

The Marshmallow Test, “Willpower” and ADHD

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Oscar Wilde famously said “I can resist anything but temptation.” In his recent book, *The Marshmallow Test: Mastering Self-Control*, psychologist Walter Mischel argues that children can be taught to resist temptation—that the ability to delay immediate gratification for the sake of getting something better in the future—is a skill that can be learned. As a psychologist who specializes in working with children and adults who often struggle with motivation and excessive impulsivity, I am writing to suggest that the capacity to resist temptations is not so easily taught nor easily sustained by any of us.

Mischel’s famous studies of preschoolers in the 1960s showed that some kids were quite able to resist the temptation to gobble up immediately one marshmallow placed in front of them. They delayed that pleasure so they could get a double portion of the treat simply by waiting a short time until the adult returned to the room. Others were unable to make themselves wait; they ate the single marshmallow without delay, despite knowing that they could have had twice as much if they had been able to hold off for a few minutes longer.



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Self-Control ability in preschool years predicted self-control in adulthood

Follow-up studies done when those preschoolers grew older showed that, for most, the differences in ability to exercise self-control were remarkably consistent over the years. Evaluation of the preschoolers when they were 27-32 years old found that those who had been able to cope best with the delay, who were able to wait for the bigger reward, also earned higher scores on the SAT test, used risky drugs less, had reached higher educational levels, and had significantly lower body mass index scores. They were also reportedly better able than their less patient peers to deal with interpersonal problems and to maintain close relationships.

For most of those young children, that simple marshmallow test administered in preschool effectively predicted their ability to exercise effective self-control over much of their lifespan in many activities that can really matter. So what made it possible for some preschoolers to wait longer for the bigger reward when others could not wait?

Brain Foundations for Self-Control

According to Mischel, what is needed for adequate self-control in any situation is adequate development of the brain's management system—its executive functions (EF). He writes that children who have well-developed EF during preschool can not only resist the temptation to grab the one marshmallow, but also can inhibit other impulsive responses, keep instructions in mind, and focus their attention to do schoolwork. He notes that “those children whose EF functioning is not developing well in preschool years “are at increased risk for ADHD and a variety of other learning and emotional problems throughout their school years (p.108).”

Self-Control, Executive Functions and ADHD

Mischel's description of children with inadequate development of EF compared to their age peers fits quite well with current descriptions of children with ADHD. On the basis of research over recent years ADHD, once considered simply a problem in little boys with chronic behavior problems who were unwilling to listen to adults, has been redefined as a developmental impairment of the brain's self-management system, its executive functions.

ADHD is now recognized by most specialists as a cluster of cognitive difficulties that affects both males and females, often, though not always, persisting into or throughout adulthood. Children and adults with ADHD typically demonstrate chronic problems with being able to focus attention, organize their work, sustain effort, utilize working memory, and inhibit excessively impulsive actions. These difficulties are usually inherited and are associated with differences and delays in brain development and functioning.

When Mischel's preschoolers underwent brain scans at midlife, those who had shown more difficulty in waiting demonstrated differences in brain functioning similar to those found in children and adults with ADHD. It seems likely that those preschoolers who had much difficulty in waiting for the double marshmallow treat and continued to have relative weaknesses in self-control into adulthood had inherited brain-based difficulties with EF similar to most of those with ADHD. Perhaps the preschoolers who were able to wait longer, were more fortunate in their genetic inheritance.

The Essential Ingredient for Resisting Temptation: Motivation

Yet Mischel is well aware that even those individuals who have extraordinarily strong intellectual and executive functioning skills often demonstrate very poor self-control. He knows that having such skills for one situation does not necessarily mean that those skills will be deployed in different circumstances. In this recent book he explains that "Delay ability can help preschoolers resist one marshmallow now to get two later, but they have to want to do that (p.189, emphasis added)."

This statement that a child's ability to resist immediate temptation in order to obtain a later reward depends upon the child's "wanting to do it" may give the impression that the difference between those preschoolers who waited for the double reward and those who didn't was that they simply wanted that bigger reward more than did the others. But Mischel's interpretation is more sophisticated. He wants to emphasize that exercise of "willpower" is a skill that depends upon the complexities of motivation.

Mischel's understanding of "willpower" is that it is essentially a skill, not some persisting internal power that causes the person always to make the best possible choice: "...like all skills, self-control skill is exercised only when we are motivated to use it. The skill is stable, but if the motivation changes, so does the behavior (p.189)." He explains that an individual's ability to resist temptation depends upon how that person at that specific time, perceives that specific situation and the probable consequences of yielding to the temptation or not. He emphasizes that "...our motivation and goals and the intensity of the temptation are especially important (p.189)." Here Mischel is noting a problem now considered the core of understanding ADHD.

Motivation is situationally specific

The most puzzling feature of ADHD is that it is situationally specific. Virtually all children and adults with ADHD have at least a few specific activities in which they are able to focus their attention very well for long periods of time, are able to keep several different things in mind simultaneously, are able to sustain their efforts for challenging tasks, and can prevent

themselves from acting too impulsively—all this even though they have great difficulty in demonstrating those same skills for many other tasks that they recognize as important.

Both clinical reports and empirical experiments show that those with ADHD are able to demonstrate excellent self-control for a few specific tasks in particular contexts, even though they show great difficulty in exercising these same skills in any other situation. For some, these strengths emerge when engaged in a favored sport or playing video games. For others, strong EF may emerge only when they are making art, or playing music, or doing mechanical tasks.

