Video Article

Experimental Paradigm for Measuring the Effects of Self-distancing in Young Children

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Abstract

Self-distancing (i.e., creating mental distance between the self and a stimulus by adopting a less egocentric perspective) has been studied as a way to improve adolescents' and adults' emotion regulation. These studies instruct adolescents and adults to use visual imagery or language to create distance from the self before engaging in self-regulation tasks and when thinking about past and future events. For example, adults are asked to recall past, negative emotional experiences from either a first-person perspective (no distance) or a third-person perspective (self-distanced). These studies show that a self-distanced perspective allows adults to cope more adaptively when recalling negative feelings. However, the self-distancing paradigm used with adults was not developmentally appropriate for young children. This modified self-distancing paradigm involves instructing children to think about their thoughts, feelings, and actions from different perspectives that vary in their distance from the self while completing a self-regulation task. The paradigm involves randomly assigning children to use one of three perspectives: self-immersed, third-person, or exemplar. In the self-immersed condition, children are asked to think about themselves using the first-person perspective (e.g., "How am *I* feeling?") and no distance is created from the self. In the third-person condition, children are asked to create distance from the self by using the third-person perspective (e.g., "How is *[child's name]* feeling?"). In the exemplar condition, the greatest distance from the self is created by asking children to pretend to be a media character and to think about that character's thoughts and feelings (e.g., "How is *Batman* feeling?"). Studies using the self-distancing paradigm with 4-6-year-olds have found that as the amount of distance from the self increases (self-immersed < third-person < exemplar), children perform better on self-regulation tasks. These findings suggest that the strategies implemented in the self-distancing protocol may be useful to include in self-regulation interventions for young children.

Video Link

The video component of this article can be found at https://www.jove.com/video/59056/

Introduction

Self-regulation is the ability to deliberately control one's thoughts, actions, and emotions. Self-regulation involves the interaction between "reactive" and "deliberate" processes and is a general concept that includes several different types of skills such as emotion regulation, executive function, perseverance, and effortful control (i.e., parent-reported temperament measure of self-regulation)[1]. Several studies have found that self-regulation is associated with and predictive of many important cognitive and social outcomes[2,3]. Additionally, early self-regulation skills have been found to be predictive of long-term wealth and health outcomes[4]. This previous research highlights the importance of intervening early to improve young children's self-regulation skills for more positive life outcomes later.

One strategy for improving young children's self-regulation is self-distancing. Self-distancing refers to creating mental distance between the self and a stimulus by having individuals think about their thoughts, feelings, or actions from an outsider's perspective[5]. Self-distancing is one form of psychological distancing. Psychological distancing refers to creating mental distance between a stimulus and response. This distance allows individuals to reflect and demonstrate greater control of their emotions, actions, and thoughts[6,7]. Most of the previous research on psychological distancing with children has focused on creating distance by transforming the task stimuli. For example, having children think about treats in an abstract way such as imagining that marshmallows are clouds during a delay of gratification task[8] or replacing actual treats with symbols (e.g., a pile of rocks to represent a pile of jelly beans) during a reverse- contingency task[9,10] promotes better performance. However, a few studies have created psychological distance in other ways such as by having children make decisions for another person instead of for themselves[11] or thinking about an individual who would perform well on the task, like Superman[12]. These studies also showed benefits of psychological distancing for children's ability to delay gratification[11,12].

While self-distancing seems like another promising way to improve different aspects of children's self-regulation, the majority of the research on self-distancing has been conducted with adults. Self-distancing has been studied with adults mainly in the domain of emotion regulation. In

these studies, adults are asked to use visual imagery or language to create distance from the self[13]. For example, they are instructed to recall a past event that evokes negative emotions by visualizing it either through their own eyes (non-distanced) or from an outsider's perspective or as if they were "a fly on the wall" (self-distanced)[13,14,15]. In other studies, adults are asked to use first-person (non-distanced) or third-person speech (self-distanced) while thinking about past negative emotions[16,17,18,19,20,21]. These studies suggest that taking a distanced perspective helps adults focus on *why* they are feeling what they are feeling instead of focusing on the negative emotions themselves and results in better coping when recalling these past negative emotions[13,14,15,16,17,18,19,20,21].

