurprising, given the way Buddhism is often portrayed in our public discourse (for example, Mullen 1998; Mitchell 2014). Many expect relief between scientific insights and spiritual aspirations. Students today are more exposed to pressures stemming from social media, while facing the challenges of unstable political and economic realities and social unrest. Compared with previous generations, data show a rise in depression and anxiety among college-age students (Beiter et al. 2015; Vannucci et al. 2017; Duffy et al. 2019; Keles et al. 2020). Early in the semester, it is typical to hear a desire to ease the contemporary morasses through Buddhist insights that are unavailable to non-Buddhists. At least at first, the price of admission—namely challenging naturalistic commitments or critiquing dominant consumer-capitalist ideology—is not on most

students' radars. To help students see these nuances, the instructor opened the semester with a brief historical survey of how colonial fascination with Buddhism led to its future popularity in the West. We also discussed why Europeans encountering Buddhism in the 19th century formed a unique understanding of the tradition. This form of Buddhism, which McMahan (2008) famously called Buddhist Modernism, privileges the "rational" and the rejection of the "superstitious". The latter includes fundamental elements of what make up the lived Buddhist experience, such as worship of deities, rituals, and healing. It is Buddhist Modernism that serves as the point of encounter for many scientists, some of whom see Buddhist Modernism as simply Buddhism.

We then discussed the emergence of the Mind and Life dialogue in 1987, where philosophers, scientists, and respected Tibetan Buddhist teachers met with the Dalai Lama to form a constructive dialogue to facilitate a process by which the two domains could learn from one another. While many participants are enthusiastic about these meetings' prospects and achievements, others are more cautious, citing a lack of tolerance for critical opinions and in-group vs. out-group dynamics, among others (Thompson 2020, p. 11). The readings included writings from Buddhist writers such as the Dalai Lama (2005) and Thupten Jinpa (2010), who are constant participants in the mind and life dialogue. Both the Dalai Lama and Thupten Jinpa presented nuanced accounts of the dialogue. Yet, it was by reading the critical perspectives of Asaf Federman (Federman 2011) and Jay Garfield (Garfield 2011) that the students learned for the first time about the complexity and the history of the dialogue. Evan Thompson's new book (2020) came up after the course began. Still, it too can benefit the students and enrich their understanding of the complex background of such dialogue (one could also consider McMahan 2008; Lopez 2009; among others).

With the historical background in mind, we turned to the first theme: consciousness. Consciousness was a natural theme to begin our semester-long conversation. It is of prime importance to Buddhist philosophy and the tradition's soteriological project. Consciousness is also a hotly debated topic among contemporary philosophers of mind and cognitive scientists. While these two domains' goals may not overlap, cognitive scientists and Buddhists find many ways to creatively explore the boundaries of what we can know about one of the greatest mysteries of existence. When teaching a diverse group of students about the topic, the instructor must be prepared for different familiarity levels with the subject matter. We began with an introduction of how scholars understand consciousness by reading Susan Blackmore's book on the topic (Blackmore 2013). We also read the Lama's (2005) account in *The Universe in a Single Atom*. Students also read about the history of cognitive science in the 20th century (Figdor 2018; Varela et al. 2016). To expose the students to the prevalent physicalists and computational commitments of many cognitive scientists, students read about the alternative embodied model, which criticizes "cognitivism" as outlined by Varela, Thompson, and Rosch.

Discussing consciousness led us seamlessly to another shared concern, that of a "self" or a "person". Buddhists have a long history of doctrinal innovations and disputes about the nature of the "self". Cognitive scientists, psychologists, and contemporary philosophers, for the most part, reject what Daniel Dennett called the Cartesian Theatre, or mind–body dualism, where the mind serves as an ontological foundation. Buddhists rejected a similar view predominant in India in the Buddha's time—a position still dominant today. According to this view, the real self (*ātman*) is unchanging, deathless, and independently existent. This substance self is just a manifestation of the ultimate reality (*brahman*). Western philosophy and Buddhism seem to agree that we can explain the person much better as a process, or, even better, as a set of interrelated processes. We will expand on the students' challenge to understand and come to terms with this view of selfhood below. Inviting the students into this complex dialogue started with introducing the numerous definitions of the self (see Thompson 2020; Garfield, forthcoming). Next, we read Rupert Gethin's chapter six, which introduces the "self" in his book *Foundations of Buddhism* (Gethin 1998, pp. 133–62) and Daniel Dennett's (1992) *The Self as a Center of Narrative Gravity*. We then

discussed the notion of self through different contemporary theories such as the predictive processing framework ([Seth and Tsakiris 2018](#)) and self-dissolution cases either with DPDR syndrome ([Dreyfus 2019](#)), psychedelics, or meditation. Finally, we tied it back to what we learned about the Buddhist and cognitive science frameworks.

