The Development of Children's Knowledge of Self-Control Strategies

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The development of metacognitions about self-control in children through grade 6. The results indicated that children begin to understand 2 basic rules for effective delay of gratification by about the end of their fifth year: cover rather than expose the rewards, and engage in task-oriented rather than in consummatory ideation while waiting. By grade 6, children significantly indicated that abstract ideation would help delay more than consummatory ideation. In the delay paradigm, young 4-year-olds seem to create self-defeating dilemmas for themselves by choosing (or even creating) a tempting environment without adequately anticipating that they will be unable to execute strategies to overcome the temptation. This preference for the delay-defeating strategy (exposing the rewards) waned toward the end of the fourth year and was replaced by a growing preference for the delay-facilitating strategy (covering the rewards). Theoretical reasons for this developmental course were discussed.

The study of "metacognition" has become vigorous in recent years, with extensive research exploring the development of children's knowledge of effective strategies in attention, comprehension, and memory (e.g., Brown, 1980; Flavell & Wellman, 1977). In contrast, the child's developing understanding of essential strategies for self-regulation—a core aspect of human functioning, basic to virtually all conceptions of personality—has been neglected. Perhaps this neglect reflects the fact that until recently there were few objective criteria against which one could assess the relative efficacy of various strategies for self-control. Studies of the conditions that enhance or impede successful delay of gratification in children (e.g., Miller & Kuhl, 1976a, 1976b, Mischel, 1974, 1981a, Toner, 1981, Toner & Smith, 1977, Yates, Lippett, & Yates, 1981) now provide a basis for assessing the child's developing understanding against objective criteria of efficacy.

The present research focuses on one basic aspect of self-regulation: the child's ability and willingness to delay immediately available but less preferred gratifications for the sake of more preferred but delayed outcomes. The ability to delay gratification is seen as a key ingredient of ego development in many theories of personality (Mischel, 1981b), the capacity for such delay increases in the course of development and is related systematically to other indicators of cognitive competence and social maturity (e.g., Mischel, 1966, 1974).

Obviously, delay behavior in the service of future satisfactions, like other forms of self-control, is multiply determined by a variety of variables, including, for example, the child's trust, relevant expectations, and the comparative subjective values of the alternatives in the situation (e.g., Mischel, 1966, 1974). One of the least obvious and most theoretically provocative of these determinants of delay ideation about the rewards in the contingency. Given the crucial importance of the concept of "reinforcement" in psychology, it is surprising how little has been...
learned until recently about the way in which mental representations of rewards and outcomes affect the individual's pursuit of them. Recent research, therefore, has focused especially on the problem of reward representation in situations in which children attempt to delay immediate smaller gratification for the sake of more desirable but deferred goals. The intent has been to better understand how the mental representation of the relevant rewards in a contingency might influence voluntary delay for those outcomes (Mischel, 1981a).

A body of "rules" about conditions that objectively facilitate children's ability to wait in this paradigm (Mischel, 1974, 1981a) has begun to emerge from investigations of the effects of varying attention to the rewards and the child's ideation during delay. In general, children can delay most effectively for a chosen deferred gratification if during the delay period they shift their attention from the relevant gratifications and occupy themselves internally with cognitive distractions. Situational or self-induced conditions that shift attention from the reward objects appear to facilitate voluntary waiting times appreciably. In order to bridge the delay effectively, it is as if children must make an internal notation of what they are waiting for, perhaps remind themselves of it periodically, but spend the remaining time attending to other less frustrating internal and external stimuli, thereby transforming the noxious into the easy and taking the thinking and the worrying out of waiting and "will power." More specifically, one of the most basic rules is that delay is easier when the rewards are not in view. For example, preschool children were found to endure self-imposed delay of gratification 10 times longer when the rewards for which they waited were obscured rather than exposed during the delay period (Mischel & Ebbesen, 1970). Even with the rewards physically facing the child, delay time varies widely depending on what the child is doing or thinking. Delay time increases dramatically when children are distracted from the rewards by playing with a toy or are instructed to think about pleasurable "fun" activities (Mischel, Ebbesen, & Zeiss, 1972).

Thinking about the delayed rewards even when they are not in view appears to have a debilitating effect on the young child's ability to wait for them (Mischel et al., 1972). However, how the child thinks about the rewards substantially affects delay time even when the rewards are in full view. Mischel and Baker (1975) instructed preschoolers to cognitively transform reward objects facing them during the delay. They found that consummatory or "hot" ideation directed at the rewards for which the child was waiting (e.g., focusing on their taste) severely hindered effective delay, while nonconsummatory or "cool" ideation about the rewards (focusing on their abstract qualities) greatly helped to maintain the delay. On the basis of these and related results, Mischel (1974) concluded that "hot" reward-oriented ideation decreases delay by making it more aversively frustrative and arousing. In contrast, delay is facilitated by ideation about the task contingency and by "cool" ideation focusing on the abstract (rather than consummatory) features of the rewards.

Subsequent work has supported and extended the original findings and interpretations. Thus, Miller, Weinsten, and Karniol (1978) compared the effects of reward-oriented and task-oriented ideation on the delay times of kindergarten and third-grade children in a self-imposed delay situation. They found that both age groups delayed longer in the task-oriented condition ("I am waiting for") and waited less when they made reward-oriented statements ("The rewards are yummy"). Toner and Smith (1977) have reported similar results with preschool and second- and third-grade girls. At both the preschool and grade-school levels, ideation focusing on the delayed rewards ("The candy will taste good") resulted in less delay time than ideation about the value of waiting ("It is good if I wait"). Further support comes from a follow-up study with preschool children by Toner, Lewis, and Grible (1979). Toner (1981) allowed one group of preschoolers to choose to verbalize the task-centered versus the reward-centered utterance during the waiting period. He found that children who chose the reward-centered statement waited significantly less time than children who were told to use the reward-centered statement and children who passively heard it. Likewise, children who spontaneously engage in distractive activities, or who report having generated distractive cognitions during the delay period, tend to delay longer (Yates et al., 1981). In sum, a rapidly growing literature is providing further empirical support for the hypothesis that delay behavior in children is facilitated by distraction from the rewards and particularly by ideation that draws atten-
tion away from the consummatory qualities of the rewards either by focusing on the abstract qualities of the rewards or on the delay task itself. This apparently reliable set of objective factors underlying the ability to delay can now serve as criteria against which we can compare the child's own developing knowledge and use of effective strategies for delay.

