Forget the marshmallow test; this could be the real secret to kids' future success

Enlarge / For decades, Walter Mischel's "marshmallow test" was viewed as a key predictor for children's future success, but reality is a bit more nuanced.

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Kindergarten children whose teachers rate them as being highly inattentive tend to earn less in their 30s than classmates who are rated highly "pro-social," according to a recent paper in JAMA Psychiatry. In fact, inattention could prove to be a better predictor of future educational and occupational success than the famous "marshmallow test" designed to assess a child's ability to delay gratification. And a single teacher's assessment may be sufficient to identify at-risk children, the authors claim.

The marshmallow test was a landmark behavioral study conducted by psychologist Walter Mischel in the 1960s and 1970s. He brought in some 600 children between the ages of four and six—all from Stanford University's Bing Nursery School—and gave each of them a marshmallow in a private room. Mischel told the children they could eat the marshmallow right away, or they could wait 15 minutes. If they chose the latter, they would be rewarded with a second marshmallow. Then Mischel would leave the room, and a hidden video camera would record

the children’s behavior.

You can find videos of different versions of the marshmallow test all over YouTube. They’re hugely entertaining. As with Mischel’s original study, some kids eat the marshmallow immediately, cramming it into their mouths with unabashed delight. Others try to find a handy distraction: covering their eyes or kicking the desk. Some children poke at the marshmallow with their fingers, sniff it, lick it, or take tiny nibbles around the edges. My personal favorite is a little girl who participated in a recreation of the study with children in Colombia by motivational speaker Joachim de Posada. She carefully ate just the inside of the marshmallow, leaving the exterior intact, in hopes of fooling the researchers into thinking she had resisted temptation. (“I predict she will be successful, but we will have to watch her,” Posada joked.)

In Mischel’s original study, roughly one-third of the kids held out long enough to earn a second marshmallow. And when Mischel followed up with the children several years later, he noted a strong correlation between the success of some of those kids later in life. They tended to earn better grades and have more self-confidence, for instance. His follow-up study confirmed that correlation. Mischel died last September, but he always advised caution when it came to interpreting those results. “The idea that your child is doomed if she chooses not to wait for her marshmallows is really a serious misinterpretation” he told PBS in 2015.

A 2018 study published in the journal of Psychological Science replicated the marshmallow test with a more diverse group of preschoolers and found that the situation is actually a bit more nuanced. The correlation still held with the preschool children but was half as strong. And once the researchers controlled for things like intelligence and family background, that correlation mostly vanished. The study authors concluded that it’s children’s social and economic background, not their

ability to delay gratification, that is the true predictor of future long-term success.

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"One problem with self-control studies such as these is that they lump many traits—such as attention, delayed gratification, and conscientiousness—together to create a single composite self-control score, often combining traits assessed across multiple years," Francis Vergunst of the University of Montreal, a co-author on this latest study, writes at *Scientific American*. "This approach makes it hard to identify the 'active ingredients' that are linked with the outcome of interest, a crucial step if you plan to develop targeted intervention programs designed to improve life outcomes by promoting 'good' traits and reducing 'bad' ones."

So Vergunst and his colleagues opted to focus on specific observable behaviors, relying on a dataset of about 3,000 Canadian children born in 1980 and 1981—data collected as part of the Quebec Longitudinal Study of Kindergarten Children. The children's teachers provided information on various behaviors, including inattention, hyperactivity, aggression, anxiety, kindness, and helpfulness. There were yearly evaluations by teachers and parents between the ages of 6 and 12, and a subsample of the children responded to a questionnaire when they were 13. At 15, 931 girls, 903 boys and 1830 mothers were interviewed. The Montreal team's dataset also included the 2013-2015 government tax returns of the grown participants when they were 33 to 35 years old.

For their analysis, Vergunst *et al*. controlled for IQ and family background. They concluded that children (both boys and girls) who were described as inattentive at age six typically earned less annually as adults. The markers for inattentiveness included an inability to focus on the same task for a long time; being easily

distracted; absentmindedness; and giving up easily. For the boys, aggressiveness also seems to play a role: those who exhibited negative aggressive behavior earned less as adults than boys who exhibited more pro-social traits (being kind, helpful, and considerate). Other attributes, like hyperactivity and anxiety, were not associated with future earnings.

“While the ability to wait for a couple of marshmallows may not predict life success, other traits do seem to matter,” wrote Vergunst. “Where earnings are concerned, kindergarteners’ ability to pay attention—and boys’ ability to be kind—appear particularly important. Fortunately, there are many good reasons to promote these traits.” The next step is to investigate which underlying factors might be most effective to explain the observed link, in hopes of developing effective early intervention strategies.

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