



A Reading/Writing Project

Activity 1: Marshmallow Test Video (101)

To start this activity, have your students watch this video: <http://www.youtube.com/watch?v=Yo4WF3cSd9Q>

Next, break the class into groups and ask each group to make a list of interesting observations about the video. There are no “correct” answers to this activity. We’d just like to hear what you found interesting about the video.

Finally, ask each group to make a list of what makes an observation interesting.

Activity 2: Reading about Marshmallows (101)

Organize the class into groups. Have the groups take a few minutes to read the excerpts below from two articles:

The Marshmallow Test: Mastering Self-Control (Excerpt)
Walter Mischel, 2014

It began in the 1960s with preschoolers at Stanford University's Bing Nursery School, in a simple study that challenged them with a tough dilemma. My students and I gave the children a choice between one reward (for example, a marshmallow) that they could have immediately, and a larger reward (two marshmallows) for which they would have to wait, alone, for up to 20 minutes. We let the children select the rewards they wanted most from an assortment that included marshmallows, cookies, little pretzels, mints, and so on. "Amy," for example, chose marshmallows. She sat alone at a table facing the one marshmallow that she could have immediately, as well as the two marshmallows that she could have if she waited. Next to the treats was a desk bell she could ring at any time to call back the researcher and eat the one marshmallow. Or she could wait for the researcher to return,

and if Amy hadn't left her chair or started to eat the marshmallow, she could have both. The struggles we observed as these children tried to restrain themselves from ringing the bell could bring tears to your eyes, have you applauding their creativeness and cheering them on, and give you fresh hope for the potential of even young children to resist temptation and persevere for their delayed rewards.

What the preschoolers did as they tried to keep waiting, and how they did or didn't manage to delay gratification, unexpectedly turned out to predict much about their future lives. The more seconds they waited at age four or five, the higher their SAT scores and the better their rated social and cognitive functioning in adolescence. At age 27-32, those who had waited longer during the Marshmallow Test in preschool had a lower body mass index and a better sense of self-

Delay of Gratification in Children (excerpts)
Walter Mischel, Yuichi Shoda, and Monica L. Rodriguez
Science Magazine, 26 May 1989

Abstract

To function effectively, individuals must voluntarily postpone immediate gratification and persist in goal-directed behavior for the sake of later outcomes. The present research program analyzed the nature of this type of future-oriented self-control and the psychological processes that underlie it. Enduring individual differences in self-control were found as early as the preschool years. Those 4-year-old children who delayed gratification longer in certain laboratory situations developed into more cognitively and socially competent adolescents, achieving higher scholastic performance and coping better with frustration and stress. Experiments in the same research program also identified specific cognitive and attentional processes that allow effective self-regulation early in the course of development. The experimental results, in turn, specified the particular types of preschool delay situations diagnostic for predicting aspects of cognitive and social competence later in life.

FOR ALMOST A CENTURY THE INFANT HAS BEEN CHARACTERIZED as impulse-driven, pressing for tension reduction, unable to delay gratification, oblivious to reason and reality, and ruled entirely by a pleasure principle that demands immediate satisfaction (1). The challenge has been to clarify how individuals, while remaining capable of great impulsivity, also become able to control actions for the sake of temporally distant consequences and goals, managing at least sometimes to forgo more immediate gratifications to take account of anticipated outcomes. The nature of this future-oriented self-control, which develops over time and then coexists with more impetuous behaviors, has intrigued students of development, who have made it central in theories of socialization and in the very definition of the "self" (2). Such goal-directed self-imposed delay of gratification is widely presumed to be important in the prevention of serious developmental and mental health problems, including those directly associated with lack of resilience, conduct disorders, low social responsibility, and a variety of addictive and antisocial behaviors (3-9).

To explain how people manage to exercise self-control, concepts like "willpower" or "ego strength" are readily invoked, although these terms provide little more than labels for the phenomena to which they point. Some people adhere to difficult diets, or give up cigarettes after years of smoking them addictively, or continue to work and wait for distant goals even when tempted sorely to quit, whereas others fail in such attempts to better regulate themselves in spite of affirming the same initial intentions. Yet the same person who exhibits self-control in one situation may fail to do so in another, even when it appears to be highly similar (6).

As efforts at self-reform so often attest, however, decisions to forgo immediate gratification for the sake of later consequences (for example, by dieting) are readily forgotten or strategically revised when one experiences the frustration of actually having to execute them. Because intentions to practice self-control frequently dissolve in the face of more immediate temptations, it is also necessary to go beyond the study of initial decisions to delay gratification and to examine how young children become able to sustain delay of gratification as they actually try to wait for the outcomes they want. For this purpose, a second method was devised and used to test preschool children in the Stanford University community (19, 20).

