Can You Learn to Control Your Mind?

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Many people believe that it is not necessary to *learn* to control one's own mind because they think they already have such control. Others, based on casual introspection and analysis of forces constantly impinging upon our minds, believe that we will never have control of our own minds and that such control is simply an illusion, though it may well be an illusion with important adaptive consequences. The view the question invites is somewhat more nuanced. It asks whether we can learn to control our mind, and thus assumes that there is a gradient of control ranging from little to more, and that individuals may vary in where they fall along this continuum. Further, it implies that control of one's mind is a skill and as with other skills, it can be trained.

When we refer to controlling our mind what do we typically mean? If you are reading this essay, you can say to yourself that I can decide to stop reading this at any moment and get up and get a drink of water. This is a form of controlling one's mind. Does the control of one's mind require that we control our overt action, as in this example? What about the control of attention, or the control of emotion? To varying degrees, each one of you can decide to direct your attention to your right foot and to notice the sensations that are present in this body location. You might notice tingling or pressure or warmth and you can isolate these sensations to your right foot, with varying degrees of success.

Do we emerge at birth endowed with this ability? Or does this ability develop over the course of maturation? Is it associated with the development of specific circuits in the brain? To what degree are individual differences in this ability present early in life and what environmental and genetic influences modulate this ability? These are all important questions that bear on the larger issue of whether we can learn to control our mind. To address these questions requires that we consult scientific findings in a diverse range of areas that indirectly bear on our central question.

Insights from Developmental Considerations

Can newborns control their minds? Most scholars considering this question would say no. The requisite neural machinery has not yet matured for infants to exert voluntary control. Their attention, for example, is captured rather than directed. Their emotions are stimulus-driven and not voluntarily modulated. It seems reasonable to assume that voluntary control of one's mind requires that a requisite competence be available and that such competence maybe an innate potential of human beings in the same way that language is an innate potential, but it is not present at birth and requires the maturation of particular neural systems likely involving the prefrontal cortex. This brain region undergoes slow development and is not fully anatomically mature until the mid 20's. Insofar as the prefrontal cortex is critical to our capacity to control our mind, this fact suggests that there will be developmental changes in our capacity to control our mind that will not reach adult levels for quite some time, likely post-adolescence.

Default Mode of Brain Function, Mind Wandering and Voluntary Control

Neuroscientists noticed that when participants are given challenging cognitive tasks and activation patterns in response to the tasks were compared with a resting (uninstructed) control condition, not only are certain brain regions activated, but there were reliable de-activations in another set of brain regions. In such brain imaging studies, a contrast between two conditions was performed to isolate brain activations specific to the task. These de-activations during the task indicate that those de-activated regions were more active during the resting period. This provided the first clue that the brain "at rest" showed a lawful pattern of activations and this pattern has been referred to as the default mode. The presence of such activity suggests that it is misleading to think that the brain is quiescent until a specific task activates it. Indeed, even a mere casual introspection would suggest that there is a lot of endogenous mental activity occurring within the mind that seems to be there when we are not doing very much and pay attention to our interior dialogue. Recent findings indicate that this "mental chatter" is associated with the default mode (Christoff, Gordon, Smallwood, Smith, & Schooler, 2009) and that such mental chatter is often self-focused rumination about the past and the future. A recent study using experience-sampling measures (Killingsworth & Gilbert, 2010) reported that the average American adult spends 47% of their waking life mind wandering, that is not attending to the task at hand. Moreover, these periods of mind wandering were accompanied by reports of unhappiness. Killingsworth and Gilbert conclude that "…a human mind is a wandering mind and a wandering mind is an unhappy mind. The ability to think about what is not happening is a cognitive

achievement that comes at an emotional cost." Is this an obligatory state of affairs? Can we learn to mind wander less and control our minds? Related Questions Can Virtuous Habits Be Cultivated? Which Beliefs Contribute to Virtuous Behavior?

These findings imply that we are not in control of our minds for a significant fraction of our waking lives since mind wandering is typically reported as a process that is involuntary. Our minds wander. We do not usually choose to engage in mind wandering.