Recently, a self-distancing paradigm for children was created by modifying the self-distancing conditions used in the adult literature to be developmentally appropriate for young children[22] and creating an additional self-distancing condition based on children's love for role-play[23]. The self-immersed condition was adopted from the adult literature and is meant to elicit an exaggerated egocentric or first-person perspective. Theoretically, the self-immersed condition should be more detrimental to children's performance than a control condition in which children are not given any distancing instructions. In the control condition, children may take on a first-person perspective by default, but they are not as immersed in this perspective as children in the self-immersed condition. In both the self-immersed and control conditions, participants should not be creating distance from the self. The third-person condition creates some distance from the self by asking children to think about themselves using their own name. This condition allows children to think about their own thoughts, feelings, and actions from a distanced perspective. Finally, an additional condition called the exemplar condition was created by looking at past research with children on role-play such as a study by Karniol and colleagues[12] in which children were asked to pretend to be Superman during a delay of gratification task. In the exemplar condition, children are instructed to take the perspective of another person by pretending to be a media character. Having children pretend to be someone else creates even more distance from the self than the third-person condition since it asks children to think as if they were someone else with different thoughts, feelings, and skills. It also allows children to use their love for role-play, which peaks in early childhood[23]. During the target task, children are given either verbal or visual (e.g., stickers, costumes) reminders of their self-distancing condition. Allowing children to use the different self-distancing strategies while performing self-regulation tasks avoids children having to retrospectively remember situations in which they needed to exert self-regulation. While the adult literature allows researchers to study the difference between taking a non-distanced and distanced perspective, this child self-distancing paradigm allows children to take on a broader range of distances from the self (self-immersed, third-person, and exemplar) and allows researchers to test the effectiveness of these varying amounts of distance from the self on children's self-regulation.

In this article, we describe the self-distancing paradigm in detail, including the materials needed and the procedure for using this paradigm with young children. Additionally, we discuss results from studies that have used the self-distancing paradigm to examine its effects on young children's (3-6-year-olds) self-regulation. Finally, we discuss ways that the self-distancing paradigm can be used in future research, potential modifications to the paradigm, and implications for using it.

The target task that children complete while using the self-distancing instructions varies depending on the focus of the study. The following protocol demonstrates how the self-distancing paradigm can be used during a perseverance task[24]. However, the self-distancing paradigm can be applied to a number of behavioral tasks that involve effort on the part of the child. The task must be sufficiently challenging so that not all children will succeed even without the task manipulation, and yet not too far beyond their developmental level such that they cannot understand the instructions or perform the task under any circumstances. The following illustration of the self-distancing paradigm was used with typically developing 4- and 6-year-olds[24].

Protocol

All methods described here were approved by the Institutional Review Board at the University of Minnesota and complied with guidelines for research with human subjects. Written informed consent was obtained from a parent or guardian of the child participants, and verbal assent was obtained from children given they were too young to provide written consent.

1. Procedure

1. Randomly assign 4-6-year-old children to one of three experimental conditions: self-immersed, third-person, or exemplar.
   NOTE: It is optional to include a control group that receives no special modifications to the standard task instructions.
2. Obtain written informed consent from a parent or guardian of the child participant.
3. Build rapport with and obtain verbal assent from child participants. See **Supplementary File 1: Appendix A** for an example of an assent script that can be used by the experimenter.
4. Introduce the target task to the child.
   NOTE: The target task will vary depending on the study's focus.
   1. Introduce the distracting task. Show a tablet computer (e.g., iPad) to the child and say, "Okay, I am going to show you a game on this before we start our work."
   2. Ask the child, "Have you ever played on an iPad before?" to get a sense of the child's experience with iPads or touchscreens.
   3. Open up the "Where's My Water" app on the device to the second level and let the introduction play.
      NOTE: "Where's My Water" is only one example of an app that could be used for the perseverance task described. The app used should be simple enough for children in the study's age range to understand and be a game they would be tempted to play.
   4. Say, "This is the game. Have you ever played Where's My Water before?" Wait for child's response and then say, "In this game, you want to get the water into the pipes so the alligator can take his shower. To get the water to him, you have to move the dirt out of the way. See how moving my finger on the screen digs through the dirt?" Drag finger through dirt but only a little (not enough to complete the level).
   5. Say, "Sometimes there will be rocks in the way, like this" and point to the rock on the screen. Then say, "Then you have to move the dirt around the rock, like this" and demonstrate how to move dirt around the rock.
   6. Say, "After the dirt is out of the way, the water can flow to the pipes. I want the water to go to this pipe, so I am going to move my finger like this" and drag finger the rest of the way so that the water flows to the pipe. Watch the animation then restart the level by pressing the circle arrow.