In this method, the experimenter begins by showing the child some toys, explaining they will play with them later (so that ending the delay leads to uniform positive consequences). Next, the experimenter teaches a game in which he or she has to leave the room and comes back immediately when the child summons by ringing a bell. Each child then is shown a pair of treats (such as snacks, small toys, or tokens) which differ in value, established through pretesting to be desirable and of age-appropriate interest (for example, one marshmallow versus two; two small cookies versus five pretzels). The children are told that to attain the one they prefer they have to wait until the experimenter returns but that they are free to end the waiting period whenever they signal; if they do, however, they will get the less preferred object and forgo the other one. The items in the pair are selected to be sufficiently close in value to create a conflict situation for young children between the temptation to stop the delay and the desire to persist for the preferred outcome when the latter requires delay. After children understand the contingency, they are left on their own during the delay period while their behavior is observed unobtrusively, and the duration of their delay is recorded until they terminate or the experimenter returns (typically after 15 minutes). With this method, "self-imposed delay of gratification" was investigated both as a psychological process in experiments that varied relevant features in the delay situation and as a personal characteristic in studies that examined the relation between children's delay behavior and their social and cognitive competencies.

A recent follow-up study of a sample of these children found that those who had waited longer in this situation at 4 years of age were described more than 10 years later by their parents as adolescents who were more academically and socially competent than their peers and more able to cope with frustration and resist temptation. At statistically significant levels, parents saw these children as more verbally fluent and able to express ideas; they used and responded to reason, were attentive and able to concentrate, to plan, and to think ahead, and were competent and skillful. Likewise they were perceived as able to cope and deal with stress more maturely and seemed more self-assured (21, 22). In some variations of this laboratory situation, seconds of delay time in preschool also were significantly related to their Scholastic Aptitude Test (SAT) scores when they applied to college (23). The demonstration of these enduring individual differences in the course of development, as well as the significance attributed to purposeful self-imposed delay of gratification theoretically, underline the need to understand and specify the psychological processes that allow the young child to execute this type of self-regulation in the pursuit of desired outcomes.

As previously noted, preschool delay time in the diagnostic condition was significantly related not only to academic abilities of the sort assessed by the SAT but also to other indices of competence. Even after statistically controlling for SAT scores, preschoolers who had delayed longer were later rated by parents as more able to cope with a number of social and personal problems, suggesting that the relation between preschool delay time and later parental judgments is not completely attributable to school-related competencies as measured by the SAT.

After they have had time to read the two articles, ask each group, discuss the following questions. After fifteen minutes or so, have the groups report out.

1. Describe the differences between these two texts. How do you explain the differences? Which is better writing? Why?
2. Who do you think the author of each article was writing for? What kind of a reader was he writing for?

Next ask each group to work on the following:

3. “Translate” the first sentence in the scholarly article—“To function effectively, individuals must voluntarily postpone immediate gratification and persist in goal-directed behavior for the sake of later outcomes.”—into more ordinary language.

Finally, ask each group to discuss the following question and to report out with their answer.

4. Mischel finds a surprisingly strong relationship between the ability to delay gratification as a four-year-old and a number of positive outcomes later in life. Does this relationship surprise you? Why or why not?

Activity 3: Previewing and Predicting the University of Rochester Marshmallow Study (Dev)

Form the class into pairs, each pair consisting of one reader and one observer.

The reader will now read the article “The Marshmallow Study Revisited” (see Activity 4, below). The observer has a very different task: to observe what the reader does and make detailed notes. If the observer isn’t sure what the reader is doing, it’s okay to ask.

When your instructor announces time is up, the observer is going to report on what the reader did. Did the reader do any “previewing”? Did the reader look at information to help him or her “activate his or her schema”? If the reader was reading from the website rather than a print copy, did he or she try to figure out who the author was or what the audience was for this reading?

When the discussion of “previewing” and “activating schema” is complete, give the students time to actually read the article. No observers this time; everyone’s a reader.

After everyone has finished reading, form the class into groups of four or so to work on answering the following questions:

1. What kind of a reading is this? How would you describe it?
2. What kind of reader does it seem to be written for?
3. Here is the second paragraph from the article:

“Now a new study demonstrates that being able to delay gratification is influenced as much by the environment as by innate ability. Children who experienced reliable interactions immediately before the marshmallow task waited on average four times longer—12 versus three minutes—than youngsters in similar but unreliable situations.”

What do you think the article means when it says children are influenced as much by the “environment” as by innate ability? What does the article seem to mean by the word “environment”? The article also talks about “reliable interactions” and “unreliable situations.” What does it mean by “reliable” and “unreliable”? How did you figure out the answer to these questions

Activity 4: More Marshmallows (101)

For this activity, please begin by reading the following article.