After warming up to the claim that the self is a construct, we considered the argument that the world also results from fabrication. For the next five classes, we discussed the Yogācāra school and contemporary thinkers such as Thomas Metzinger ([Rothman and Metzinger 2018](#)). He argued that our minds (in the contemporary's case, our brains) construct our experience through a dual model of a subject and an object. Yogācāra thinkers argued along the same lines; they expanded the consciousness model to eight different parts, six of which, the operative consciousnesses, co-arise with sense faculties and sense objects. The manas creates a thick phenomenal sense of self and the ālaya or storehouse consciousness serves as a subtle continuum of mental habituations and dispositions. Students noticed again that there are agreements between claims that the Yogācāra traditions and contemporary scholars posit. For example, Thomas Metzinger shares the Yogācāra traditional view that the mind creates a self and world models, and that this duality is fabricated. However, we also discussed the fact that contemporary scientists and non-Buddhist philosophers tend to eschew the Buddhist soteriological goal. Furthermore, Buddhist philosophers are critical of the physicalist commitments held by modern scholars, such as Metzinger. Additionally, students read Vasubandhu's Twenty Verses (*Vijñāsikā*) and current scholars such as Bill [Waldron \(2006\)](#) and Roy [Tzohar \(2017\)](#), and debated Yogācāra criticism of the realist commitments that we see among contemporary scholars.

Our next topic was an extension of the Yogācāra constructive approach. We read *How Emotions are Made* by Lisa Feldman Barrett, which offers a groundbreaking and controversial theory of emotions. According to Barrett, there are no physical fingerprints for emotions. Instead, they are concepts that emerge from the brain's predictive mechanism and in human embeddedness in a particular cultural and social environment ([Barrett 2017](#)). We then discussed emotions in the Buddhist tradition (reading articles by Matthieu Ricard, Alan Wallace, and Thupten Jinpa in [Goleman 2004](#)). We also analyzed how the concept of emotion is a construct with a unique history. Once the students understood the history of the "emotions" category, we noted that Buddhist analysis did not single out emotions from other mental states. The emphasis was instead on a typology of skillful and unskillful mental states for soteriological goals.

The final topic was the one that is bound to arise in any dialogue between science and Buddhism: Buddhist meditation. The topic's complexity could easily inform a semester-long study. Students needed basic familiarity with the way modern Buddhists reshaped Buddhist practices and how meditation evolved from pre-modern traditions. We discussed how Buddhists use meditative exercises as part of a religious life, which include the cultivation of ethical comportment and the development of theoretical schemes in which these practices make sense. To introduce students to the Buddhist theory of meditation, we read Rupert Gethin's chapter seven on meditation in his *Foundations of Buddhism* ([Gethin 1998](#), pp. 163–201). We then read articles by Bhikkhu Anālayo ([2006](#)), Andrew Olendzki ([2011](#)), and Georges Dreyfus ([2011](#)) on how mindfulness evolved and transformed from its traditional usage to the modern secular practices. Finally, we read about the scientific approach to the study of meditation ([Hölzel et al. 2011](#)). The class discussed several related topics, such as the explanatory gap between brain architecture and phenomenal experiences. We also discussed methodological challenges such as different terms and typologies between scientists and Buddhist practitioners—more of the complexities of teaching meditation below. In the last class, we summarized the semester's journey and reiterated several themes mentioned above that came up repeatedly.

3. Assignments

Assessment in the course was divided into four components. Twenty percent of the grade was based on attendance and active participation. Some students find active

participation challenging. To help mitigate the growing anxiety among students to participate in class, the instructor could consider alternative models of engagement such as one-on-one conversations with the instructor, blog posts, or responses to peers' reflections asynchronously. The reality of remote-learning made students' participation more challenging. Diversifying the ways that students can participate in the course could mitigate participation anxiety. These methods will be a part of this course in the future.

Twenty percent of the grade was based on class presentations and pre-class reflections, which were posted on a discussion board prior to each class meeting. Reflections were used to help students creatively explore areas of interest and develop skills such as critical thinking, close reading, and analytical writing. Mostly, the goal was to create an environment for a rich conversation among students themselves; there was no expectation of particular forms and content and students were given credit for participation. The second part of the class participation consisted of what we called, "the co-pilot program". The idea was that students would present the reading for the day's class. At the beginning of the semester, the instructor explained that he would call on students randomly and that they should be ready to present. If, for some reason, they were not prepared, they could write beforehand, and the instructor would skip their name on that date. According to our survey, it was not very popular with students for the same reason that it was effective. It made students read the assigned texts and take notes. While getting students to read is a universal challenge, it is crucial in a course like this where students from the humanities are asked to read scientific articles and all students face the challenge of reading Buddhist philosophical primary and secondary sources. As a student, KS thought this method was particularly effective because it encouraged a more careful examination of each text's underlying arguments. More specifically, she found that approaching class each day prepared to present on the readings led to a more informed classroom discussion. The co-pilot method allowed students to hone their public speaking skills and helped the instructor to assess the clarity of the readings. The presenters were evaluated for their engagement level with the text, their ability to present it to the class, and their preparedness to answer clarifying questions.