7. Say, "Did you see how I got the water to the pipe? Now you try." Let the child try the level.
    1. If the child completes the level, say, "Good job! You got the water to the alligator."
    2. If the child does not complete the level, say, "Good job, let's try again. Try moving the dirt out of the way so that it gets to the pipe. Demonstrate the game again and let the child try again. Continue this process until the child is able to complete the level or they have tried 6 times.

8. Say, "Good. Once you finish, you'll see these buttons" and show buttons on the screen (if the child completed level) or on the script page (if the child did not complete the level). Then say, "If you want to play this level again, you can press the left button" and point to the left button that says "Replay."
    1. Then say, "If you want to play the next level, press this button (point to the right button that says "Next") and you'll get a new screen." Finally, say, "If you accidently press this button (press the middle button that says "Levels" so the game goes to the "box screen"), just pick a new box to play."

9. Ask the child, "Do you have any questions about this game?" Wait for the child to respond and then answer any questions that he or she has about the game.
10. Say, "Great! That's the game you will get to play later."
11. Open the "Where's My Water" app to the first level on the device so that it is ready to play when the child chooses to. Place the device next to the computer so that it is easily accessible to the child while they are sitting at the computer.
    NOTE: Make sure screen saver is set to 'never'.
12. Introduce the work task to the child. Say, "Now, I'm going to show you the work that we're going to do today. It would be helpful if you worked hard on this. This is a very important activity and it would be helpful if you worked hard on this for as **long** as you could. The reason I want you to do this activity is because you would be a good helper."
13. Ask the child a rule check question to make sure the child understands why the experimenter wants them to play the game. Say, "Can you tell me why I want you to do this activity?
    1. If the child responds incorrectly (i.e., does not say "to be a good helper" or something similar) or does not respond, say, "Oops! Remember, I want you to do this activity because you would be a good helper. So, why do I want you to do this activity?" Move on to the next step after the second try and correction.

14. Say, "Now, I'll show you how this activity works." Start the computer program, select the child's condition using the arrow keys, and then press the space bar twice to continue.
15. Place a cardboard overlay on the keyboard to cover all non-relevant keys for the task (i.e., all keys but the space bar and the enter key).
16. Say, "The goal of this activity is for you to feed pieces of cheese to a mouse. Whenever you see a picture of cheese on the computer screen you can feed the mouse by pressing the space bar" and then point to the space bar.
17. Say, "But, sometimes there won't be cheese, and instead a cat may appear! Whenever you see a picture of a cat, make sure you do **NOT** press the space bar."
18. Press the space bar twice to start the rule check phase.
    1. Ask the child, "What will you do when you see a picture of a piece of cheese on the computer screen?"
    2. If the child responds incorrectly (i.e., doesn't say "press the button" or something similar), say, "Oops! Remember, when you see the cheese you press this button" and point to the space bar. Then say, "So, if you see the cheese, what do you do?" Move on to the next step after the second try and correction.
    3. Say, "What will you do if you see a picture of a cat?"
    4. If the child responds incorrectly (i.e., does not say "nothing" or something similar), say "Oops, remember when you see the cat you do nothing. So, when you see the cat what do you do?" Move on to the next step after the second try and correction.

19. Say, "Great job! Let's practice" and then press the space bar twice to begin the practice trials (4 trials with feedback). Then say, "When you see the cross on the screen, just look at it."
    1. After the first practice trial runs, read the feedback on the screen, and press the space bar twice to continue. Continue running the rest of the practice trials and reading the feedback on the screen.

