

JoVE: Science Education

Are You Smart or Hardworking? How Praise Influences Children's Motivation --Manuscript Draft--

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Psychology Education Title: Are You Smart or Hardworking? How Praise Influences Children's Motivation

Overview:

Imagine teaching two children how to skate. It is a hard task for both of them, and they fall down frequently. After falling down for the first time, one child says that skating is too hard and wants to go home (**Figure 1**). The other child seems to enjoy the challenge and eagerly gets back up after falling down each time (**Figure 2**). Why do the children have such different attitudes about the same task? One reason may be that they have different mindsets or beliefs about the nature of their ability.

According to psychologist Carol Dweck, some people have a fixed mindset, and some people have a growth mindset. People with a fixed mindset believe that intelligence or abilities are fixed and cannot change. When these people face a challenge, like learning how to skate, they tend to believe that if a new skill does not come easily, then they are simply no good at it. They do not see their skills as capable of changing, and thus, they decide that it's useless to continue trying. People with a growth mindset have the opposite attitude. They believe that abilities can be developed through hard work, and they continue trying to improve even if they do not initially succeed.

How do these different mindsets develop? One factor that influences children's persistence and motivation to succeed is the way their success is described by other people. Specifically, the kind of praise children receive from adults, such as parents and teachers, can have a powerful effect on their subsequent motivation to perform a challenging task.

This video demonstrates how to measure the effect of praise on children's motivation based on the methods developed by Mueller and Dweck (1998).

Procedure:

1. Recruit children ages 9 to 11. For the purposes of this demonstration, only one child is tested. Larger sample sizes (as in Mueller and Dweck's (1998) study) are recommended when conducting any experiments.
 - 1.1. Make sure the participants have normal hearing and vision.
2. Prepare the materials.
 - 2.1. Obtain 3 sets of similar puzzles or problems with about 10 items per set. Two sets should be of moderate difficulty, and one set should be very difficult for a child to complete.
 - 2.1.1. In this demonstration, use tangrams.

3. Data collection.

3.1. Introduction to the task.

- 3.1.1. Sit the child on the opposite side of the table as the experimenter.
- 3.1.2. Explain that the child is going to be solving some puzzles. Say, "I am going to show you some puzzles. Let me show you how these puzzles work."
- 3.1.3. Demonstrate how to complete a very easy tangram.

3.2. Initial performance measure.

- 3.2.1. Tell the child, "Now you are going to have a chance to complete some puzzles. I want you to complete as many puzzles as you can in 5 minutes. Remember that you need to complete each puzzle correctly before you can move to the next one."
- 3.2.2. Set a timer for 5 min and stop.

3.3. Praise manipulation.

- 3.3.1. Encourage the child by saying, "Wow, you did very well on these problems. You got [number of puzzles completed] right. That is more than [percent of puzzles completed] of the puzzles!"
- 3.3.2. At this point, randomly assign the child to one of two praise conditions:
 - 3.3.2.1. In the praise for ability condition, the experimenter says, "You must be smart at these puzzles."
 - 3.3.2.2. In the praise for effort condition, the experimenter says, "You must have worked hard at these puzzles."

3.4. Failure experience.

- 3.4.1. Tell the child, "Now you are going to do another set of puzzles. You will have 5 minutes to work on them. Remember that you need to complete each puzzle correctly before you can move to the next one."
- 3.4.2. Set a timer for 5 min.
- 3.4.3. Present the very difficult tangrams.

3.4.4. When the timer goes off, say, “You did a lot worse on these puzzles. You got less than [percent of puzzles completed] of them right.”

3.5. Post-failure performance measure.

3.5.1. Tell the child, “Now you are going to do another set of puzzles. You will have 5 minutes to work on them. Remember that you need to complete each puzzle correctly before you can move to the next one.”

