



PARENT & FACULTY EDUCATION CONFERENCE

Training the Brain: The Quality of Your Life is Determined by the Focus of Your Attention

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Kelly McGonigal, Ph.D., teaches at the Stanford University School of Medicine's [Health Improvement Program](#), the [Stanford Center for Compassion and Altruism Research and Education](#), and the Graduate School of Business. She has received numerous teaching awards for her psychology courses, including Stanford University's highest teaching honor, the Walter J. Gores award. Dr. McGonigal is passionate about translating cutting-edge research from psychology, neuroscience and medicine into practical strategies for health, happiness, and personal success. Her most recent book, [The Willpower Instinct: How Self-Control Works, Why It Matters, and What You Can Do to Get More of It](#), explores the latest research on motivation and temptation, as well as what it takes to transform habits, persevere at challenges and make a successful change. Her audio series "[The Neuroscience of Change](#)" weaves the newest findings of science with Eastern contemplative wisdom. More information about Dr. Kelly McGonigal may be found at www.kellymcgonigal.com/attention.

Opening – what are you thinking ... right now?

Dr. McGonigal welcomed the audience, explained the resources on her website, and then asked the audience to pause with no further instructions. After the pause, she asked the audience to share what they were thinking right at that moment. Audience responses included: thoughts of frustration with technology as they struggled with their phone, thoughts about how great the conference was for faculty as well as parents (Dr. McGonigal called this the "Howard Cosell" internal voice, providing color commentary), becoming aware of text messages and emails and related anxiety, worry about the future. Dr. McGonigal then pointed out that the thoughts we are attending to have a particular quality or emotional tone. The audience described the emotional tone of their thoughts during the brief pause as: anxious, urgent, cherishing, appreciating, negative sensory (feeling cold and anticipating negative consequences).

"The quality of your life is determined by the focus of your attention"

This quote from Dr. McGonigal's meditation teacher, Cheri Huber, encapsulates everything Dr. McGonigal has learned not only from the meditation tradition but from all the scientific research she has studied.

On the goal and scope of this workshop

Dr. McGonigal's main goal is to motivate us to pick up the practice of meditation, or motivate us to explore further. This workshop covers both the practice of meditation and the science behind it. We will learn not just HOW to train our attention, but what current research shows about WHY IT MATTERS that we choose the focus of our attention as well as the quality or emotional tone of our attention.

A wandering mind is an unhappy mind

Harvard researchers texted participants and asked them what they were doing, feeling and thinking at the moment they received the text. The researchers found that:

1. In general, people were less happy when their attention was on something other than what they were doing, and
2. Surprisingly, this was true even when the task was unpleasant.

It turns out that whether or not a person is mindful of their activity is a better predictor of their happiness than the activity itself. Mind-wandering actually affects our mental health moment to moment.

On why attention is hard

Attention is hard because it is a limited resource, and we have more competing demands on our attention than we have resources to meet those demands. There are all sorts of stimulation coming from outside of us, through all our senses - what we see, smell, taste, hear, as well as stimulation from within – what we are feeling, and all the crazy stuff the mind comes up with on its own. However the mind can only pay attention to a select percentage. We have the ability to choose what is in our awareness, but this ability must be trained.

Two types of attention

1. Focused attention: choosing to point your attention at something and “selectively attending” to it. For example, studying for an exam and ignoring distractions.
2. Open awareness: big picture awareness, involves broadening our attention and being receptive. For example, when driving, or when an owl is looking out for prey.

On the quality or attitude of our attention

Our attention can be:

- evaluating/critical vs. curious/nonjudgemental. Often we have an automatic evaluation component to our thoughts, eg, “I notice it’s cold and I don’t like it” which is different than just observing that it’s cold. The default for humans is to evaluate, and to evaluate something as negative.
- rejecting/avoidant vs welcoming/accepting. For example, if you’re feeling cold, will you try to ignore it, push it out, or do you allow the awareness to occur without having a battle with it? It turns out the more you try to avoid/ignore a thought, the harder it becomes to ignore.
- stuck/sticky vs. flexible. For example, if you made a mistake yesterday and you can’t stop thinking about it.

