The Five-Aggregate Model of the Mind

Nandini D. Karunamuni

Abstract
The purpose of this article is to explore a model of the mind generally known as “the five aggregates” described in Buddhist teachings that relates to understanding subjective conscious experience from a first-person perspective. This model is explored as a potential theoretical resource that could guide meditation/mindfulness interventions. According to the five-aggregate model of the mind, all our experience involves material form, feelings, perception, volition, and sensory consciousness. The mind stream that is constantly changing from moment to moment is extensively analyzed in this tradition. This article explains that methodologies in neuroscience increase our understanding of neurophysiological underpinnings of mental phenomena and also provide important evidence on the practical utility of meditation. When considering moment-by-moment changes that happen in the mind, however, these investigations represent sensory consciousness followed by perception that happens within the mind stream itself. Practical applications of the model are also presented.

Keywords
meditation, mindfulness, Buddhism, five aggregates, consciousness, contemplative practices

Introduction
Meditation training is currently applied widely in a variety of settings, where both its popularity as a therapeutic intervention and evidence for its effectiveness are growing (Galla, O’Reilly, Kitil, Smalley, & Black, 2014; Goyal et al., 2014; Kabat-Zinn, 2005; Khoury et al., 2013; Sequeira, 2014). However, meditation interventions and research are presently being carried out with little or no understanding of the underlying philosophical grounding and the ontological basis of contemplative traditions. The absence of a well-developed theoretical methodological foundation has given rise to various challenges within this field, such as not having a standardized approach to define “meditation” (Awasthi, 2013), an inability to make sense of different types of meditation practices, along with other challenges (Awasthi, 2013; Rao, 2011; Sedlmeier et al., 2012). While most meditation research has explored the psychological and neuroscientific perspective, little work has investigated the underlying philosophical grounding of contemplative traditions.

Considering that much of the understanding and practice of meditation within psychology arose from dialogue with Buddhist traditions (Kabat-Zinn, 2005, p. 43; Kang & Whittingham, 2010; Lutz, Slagter, Dunne, & Davidson, 2008), this article carefully explores an ancient model of the mind known as “the five aggregates” portrayed in Buddhist teachings. This model is explored as a potential theoretical resource that could guide meditation/mindfulness interventions. This article also attempts to understand how consciousness is analytically conceived in these traditions. Methodologies of neuroscience are also examined in this article, and how these methodologies relate to the five-aggregate model is considered. Practical applications of the five-aggregate model are also presented.

The Five-Aggregate Model of the Mind
The five-aggregate model of the mind describes subjective conscious experience from a first-person perspective, and this model has been recently described as a useful theoretical resource that could have promising new directions for investigating the mind (Davis & Thompson, 2013). However, this model has not been critically examined to explore whether it could facilitate our understanding of the mind and to consider its potential applications in meditation interventions.

The five aggregates are described as constituting the basic components that make up “oneself” (Analayo, 2006, p. 201; Bodhi, 1995, p. 27). The first aggregate is material form that includes both the physical body and external matter (see Table 1). The other four aggregates are feelings, perception, volition, and sensory consciousness. In this model, feelings relate to the subjective affective repercussions of an

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experience, perceptions represent being aware of attributes of an object, and volition describes the reactive or purposive aspect of the mind (including both intention and behavior). Volition can manifest as follows: (a) Bodily behavior (any activity), (b) Verbal behavior (speech, scolding, etc.), (c) Psychological behavior (proliferating thoughts, cultivating thoughts of compassion, analyzing, practicing mindfulness, etc.).

Sensory consciousness can also trigger mental proliferation, which represents a series of mental events.

Note. The teachings describe that all experienced moments (aggregates) are impermanent, arising, and perishing from moment to moment (Analayo, 2006). Elementary components in original teachings refer to solidity, liquidity, heat, and motion (Analayo, 2006; Bodhi, 1995).

Understanding the “Stream of Consciousness”

William James (1890), the father of American psychology, referred to the constant change and wandering that happens in the mind as the “stream of consciousness.” Considering the above discussion, this “stream” would represent moment-to-moment changes that happen in conscious experience consisting of the five aggregates.

In terms of first-person analysis of the here-and-now moment, the present act of reading this article constitutes visual sensory stimuli, followed by perception that understands the meaning of the words. As one reads this article, depending on the reader’s conditioned attitudes and views, various feelings may come up. Intruding thoughts (stimulus-independent thoughts that could relate to the past or the future) may also momentarily arise and cease. Because of volition, one may either read on or put the article aside, perhaps to read later. Any thoughts of disagreement or doubt that may arise based on the content presented in this article also represent volition.
The present moment is experienced as a sensory stimulus relating to visual, tactile, olfactory, auditory, taste or as a stimulus-independent thought. However, the past and the future are experienced as thoughts in the present moment. A sense impression in the present moment (such as something one hears) can come up as a mental phenomenon a few moments later in the future (i.e., thinking about what was heard). These sense impressions and mental phenomena come to pass one at a time (Shapiro, Arnell, & Raymond, 1997). Studies have also shown that the ability to attend to moment-to-moment changes of this fast-moving mind stream is enhanced with meditation and mindfulness training (Cahn, Delorme, & Polich, 2013; Slagter et al., 2007).