The two studies to be presented here are part of a program of research designed to help clarify the development of children's knowledge and understanding of the types of stimulus conditions and cognitive activity that are likely to either facilitate or impair their own self-control. In these studies we also began to explore children's own strategies for dealing with a delay-of-gratification situation and for self-control in everyday life situations. We employed several convergent operations to assess this knowledge and to chart the developmental course of the child's understanding of the effect of ideation about the rewards in a contingency and on the ability to delay gratification in pursuit of them.

Study I
Overview and Design

In a delay-of-gratification paradigm (Mischel, 1974), children of different ages (preschool and grades 3 and 6) were asked whether it would help them wait if the delayed rewards were exposed or covered during the delay period. They were then asked to suppose that the rewards would be left uncovered and to tell us what they could say to themselves to help them to wait. Following this, the children were presented with two pairs of phrases and asked to select the one from each pair that they would say to help themselves to wait. One pair consisted of ideation focusing on the consummatory properties of the rewards (“The marshmallows are yummy and chewy”)—known objectively to impede delay (Mischel, 1981a)—versus ideation focusing on the task activity (“I am waiting for the two marshmallows”)—known to facilitate delay (Toner & Smith, 1977). The other choice paired consummatory ideation (as above) with abstract ideation (“The marshmallows are puffy like clouds”)—known also to facilitate delay (Mischel, 1974). Following the request for the child's own strategies and following each ideation choice we asked for the children's reasons “How will saying ___ help you to wait for the two marshmallows?”

Subjects

Subjects were 24 preschoolers, 35 third graders, and 35 sixth graders from a primarily upper-middle-class population attending schools in Stanford, California. In the preschool sample there were 11 females and 13 males, ranging in age from 3-5 to 5-2, with both mean and median ages of 4-3. The third-grade sample consisted of 21 females and 14 males, ranging in age from 8-0 to 8-11, with both mean and median ages of 8-6. The sixth-grade sample contained 22 females and 13 males, ranging in age from 10-6 to 11-11, with a mean age of 11-5 and a median age of 11-6.

Procedure

Preschoolers were interviewed individually in a small room at the Bing Nursery School of Stanford University. They were assigned randomly to one of three interviewers. Each interviewer (two males and one female) saw approximately equal proportions of males and females and equal numbers of children above and below the mean age. All sessions were tape-recorded. Elementary school children were invited to come to a small room at their school after school hours. They read descriptions of the delay situation and answered questions printed in booklets that they read and in which they wrote at their own pace.

Stimuli and Design

The Delay Situation

In individual sessions, preschoolers were presented with the standard self-imposed delay procedure described in detail previously (e.g., Mischel, 1974, Mischel & Baker, 1975). Briefly, in this procedure the child is seated in a chair in front of a table with a bell and an upside-down cake pan on it. The experimenter says that sometimes he has to go out of the room and demonstrates how the child can summon his return by ringing the bell. The experimenter lifts the cake pan, revealing three miniature marshmallows—two grouped together and one apart. The delay contingency is explained to the child: two marshmallows if the child waits for the experimenter’s return, but only one if she rings the bell to bring him back to end the delay earlier. Comprehension of the contingency is assessed in a series of questions “If you sit in your chair in front of the table and wait all the time until the grown-up comes back, what do you get? But if you don’t want to
wait, what could you do to make the grown-up come back? But if you ring the bell, what do you get?” The contingency was repeated to the preschoolers until each demonstrated comprehension.

The elementary school children were given the identical information but in written form in the booklets that described the same situation. Specifically, the youngsters were asked to “Suppose a grown-up comes to your school and takes you into a room” Illustrations of the table, bell, and marshmallows depicted them in the same arrangements as presented to the preschoolers. The questions assessing their comprehension of the delay contingency were printed in the booklets with space provided for the children to write their answers. All children demonstrated comprehension.

Choice to Cover versus Expose the Rewards during Delay

All children were asked whether it would help them most to wait for the two marshmallows if the marshmallows were left out or if they were covered while they were waiting. The alternatives were stated to the preschoolers in alternating order and were repeated with continued alternations until the child clearly comprehended the choice to be made.

The elementary school children were instructed to “suppose you really want to get the two marshmallows” and to check the condition (cover vs expose) that would “help me to wait for the two marshmallows.” The order of the alternatives was reversed in one-half of the booklets.

Elicitation of Self-generated Delay Strategies and Inquiry

Next, all children were asked what they could say to themselves to help them wait with the rewards left out in front of them. Preschoolers who had chosen to have the rewards covered were instructed to “Suppose I have to leave the marshmallows out on the table.” All preschoolers were then asked, “When I go out of the room—while you are waiting for the two marshmallows on the table here in front of you—what can you say to yourself that will help you to wait?” After the child responded, the experimenter inquired how saying this would help the child to wait. Elementary school children read “Suppose the grown-up says she has to leave the marshmallows out on the table. When she goes out of the room while you are waiting for the two marshmallows on the table in front of you, what can you say to yourself that will help you to wait?” (Blank lines were provided here for the child’s response) “How will that help you wait?” (Additional blank lines were provided here)

Ideation during Delay Choice and Inquiry

Finally, we presented the children with two pairs of phrases and asked them to choose a phrase from each pair which they would say to help them wait for the two marshmallows. These phrases were identical for both preschool and elementary school children. Elementary school children consummatory ideation (“The marshmallows taste yummy and chewy”) was paired once with task-oriented ideation (“I am waiting for the two marshmallows”) and once with abstract ideation (“The marshmallows are puffy like clouds”). The order in which the two pairs were presented was alternated, as was the order within each pair.

Preschoolers listened to and then rehearsed saying the phrases aloud before they made their selections. Elementary school children read the alternatives and marked their answers in the booklets. After each choice, the children were asked how their choice would help them to wait.