It is possible to train your mind towards the positive qualities of attention – curious, welcoming and flexible. Think about how much attention affects our relationships, and how much we communicate to other people by the quality of our attention.

The brain’s default state is evaluative mind-wandering:

Recent neuroscience studies indicate that all human brains look similar when they are in the default “drifting” state; certain systems of the brain are more activated when we are not focused on something specific. These systems, sometimes called the Evaluation Network, produce thoughts that have an opinion on how things are and how they should be, and tend to have a negative bias, and tend to involve a lot of a social comparison and social cognition – “I remember what that person said to me yesterday, and here’s why I think they were wrong and why I am right,” or, worrying about other people and what they might do or what they might think of you. When you are not focused on something specific, the human brain defaults to this narrative social thinking, as well as problem-solving of problems that are not connected to what is happening in the present moment.

UNC researchers studied what people were thinking about at the moment, and found that more often than not people were in the default mind-wandering state instead of focused on the task at hand. People were thinking about:

1. The task - (not often)
2. Task performance - how well you’re doing it, or how you don’t like it. As you evaluate yourself or the task, thoughts almost always becomes negative
3. Everyday stuff - what you did recently, or plan to do – “time travel”, or solving problems
4. Current state of being – sleepy, hungry, bored, with a negative tone
5. Personal worries
6. Daydreams – fantasizing or having thoughts disconnected from reality. Note, research suggests that even thinking about good things that are different from the way things actually are can make you stressed out and unhappy.
7. Other – other things divorced from present moment reality, which tend to be the stuff of stress and suffering

After finishing a specific task, it takes less than 10 seconds for the brain to go back to its default mind-wandering state. With just a brief pause or delay we automatically go back to a suffering or stressed default state.

Why should we care about the brain’s mind-wandering default state?

- People are less happy when their minds are wandering.
- Mind wandering disengages the pre-frontal cortex and leads to failures in executive control. The pre-frontal cortex is the part of the brain that allows us to be the better version of ourselves, enabling us to remember our values and long-term goals and predict the consequences of our choices. This is in contrast to the area of the brain called the midbrain, which is focused on immediate gratification, avoiding pain and responding with stress and fear. Mind-wandering gives the midbrain an advantage in the tug of war between the pre-frontal cortex and the midbrain. In the teenage brain, the influence of the midbrain already tends to be stronger than the influence of the pre-frontal cortex; this explains why teenagers may get into a car with someone who has been drinking. Mind-wandering shifts our personalities such that we may make decisions that we regret.

Boredom as a failure of attention

In some way the brain knows whether you like something or not by how fully you pay attention to it. Things that you do not pay full attention to are automatically disliked. If we try to improve something we are bored with by adding distractions, the more we find it aversive. Conversely, the things we pay more attention to become inherently liked. There is something inherently rewarding about paying attention to something, even something you don’t initially like. An

exercise to try at home is to take something you think is boring, and give it your full attention. Take a raisin and pay attention to what it sounds like, feels like, smells like, and tastes like. You will find it more pleasurable than you would have thought. See the article in [Psychological Science](#) titled “The Unengaged Mind: Defining Boredom in Terms of Attention”, to understand the boredom of teenagers.

Bored to death? Boredom is toxic to our bodies

Boredom is a chronic stressor, associated with depression and anxiety and greater mortality risk. There is something stressful and unhealthy about always being distracted and never fully engaged. Think of the experience of boredom NOT as a failure of the environment to entertain you, but a failure of your own attention system. The best way to reduce boredom is by training our attention rather than trying to change our personal state (drugs) or change our environment (stimulation of screens, etc). Studies at UCSF show that subjects who had high levels of mind-wandering had significantly shorter telomeres in their immune cells. The length of telomeres, the DNA at the end of your chromosomes, is an indicator of your real biological age as well as your chance of developing disease. Mind-wandering was associated with both stress and depression, but it was only the degree of mind-wandering, not the experience of stress or depression, that was the predictor of telomere length! Mind-wandering vs. mindfulness has an impact not only our psychological health but also our physical health and longevity.