An additional twenty-five percent of the grade was based on a short paper of four or five pages. The paper assignment included a choice between three prompts. The first prompt was about the history of the dialogue between Buddhism and science. The next explored debates about the nature of consciousness. The third prompt asked about similarities and differences between two constructivist theories: the Yogācāra and predictive processing. Students were graded based on a rubric that assessed their ability to formulate an original thesis, support it with arguments, and present adequate evidence. To prepare for the assignment, the class spent part of a meeting discussing writing expectations.

The final project (thirty-five percent of the grade) was a twelve- to fifteen-page project of the student's choice, based on personal interests related to the class subject matter. The assignment was assessed based on a rubric given to the students beforehand. In the next course, the plan is to introduce other modalities for a final project, such as a video, a podcast, or a co-written project. With the rise of accessible means of video shooting and processing, there is little reason not to allow more visual or auditory projects, as long as the expectations are clear and the critical dimension is preserved. It would be helpful if the instructor could offer assistance or, alternately, that the university had a special department that could provide technical support.

4. Complexities

In the introductory part of the semester, we covered, among other themes, the emergence of Buddhist Modernism. We read an example of how Western authors write about Buddhist Modernism as if it is the essence of the Buddhist tradition. In his best-seller *Why Buddhism is True*, author Robert Wright defined his kind of "Buddhism": "The people I'm thinking about are what you might call Western Buddhists, people in the United States and other Western countries who, for the most part, didn't grow up Buddhist but at some point adopted Buddhism. At least they adopted a version of Buddhism, a version that had

been stripped of some supernatural elements typically found in Asian Buddhism, such as belief in reincarnation and in various deities. This Western Buddhism centers on the part of Buddhist practice that in Asia is more common among monks than among laypeople: “meditation, along with immersion in Buddhist philosophy” ([Wright 2017](#), p. 2). At least 20% of our students concurred with this sentiment and stated that one of their assumptions before taking the class was that “Buddhism is a more rational religion”. Wright’s definition explicitly excludes the majority of Buddhists in and out of Asia, who consider reincarnation, karma, or the belief in deities’ power to be essential parts of Buddhist teaching. The perception created by Buddhist Modernism is accepted by many students. Its unique evolution is tailored to the “petty anxieties and deep spiritual illnesses of the consumer-oriented, psychically fragmented, and hypertensively stressful lifestyles of the global middle class” ([McMahan 2008](#), p. 217). Anxieties and depressions are no longer the diseases of the middle class alone. Many professors see students afflicted with the ills of our fragmented society come to class with a desire to find solutions to their sufferings, while still participating in the consumerist market economy. When asked, what were your assumptions about Buddhism before the course? Forty percent of the students answered that “Buddhism is famous for helping reduce stress and anxiety”. Twenty-six percent of the students took the course because they were hoping to find solutions to stress and anxiety issues. Before the class, KS had some exposure to Buddhism through multiple courses. She found that the concept of Buddhist Modernism helped her understand the discrepancies between what she learned about Buddhist traditions and how mainstream culture and media represent Buddhism.

Partially due to the interest in mitigating symptoms of anxiety, depression, and other modern mental health challenges, students are interested in Buddhist meditation. Indeed, meditation is one aspect of Buddhist Modernism that is the focus of interest for both scholars and students. For many today, Buddhist meditation is synonymous with mindfulness. The reduction of Buddhist contemplative traditions into mindfulness training itself has a complex historical background ([Shaw 2020](#)) that was beyond what we could cover in the course. As McMahan noted, for many “[i]n today’s lay-oriented Buddhist environments, mindfulness is a tool for bringing greater awareness, skill, and appreciation to every aspect of life, not only personal but also family, public, and political life” ([McMahan 2008](#), p. 216). Evan Thompson refers to the public fascination and commodification of Buddhist meditation as “mindfulness mania” ([Thompson 2020](#), p. 98). It is important for students to be sensitive to the ways by which traditional practices are used to fit—and sometimes to serve—our consumerist societies. Students should be aware of the risks of harnessing meditative practices to distract from our social and economic ills and how scientific studies of meditation may enhance the credibility of the “mindfulness mania”.

Many students who came to our class assumed, like Wright, that Buddhism has a special affinity with science and reason. While they did not think that Buddhism was a scientific religion, 73% thought that there were overlaps between the two. While some students wished to hear that Buddhism somehow gave meaning to scientific theories or that scientific studies vindicated Buddhism, our goal was to create a space in which similarities were identified and differences were acknowledged. The pedagogical drive was to raise questions about students’ assumptions and highlight the dynamic, challenging, and continuous nature of the dialogue between Buddhism and science. The goal was to encourage students to get out of their cultural comfort zones and be open to the different ways of knowing and meaning making.