The Marshmallow Study Revisited

For the past four decades, the "marshmallow test" has served as a classic experimental measure of children's self-control: will a preschooler eat one of the fluffy white confections now or hold out for two later?

Now a new study demonstrates that being able to delay gratification is influenced as much by the environment as by innate ability. Children who experienced reliable interactions immediately before the marshmallow task waited on average four times longer—12 versus three minutes—than youngsters in similar but unreliable situations.

"Our results definitely temper the popular perception that marshmallow-like tasks are very powerful diagnostics for self-control capacity," says Celeste Kidd, a doctoral candidate in brain and cognitive sciences at the University of Rochester and lead author on the study to be published online October 11 in the journal *Cognition*.

"Being able to delay gratification—in this case to wait 15 difficult minutes to earn a second marshmallow—not only reflects a child's capacity for self-control, it also reflects their belief about the practicality of waiting," says Kidd. "Delaying gratification is only the rational choice *if* the child believes a second marshmallow is likely to be delivered after a reasonably short delay."

The findings provide an important reminder about the complexity of human behavior, adds coauthor Richard Aslin, the William R. Kenan Professor of brain and cognitive sciences at the University. "This study is an example of both nature and nurture playing a role," he says. "We know that to some extent, temperament is clearly inherited, because infants differ in their behaviors from birth. But this experiment provides robust evidence that young children's actions are also based on rational decisions about their environment."

The research builds on a long series of marshmallow-related studies that began at Stanford University in the late 1960s. Walter Mischel and other researchers famously showed that individual differences in the ability to delay gratification on this simple task correlated strongly with success in later life. Longer wait times as a child were linked years later to higher SAT scores, less substance

abuse, and parental reports of better social skills.

Because of the surprising correlation, the landmark marshmallow studies have been cited as evidence that qualities like self-control or emotional intelligence in general may be more important to navigating life successfully than more traditional measures of intelligence, such as IQ.

The Rochester team wanted to explore more closely why some preschoolers are able to resist the marshmallow while others succumb to licking, nibbling, and eventually swallowing the sugary treat. The researchers assigned 28 three- to five-year-olds to two contrasting environments: unreliable and reliable. The study results were so strong that a larger sample group was not required to ensure statistical accuracy and other factors, like the influence of hunger, were accounted for by randomly assigning participants to the two groups, according to the researchers. In both groups the children were given a create-your-own-cup kit and asked to decorate the blank paper that would be inserted in the cup.

In the unreliable condition, the children were provided a container of used crayons and told that if they could wait, the researcher would return shortly with a bigger and better set of new art supplies for their project. After two and a half minutes, the researcher returned with this explanation: "I'm sorry, but I made a mistake. We don't have any other art supplies after all. But why don't you use these instead?" She then helped to open the crayon container.

Next a quarter-inch sticker was placed on the table and the child was told that if he or she could wait, the researcher would return with a large selection of better stickers to use. After the same wait, the researcher again returned empty handed.

The reliable group experienced the same set up, but the researcher returned with the promised materials: first with a rotating tray full of art supplies and the next time with five to seven large, die-cut stickers.

The marshmallow task followed, with the explanation that the child could have "one marshmallow right now. Or – if you can wait for

me to get more marshmallows from the other room – you can have two marshmallows to eat instead." The researcher removed the art supplies and placed a single marshmallow in a small desert dish four inches from the table's edge directly in front of the child. From an adjoining room, the researchers and the parent observed through a computer video camera until the first taste or 15 minutes had lapsed, whichever came first. All children then received three additional marshmallows.

"Watching their strategies for waiting was quite entertaining," says Holly Palmeri

, coauthor and coordinator of the Rochester Baby Lab. Kids danced in their seats, sang, and took pretend naps. Several took a bite from the bottom of the marshmallow then placed it back in the desert cup so it looked untouched. A few then nibbled off the top, forgetting they could then no longer hide the evidence since both ends were eaten, she said.

"We had one little boy who grabbed the marshmallow immediately and we thought he was going to eat it," recalled Kidd. Instead he sat on it. "Instead of covering his eyes, he covered the marshmallow."

Children who experienced unreliable interactions with an experimenter waited for a mean time of three minutes and two seconds on the subsequent marshmallow task, while youngsters who experienced reliable interactions held out for 12 minutes and two seconds. Only one of the 14 children in the unreliable group waited the full 15 minutes, compared to nine children in the reliable condition.

"I was astounded that the effect was so large," says Aslin. "I thought that we might get a difference of maybe a minute or so... You don't see effects like this very often."