What is mindfulness?

Dr. McGonigal’s definition has 3 components:

1. Intention. Mindfulness as a skill to develop includes getting clear about your values and holding these in your mind all the time. For example, what I care about is my health, being a good parent, etc.
2. Attention to the present moment. What am I sensing, what is happening in the environment, what am I doing and thinking?
3. Attitude of attention. The goal is a focused attention, less distractible, less pulled into the past or future, less judgmental and more open and direct.

The idea is that mindfulness becomes cyclical – as you intentionally focus on what you care about, you become more aware of what is going on at the present moment, and you accept what you are observing without judgment and stress, so that you are more able to focus on what is important to you. Mindfulness measures include acceptance of one’s own thoughts and emotions without judgment, awareness (particularly of body changes such as a faster heart rate or tensing of muscles), acting with awareness, curiosity (of what one’s mind is thinking from moment to moment), de-centering (experiencing thoughts as events in one’s mind rather than the way things really are).

5 minute Mindfulness exercise – everyone did this together in the MS Commons

Standard mindfulness training in every tradition – at a monastery or in a modern class.

1. Be still with comfortable, alert posture, eyes open or closed, no movement.
2. Acknowledge the intention in your own mind to train focus by noticing when the mind wanders and bringing your focus back to the breath. (Mindfulness is NOT about emptying your mind). Can focus on the breath by being aware of the physical sensation as you breathe (airflow in nose and mouth, chest moving). Or can focus on breath by counting your breaths in cycles of 10 or 5 or 3.

Start with 5 minutes, work towards 15. Acknowledge success of practice no matter how much your mind wanders! In some ways, the more you notice your mind wandering, the better you

are at this. If you want to practice at home, you can use the mp3 on Dr. McGonigal's website to get you started.

On what happens in the brain during mindfulness training

Researchers at Emory University found that as you cycle through the system of self-awareness and self-control, certain parts of your brain are activated - the parts that are responsible for goal setting, paying attention to what you are doing, and evaluating whether what you are doing is consistent with your goals. This is the best possible version of mindfulness: you set an intention for yourself, notice what you are thinking and feeling and doing, and are able to use that information to decide whether what you are doing is consistent with your goals and values, and you are able to reengage your attention and focus so that it is consistent with your goals and your values. The consequences of mindfulness training are quite profound – even though it's sometimes boring and seems like you're not doing anything.

On the effect of even short-term meditation training:

In a UNC study of college students with no meditation experience, researchers found that after only 4 sessions of breath focus meditation, students improved their scores on every cognitive test, and students also reported an immediate reduction in anxiety following the meditation. Students in the control group who simply relaxed with an audio book did not increase their scores or see the same reduction in anxiety. The study indicates that breath focused meditation has the effect of training attention with an added mental health benefit.

Q&A, final comments

- Focusing on breath is good for emotional regulation and your sense of self. Befriend your breath. Don't try to improve this meditation by focusing on something else – use your breath.
- Mindfulness needs to be trained – many people do not know how to be alert and awake without stress and stimulation.
- As you practice meditation over several years on at least a weekly basis, you see changes in the brain – increased brain volume of the prefrontal cortex and thicker connections between the 2 sides of your prefrontal cortex.
- Mindfulness training can transform the brain default mode from evaluative mind-wandering to a less judgmental, present moment awareness
- Q: How useful is meditation for kids to reduce their impulsiveness? A: Very little data on kids, youngest data involves college students. However what IS known is that the secure attachment of a child to his caregiver is more important than anything else in terms of the brain developing. All this training would be a bonus for a child.
- Q: Advice for troubled sleepers? A: Accept fact you can't sleep. Practicing awareness and acceptance and mindfulness will help you sleep.
- Dr. McGonigal resides locally and teaches at Stanford's Continuing Studies program.