Meditation is a promising area of study that has attracted a lot of attention; it is the reason that Buddhism has garnered significant curiosity from the general public, faculty, and students. Our course acknowledged this important dimension of the dialogue by dedicating a section to meditation and scientific studies of the topic. In the modern period, some Buddhist Modernizers opened these practices to laypeople ([McMahan 2008](#); [Braun 2013](#)). Meditative exercises were then simplified and adapted to the everyday needs of non-monastics. Scientists who study meditation learned about these techniques mostly in secular contexts, much like many of our students. However, the history and meaning of

these contemplative practices are crucial to students' understanding of how the dialogue unfolds. This means that when we approach the topic in the classroom, we need to be aware that there are many dimensions to this type of research that students may not have considered. As aforementioned, Buddhist meditation is not a detachable factor from the Buddhist tradition as a whole. At least, this proposition should be problematized in the classroom. These contemplative practices exist within a nexus of philosophical assumptions and ethical commitments. The world of meditation encompasses a wide variety of techniques, as meditation is not a singular practice. Because of this need for more theoretical rigor, prior meditation research tended to be methodologically lacking. Recent research developments do address issues such as definitions, study design, and outcomes (e.g., [Dunne 2015](#); [Van Dam et al. 2018](#)). Additionally, the Buddhist tradition's vocabulary is very different from the language that scientists employ. These are all aspects that students should learn about in order to appreciate the complexity of the topic.

Meditation is closely tied to another crucial consideration: most cognitive scientists, Buddhist Modernists, and those sympathetic to Buddhism are committed to scientific physicalism (See, for example, [Metzinger 2009](#); [Flanagan 2011](#) or [Wright 2017](#)). This commitment is shared by many modern students. Instructors need to sensitively address the fact that both science and Buddhism come with metaphysical commitments. There is a diversity of ontologies, even among scientists and different Buddhist schools. Cognitive scientists are excited to explore meditation as a promising area of scientific inquiry—one that can reveal critical dimensions of human consciousness, brain process, and, potentially, therapeutic intervention to prevent and heal physical and mental disorders. Mitigating the mental health crisis and assisting with physical pains are noble projects, but they, too, must be critically examined for their historical context and implicit assumptions.

For most of our students, accepting scientific realism is not a huge challenge. At least in our course, many students felt comfortable enough with physicalism, and the notion that material things exist in the real world. Yet, it was essential to clarify that, in the words of the Dalai Lama, "the view that all mental processes are necessarily physical processes is a metaphysical assumption, not a scientific fact" ([Dalai Lama 2005](#), p. 128). While the course's premise is that Buddhism and the cognitive sciences are equal partners in a conversation, we should acknowledge that scientific realism is predominant in our cultures and classrooms for many of our students.

On the other hand, for many who are not familiar with the tradition, Buddhist metaphysical commitments would be either something that needs to be "translated" into modern terms, tolerated as necessary baggage to Buddhism's goods, or rejected. Generally, students felt comfortable with karma as a causal process. If one takes care of her teeth now, she will enjoy healthy dental conditions down the road. However, much like Buddhist Modernists, students were wary of karma as a moral framework where actions create similar moral kinds of results. Positive actions produce positive results, negative actions, negative results, etc. As expected, for most students, the conceptual continuity between the theory of karma and rebirth was foreign. Getting students to think outside of their cultural boxes is an essential part of their participation in the dialogue. There is nothing unusual about their hesitancy. It is just vital to make it explicit in class discussion.

No less crucial for the students' understanding was the connection between karma, morality, rebirth, and Buddhism's ultimate soteriological goal. The difference between the goals of cognitive scientists and Buddhist philosophers and practitioners came up repeatedly. In general, cognitive scientists are committed to the scientific pursuit of knowledge. For most of them, understanding the brain and consciousness is an end goal in and of itself. In addition, many researchers look for practical applications, especially in the domain of mental health. On the other hand, Buddhists' attempts to understand the mind are often tied to their soteriological goals. The differences between the two cultures became apparent quite early in the semester and repeatedly surfaced while discussing each topic.

Perhaps the most challenging Buddhist doctrine is, unsurprisingly, the doctrine of *anātman*, or non-self. Buddhists famously argued that there is no permanent underlying

substance that accounts for the seeming unity of experience; instead, the theory holds that humans are composed of five constantly changing aggregated processes (*skandhas*). For Buddhists, non-self is essential for assumptions such as rebirth, and it is inseparably tied to their soteriological goal. Most students are dualists by default. Many students find the concept of the substantive self too central to relinquish; this can pose an issue in the classroom as students may feel confused or even frustrated with the topic. To add another layer of complexity, both cognitive scientists and Buddhists define the notion of self differently and have diverse interpretations of what constitutes a lack of self even within their respective domains. Instructors should be prepared for the confusion that this particular Buddhist teaching poses, anticipate some level of discomfort and resistance by students, and explain what motivates the Buddhist rejection of substance self.