Control for Ideation Preferences in a Nondelay Context

In previous work, some of the children were observed to especially enjoy hearing and repeating abstract ideation about the rewards (Mischel & Baker, 1975), which may have particular appeal to them as a newly discovered smile. Consequently, we employed a control condition designed to assess any systematic preferences for the abstract versus consummatory ideation phrases apart from their potential value for facilitating or impairing waiting for the relevant rewards. For this purpose, half the children in each age group were first presented with a list of pairs of statements and the instruction to pick the one that “is more fun to say to yourself.” The target pair (consummatory vs abstract ideation about the rewards) was embedded in random order in a list with pairs of statements about five irrelevant items, for example, “The flower is pretty and soft” or “The flower smells good and sweet.” This control procedure was administered to the preschoolers in a separate session approximately 3 weeks before the main study. The pairs were read to the children, and they were helped to rehearse each statement in a pair before making their choices. The elementary school children were given the same
list of nondelay choices in written form on the first two pages of their booklets. To discourage turning back and modifying their responses as they proceeded through the booklet, the instruction, "DO NOT turn back," was printed at the bottom of the appropriate pages. The children were observed to comply with this request.

RESULTS

Choice of Delay Strategies

Preliminary χ² tests showed no sex differences approaching significance, therefore, males and females were combined in the following data analysis. The overall data, summarized in Table 1, revealed an orderly developmental sequence in children's knowledge of rules for effective delay of gratification. Let us consider this sequence for each choice measure separately.

Covering versus exposing the rewards — Table 1 shows the developmental progression in children's awareness that it helps to cover the rewards rather than have them available for attention during the delay period. Preschoolers chose to have the rewards exposed somewhat more often than covered, but this difference was not significant (χ² < 1). By third grade, children systematically indicated that it would help to have the rewards obscured during the delay period, χ²(1) = 4.36, p < .05, and sixth graders showed the same preference most markedly, χ²(1) = 9.26, p < .002. Thus there was a significant linear age effect, χ²(2) = 8.35, p < .01.

Task-oriented versus consummatory ideation — Preschoolers showed no systematic preference for task-oriented versus consummatory ideation (χ² = 174, N.S.). Third graders strongly preferred task-oriented over consummatory ideation, χ²(1) = 9.82, p < .002, as did sixth graders, χ²(1) = 12.97, p < .001 (see Table 1). The linear age effect on the preference for task-oriented ideation was highly significant, χ²(2) = 11.60, p < .003.

Abstract versus consummatory ideation — Recall that with half the sample we included a control condition to assess the children's possible preferences outside the delay context for self-instructions focusing on abstract versus consummatory features of the reward objects. Consummatory ideation about the reward objects was strongly preferred (N = 35) to abstract ideation (N = 11) in the nondelay context by all age groups, χ²(1) = 6.72, p < .01. This preference occurred at each age level, with no significant differences between age levels. An examination of the subsequent consummatory versus abstract ideation choices in the delay situation by the children who had taken part in the nondelay assessment showed that they were similar at every grade level to those of children who did not have this preliminary measure. Thus there was no systematic effect on later delay choices from the nondelay context choices.

Analysis of the children's preferences for abstract versus consummatory ideation as a delay strategy was highly informative (see Table 1). Specifically, neither preschoolers nor third graders showed a significant preference for abstract versus consummatory ideation in the delay context. Sixth graders, however, strongly indicated that abstract ideation would help delay more than consummatory ideation, χ²(1) = 11.28, p < .001. The linear age effect was also significant, χ²(2) = 8.38, p < .01.

Correlations between age and delay knowledge — Correlational analyses confirmed the picture provided by the χ² analyses of the children's choices. Each child was assigned a "knowledge score" from 0 to 3 for the number of correct answers given about the basic delay rules (cover/expose, consummatory/task-oriented, consummatory/abstract). The correlation between these knowledge scores and age was .452 (N = 94, p < .001) for the total sample.

Strategies Suggested by the Children

Next, consider the strategies for waiting

<p>| TABLE 1 |
| STUDY I NUMBER AT EACH AGE LEVEL CHOOSING EACH STRATEGY TO HELP DELAY |</p>
<table>
<thead>
<tr>
<th>Cover vs Expose Rewards</th>
<th>Task-oriented vs Consummatory Ideation</th>
<th>Abstract vs Consummatory Ideation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preschool</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Grade 3</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>Grade 6</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>6</td>
</tr>
</tbody>
</table>

Note — Numbers do not always add to total N because some children refused to make some choices.
that the children themselves suggested. Recall that after making the choice to have the rewards either covered or exposed each child was asked to tell us what they could say to help them wait with the rewards in view on the table in front of them (Preschoolers who had chosen "cover" were told, "Suppose I have to leave the marshmallows out when I leave the room", elementary children read in their booklets the phrase "Suppose the grown-up says she has to ")

Given the lack of systematic knowledge of effective delay rules revealed by the preschoolers' choices, it is not surprising that their own verbalized strategies were not very informative. For example, only seven preschoolers could tell us what they would say to themselves while waiting with the rewards in full view. Four of these were self-instructions about the delay contingency or the task requirement—for example, "Waiting for the two marshmallows" (4-0), "OK, I get two or one" (4-4). The remaining three children suggested activities that would distract their attention from the rewards—for example, "I guess I'll go to outer space (anything else)? " "I think I'll take a bath" (4-3). Most preschoolers gave no answer or said "I don't know" (N = 13), others gave answers unintelligible to us (N = 4).

In contrast to the preschoolers, 66 of the 70 elementary school children expressed potentially useful strategies for delay, consistent with the understanding revealed by their choices among objectively effective versus ineffective alternatives. A content analysis by two independent raters of the third and sixth graders' delay strategies suggested the following categories: task-oriented, distraction, cognitive transformations, and positive ideation.

Task-oriented strategies—This was the most frequent category, accounting for 52% of the third graders' and 60% of the sixth graders' codable responses. In it self-instructions focused on the demands of the waiting task, the necessity of waiting, or the contingency itself. For example, "If you wait you get two marshmallows" (8-5). "Boy, Jenna, if you ring the bell you only get one. Better wait for the grown-up" (11-5).

The next most frequent category, accounting for 28% of the third graders' and 14% of the sixth graders' codable responses, was distraction—thinking about something, anything, other than the delay situation. For example, "I wonder what I can do now. Hum. I think I'll read a book until she gets back in the room" (8-6). "You can take your mind off of it, and think of Christmas or something like that. But the point is—think about something else" (11-3).