Individual Differences

The research mentioned above on mind wandering suggests that people differ in how much their minds wander. The flip side of mind wandering is mental control and these findings indicate that some people have more control than others (Heatherton, 2011). In studies of the default mode of brain function, scientists have discovered that people who report mind wandering have greater activation in sectors of the default mode that are particularly implicated in narrative self-relevant processes. The fact of such individual differences raises the possibility that some of these variations among people might have arisen, at least in part, as a consequence of learning.

Training the Mind Can Improve One's Ability to Control the Mind

In his very famous chapter on attention in the *Principles of Psychology*, William James (1890) stated: "And the faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will. No one is *compos sui* if he have it not. An education which should improve this faculty would be *the* education *par excellence*. But it is easier to define this ideal than to give practical directions for bringing it about."

Educating attention is a core feature of controlling one's mind. If we can effectively control our attention, many other aspects of mental control will follow. We can view the control of attention as a core foundation upon which other aspects of mental control are based, such as the control of emotions.

What is the evidence that we can learn to control our attention? Here the technologies provided by the meditative traditions which fundamentally concern the training of attention, are noteworthy. Hard-nosed behavioral and neuroscientific research over the past 5 years has clearly established the possibility of training different aspects of attention through simple mindfulness meditation practices. These practices generalize to standard tasks for assessing subcomponents of attention and they are associated with alterations in brain function. One example from our own research concerns the learning of selective attention—the ability to focus on a chosen object and to ignore other distracting objects. We (Lutz et al., 2009) tested participants before and after an intensive three-month retreat during which they practiced mindfulness meditation on a daily basis and compared them to a control group just learning these practices. We found a significant improvement in the meditators ability to selectively attention to stimuli compared with the control group. Moreover, these behavioral changes were predicted by specific changes in prefrontal brain function that was measured before and after the three-month retreat.

These findings suggest that we can indeed learn to control our attention and by extension, learn to control our mind. Findings such as this lead us to the view that controlling the mind should best be regarded as a skill that can be enhanced through training.

Summary and Conclusions

The ability to control the mind differs across development and varies among individuals. The developmental differences provide us with clues about the necessary neural machinery that is required to come "on-line" that is a prerequisite for controlling the mind. Sectors of the prefrontal cortex appear critical to this process and are not fully mature until the mid 20's. Adult individuals also vary considerably in their ability to control the mind. Such differences likely are due to a myriad of factors including genetic and experiential influences. Mind wandering is the flip side of mind control and appears to occur involuntarily. It is associated with the default mode of brain function and is frequently accompanied by reports of dysphoric affect, perhaps a consequence of not paying attention to the task at hand.

This state of affairs, while typical of the average adult in our society, is not obligatory and this essay invites the view that we all can indeed learn to control our minds. Humans are endowed with the capacity to learn to control their minds and such learning should be accompanied by a decrease in mind wandering and by corresponding changes in brain function in the default mode. The ability to attend to the present moment in the absence of distraction appears to be intrinsically rewarding and people report increases in positive affect when this occurs. Many humans seem to have a propensity to place themselves in difficult and/or dangerous situations in order to fully capture their attention, which effectively, though transiently, eliminates mind wandering. Often referred to as "flow", people report that such experiences are highly positive.

An important implication of the perspective advanced in this essay is that we do not need to place ourselves in such difficult and dangerous situations to experience flow. The quality of awareness characterized by being fully present in the moment is a skill that can be learned and does not require a specific context or challenge to be expressed. In light of the known sensitive periods for neuroplasticity early in life, this perspective invites the suggestion of implementing training for mental control in the early years of life, as the prefrontal cortex is developing. Such early training may take advantage of the increased neuroplasticity evident at this time and lead to more enduring changes in our ability to control our minds. Research focused on this question is critically needed and if the outcome is as implied here, the findings would provide an important foundation for a call to include within the regular preschool and elementary school curriculum, methods to train the mind in such ways. The modest investment in the mental capacity of our children will likely pay off in a multiplicative way later in life as a consequence of improved adult outcomes based upon this early life training. The possibility of such an outcome demands that we marshal the resources to subject it to serious scientific test.