A class on religion and science will likely attract students from diverse academic backgrounds. Our class had students equally represented from roughly ten different majors, including neuroscience, psychology, philosophy, and religious studies. International affairs was the only overrepresented major. Given the general distribution of majors in our institution, this is not surprising. Not all students are unfamiliar with the concept of non-self. Some students majoring in neuroscience, psychology, or philosophy may have already been familiar with a version of non-self theory. At least, these students needed little introduction. As a philosophy student, KS read Daniel Dennett's *Explaining Consciousness* in a class on the philosophy of mind. Dennett significantly shifted her views on the self. In addition, she already had some familiarity with Buddhist teachings through another class. Interestingly, although she did start the course with some background knowledge on the subject matter, she still found the concept of non-self "particularly tricky". In conversation with classmates, she also found that many of her classmates with dualist assumptions had a much harder time. In the future, EA is planning to introduce an analytical meditation exercise where the students will try to locate the experience of the subject and note the fluidity, change, and interdependence that give rise to the experience of a self.

We have discussed the centrality of science in our culture. While we think that it is crucial to create a dialogue where Buddhist insights are not validated *prima facie* by scientific truths, these assumptions were helpful when explaining the non-self doctrine. It is not an exaggeration to say that many philosophers of mind and cognitive scientists accept some versions of non-self (Metzinger 2009; Churchland 2013; Nour et al. 2016). Students tended to better understand the Buddhist position when presented with modern scientific terms rather than traditional Buddhist ones. Once students learned some scientific theories about selfhood, it was easier for them to understand the Buddhist position. This is not to say that all philosophers of mind or cognitive scientists agree with the Buddhist position. During our class and in students' assignments, we also discussed dissenting opinions such as Carol Dicey Jennings' arguments for the existence of a substance-self (Jennings 2017). Next time, the plan is to add Evan Thompson's case against the non-self theory (2020). These views helped students understand that, while there is a seeming tendency among Buddhists and cognitive scientists to question the existence of the self, the methods by which thinkers examine whether the self exists still generate fierce debates today, as they did in ancient India.

A word of caution is in order. The complicated history and array of different ontologies can be overwhelming and disappointing for the students who come to class hoping to find solutions to existential issues or mental health challenges. On the one hand, we should teach students about the complexities of Buddhist realities, the historical nexus in which the tradition evolves, and the doctrinal context that, at times, can be foreign to many of them. At the same time, overreliance on a deconstructive approach may alienate some students (Reynolds 2001, pp. 11–12). We believe that classroom instructors should strike a delicate balance between a critical study and a sympathetic understanding of their students' aspirations. How to strike that balance, of course, depends on the students and the instructor's pedagogical approach.

5. Feedback from Students and Plans for Next Time

In the following paragraphs, we would like to present tentative conclusions about our spring of 2020 course. Though these conclusions necessarily represent the realities of the students in this particular class, we could potentially offer some suggestions to others who wish to teach a similar course.

First, students who take the course are interested in a cross-cultural dialogue between science and Buddhism. More than 50% of our students were interested mainly in Buddhism, while 27% were interested primarily in cognitive sciences. This interest may result from the tendency to see Buddhism as a rational and science-friendly religion that can help with practical everyday life challenges.

How then should we strike the right balance between Buddhism and the sciences? EA tried to divide the amount of attention equally between both domains of Buddhism and cognitive sciences. 80% thought that the balance was right, 13% thought it was skewed toward Buddhism, and 7% toward sciences. The thematic approach was universally popular, with 100% of the students indicating that this was the right approach. While 93% of the students argued that their learning style was accommodated, we think that more could be done. One area already indicated above is a diversity of possible final projects. Another crucial change is adding more active learning exercises—93% of the students indicated strong support for group projects. These additions will inevitably cut down on the number of themes the instructor could cover but would coordinate with other students' feedback.

Both cognitive science and Buddhist philosophies are demanding domains, and students indicated that they were “overwhelmed” by the readings that “felt difficult” and “incredibly long and dense”. As such, we heard a loud and clear message asking us to, in the words of Ellen Davis et al. (1994), “teach less, teach better”. Some teachers may prefer to employ different strategies to increase the volume of content covered. However, for us, the feedback from students was clear: adding more would have resulted in diminishing return. Students indicated breakout groups and group presentations as the kind of activities that are most beneficial. Group presentation should be weighed against the benefit of the co-pilot method. Both have pros and cons. Breakup groups are helpful, especially if there are clear micro-tasks for students to accomplish and then share with the class. If done well, these groups can clarify challenges in the readings and help students feel more comfortable with each other. In an online environment, similar groups, such as Zoom’s breakout groups, can provide similar benefits.