Ten elementary school children suggested strategies involving cognitive transformations of the rewards or of their own arousal state. For example, "I don't want to eat the marshmallows. They are yukky" (8-4). "I'm stuffed. Then I would not want the marshmallows" (11-7).

Five children suggested that positive ideation and even consummatory ideation about the rewards might help them to wait. For example, "It looks good and fluffy" (8-9), and "I could sit on my hands but if I had to say something to help me wait, I would think about how yummy the marshmallows were, all coated with white, tasting so sweet inside" (10-11).

The two coders agreed 98% on the task-oriented and distraction categories and 96% on each of the two reward-ideation categories. Disagreements were easily resolved by discussion, and the final coding appears in Table 2.

**Reasons for Ideation Preferences**

The reasons the children gave for their choices of consummatory versus task-oriented and consummatory versus abstract ideation shed additional light on the development of their understanding. For both ideation choices, most preschoolers said "I don't know." Some referred to the attractiveness of the rewards (e.g., "I like them"), others simply restated or rephrased the original ideation they had chosen (e.g., "Because they are yummy and chewy"). The types of answers seemed unrelated to their choices. Only one child referred to the motivating effect of his chosen (task-oriented) ideation: "It reminds me to wait" (4-8).

In contrast, both third and sixth graders frequently supported their preferences. Twenty-three of the 54 who chose task-oriented ideation referred to the increased motivation and reassurance that it would provide. "It would give me self-confidence" (8-2). "It will convince you to wait" (11-3). Twenty others said that task-oriented ideation would provide distraction and reduce temptation. For example, "If you keep saying it, it will keep you busy" (8-8), "It will help me be-
cause then I will remember they’re not mine yet” (11-11)

Twenty-two of the 26 sixth graders who chose abstract ideation spoke of the delay-defeating arousal produced by consummatory ideation and/or of the temptation-reducing consequences of abstract ideation. For example, “I can’t eat puffy clouds, and it won’t make me hungry” (10-11). Although third graders as a group did not significantly prefer abstract ideation, a few of those who did seemed to imply some awareness of its arousal-reducing effect, for example, “Clouds do not taste good!” (8-0).

**DISCUSSION**

The results presented so far suggest a clear developmental progression in children’s knowledge and understanding of effective delay strategies. The preschoolers in this study did not appear to know any of the rules for making delay less difficult by not attending to the rewards or by using various types of ideation during the delay period. Most of the third graders seemed to know that not attending to (covering rather than exposing) the rewards will make delay less aversive and easier. In addition, they recognized that task-oriented ideation will enhance delay more than ideation about the consummatory properties of the rewards.

While third graders generally were aware of the beneficial effects of reminding themselves of the delay contingency, they did not systematically prefer abstract over consummatory ideation about the rewards. But by the time they reached the sixth grade, most children knew that abstract ideation about the rewards would help them to delay more than consummatory ideation, even though they continued to prefer consummatory ideation in a nondelay context. The development of the avoidance of consummatory ideation does not reflect a general change in children’s ideational preferences with age since children at all ages studied preferred consummatory to abstract ideation in a nondelay context. Developmental progress occurred in the oldest children’s clear recognition that abstract ideation about the rewards would make delay of gratification easier than consummatory ideation about them.

We know from previous research that when children are instructed to “frame” the rewards mentally and to turn them into a “picture in your head,” their ability to delay is greatly enhanced, even more so than when they are instructed to engage in comparable interesting mental operations that simply distract them from the rewards altogether (see Moore, Mischel, & Zeiss, 1976). In spite of the demonstrated efficacy of these transformations to abstract or distance the rewards, considerable cognitive maturity seems to be required to recognize the value of such transformations as measured by the choice to engage in them and the ability to support this choice with well-elaborated reasons. The ability to generate abstract ideation about the rewards as a delay strategy may come even later. Some of the sixth graders in the present study suggested construing the rewards in a negative way and/or negating their own arousal, but none spontaneously generated abstract ideation about the rewards as a means to facilitate delay of gratification.

The delay strategies suggested by the children themselves also reflected a clear developmental progression in their knowledge of delay rules. While a few preschoolers suggested task and delay-contingency cognitions or self-distractation, the great majority did not seem to offer clear or viable strategies for effective delay. By third grade, in contrast, children offered and reasonably justified a number of potentially viable delay strategies. Often they focused on the task and contingency, reminding themselves of the task requirement and outcomes (“If you wait you get two marshmallows, if you don’t you only get one marshmallow”). They also often indicated the value of distraction from the rewards or of cognitive transformations both of the rewards (to make them less tempting) or of their own arousal state. A few still suggested that positive ideation about the rewards (“It looks good and fluffy”) will help, and one wonders if these are the very youngsters for whom delay is likely to be most difficult. By the time they reached sixth grade, the children’s own delay strategies (just like their choice preferences) showed considerable sophistication. They were capable of suggesting temptation-reducing transformations of the rewards (“the marshmallows are filled with an evil spell”) and of their motivational state (“I hate marshmallows I can’t stand them. But when the grown-up gets back, I’ll say to myself ‘I love marshmallows’ and eat it”)

It would be premature and unwise to draw firm conclusions from the present data about the young children’s lack of awareness of any effective rules for delay. Indeed, much of the history of the field has suggested that...
conclusions about what young children do not know often reflect inadequacies in the methods of the investigators more than limitations in the knowledge of the children (e.g., Gelman, 1978). Therefore, we conducted a second study with improved procedures and a greatly expanded sample of children from age 3 to age 8.

Study II

Overview

Study II was designed to assess in greater depth and detail young children’s knowledge of basic rules for waiting within the same delay-of-gratification paradigm. First, the size and range of the subject sample was expanded, and we attempted a more fine-grained analysis of age effects in young children. Second, in Study I minor differences in the procedures for the preschool and for the elementary school subjects may have resulted in the elementary school children perceiving the delay situation as more hypothetical than did the preschoolers. Thus the older children’s greater knowledge of the delay rules may have been the result of the delay situation being less real and less difficult, frustrating, or arousing for them than it was for the preschoolers. The presentation of the delay situation in Study II therefore was made more clearly hypothetical, to closely parallel the presentation made to the elementary school children in the first study. This change permits us to assess younger children’s knowledge of delay rules in an optimum situation, comparable to the one for older children in the first study.