In Buddhist traditions, first-person analysis of the five aggregates is carried out with the goal of gaining deep insight into experience and to investigate the nature of consciousness (Analayo, 2006; Bodhi, 2006; Nanaponika, 1962). In terms of the first aggregate, the material form, the teachings consider the similarity between material elements that make up the material body and elements in the external environment where materials are continuously moving to and from the material body (Analayo, 2006).4

Consciousness is understood in these traditions by directly attending to the constantly changing mind stream, a process that necessitates carefully monitoring the moment-to-moment changes that happen in subjective experience. To do this, however, the mind has to be calm. The normal tendency of the mind is to continually leap from thought to thought (Kvavilashvili & Mandler, 2004; Mason et al., 2007; Smallwood & Schooler, 2006), resulting in mental proliferations where all types of associations concerning the past, present, and future can arise.5 Focused attention meditation practice that involves directing attention on a chosen meditation object (such as the breath sensation or body sensations) has the goal of calming the mind, reducing distractions (Analayo, 2006; Braboszcz, Hahusseau, & Delorme, 2010; Lutz et al., 2008; Nanaponika, 1962). On the other hand, open monitoring meditation (where one is attentive moment by moment to anything that occurs in experience without focusing on any explicit object) is used to gain insight into the nature of experienced phenomena (Analayo, 2006; Lutz et al., 2008; Nanaponika, 1962). Open monitoring meditation forms the basis for mindfulness practice (Lutz et al., 2008) that is described as a state of non-judgmental awareness of the present moment (Kabat-Zinn, 2005).

One insight gained by investigating this way is that all experienced moments are impermanent, arising, and perishing from moment to moment (Analayo, 2006; Bodhi, 1995). The teachings explain that consciousness is in a dynamic continuum of constantly changing experience, where past phenomena continue to influence and condition the ever-changing present moment (Analayo, 2006; Bodhi, 1995).6 Each experienced moment arises if causes and conditions are there for it to come up at that moment. The commentaries of Buddhist teachings list five causal laws or factors that can influence how the aggregates arise in the present moment (Mahathera, 1933). These are physical laws, biological laws, psychological laws, volitional laws, and universal laws. Of these, the first three laws are familiar to science. Volitional laws refer to the aggregate of volition, and this aggregate is described as having a conditioning influence on the manifestation of the other aggregates (Analayo, 2006; Bodhi, 2006; Mahathera, 1933). Universal laws refer to laws of nature, such as the impermanence of everything.

It is useful to note that other religious/spiritual traditions also engage in the practice of meditation where the mind’s attention is often directed toward a single point of reference in the present moment (Benson, 1976).

**Methodologies of Neuroscience**

Scientific investigations that continue to advance the quality of life of people utilize third-person methodologies to systematically study the physical and natural world. Likewise, methodologies of neuroscience that investigate neural activation patterns and pathways in the brain increase our understanding of neurophysiological underpinnings of mental phenomena, and such knowledge can have various practical applications. Uncovering both state and trait neurophysiological changes that occur in the brain as a result of meditation practice also continues to provide important evidence on the practical use of meditation, especially in terms of its potential clinical applications (Braboszcz et al., 2010; Sequeira, 2014; Tang & Posner, 2013).

Apart from biological factors, it should be noted that numerous other non-biological factors contribute to our subjective experience in the present moment. Furthermore, when the five-aggregate model is applied to moment-to-moment changes that happen in consciousness, third-person methodologies also ultimately involve observations (aggregate of sensory consciousness), conducting experiments (aggregate of volition), drawing conclusions (aggregate of perception), as well as carrying out interventions (aggregate of volition) that happen within an individual’s mind stream.

Neurophysiological studies that indicate an individual’s intention to engage in a specific task is initiated as cerebral activity several seconds before it enters the individual’s awareness (Bode et al., 2011; Custers & Aarts, 2010; Soon, He, Bode, & Haynes, 2013) can be used to further illustrate the point addressed above. In these experiments, the brain cortex activity of a participant is monitored by a researcher, and a participant is asked to initiate an activity (such as pressing a button or moving a finger) as soon as he or she feels the urge to do so. In such an experiment, the first-person experience of the research participant and the researcher can be analyzed separately, in terms of the moment-to-moment changes that happen in the mind stream of each individual. In the participant, when he or she was given instructions to engage in the experimental task (auditory or visual sensory stimuli), after the participant understood the
instructions (aggregate of perception), the intention to initiate the activity (aggregate of volition) was automatically generated in his or her mind, which the participant was aware of. In terms of the researcher’s mind stream, first there was planning followed by conducting the experiment (aggregate of volition). Observing the brain cortex activity of the participant happened next (visual sensory stimuli), followed by conclusions (aggregate of perception) relating to the activity of the participant’s brain.