6. Conclusions

The Spring 2020 course on Buddhism and cognitive science was undoubtedly one of EA’s most demanding. For KS, it was a welcome challenge, and a very gratifying experience. The two domains share many areas of agreement as well as areas of divergence, which make for fascinating class discussions. They also provide fertile ground for dialogue and cross-disciplinary collaborations.

Should you consider such a course, it is helpful to be aware that this is a herculean undertaking. One must develop a good grasp of both domains and then teach them effectively to students who may not have a background in one or either of the two traditions.

Context is critical, and our advice would be to introduce the students early to the history of the Buddhist–cognitive science dialogue. Depending on the students’ background in your course, teaching the fundamentals of Buddhism and cognitive sciences is also crucial. With everybody more or less on the same page, the rest of the course could go in several directions. A thematic approach worked for our class, but it is not the only option. You may want to experiment with other alternatives: historical, an in-depth theme that runs through the whole semester, etc. With dialogue at the center, instructors could develop creative ways to extend the conversations from the Dalai Lama’s residence in India or labs across the globe to their classrooms and turn them into a ground for students’ engagement. Students

reacted well to the technical language of both domains, but instructors should remember to go easy and prioritize depth and comprehension over the breadth of material covered.

As the Mind and Life dialogue demonstrates, there is substantial potential for long-term cross-fertilization among the domains. As noted, some areas deserve scrutiny and transparency throughout the semester: a sense of superiority on either side, a terminological gap, implicit metaphysical assumptions, and a colonialist history. Yet, in our uncertain times, there is also a hunger to harness the best of what science offers us with old and rich systems of knowledge. We shared a palpable enthusiasm for the topic in our classroom. For some, we hope that the seeds that were sown may ripen to projects that will expand the frontier of our understanding of consciousness—of what makes us who we are and what could make us into more compassionate, caring, and thriving human beings.

Author Contributions: Conceptualization, E.A. and K.S.; methodology, E.A. and K.S.; writing—original draft preparation, E.A. and K.S.; writing—review and editing, E.A. and K.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Acknowledgments: The authors would like to thank the anonymous reviewers for their helpful comments. We want to thank Bryce Huebner for his reading suggestions. We would also like to thank the students who were part of the course. A special gratitude is in place for the students who took the time to reply to the survey and, by that, helped us to get a more accurate picture of the strengths and weaknesses of the course.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

15/30 students replied to the survey.

Before you enrolled:

1. How did you see the relationship between science and Buddhism before class?

1. Buddhism is a religion. Science is an entirely different project.
2. Buddhism and science have some overlap, but also some differences.
3. Buddhism is a scientific religion
4. Other, please explain:

2. What were your assumptions about Buddhism before the course?

1. I did not know much about Buddhism.
2. Buddhism is famous for helping reduce stress and anxiety.
3. Buddhism is a more rational religion.
4. Other, please explain:

3. What is your major? If you have not declared, what is your primary area of interest at this point?

4. What made you take the class?

1. I am interested in Buddhism or religion in general and thought that dialogue with science is fascinating.
2. I am interested in cognitive science but thought that dialogue with religion is fascinating.

3. I was hoping to find a solution for personal issues such as depression or anxiety.
4. Other, please explain:

During class:

1. Did you feel that there was a balance between science and Buddhism in the class or was it skewed toward one of the traditions?

1. Skewed toward science
2. Skewed toward Buddhism
3. Well balanced
4. Other, please explain:

2. Do you feel the thematic approach was useful (we covered science/Buddhism dialogue, consciousness, constructivism, meditation, to name a few)? Do you think a more historical approach would be useful?

- a. Appropriate
- b. Not appropriate
- c. Other (please explain):

3. Was your learning style accommodated within the class design?

- a. Yes
- b. No, please explain:

Reflections after class:

1. Did it change your views on Buddhism? Did it change your perspective on Science?

1. Yes, please explain:

2. No, please explain:

2. Would active learning exercise (break-out groups, group presentations, co-pilot) serve you throughout the semester?

- a. Yes, examples:

- b. No

- c. Other, please explain:

3. Suggestions for improvements? (More Buddhism? more historical context? More science?)
-
-
-

Notes

- ¹ A recent article in the Washington Post described how new technology changes our lives. It featured the new Halo smart band from Amazon. The reviewers concluded “The Halo collects the most intimate information we’ve seen from a consumer health gadget—and makes the absolute least use of it. This wearable technology is much better at helping Amazon gather data than at helping you get healthy and happy” ([Fowler and Kelly 2020](#)).