Subjects

Subjects were 203 children, 102 males and 101 females, ranging in age from 3-0 to 7-11 (mean age = 4-10, median age = 4-8). All attended a preschool or one of two after-school care programs. The subjects from all samples of the second study were drawn from the same primarily upper-middle-class population of the Stanford community as those in the first study. Because preliminary tests revealed no differences in the responses of children from the different samples, in Study II their data were combined in the following analyses. Preliminary $\chi^2$ tests also showed no sex differences approaching significance in any of the choices, allowing us to combine males and females in the following data analyses.

Procedures, Stimuli, and Design

The basic procedures, stimuli, and design were the same as those for the preschool children in Study I, with some exceptions. To provide comparability with the procedures employed with the elementary school subjects in Study I, we added the instruction, “Let’s pretend that a grown-up comes to your school and takes you into a room like this,” designed to make it clear to the child that he or she would not actually be left to wait for the delayed reward as part of the session. Children chose first to have the rewards either covered or exposed, and after they chose, the reasons for their preference were explored. They then were asked to suppose that the rewards had to remain exposed and to describe what they could do or say (their own strategies) to help them wait with the rewards in full view. We found that some children in Study I responded to the request for a verbal delay strategy by describing or demonstrating strategies such as covering their eyes with their hands. We therefore added “things they could do” so that the young children in Study II would feel free to express any type of delay strategy, motoric as well as cognitive, in any way they could. Any strategies the children suggested were explored to assess their understanding of how they would help. Then they were asked to choose which one of two phrases would help them most to wait with the rewards exposed during the delay period. One phrase was task oriented (“I am waiting for the two marshmallows”), the other focused on the consummatory qualities of the delayed rewards (“The marshmallows are yummy and chewy”). Again, reasons for their choices were explored. The choice of consummatory versus abstract ideation about the rewards was omitted because the results of Study I made it clear that knowledge of the rule that delay is facilitated by a focus on the abstract versus consummatory qualities of the rewards does not appear until late in the elementary school years.

Due to time limitations in some testing sessions, 24 children were not asked to suggest their own strategies for waiting with the rewards in view or to choose between task-oriented and consummatory ideation. Another 50 children were not given the ideation choice, although there was enough time to ask for their own strategy suggestions. All 203 children made the cover versus expose choice.
RESULTS

Choice of Delay Strategies

Covering versus exposing the rewards —
An analysis of the children's choices to cover versus expose the rewards was grouped by age under 4, 4-0 to 4-11, 5-0 to 5-11, and 6 and over. This yielded an overall $\chi^2(3) = 21.02$, $p < .001$, indicating increasing awareness that it helps to have the rewards covered rather than exposed during delay. Not surprisingly, below 4 years, the children showed no systematic preference for covering versus exposing the rewards as an effective delay strategy. By 4 years, however, this picture changes dramatically. Strikingly, and unexpectedly, the young 4-year-olds significantly preferred to expose the rewards—a strategy which has been demonstrated to make delay most difficult for children this age (e.g., Mischel, 1981a). As Figure 1 shows, this effect is specific to children in the first half of their fourth year, and the preference for exposing the rewards to help delay wanes by the end of that year. Children from 4 to 4½ years showed a highly significant preference for having the rewards in view during the delay period, while children below age 4 and from 4½ to 5 years showed no significant preference for covering versus exposing the rewards, $\chi^2(2) = 17.88$, $p < .001$. In the fifth year, the preference begins to shift toward favoring the objectively helpful strategy of covering the rewards to facilitate waiting for them but is still not significantly different from chance. The preference for covering the rewards becomes significant for children age 6 years and older, $\chi^2(1) = 10.32$, $p < .005$.

Task-oriented ideation versus consummatory ideation — As Figure 2 shows, below age 5 years there is no systematic preference.
in the choice of task-oriented ideation over consummatory ideation for helping delay. At around age 5, this change in task-oriented ideation becomes clearly preferred to consummatory ideation. This significant preference remains relatively stable, with no further significant increase observed as a function of age (compare the preferences of the children over 5-0 with those of the older children in Study I, Table 1).

Correlations between age and delay knowledge — Correlational analyses confirmed the picture provided by the \( x^2 \) analyses of the choices. Each child was assigned a "knowledge score" from 0 to 2 for the number of correct answers given about the basic delay rules (cover/expose, consummatory/task-oriented). The overall correlation between these knowledge scores and age was 325 (\( N = 142, p < 0.001 \)).

Reasons for Choosing to Cover versus Expose the Rewards

The children's choice preferences yielded clear and coherent results which we attempted to supplement with more subjective, less formal data about their developing understanding of effective delay rules. Consider, first, responses to our inquiry, "How will having the marshmallows [either "covered" or "left-out," depending on the child's choice] help you to wait for the two marshmallows?"

Generally, the youngest children (up to about age 4) did not relate their choices to their anticipated experiences during the delay period. Most of them said "I don't know," "I just want it," or simply remained silent. A few described to us that they would not see the rewards if they were covered, or would see them if they were exposed, but did not say how this would affect them. One child under age 4 did say that covering the rewards would prevent him from violating the delay contingency, but did so without specifying the mediating experience of reduced arousal or temptation, almost as if the cover were a physical barrier: "So [I] won't..."


We intensively interviewed 10 of the 4–4½-year-olds and scrutinized all of the responses of children in this age range with special interest, searching for possible clues about why, at this age, they systematically preferred what empirical evidence suggests is a delay-defeating strategy. Only eight of the 47 children age 4–4½ chose to have the rewards covered, and only four of the eight responded at all to the inquiry. Of these four, only one boy (4–3) went beyond stating that covering the marshmallows would result in not seeing them (e.g., “cause then I won’t see them”) and seemed to begin to deal with the affective and cognitive consequences “because it has to be a surprise if you see it first, then it won’t be a surprise.”