3.5.2. Present the second set of moderately difficult tangrams.

3.5.3. Stop when the timer goes off.

3.6. Debriefing.

3.6.1. Explain what the study was about to the child. Say, “This study was about how children react to different kinds of praise when they are doing these puzzles.”

3.6.2. Reassure the child about the overall quality of their performance. Say, “The second set of puzzles was very hard. It was made for much older children than you. You actually did a great job solving all of the puzzles.”

4. Analysis.

4.1. The dependent variables in this study are the number of puzzles that the child completes during the initial performance measure and the number of puzzles that the child completes during the post-failure measure.

4.2. Compare the child’s initial and post-failure performance using a repeated measure analysis of variance (ANOVA), with time as the within-subjects factor and condition as the between-subjects factor.

Representative Results:

Researchers tested 80 9- to 11-year-old children ($n = 40$ in each condition) and found that the type of praise children received had a significant effect on their performance. Both groups of children started out with similar performance on the initial puzzles, but the children who were praised for ability showed a significant decrease in their performance after failing at the more difficult puzzles. Children who were praised for effort showed an improvement in performance after the failure experience, suggesting that hearing their initial success was a function of their effort motivated them to work even harder on the puzzles after failing (**Figure 3**).

Applications:

The finding that a brief statement of praise from an experimenter has significant consequences for a child's motivation to complete a challenging task has major implications for how parents and teachers talk to children (**Figure 4**). Although saying "You're so smart" might sound like a good way to praise a child, these findings suggest that doing so fosters the development of a fixed mindset, which can be detrimental to children's willingness to persist in challenging tasks. In order to foster the development of a growth mindset and motivate children to persist in the face of challenges, parents and teachers should praise children for their effort instead. This is also true in the case of criticism. Criticizing effort (e.g. "you lost the race because you did not practice as much as the winner") is more likely to motivate children to continue working to achieve a goal than criticizing ability (e.g. "you lost the race because you are not as fast a runner.") (**Figure 5**).

Praise influences mindset, and mindset influences many different variables related to motivation and how people face challenges. Luckily, a mindset is not fixed forever. Even children who typically have a fixed mindset can be shifted into a growth mindset with the right kind of praise and instruction. More importantly, the effects of fostering either a growth or fixed mindset are not limited to children. Carol Dweck has found that these principles also apply to adults in a variety of domains, including the workplace, romantic relationships, and politics.

Legend:

Figure 1: Fallen skater.

Figure 2: Succeeding skater.

Figure 3: Average initial and post-failure performance for children in each condition.

Figure 4: Teacher or parent talking with student.

Figure 5: Parent criticizing child.

References:

Mueller, C. M., & Dweck, C. S. (1998). Praise for intelligence can undermine children's motivation and performance. *Journal of Personality and Social Psychology*, 75(1), 33.

Comment [JR1]: Figure callouts suggested by the author have been left in. Here are some potential photos. If any are needed, let us know and we can download the appropriate ones.

Figure 1: fallen skater

<http://www.shutterstock.com/pic-245186797/stock-photo-little-adorable-girl-sitting-on-ice-with-skates-after-fall.html?src=TS9064QWujlvpiEwZFh7fw-1-24&ws=1>

Figure 2: skater succeeding

<http://www.shutterstock.com/pic-211550437/stock-photo-little-boy-skating-with-parent-first-skating-lesson.html?src=XawPSSr0dsbLDhO9pcLAJA-1-25&ws=1>

Figure 4: teacher or parent speaking with student

<http://www.shutterstock.com/pic-85185838/stock-photo-teacher-woman-or-mother-talking-with-schoolboy-isolated-on-white-background.html?src=CoigsfyFS2e110oUqGedYA-1-9&ws=1>

Figure 5: parent criticizing child

http://www.shutterstock.com/pic-195097544/stock-photo-mother-having-argument-with-her-kid-showing-finger-for-discipline-and-punishment-full-body-shot.html?src=ZWAXqba5t_2F7JNomla8fg-1-86&ws=1