Two Levels of Analyses
Methodologies used in neuroscience versus analyzing the constantly changing mind stream can be conceptualized as representing two different levels of analysis. The former typically involves third-person analyses (that often combine data from large groups of individuals) and has the aim of generating practical knowledge. Attempting to understand the constantly changing mind stream however involves analyses conducted from a first-person perspective.

A distinction between phronesis and sophia proposed by Aristotle (Trowbridge, 2011) is useful to conceptualize these two levels of analyses. Phronesis represents practical knowledge that is concerned with living well in the social world. Major religions often refer to this level of analysis as relative or conventional reality (Bodhi, 2006; Trowbridge, 2011). All of science currently operates at this level of analysis. Sophia, in contrast, involves a level of analysis referred to as “transcendent wisdom” that is acquired through meditation and contemplation. This level of analysis is often referred to as ultimate or absolute reality by major religions (Bodhi, 2006; Trowbridge, 2011).

In Buddhist traditions, analysis of the five aggregates is carried out with the ultimate aim of “enlightenment,” which is described as seeing things just as they are, unadulterated understanding of the researcher’s mind stream, first there was planning followed by conducting the experiment (aggregate of volition). Observing the brain cortex activity of the participant happened next (visual sensory stimuli), followed by conclusions (aggregate of perception) relating to the activity of the participant’s brain.

Applications of the Five-Aggregate Model of the Mind
Research studies have shown that rumination and excessive mental proliferation are significant transdiagnostic factors in the manifestation of a variety of emotional disorders (Brosschot, Gerin, & Thayer, 2006; McLaughlin & Nolen-Hoeksema, 2011; Querstret & Cropley, 2013), and that the practice of meditation not only leads to reductions in rumination and mental proliferation (Gu, Strauss, Bond, & Cavanagh, 2015; Kabat-Zinn, 2005; Querstret & Cropley, 2013) but also brings about several psychological benefits, including reductions in anxiety, depression, and stress (de Frias & Whyne, 2015; Galla et al., 2014; Goyal et al., 2014; Kabat-Zinn, 2005; Khoury et al., 2013; Larouche, Hudon, & Goulet, 2015). The practice of meditation has also been found to be beneficial for physical health (Carlson, 2012; Robins, Kiken, Holt, & McCain, 2014; Tomfohr, Pung, Mills, & Edwards, 2015), and therefore these practices are useful to be incorporated into ordinary individual’s day-to-day living.

Considering that the five-aggregate model of the mind systematically describes one’s content of experience in the present moment, this model is an especially useful and relevant theoretical resource to guide meditation interventions. The five-aggregate model of the mind can also be helpful for individuals who engage in meditation practices to become more attuned to one’s own emotional changes in daily living situations, and may also enable one to gain self-understanding as well as wisdom into human experience.

If the five-aggregate model is used to comprehend the present moment, it is possible to recognize that each mental phenomenon arises as a result of sensory consciousness. Being cognizant of this has practical utility, especially when dealing with unpleasant thoughts. For example, one can be attentive to sensory consciousness (i.e., triggers) that brings about unpleasant mind states, and even be prepared to face such reactions with mindful awareness.

It is also useful to consider how the volition aggregate can have a conditioning role on the manifestation of the other aggregates (as described in the five-aggregate model). Let us consider an individual who has an aggressive tendency, and assume that this person received an auditory sensory stimulus that he or she interpreted as an insult (aggregate of perception). Then, an unpleasant feeling (aggregate of feeling) would automatically arise in his or her mind stream, which could lead to the arising of anger and aggressive behavior (aggregate of volition). Aggressive behavior could lead to many unfavorable repercussions to the individual, including having to face accusations, regret, and even depression (these are possible examples of manifested aggregates in the mind stream of this individual). Now, suppose this person trained in mindfulness meditation (aggregate of volition). Then, when an auditory sensory stimulus arises, he or she would be able to maintain awareness counteracting the impulse toward either reaction or suppression, and thereby deactivating the emotional and attentional pull of anger. This example is supported by research evidence that has shown practicing mindfulness meditation reduces mind wandering, anger, and aggression (Rodriguez et al., 2014; Shonin, Van Gordon, Slade, & Griffiths, 2013; Yusainy & Lawrence, 2015). If the above two scenarios are analyzed, it was volition (reacting to anger vs. being mindful and letting go anger) that resulted in the difference in outcome in the individual’s mind stream.