How did the children in this age group who chose to have the rewards in view during the delay period support this choice? Most of them did not. In response to the inquiry, more than one-half said “I don’t know,” remained silent, reiterated their choice, or said that they liked them to be uncovered. One child seemed to indicate an awareness of the debilitating effect of the stimulus arrangement he had chosen “and if I was sitting here alone then I would just ring the bell.”

When reasons were given by children at this age to justify their preference for exposing the rewards, they focused on their desire for the marshmallows and the reluctance to have them covered, for example, “because I like to see those—cause I like marshmallows a lot” (4–2). One child indicated that having the rewards in view would make the wait shorter. However, his explanation of how it would be shorter made it clear that he was referring not to the impact of reward exposure on subjective time during the delay period but rather to how rapidly the reward would be delivered after the experimenter’s return “Well, if I put this [the cover] on, then the lady would have to take it off. It would take a long time to take it off” (4–3).

Nine of the 15 children age 4½–5 years who chose to have the rewards in view supported this choice in terms of the anticipated delay-enhancing effect of the increased trust and incentive that seeing the rewards will produce. For example, “Then I can just watch them so they won’t walk away” (4–9).

Recall that by around age 5 increasing numbers of children chose to have the rewards covered during the delay period. While many (11 out of 36) 4½–5½-year-olds choosing cover said “I don’t know” when asked for a reason, others seemed to realize that covering the rewards would reduce frustrating arousal and the temptation to terminate the delay period, for example, “when you come back it seems shorter ’cause you haven’t been gone shorter but it seems shorter ’cause you aren’t looking” (4–10) “’Cause I won’t remember about them, and I’ll just wait” (Will it be harder to wait if the marshmallows are left out like this?) “Yes because I feel the yumminess of them and I like to have them then” (5–5).

Toward the end of their fifth year increasing numbers of children seemed to recognize that with the rewards in view, they would engage in consummatory ideation which would create so much arousal that they could not continue to delay, for example, “It would just seem like there were no marshmallows in this room and I couldn’t be able to smell ‘em and I would hardly even know they were in here so I can wait” (if they were left out?) “Then you would know they are here You just want them and you can’t wait” (5–9).

Reasons for Choosing Task-oriented versus Consummatory Ideation

The children’s reasons for preferring task-oriented versus consummatory ideation below age 5 generally indicated the same lack of certainty that their random objective choices suggested. Before age 5, most children said “I don’t know” or did not reply at all. Only four of the 39 children who chose task-oriented ideation even offered a reason, and only one child seemed to suggest that it would guide his behavior, “’cause then you don’t ring the bell” (3–11). The others said, “Just because that’s the easiest” (4–7), “I just want to say that” (4–11), or reiterated the contingency.

Six of the 36 children under age 5 who chose consummatory ideation indicated that focusing on the rewards would be pleasurable “Because I want to” (3–10), “Because it makes me feel good” (4–11).

By around age 5—when their significant preference for task-oriented versus consummatory ideation emerged—some children (five out of 20 age 5–5½-year-olds) also
began to note that this choice would reduce temptation. For example, "Because that will sorta get my mind on something else" (5-1).

The hazards of consummatory ideation remain salient to the older children, for example, "[If I said yummy] I would have to ring the bell" (5-7), "Because you really really want to eat them, really and your stomach gets hungrier and hungrier for the two marshmallows so you want to wait until the teacher comes back". It would be harder to wait if I said yummy because you really really really really really really want to eat them so badly that you can’t wait, so you have to put the other idea" (6-2).

The value of task-oriented ideation as a self-instruction was noted by two young 5-year-olds "By reminding yourself" (5-3), "Because then I know, know, know, how to behave. Because then I get the treat" (5-4).

The guiding function of focusing on the task continues to be appreciated as the children grow older. For example, "Because if I forget I’m waiting I’ll eat them" (5-7), "It makes me feel that I can wait ‘cause that’s what it says" (6-3).

Strategies Suggested by the Children

Recall that to explore further the children’s own ideas about resistance to temptation we also asked them to suppose that if they were waiting with the delayed rewards uncovered in front of them and to tell us what they then could do, or say, to help themselves wait. The strategies the children volunteered provide further clues about the growth of their understanding of effective resistance to temptation.

Overall, 116 of the 179 children asked to suggest a delay strategy gave some response, permitting a detailed analysis of children’s self-generated coping mechanisms. Forty-two children gave no response at all or said "I don’t know", 17 children gave responses that were unintelligible to either of two independent judges, and four children’s reasons, if any, were lost due to equipment failure.

Most of the youngest children (ages 3–4 years) gave unscorable or unintelligible (to us) responses, said "I don’t know," or remained silent. But even at the youngest ages, some began to tell us about the value of being distracted from the rewards or of making statements that focus on the task of waiting for the preferred rewards. Six out of the 30 children under age 4 expressed strategies of distraction by directing their attention away from the rewards or changing the stimulus situation (e.g., "Close two eyes" [3-9], "Put the cover on them" [3-3]), or substitute activities (e.g., "I would talk to the wall" [3-7], "Play with the knob" [3-10]). Thus even before the age at which there is a systematic preference for having the rewards covered during the delay period, at least some young children refer to directing their attention elsewhere. With increasing age, more and more children generated strategies, and the number remaining silent, giving unintelligible responses, or saying "I don’t know" decreased steadily.

The responses were coded by two independent judges. The first judge read all the responses and was instructed to code them into the fewest number of categories that emerged from the data. As in Study I, the two largest categories were task oriented and distraction. Instances of the other two categories employed in Study I occurred only rarely with the younger children in Study II and were included in a miscellaneous “Others” category, described later. These categories were then given to the second judge who independently sorted the responses into them (see Table 2). Fourteen children ex-

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Task Oriented</th>
<th>Distraction</th>
<th>Others</th>
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<tr>
<td>Under 4</td>
<td>30</td>
<td>13</td>
<td>20</td>
<td>23</td>
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</tr>
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<td>4-0-4-5</td>
<td>45</td>
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<tr>
<td>4-6-4-11</td>
<td>31</td>
<td>22</td>
<td>12</td>
<td>11</td>
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</tr>
<tr>
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<td>25</td>
<td>16</td>
<td>56</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>5-6-5-11</td>
<td>24</td>
<td>16</td>
<td>50</td>
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</tr>
<tr>
<td>6-6-6-11</td>
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<td>7-0-7-11</td>
<td>3</td>
<td>0</td>
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<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

TABLE 2

STUDY II CHILDREN SUGGESTING EACH TYPE OF STRATEGY TO AID DELAY WITH REWARDS IN VIEW (Expressed in Percentages)
pressed more than one strategy, and the judges disagreed in four cases about which was the primary strategy (although they agreed 100% about the coding of each individual strategy). The judges agreed 96% on the responses in the distraction category and 90% on the task-oriented category, and 99% on the uncodable responses. All disagreements were resolved by discussion. The final coding appears in Table 2.