In prior research, children's wait time averaged between 6.08 and 5.71 minutes, the authors report. By comparison, manipulating the environment doubled wait times in the reliable condition and halved the time in the unreliable scenario. Previous studies that explored the effect of teaching children waiting strategies showed smaller effects, the authors report. Hiding the treat from view boosted wait times

by 3.75 minutes, while encouraging children to think about the larger reward added 2.53 minutes.

The robust effect of manipulating the environment, conclude the authors, provides strong evidence that children's wait times reflect rational decision making about the probability of reward. The results are consistent with other research showing that children are sensitive to uncertainty in future rewards and with population studies showing children with absent fathers prefer more immediate rewards over larger but delayed ones.

The findings, says Kidd, are reassuring. She recalls reading about the predictive power of these earlier experiments years ago and finding it "depressing." At the time she was volunteering at a homeless shelter for families in Santa Ana, California. "There were lots of kids staying there with their families. Everyone shared one big area, so keeping personal possessions safe was difficult," she says. "When one child got a toy or treat, there was a real risk of a bigger, faster kid taking it away. I read about these studies and I thought, 'All of these kids would eat the marshmallow right away.' "

But as she observed the children week after week, she began to question the task as a marker of innate ability alone. "If you are used to getting things taken away from you, not waiting *is* the rational choice. Then it occurred to me that the marshmallow task might be correlated with something else that the child already knows—like having a stable environment."

So does that mean that if little ones gobble up desert without waiting, as is typical of preschoolers, parents should worry that they have failed to be role models of reliability every minute?

Not necessarily, say the researchers. "Children do monitor the behavior of parents and adults, but it is unlikely that they are keeping detailed records of every single action," says Aslin. "It's the overall sense of a parent's reliability or unreliability that's going to get through, not every single action."

Adds Kidd: "Don't do the marshmallow test on your kitchen table and conclude something about your child. It especially would not work

with a parent, because your child has all sorts of strong expectations about what a person who loves them very much is likely to do."

After everyone has read the article, break the class into groups to discuss the following question and report out after a few minutes:

Does the article about the University of Rochester study change what you think about delayed gratification? Discuss any changes and the reason for them. Now what do you think about delayed gratification as a strategy in your own life?

Activity 5: Short Writing 2: Experiencing Delayed Gratification (Dev)

Ask the students to think about a time when they had an experience with delaying gratification, a time when they had to choose between doing something enjoyable right away or doing something less enjoyable but with benefits in the future.

Ask them to write a one-page paper about this experience to be read by the students in the class. Here are some questions you may want them to think about:

What made the short term choice so tempting? What would be so enjoyable about it? What were the benefits of choosing the less enjoyable option?

If you chose the short-term enjoyable option, how did that work out? Was it a mistake? Was it as enjoyable as you expected? Did it cost you anything in the longer term?

If you chose the less enjoyable but more beneficial in the long term option, why did you make this decision? How did you convince yourself to give up the more enjoyable option? Did you really benefit in the long term?

If you prefer, you can write about someone else who faced such a choice, not you yourself.

Remind the students that their paper may be shared with the entire class.

Activity 6: Discussion of Short Writing 2: Experiencing Delayed Gratification (Dev)

Divide the class into groups of three or four. Ask the students to read all the papers from their group. Then designate each member of the group as note taker for one of the following questions. Then, for about a half hour, have them discuss the following questions as the note taker for each question takes notes.

1. What kinds of strategies seem to work best when people want to delay gratification?
2. What kinds of strategies don't seem to work when people want to delay gratification?
3. Are there times when delaying gratification may not be the best strategy?
4. Sometimes is it possible to find a middle ground between delaying gratification and instant gratification?

After a half hour, after about 15 minutes have each summarize what the group said about the questions. You may want to collect these summaries, combine them into one document, and give everyone a copy at the next class.

Activity 7: Thinking About Audience (101 or Dev)

Before students start working on the essay described in Activity 8, below, form them into groups. In groups, ask them to read the assignment for Essay 1 and think about who the audience will be for this essay. Report out in about fifteen minutes.

Activity 8: Essay 1 (Delayed Gratification) (101)

For this assignment, I'd like you to write a three to four page essay that grows out of your reading, your discussion, and your thinking about delayed gratification. Your audience for this paper is students who will be arriving at your institution next year. Your essay, if accepted by the college's New Student Orientation Committee, will be included in a packet of information new students will receive to help them understand how to be more successful in college.

Think deeply about delayed gratification—what it is, when it is a good strategy, how might one be successful at doing it. Support your argument with information from the articles you have read or others you locate yourself and/or with examples from your own life or from the lives of people you know.