References

- Anālayo, Bhikkhu. 2006. Mindfulness in the Pāli Nikāya. In *Buddhist Thought and Applied Psychological Research*. Edited by Dinesh Kumar Nauriyal. New York: Routledge, pp. 229–49.
- Barrett, Lisa F. 2017. *How Emotions Are Made: The Secret Life of the Brain*. Boston: Houghton Mifflin Harcourt.
- Beiter, Rebecca, Ryan Nash, Maryellen McCrady, D. Rhoades, M. Linscomb, Molly Clarahan, and Stephen Sammut. 2015. The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of Affective Disorders* 173: 90–96. [[CrossRef](#)] [[PubMed](#)]
- Blackmore, Susan. 2013. *Consciousness: An Introduction*. New York: Routledge.
- Braun, Erik. 2013. *The Birth of Insight: Meditation, Modern Buddhism, and the Burmese Monk Ledi Sayadaw*. Chicago: University of Chicago Press.
- Cho, Francisca, and Richard K. Squier. 2015. *Religion and Science in the Mirror of Buddhism*. New York: Routledge.
- Churchland, Patricia. 2013. *Touching a Nerve: Our Brains, Our Selves*. New York: WW Norton & Company.
- Davis, Ellen D., Lea Midgett, and C. Suzanne Gourley. 1994. Teach less, teach better at every opportunity. *The Diabetes Educator* 20: 236–40. [[CrossRef](#)] [[PubMed](#)]
- Dennett, Daniel. 1992. The self as a center of narrative gravity. In *Self and Consciousness: Multiple Perspectives*. Edited by Kessel Cole and Johnson. Hillsdale: Erlbaum Press, pp. 103–15.
- Dreyfus, Georges. 2011. Is mindfulness present-centred and non-judgmental? A discussion of the cognitive dimensions of mindfulness. *Contemporary Buddhism* 12: 41–54. [[CrossRef](#)]
- Dreyfus, Georges. 2019. Is No-Self a Pathology? In *Reasons and Lives in Buddhist Traditions: Studies in Honor of Matthew Kapstein*. Edited by Arnold Dan, Cécile Ducher and Pierre-Julien Harter. Somerville: Wisdom Publications, pp. 395–404.
- Duffy, Mary E., Jean M. Twenge, and Thomas E. Joiner. 2019. Trends in Mood and Anxiety Symptoms and Suicide-Related Outcomes among US Undergraduates, 2007–2018: Evidence from Two National Surveys. *Journal of Adolescent Health* 65: 590–98. [[CrossRef](#)] [[PubMed](#)]
- Dunne, John D. 2015. Buddhist Styles of Mindfulness: A Heuristic Approach. In *Handbook of Mindfulness and Self-Regulation*. Edited by Brian D. Ostafin, Michael D. Robinson and Brian P. Meier. New York: Springer, pp. 251–70. [[CrossRef](#)]
- Faure, Bernard R. 2012. A Gray Matter: Another Look at Buddhism and Neuroscience. *Tricycle Magazine*. Available online: <https://tricycle.org/magazine/gray-matter/> (accessed on 24 April 2021).
- Federman, Asaf. 2011. What Buddhism taught cognitive science about self, mind and brain. *Enrahonar: Quaderns de Filosofia* 47: 39–62. [[CrossRef](#)]
- Figdor, Carrie. 2018. The rise of cognitive science in the 20th century. In *Philosophy of Mind in the Twentieth and Twenty-First Centuries: The History of the Philosophy of Mind*. London: Routledge, vol. 6.
- Flanagan, Owen. 2011. *The Bodhisattva’s Brain: Buddhism Naturalized*. Boston: MIT Press.
- Fowler, Geoffrey A., and Heather Kelly. 2020. Amazon’s New Health Band Is the Most Invasive Tech We’ve Ever Tested. *Washington Post*, December 10. Available online: <https://www.washingtonpost.com/technology/2020/12/10/amazon-halo-band-review> (accessed on 24 April 2021).
- Garfield, Jay L. 2011. Ask Not What Buddhism Can Do for Cognitive Science: Ask What Cognitive Science Can Do for Buddhism. *Bulletin of Tibetology* 47: 15–30.
- Garfield, Jay L. Forthcoming. *Losing Yourself: How to Be a Person without a Self*. Princeton: Princeton University Press.
- Gethin, Rupert. 1998. *The Foundations of Buddhism*. New York: Oxford University Press.
- Goleman, Daniel. 2004. *Destructive Emotions: A Scientific Dialogue with the Dalai Lama*. London: Bloomsbury.
- Hölzel, Britta K., Sara W. Lazar, Tim Gard, Zev Schuman-Olivier, David R. Vago, and Ulrich Ott. 2011. How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science* 6: 537–59.
- Jennings, Carol D. 2017. I Attend, Therefore I Am. *Aeon Magazine*, July 10. Available online: <https://aeon.co/essays/what-is-the-self-if-not-that-which-pays-attention> (accessed on 24 April 2021).
- Jinpa, Thupten. 2010. Buddhism and science: How far can the dialogue proceed? *Zygon* 45: 871–82. [[CrossRef](#)]