Distraction was the largest category (N = 71). In each of these responses the strategy involved mentally or physically engaging in some activity other than waiting. Some were techniques for not looking at the rewards, such as closing eyes, turning around in the chair, covering the rewards, or asking the adult to hide them. One 4-year-old's strategy was notable because it detailed her rejection of explicit consummatory ideation in favor of avoiding attending to the rewards: “[I could think about] eating the marshmallows—that wouldn’t be very good because I would want more—I could look in the mirror” (4-2).

Beginning at around age 5, children suggested strategies that went beyond simply not looking at the rewards, and with increasing age were able to explain how these would facilitate delay, for example, “Play with my fingers” (5-4), “think about all the good things I’m doing in school so I won’t be tempted to eat [the marshmallows] right away” (6-1), “Sing a song. Then you’ll have something to do when you don’t have anything to do it’s hard ’cause you just look at them. If you have any books around, you can read” (7-2).

In the category task-oriented were strategies that stated the reward contingency or emphasized the necessity of waiting. Some of these strategies contained self-instructions about how to wait, including self-commands about global affective states, for example, “be brave” and “be calm.” A few of the 26 strategies in this category were well elaborated even at an early age. For example, “I’m not going to eat these, these two marshmallows, I’m still not going to because you need to wait to eat these two marshmallows when the grown-up comes back I get the two marshmallows” (3-9). With increasing age, some answers became more detailed and included the consequences of not waiting: “[I would say] Do not ring the bell. If you ring the bell and the teacher comes in she’ll pick up the one marshmallow and put it in your hand. And you eat that one marshmallow” (5-0), “I’ll wait so I can get the two marshmallows instead of one” (5-4).

Others (N = 19) was a miscellaneous category. It included a small group of children (N = 14) who anticipated that they would not be able to wait. For example, “I could ring the bell” (3-1), “I could keep tricking the grown-ups, see, when he’s away, keep eating the things that are on the tray” (4-4), “Eat the two marshmallows and the one marshmallow” (5-6). Two children in the “others” category stressed their obligation to wait, for example, “I would say ’I shouldn’t eat ‘em’ so I won’t eat ‘em” (4-6). And three children suggested ways of thinking about the rewards that would be nonarousing, for example, “Marshmallows will be rotten left out, they’re gonna get all moldy I won’t eat the marshmallows ’cause they’re all moldy and spoiled” (5-3).

**Discussion**

Study II helps to clarify in considerable detail the young child’s growing understanding of basic rules for delay of gratification. The overall results indicate that 5-year-olds begin to significantly reject consummatory ideation about the rewards in favor of task-oriented ideation as a strategy for waiting. At that age many begin to articulate psychological reasons to justify this preference. They recognize the problem of increased temptation produced by thinking about the consummatory attributes of the delayed rewards, and also begin to recognize the value of focusing on the task activity. Likewise, by about age 6, most children prefer covering the rewards rather than exposing them, as a strategy for effective delay of gratification.

Perhaps most interesting and theoretically provocative is the curious finding that children in the first half of their fourth year strongly preferred to have the rewards exposed rather than covered during the delay period, thus choosing an objectively delay-defeating strategy of the worst sort. This finding is also consistent with the generalized preference children of this age show for attending to the “real rewards” rather than to more symbolic representations while trying to wait for them, thereby making delay more difficult for themselves (Yates & Mischel, 1979). Given the evidence that having the rewards in view hinders delay most dramatically for children of this age (e.g., Mischel, 1974, 1981a), it is important to attempt to
understand why these youngsters prefer a delay-defeating strategy before they shift to a preference for the objectively effective one.

In making this "error" of expecting that exposing the rewards will help delay more than covering them, the young 4-year-olds are making the same incorrect prediction made by Mischel and his associates in their first studies of the objective delay rules (e.g., Mischel, 1974, Mischel et al., 1972). It is also the same prediction derived from Freud's (1911/1959) discussion of the transition from primary to secondary process thinking in the development of delay of gratification. According to the psychoanalytic formulation, ideation arises initially when there is a block or delay in the process of direct gratification discharge (Rapaport, 1967, p 315). During such externally imposed delay, Freud suggested, the child constructs a "hallucinatory wish-fulfilling image" of the need-satisfying object. As a result of frequent association of tension reduction with goal objects, and the development of greater ego organization, the imposed delay of satisfying objects gradually results in the substitution of hallucinatory satisfactions and other thought processes that convert "free cathexes" into "bound cathexes" (e.g., Freud, 1911/1959, Singer, 1955). Although the exact process is unclear, presumably the presence of the object, or cues about it, should facilitate the "time binding" imagery through which the delay interval is bridged. A similar prediction was generated by Mischel (1974) and his associates, who reasoned that effective delay would depend on self-instructional processes through which the individual increases the salience of the delayed consequences of his or her behavior. From that viewpoint, any factors (situational or within the individual) that make delayed consequences more vivid should facilitate impulse control. Such a view, while focusing on the self-instructional components of attention to delayed outcomes, also implies covert self-reinforcement processes through which individuals may reinforce their own delay behavior by vividly anticipating some of the rewarding consequences that the waiting will produce. It predicts—incorrectly—that delay should be easier when the desired objects are available for attention.

Extensive research in the last decade now allows a better understanding of the role of reward-relevant cognition during delay of gratification and helps clarify the confusion in the original theoretical predictions—and perhaps also in the 4-year-olds. Namely, a focus on the consummatory ("hot") qualities of the desired objects makes delay most difficult, a focus on their symbolic, abstract, "cool," or informative qualities makes delay much easier—indeed, even easier than distraction from them altogether (Mischel, 1974, 1981a, Mischel & Moore, 1980). Recognition of this subtle distinction was shown by the sixth graders (Study I) in their significant preference for abstract versus consummatory ideation about the rewards in a delay context.