20. Say "Good job! You are ready to start the real activity!" and press the space bar twice to start the activity. Allow the child to work on the work task for 1 min.
21. Say, "Great.You did a good job! Remember, it would be helpful if you worked hard on this for as **long** as you could. But, this activity can get pretty boring. So, when you want, if you want, you can take a break by pressing this button. It's your choice." Then place the **break** button overlay (sticker with picture of the game) on the keyboard.
22. Demonstrate how children can take a break. Say, "And then you can switch and play this game (motion to the tablet computer [e.g., iPad]) like this." Then demonstrate moving over to the tablet and starting the game.
23. Say, "Then, when you're done taking a break you can come back to the activity and press this button again like this." Point to the **break** button on the keyboard before pressing the **break** button.
24. Ask the child a rule check question to make sure they know how to take a break. Say, "Now, what do you do when you want to take a break?"
    1. If the child responds incorrectly (i.e., does not say "press the break key" or something similar), say, "Remember, you press this button when you want to take a break" and point to the **break** key. Then say, "So, what do you do if you want to take a break?" Move on to the next step after the second try and correction.

25. Ask the child a rule check question to make sure they understand what to do when they want to end a break. Say, "And what do you do when you're done taking a break?"

1. If the child responds incorrectly (i.e., does not say "press the break key" or something similar), say, "Remember, you press this button when you're done taking a break" and point to the **break** key. Then say, "So, what do you do if you're done taking a break?" Move on to the next step after the second try and correction.

5. Introduce a self-distancing strategy based on the condition that children were randomly assigned to (self-immersed, third-person, or exemplar condition) by saying, "Before we get started, I'd like to tell you about something that you can do during this activity."
   NOTE: The following example is for a child randomly assigned to the exemplar condition. Follow the scripts in **Supplementary File 1: Appendix B** based on the child's assigned self-distancing condition.
   1. Say, "It would be helpful if you worked hard on this. This is a very important activity and it would be helpful if you worked hard on this for as **long** as you could. You would be a good helper if you worked on this activity for as **long as you can**, but it can be boring sometimes. Some kids like to pretend that they're somebody else who would be a really hard worker on this activity, when it gets boring. That's what I'd like you to do today."
   2. Show the child a laminated sheet of paper with pictures of four characters that are familiar and popular in the participating children's culture and age range and say, "Which one of these characters would you like to [pretend to] be for this activity?"
      NOTE: In past studies with 4-6-year-olds from the United States, Batman, Superman, Bob the Builder, Rapunzel, Elsa (Frozen), and Dora the Explorer have been used.
   3. After the child chooses a character, say, "Okay, to help you pretend you get to wear this." Then give the child the prop associated with their chosen character, so they can wear it.
      NOTE: Some examples of props used in past studies include a cape for Batman, a tool belt for Bob the Builder, a tiara for Rapunzel, and a backpack for Dora the Explorer.
   4. Say, "So, if you get bored at any point during this task, ask yourself, "Is **[character's name]** working hard?"
      NOTE: The phrase "Is **[character's name]** working hard" can be modified based on the nature of the target task. For example, in an emotion regulation task, "How is **[character's name]** feeling?" could be used.
   5. Tell the child about reminders to help them remember their self-distancing condition. Say, "You're going to hear reminders to help you remember. The computer will say, "Is **[character's name]** working hard?" to help you remember to ask yourself, "Is **[character's name]** working hard?" This sticker will help you remember too." Place a sticker of the child's chosen character on the computer used for the work task. Then say, "When you see the sticker, remember to ask, "Is **[character's name]** working hard?""
   6. Make sure the child can repeat their self-distancing prompt. Say, "Now you try it. Say, "Is **[character's name]** working hard?""Continue to ask the child to say this prompt until they are successfully able to do so.
   7. Say, "So remember, while you are working on this activity, I just want you to think whether **[character's name]** is working hard."