As described in Buddhist teachings, volition itself can influence other volitional activities. For example, the cultivation of patience, self-control (engaging in ethical behavior, etc.) and nurturing positive emotions such as compassion and forgiveness are described as supporting the progress of meditation practice (Analyalo, 2006; Bodhi, 1995; De Silva, 2014). After a period of systematic meditation practice, individuals can observe the impermanence of all thoughts. This is illustrated in an intervention that targeted marginalized
women with histories of trauma and was dealing with substance abuse issues (Vallejo & Amaro, 2009). The study reports that following a mindfulness-based intervention, these women were able to witness their own thoughts objectively without having to act on them, which is particularly useful in working with impulse control when a craving arises. One participant of this study described how she was able to watch distressing thoughts as passing clouds that come and go (Vallejo & Amaro, 2009).

There is a substantial knowledge base on various neural structures in the brain that are associated with healthy mental functioning (National Institute of Mental Health, 2005), as well as an accumulating body of evidence that show meditation training brings about favorable changes in important neural structures (Holzel et al., 2011; Larouche et al., 2015; Posner, Tang, & Lynch, 2014; Sequeira, 2014; Tang & Posner, 2013). Therefore, neuroscientific investigations of meditation practice can continue to play a role in both primary and secondary prevention of mental disorders. In addition, recent research has shown the feasibility of using real-time functional magnetic resonance imaging (rt-fMRI) to link measures of brain activity with reports of ongoing subjective experience (Garrison et al., 2013; Sarkheil et al., 2015). Rt-fMRI investigations may enable one to examine how the five-aggregate model operates neurologically in real time, and such investigations may have practical applications. One rt-fMRI investigation that linked measures of brain activity with reports of ongoing subjective experience showed that meditators, but not non-meditators, were able to manipulate a feedback graph volitionally (by focusing on their breath sensation), and this was associated with significant deactivation in the posterior cingulate cortex (the hub of the default mode network that is linked to mental proliferation) in meditators but not non-meditators (Garrison et al., 2013).

**Summary and Conclusion**

Numerous scientists have stated that the entire outside world is experienced within the brain. However, as explained in this article, the brain is also analyzed within the mind’s stream of experience. The mind stream of each individual is constantly changing. In the Buddhist practice, it is this mind stream itself that is extensively investigated and analyzed from a first-person perspective. As described in the five-aggregate model, the moment-to-moment manifestation of the mind constitutes feelings, perception, volition, and sensory consciousness.

Although scientific interest in meditation reflects a recent shift in cognitive science toward viewing first-person experience of participants as a valuable object of scientific investigation (Braboszcz et al., 2010), there appears to be confusion in terms of clearly separating first-person and third-person analyses due to the lack of understanding of meditation in the originating traditions. Research in neuroscience uncovers various associations between mental phenomena and neural activation patterns. Such investigations increase our understanding of biological factors associated with mental phenomena and also provide important evidence on the practical utility of meditation. When considering the moment-by-moment manifestation of the mind, however, these investigations also represent observations (sensory consciousness), followed by thoughts (perception) that happen within an individual’s mind stream.

Considering that the five-aggregate model comprehensively describes the moment-to-moment changes that happen in the mind stream, it not only provides a guideline for meditation/mindfulness interventions and research but it could also be helpful in instructing and teaching mindfulness.

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**Notes**

1. The term Buddhist teachings in this article refers to the earliest known teachings of the Buddha that are recorded in the *Sutta Pitaka* section of the Pali Cannon in the Theravada Buddhist tradition. The description of the five aggregates (and the meditation methods based on the five aggregates) presented in this article specifically originates from the *Satipathana Sutta*, a foundational Buddhist discourse on meditation practice that is listed in the *Sutta Pitaka*.

2. According to the teachings, sensory consciousness happens by way of “contact.” Contact refers to the coming together of the sense organ (e.g., the organ eye), the sense object (e.g., the visual object), and attention or conscious engagement. If one of the three is missing, sensory consciousness does not happen (Maha-hathipadopama Sutta, MN 28, 2003).

3. This example is modified from a practical illustration of the aggregates given by Analayo (2006).

4. This is in line with scientific understandings of the physical body where thousands of metabolic reactions happen all the time, and material elements that make up the body are constantly moving to and from the environment (as a result of our eating, drinking, breathing, and eliminating).

5. According to the Buddha’s analysis of experience, mental proliferation can make one a victim of one’s own associations and thoughts where the “thinker” becomes almost a helpless prey (Analayo, 2006, p. 222).

6. Together with the physical body, Buddhist teachings consider the human being as a constantly changing psycho-physical unit, where everything is in a state of constant flux (Mahathera, 1933).
7. For example, see the essay titled “The Mental Universe” (Henry, 2005) and the theory of Biocentrism (Lanza, 2009, p. 36).

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