- Jinpa, Thupten, ed. 2017. *Science and Philosophy in the Indian Buddhist Classics, Vol. 1: The Physical World*. New York: Simon and Schuster.
- Keles, Betul, Niall McCrae, and Annmarie Grealish. 2020. A Systematic Review: The Influence of Social Media on Depression, Anxiety and Psychological Distress in Adolescents. *International Journal of Adolescence and Youth* 25: 79–93. [[CrossRef](#)]
- Kimmerer, Robin Wall. 2015. *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*. Minneapolis: Milkweed Editions.
- Lama, Dalai. 2005. *The Universe in a Single Atom*. Easton: Harmony Press.
- Lopez, Donald S., Jr. 2009. *Buddhism and Science: A Guide for the Perplexed*. Chicago: University of Chicago Press.
- McMahan, David L. 2008. *The Making of Buddhist Modernism*. New York: Oxford University Press.
- Metzinger, Thomas. 2009. *The Ego Tunnel: The Science of The Mind and the Myth of the Self*. New York: Basic Books.
- Mitchell, Scott A. 2014. The tranquil meditator: Representing Buddhism and Buddhists in US popular media. *Religion Compass* 8: 81–89. [[CrossRef](#)]
- Mullen, Eve. 1998. Orientalist Commercializations: Tibetan Buddhism in American Popular Film. *Journal of Religion & Film* 2: 5. Available online: <https://digitalcommons.unomaha.edu/cgi/viewcontent.cgi?article=1852&context=jrf> (accessed on 24 April 2021).
- Nour, Matthew M., Lisa Evans, David Nutt, and Robin L. 2016. Carhart-Harris. Ego-dissolution and psychedelics: Validation of the ego-dissolution inventory (EDI). *Frontiers in Human Neuroscience* 10: 269. [[CrossRef](#)] [[PubMed](#)]
- Nyanaponika, Thera. 1973. *The Heart of Buddhist Meditation: The Buddha's Way of Mindfulness*. Newburyport: Weiser Books.
- Olendzki, Andrew. 2011. The construction of mindfulness. *Contemporary Buddhism* 12: 55–70. [[CrossRef](#)]
- Reynolds, Frank. 2001. Teaching Buddhism in the Postmodern University: Understanding, Critique, Evaluation. *Teaching Theology & Religion* 4: 9–14.
- Rothman, Joshua, and Thomas Metzinger. 2018. Are We Already Living in Virtual Reality? *The New Yorker*, March 26. Available online: <https://www.newyorker.com/magazine/2018/04/02/are-we-already-living-in-virtual-reality> (accessed on 24 April 2021).
- Seth, Anil K., and Manos Tsakiris. 2018. Being a beast machine: The somatic basis of selfhood. *Trends in Cognitive Sciences* 22: 969–81. [[CrossRef](#)] [[PubMed](#)]
- Shaw, Sarah. 2020. *Mindfulness: Where It Comes from and What It Means*. Boulder: Shambhala Publications.
- Thompson, Evan. 2020. *Why I Am not a Buddhist*. New Haven: Yale University Press.
- Tsomo, Tsering. 2006. Buddhism Is a Science of the Mind: Dalai Lama. Available online: <https://www.dalailama.com/news/2006/buddhism-is-a-science-of-the-mind-dalai-lama> (accessed on 24 April 2021).
- Tzohar, Roy. 2017. Imagine being a Preta: Early Indian Yogācāra approaches to intersubjectivity. *Sophia* 56: 337–54. [[CrossRef](#)]
- Van Dam, Nicholas T., Marieke K. Van Vugt, David R. Vago, Laura Schmalzl, Clifford D. Saron, Andrew Olendzki, Ted Meissner, Sara W. Lazar, Catherine E. Kerr, Jolie Gorchoff, and et al. 2018. Mind the hype: A critical evaluation and prescriptive agenda for research on mindfulness and meditation. *Perspectives on Psychological Science* 13: 36–61. [[CrossRef](#)] [[PubMed](#)]
- Vannucci, Anna, Kaitlin M. Flannery, and Christine McCauley Ohannessian. 2017. Social Media Use and Anxiety in Emerging Adults. *Journal of Affective Disorders* 207: 163–66. [[CrossRef](#)] [[PubMed](#)]
- Varela, Francisco J., Evan Thompson, and Eleanor Rosch. 2016. *The Embodied Mind: Cognitive Science and Human Experience*. Boston: MIT press.
- Waldron, William. 2006. The Co-Arising of Self and Object, World and Society. In *Buddhist Thought and Applied Psychological Research*. London and New York: Routledge.
- Waldron, William S. 2017. Teaching Yogācāra Buddhism Using Cognitive Science. In *Teaching Buddhism: New Insights on Understanding and Presenting the Traditions*. Edited by Todd Lewis and Gary DeAngelis. New York: Oxford University Press, pp. 52–71.
- Wallace, B. Alan. 2009. *Contemplative Science: Where Buddhism and Neuroscience Converge*. New York: Columbia University Press.
- Wright, Robert. 2017. *Why Buddhism Is True: The Science and Philosophy of Meditation and Enlightenment*. New York: Simon and Schuster.