6. After the child's assigned self-distancing strategy has been explained, say," Okay, I'm going to be in the corner doing some work. Do you have any questions now, before we start?" Wait for child to respond and answer any questions.
7. Say, "It would be helpful if you worked hard on this for as **long** as you could. Remember, if you see the cheese, you press this button (point to space bar) and if you see the cat you don't press any button. If you want to take a break press this button (point to **break** button). Make sure you stay in your seat while you're on the computer or playing the game." Then say, "Okay, go ahead and start the activity" and point to the computer.
8. Sit in the corner of the room with back turned to the child and look busy doing work. Let the child work on the task for 10 min.
   NOTE: Make sure the child starts with the computer activity.
9. After the task is over, ask the children questions about the task and their use of their assigned self-distancing strategy (See **Supplementary File 1: Appendix C**).
   NOTE: The questions included in **Appendix C** are specific to the perseverance task example described in this protocol. The questions asked after the target task should be modified to be relevant to the target task being used and can serve as a manipulation check to make sure that the children remembered their distancing strategy, to determine whether they were using that strategy, and to get information about their motivation and thoughts about the target task itself.

Representative Results

Overall effectiveness of self-distancing

The self-distancing paradigm has been used in several studies focusing on young children's self-regulation including executive function skills, perseverance, and emotion regulation. To determine the effectiveness of self-distancing, children's performance on the target task is compared across the different self-distancing conditions (self-immersed, third-person, and exemplar). Studies with children between the ages of 3 and 6 years have found that children demonstrate better task performance when taking a self-distanced perspective (third-person or exemplar) than taking a self-immersed perspective[22,24]. For instance, White and Carlson[22] tested 3- and 5-year-olds and found that 5-year-olds' performance on a card-sorting executive function task was better for children in the more distanced conditions (third-person and exemplar) than in the no distance conditions (self-immersed and control; $\eta_p^2 = 0.26$) Moreover, linear trend analyses revealed that children's performance on the executive function task increased as the distance from the self increased (See **Figure 1**). In another study by White and colleagues[24], there was a main effect of distancing for 4- and 6-year-olds' persistence during a boring work task in the face of a distraction. A linear trend analysis showed children persisted longer as the distance from the self increased, with children in the exemplar condition showing the most perseverance ($\eta_p^2 = 0.05$; See **Figure 2**). Moreover, the distancing effect on children's perseverance was still found after controlling for verbal ability, gender, baseline executive function, and theory of mind.

Individual differences in the effectiveness of self-distancing

Some studies have begun to examine for whom the self-distancing strategy works best. Age has been the most studied factor. Studies that have compared the effectiveness of the self-distancing strategy for younger and older children have shown that children must be at least 4 years of age to benefit from the distancing strategy. For example, one study with 3- and 5-year-olds found that 5-year-olds but not 3-year-olds benefitted from self-distancing during an executive function task called the Minnesota Executive Function Scale (MEFS; $\eta_p^2 = 0.26$)[22]. The MEFS is a 7-level card sorting game in which children are tasked with sorting cards based on different rules such as sorting by color or by shape. Children's MEFS scores indicate their highest level passed (range from 0 to 7) with higher levels passed indicating greater executive function skills. However, other studies have shown that 4-year-olds can benefit from self-distancing during a perseverance task as much as 6-year-olds ($\eta_p^2 = 0.05$)[24] and that 4-year-olds can benefit more from self-distancing than 6-year-olds during an emotion regulation task ($\eta_p^2 = 0.07$)[25], perhaps because the 6-year-olds already were using intrinsic coping strategies in that task.

A few studies also have looked at individual differences in specific cognitive skills and whether they predict how children respond to the self-distancing manipulation. For example, White and Carlson[22] found that 3-5-year-olds with better theory of mind or perspective-taking skills benefitted more from the self-distancing strategy, regardless of age ($\eta_p^2 = 0.09$; See **Figure 3**). It is likely that higher theory of mind skills allowed them to be better able to adopt the perspective of the media character they were impersonating. In another study, Grenell and colleagues[25] found that 4-6-year-olds with lower executive function (EF) and effortful control (EC) benefitted more from the self-distancing strategy, displaying less frustration during the attractive toy in a transparent box task, even after controlling for children's verbal ability (EF $\eta_p^2 = 0.07$; EC $\eta_p^2 = 0.06$; see **Figure 4**). Together, these findings suggest that age may be serving as a proxy for different levels of certain cognitive skills that may be necessary for using the self-distancing strategy and these levels may differ depending on the type of self-regulation task used. Therefore, certain individuals may benefit more from the self-distancing paradigm than others.