For those with ADHD, exercise of EF is often significantly impaired for most tasks and activities, unless the task is one which has especially strong interest for them. For most other activities and tasks, it is extremely difficult for them to mobilize their executive functions. This “you-can-focus-and-work-for-this-but-not-for that-and-that-and-that” characteristic of ADHD was captured by a patient who once told me

Having ADHD is like having erectile dysfunction of the mind. If the task you are trying to do is actually interesting to you, if it really turns you on, you're 'up for it.' But if the task you're faced with is not intrinsically interesting to you, you can't 'get it up.' And in that situation, it doesn't matter how much you may say to yourself, “I need to; I ought to; I should” you can't make it happen because ADHD is simply not a willpower kind of thing (Brown, 2013, 2014).

The capacity to resist the temptation to grab one appealing reward right now rather than waiting or working longer to get a bigger reward—that capacity to take the longer view, that capacity to inhibit an impulsive action while weighing the potential benefits of an anticipated future reward—is dependent upon whether the task “turns the person on” in that time and place. It depends upon motivation.

Motivation depends upon the individual's emotions from past experiences

Many think of motivation as a single power that each person tends to have more or less of, as in: “she is a very highly motivated person.” However, for such claims one always needs to ask “motivated for what—and when—and in what situations?”

Motivation for some actions is instinctive, common to all of us. We are motivated to obtain food when hungry, to drink when thirsty, to try to move out of the way when something is about to hit us. But for most of our activities, motivation is highly individualized and very dependent on specific contexts. It is based upon our memories, mostly unconscious memories, of past experiences—what we have seen and done, what happened to us in

recent situations and long ago, and what we have seen or heard about what has happened to others.

For every task or situation we encounter, the human brain has an amazing capacity instantly to “google” relevant memories with attached emotions. Before we are even aware of our own reaction to some perception or thought, the brain very quickly consults our personal files of memories, selecting those which may be relevant.

Each memory has associated emotions: interest or disinterest, attraction or revulsion, desire and longing, fear or guilt. Often these recalled emotions conflict—some memories intensify our interest while other memories, at the same time, are diminishing that same interest. In fractions of a second those memories are automatically sorted and weighed to shape our reactions. Then, just as quickly, messages are relayed to other sections of the brain causing us to get more or less invested in related thoughts or actions.

Motivation is shaped by immediate context

The intensity of our motivation for any given task or behavior tends to vary also according to our immediate context—whether we are hungry or tired or excited or frustrated or annoyed. Intensity of emotion also depends on where we are and whom we are with. Many of those preschoolers would have been more likely to gobble the one marshmallow immediately if they were very hungry or had grown up in a family where grownups rarely kept their promises. Most of them probably would not have touched the marshmallow if the examiner had stayed in the room with them while they waited.

Once while my wife and I were on a transatlantic flight, passengers were offered delicious, fresh-baked chocolate chip cookies as a mid-afternoon snack. I was on a diet at the time, trying to lose a few pounds and my wife had been serving as the “food police” reminding me to avoid eating anything not on my diet. I smelled the cookies baking and wanted to have one, but told myself that I would say “No thanks” when the flight attendant offered one to me. Then I noticed that my wife, sitting next to me, was asleep. I hesitated for a moment, and then accepted not only the cookie offered to me, but also one “to give to my wife.” Quickly I ate both cookies and then quickly returned the plates to the galley to dispose of the evidence before my wife awakened.



Photo by Olia Gozha on Unsplash

This cookie story illustrates how a person can have two conflicting motivations—wanting to enjoy eating the delicious cookie and also wanting to stick to my diet and keep losing excess weight. If my wife had been awake, I would have felt proud of myself for declining the cookie, but, because she was sleeping, I gave in to the wish to enjoy not only my cookie, but also hers. Often our motivations are conflicting and it can matter a lot whom with are with when we make such decisions.

How much can self-control be taught?

Mischel's book is interestingly written, but it embraces a number of unresolved contradictions. He argues that that the ability to wait for the two marshmallows, the ability to delay gratification now for the sake of better advantages later, is not an inborn and unchangeable trait, that you either have or you don't, but a skill that can be learned. "It is a skill open to modification, and it can be enhanced through specific cognitive strategies that have now been identified (2014, p. 3-4).

He proposes some strategies intended to help a person cool down the "hot" intensity of wishing for immediate gratification by trying to change the way the "marshmallow" in whatever form, is thought about—to cool the "now" and "heat" the later (p.256). He also reminds readers that children can be taught from early years by the example of good models and by instruction that helps them learn that they have choices and that each choice has consequences (p. 268).

Mischel acknowledges that "...some people are better than others in their ability to resist temptations and to regulate powerful emotions (p. 229). Yet he also insists that "...self-control skills, both cognitive and emotional, can be learned, enhanced and harnessed so that they become automatically activated when you need them (p, 230)". In contrast, he also laments that "trying to change how we think about or "mentally represent" stimuli and experiences that have become deeply ingrained can be...futile" (2014, p. 36).

Wisely, Mischel notes that "...a life lived with too much delay of gratification can be as sad as one without it (p. 271.)" Constantly working and waiting for future marshmallows without enjoying some along the way is not likely to yield much satisfaction.

Mischel has written an excellent book on an important topic. Yet, overall, I feel he is a bit overly optimistic about the effectiveness of efforts to instruct people into controlling their motivations. Neural signals that motivate us to do something or to ignore or avoid something, come in varying strengths, due partly to our inherited temperament, our brain's conscious and unconscious memories of what we have learned from experiences, and the specifics of our current situation.

As a psychologist, I am often impressed by how much children and adults with ADHD, those who have inherited transient or longer-lasting impairments of EF and related motivational problems, are able to accomplish for themselves and for others. Yet, as one who continues to struggle with eating excessive marshmallows of various kinds, I am also impressed with the often-contradictory complexity of self-control in all of us. Mischel's optimism about teaching improved self-control is not 100% right and Oscar Wilde was not 100% wrong about the power of temptation.

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Source

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