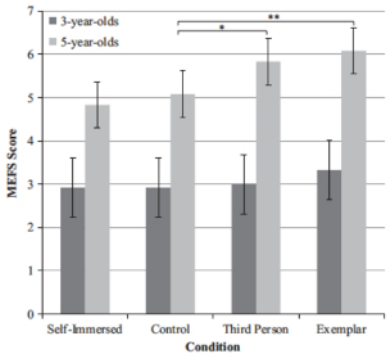

Figure 1. Mean performance of 3- and 5-year-olds (*N* = 96) on an executive function task called the Minnesota Executive Function Scale (MEFS) by self-distancing condition and age group. In this study, children were randomly assigned to one of four self-distancing conditions: self-immersed, control, third-person, or exemplar. Possible scores on the MEFS range from 0-7. Bars represent 95% confidence interval (CI). ** $p < 0.01$; * $p < 0.05$. This figure has been adapted from White and Carlson[22]. Please click here to view a larger version of this figure.

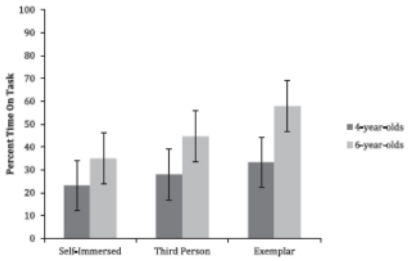

Figure 2. Percentage of time 4- and 6-year-olds (*N* = 180) spent on a boring work task by self-distancing condition (self-immersed, third-person, and exemplar) and age group. During the boring work task, children were distracted by an entertaining game on the tablet computer, so the y-axis represents the percentage of time they worked on the boring work task and not the entertaining game on the tablet. Bars represent 95% CI. This figure has been adapted from White et al.[24]. Please click here to view a larger version of this figure.

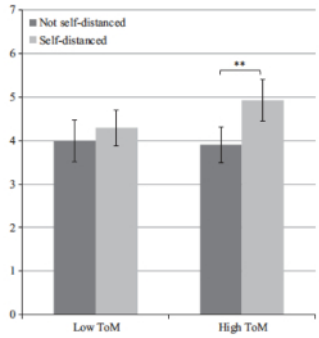

Figure 3. Mean Minnesota Executive Function Scale (MEFS) scores by self-distancing condition and theory of mind score adjusted for age (*N* = 96). A median split was used to divide children into a low theory of mind or high theory of mind group depending on their performance on a battery of theory of mind tasks. Children in the not self-distanced group included children in the self-immersed and control groups, and the self-distanced group included children in the third-person and exemplar conditions. ToM = theory of mind. Bars represent 95% CI. ** $p < 0.01$. This figure has been adapted from White and Carlson[22]. Please click here to view a larger version of this figure.

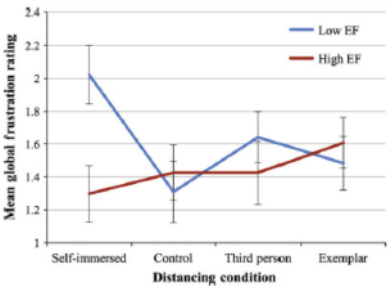

Figure 4. Self-distancing condition by executive function (EF) level interaction for mean global frustration rating controlling for age in months, verbal ability (Peabody Picture Vocabulary Test Scores), and time on task (in seconds). In this study, 4- and 6-year-olds (*N* = 139) were randomly assigned to one of four self-distancing conditions: self-immersed, control, third-person, and exemplar. The children completed a frustrating task while using their assigned self-distancing strategy. The frustrating task was coded, and children received a global frustration rating which was a score between 1 and 3 based on their ability to regulate their emotions and behaviors during the frustrating task. Bars represent standard error of the mean. This figure has been adapted from Grenell et al.[25]. Please click here to view a larger version of this figure.

Discussion

The child self-distancing paradigm described herein is important because it is developmentally appropriate and capitalizes on young children's love for role-play[23]. Previous research shows that this method can be successfully implemented with children between 4 and 6 years of age and that children who create the most theoretical distance from the self by pretending to be a popular media character show better performance on self-regulation tasks than children who use the first-person perspective[22,24,25].

Some of the critical steps of the protocol involve explaining the self-distancing strategies to young children and making sure they understand the rules of the game and their self-distancing strategy by asking rule check questions. It is also important that children have sufficient language ability to be able to understand the distancing instructions and to use language to create distance from the self, such as thinking about oneself in the third-person or thinking about someone else entirely. Therefore, it is recommended to use this paradigm with typically developing 4-6-year-olds who have sufficient verbal ability to understand the task and that a measure of vocabulary is collected to be able to control for verbal ability. It is also important that children are reminded of their self-distancing strategy during the target task to lessen the working memory demands and to ensure they do not forget the strategy they are supposed to be using. Researchers should take care in choosing the type of reminder that works best for the target task they are using. For example, in the study by Grenell and colleagues[25], the use of audio reminders during an emotion regulation task that elicited frustration actually seemed to annoy some children. However, similar audio reminders used in the study by White and colleagues[24] did not seem to annoy children while working on a persistence task. Therefore, depending on the nature of the target task and whether the task evokes an emotional context, the same type of reminder might affect participants differently.

Another modification that researchers need to be aware of is making sure that children have background knowledge about the characters they are asked to pretend to be in the exemplar condition. Therefore, researchers should use media characters that are familiar and popular in the participating children's culture. Alternatively, novel characters can be introduced with similar results, but children must be introduced to the characters and given background knowledge about the character's personalities and competencies before introducing the target task and self-distancing strategies[26]. Being familiar with the characters will allow children to be better able to impersonate the characters when asked to use that self-distancing strategy. It is also important that the characters that children are asked to pretend to be are competent. Research examining the effects of the character's competency on the effectiveness of pretending to be someone else for children's self-regulation suggests that the competency of the character matters and that there can be different effects of pretending to be someone else depending on the character's traits.

For example, there is some evidence that children perform better on self-regulation tasks when they are wearing a cape and asked to pretend to be someone who would be good at the target task than when they wear a cape and are asked to pretend to be someone who would not be good at the target task[12,26]. It is possible that having children pretend to be an exemplar media character allows them to identify with the character that is generally good at everything, which in turn leads children to take on a more competent self-image during the target task. However, the third-person condition also has children create distance from the self and has also been found to be more beneficial for children's self-regulation than the self-immersed condition, and yet there is no identification with an exemplar character in the third-person condition[22,24]. Therefore, it is most likely a combination of distancing and identifying with the character that makes the exemplar condition most effective[12,26].

Another way the self-distancing paradigm can be modified is by including a control group that does not receive any manipulation during the target task in addition to the three self-distancing conditions (self-immersed, third-person, and exemplar). Adding a control group is advantageous because it allows researchers to compare children's standard performance on the target task to children's performance when they use the self-distancing strategies. However, there can be unanticipated consequences of using a control group if the lack of self-distancing strategies is not the only way the control and experimental self-distancing conditions differ. For example, there may be an effect of having additional instructions to remember in the experimental groups, but not the control group, or the reminders used in the experimental groups may influence children's behaviors in unexpected ways such as children finding verbal reminders of their self-distancing strategies annoying during certain tasks. Additionally, children in the control group may use specific strategies spontaneously that influence their performance on the target task. Any unexpected differences between the control and experimental groups can make differences in performance challenging to interpret.

One potential concern with the self-distancing paradigm is making sure that self-distancing itself is being manipulated across conditions. A few studies using this self-distancing paradigm found that the third-person and exemplar conditions were more beneficial for children's self-regulation than the self-immersed perspective[22,24]. Given that children are asked to create distance from the self in both of these conditions, this evidence suggests that manipulating self-distancing itself is effective. Moreover, linear trend analyses suggest that task performance improves as the theoretical distance from the self increases[22,24]. While these results suggest that self-distancing is being manipulated as expected, it is also important that studies using the self-distancing paradigm include a way to check to make sure that children are engaging in self-distancing in the third-person and exemplar conditions. One type of manipulation check that has been used in previous studies is asking children questions after the target task about their self-distancing strategies and their performance on the task[24,25]. For example, one previous study found that 78% of the children correctly remembered their distancing prompt (e.g., "How is Batman feeling?") suggesting they were keeping their distancing strategy in mind during the target task[25]. The researchers also reported anecdotal evidence suggesting that children were creating distance from the self by thinking about how another person such as Batman would approach the task. For example, a 6-year-old told the experimenter that he persisted during a frustrating task because "Batman never gets frustrated."[25] Therefore, it is recommended that researchers include a manipulation check to ensure children were engaging in self-distancing during the task according to their self-distancing condition.

One limitation of the self-distancing paradigm is that there are numerous ways that children might be using the self-distancing strategies during the target task. Although children's self-talk during the target task provides evidence that they are using the self-distancing strategies and most children remembered the self-distancing prompt they were supposed to be asking themselves during the task (e.g., "Am I working hard?") when asked by the experimenter, a more in-depth examination of how children are using the self-distancing strategies would be ideal. For example, it would be useful to know if children are using the self-distancing strategies to distract themselves from the difficulty they are having with the target task or if they are using the self-distancing strategies to reflect on their thoughts, feelings, and actions while working on the target task. Future studies could modify the self-distancing paradigm to give researchers a better understanding of exactly how using the self-distancing strategies are affecting children's self-talk and behavior during the target task. This information will allow researchers to have a better sense of how children are using the self-distancing strategies and if there are potential ways to modify the paradigm to make sure all children are engaging in using the strategies.

We see several other avenues for future research. One important direction would be to conduct studies with an active control group in which children engage in an activity that is not self-distancing but involves similar cognitive processes such as using mental transformation. This type of research would provide additional evidence that self-distancing itself is being manipulated in the self-distancing paradigm. Previous research has shown that other forms of psychological distancing such as mentally transforming stimuli by thinking about them in different ways positively influence children's performance on a delay of gratification task[8]. There is also evidence that certain psychological distancing strategies may be more beneficial at different ages. For example, a study found that 3-year-olds can benefit from replacing stimuli (e.g., replacing jelly beans with rocks) during a reverse-contingency task before they are able to benefit from mentally transforming the stimuli or the self[9]. Therefore, studies that include an active control group would provide stronger evidence on the effectiveness of self-distancing and allow researchers to compare the effects of self-distancing to other potentially effective cognitive strategies across development. More research is needed to better understand the mechanisms and processes required to successfully use the self-distancing strategy. This type of research is especially important since self-distancing may require the use of certain self-regulation skills such as working memory, cognitive flexibility, and inhibition. The study by Grenell and colleagues[25] collected baseline measures of children's executive function and found that individual differences in children's executive function skills moderated the effectiveness of the distancing strategy. Therefore, additional research is needed to better understand the contribution of individual differences in self-regulation to using the self-distancing strategy versus the contribution of engaging in distancing itself. Training studies are also needed in which young children are trained to use the self-distancing strategies to determine if children's self-regulation improvements persist after the training. By collecting measures of children's self-regulation before and after engaging in self-distancing, these studies would also provide stronger evidence of the potential effects of self-distancing on children's self-regulation. Training studies can also help determine if the effects of self-distancing training can be generalized to contexts outside of the lab such as in classrooms or home environments. These types of studies are important to explore the potential long-term benefits of self-distancing in children. It would also be useful to conduct research using the self-distancing paradigm with a broader range of self-regulation tasks and to compare the effectiveness of self-distancing across them. These studies would allow researchers to better understand if the self-distancing strategy is most effective for certain types of self-regulation tasks and could be implemented as part of interventions targeting specific self-regulation skills. Additional research is also needed to examine individual differences in the efficacy of self-distancing to determine how this strategy can be implemented using a more personalized intervention approach. In sum, it is important for future research to determine exactly how self-distancing can best be utilized to improve young children's self-regulation.

Disclosures

Stephanie M. Carlson is the Co-founder and Chief Science Officer of Reflection Sciences that produces the Minnesota Executive Function Scale (MEFS) which was used in this article. The other authors have nothing to disclose.

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