So what are the implications for the 4-year-olds' "error"? We propose that (like the researchers) the youngsters may confuse the "wishful" with the objectively effective strategy. While exposure to the rewards (and consummatory ideation about them) is a wish-fulfilling strategy (as Freud noted), it is not a strategy that allows effective delay behavior in reality. That is, the young 4-year-old may not be distinguishing adequately between what he or she wants and what will help, and insists on being able to see the desired object without being able to suppress the frustrating arousal it induces. The recognition that one must avoid exposure to what one wants (or abstract it) in order to endure delay for it does not seem to emerge until later. The young children do not realize that if the rewards are left in view they will think about them, and will do so in consummatory ways that are too arousing for further delay.

If the rewards were less compelling or arousing, would these young children recognize that covering the desired objects facilitates delay? In a pilot study, we asked six children age 4-4¿ what would help a frog puppet wait for two green leaves. All said it would help the frog to have the leaves out in view rather than covered during the delay period. Thus even without the "pull" of rewards relevant to themselves and in the absence of their own involvement, children this age do not seem to choose the delay-facilitating stimulus arrangement.

In the present data (Study II), the recognition that it helps to cover rather than expose the desired objects is not clearly evident until about the sixth year. On the other hand, if the metacognition of delay is assessed with different methods (e.g., different comparison choices, different self-control paradigms), awareness of effective self-control rules might be obtained at even earlier ages. Indeed, in the present sample the strategies suggested by the children themselves indicate some awareness of the value of distrac-
tion to resist temptation in at least a few younger children.

Note that, in spite of their overwhelming choice to expose the rewards, 20 of the 47 4- to 4½-year-olds suggested strategies for waiting that involve distraction from the desired objects and from the frustration of waiting when the rewards are in view. Another seven children in this age range suggested some strategy for delay when exposed to the rewards, but none at this age (or indeed at any age in Study II) suggested engaging in consummatory ideation about the rewards as a delay strategy.

In sum, the young 4-year-olds, when given a choice to cover or expose the desired objects in a delay situation, prefer to expose them, yet when asked what will help them wait if they are exposed to the desired objects, many suggest distraction. At this age, many seem to believe they will delay best if they see the rewards but distract themselves from them. Their metacognitive error is their failure to realize that they cannot do this when exposed to the rewards, they do not seem able to execute the necessary self-instructions to allow such coping. This is seen in the repeated finding that when exposed to the rewards youngsters at this age find delay of gratification most difficult and do not maintain it (Mischel, 1974). Thus, at least in the delay-of-gratification paradigm, young 4-year-olds seem to create self-defeating dilemmas for themselves by choosing (or even creating) a tempting environment without adequately anticipating that they will not be able to execute strategies to overcome the temptation.

Conclusions: Studies I and II

Taken collectively, Studies I and II trace the development of knowledge of basic delay rules in children through grade 6. The first study suggested (incorrectly) that preschoolers did not know any of the basic delay rules studied, but by third grade knew two basic delay rules: it is preferable to wait with the rewards covered rather than exposed, and to engage in task-oriented rather than consummatory ideation. A protocol that made it clear that the delay situation was hypothetical, and the fine-grained analysis of delay knowledge permitted by the larger number of young children in Study II, revealed that these two basic delay rules began to be known by about the end of the fifth year and certainly within the sixth year.

The tracing of choices over 6-month intervals revealed an unexpected turn in the development of the rule to cover rather than expose the desired objects. Under age 4 children showed no systematic preference for covering or exposing the rewards, At the beginning of their fourth year, they strongly preferred to have the rewards in view during the delay period, thus selecting a wish-oriented but objectively delay-defeating strategy. The possible reasons for this reliable but puzzling effect (see also Yates & Mischel, 1979) were discussed and related to the equally incorrect prediction about the effectiveness of attention to the rewards offered by Mischel and his associates (e.g., 1974) and derived from Freud (1911/1959). Towards the end of the fourth year, this preference for viewing the desired objects wanes, beginning at around age 5, increasing numbers of children choose the delay-facilitating strategy, significantly preferring to have the rewards covered by about age 6.

Analysis of strategies for waiting suggested by the children indicates that some may have awareness of basic delay-facilitating rules at even earlier ages. While most young 4-year-olds prefer to expose the rewards during delay, many suggest that distraction would help them wait if they have to delay with the desired objects in view. Their metacognitive error seems to be the failure to anticipate sufficiently that they will not be able to execute effective delay strategies if exposed to the desired objects. We speculate that this failure (e.g., Mischel, 1974) occurs because when young children see the desired objects they ideate about them primarily in arousing (consummatory) ways that make the frustration of continuing delay too great (Mischel, 1974, 1981a). Some evidence for this comes from Toner (1981), who found that the delay maintenance of preschool children in a no-instruction condition was not significantly different from that of children who verbalized or heard statements about the good taste of the candy reward. The young 4-year-olds' preference for structuring a temptation-filled environment (e.g., by exposing the desired rewards) thus makes them vulnerable to their own arousing ideation and potential victims of environmental pressures they cannot resist after creating them in the first place. Further investigations of this phenomenon seem most challenging to us. The older child, in contrast, anticipates that if the delayed objects are exposed he (she) will become too frustratingly aroused by them.
thus making continued delay too difficult. Consequently, the older children can create a more favorable environment (e.g., rewards covered) for effective self-control.

Cross-study comparisons always require caution. But because the younger children in Study II were given procedures designed to be basically comparable to those for the older ones in Study I, and because all children were sampled from the same population, some comparisons are worth exploring, albeit tentatively. Thus note that the significant preference for delay-facilitating strategies of covering the rewards and engaging in task-oriented rather than consummatory ideation shown by about age 6 years (Study II) is not appreciably greater in the children at grade 3 and grade 6 (Study I) compared, for example, Figures 1 and 2 with Table 1. This asymptote may partly reflect that older children may have more alternative strategies readily available to them and do not have to rely on any one exclusively. For instance, it may matter less to the older child whether the rewards are covered or exposed since she can reduce the "stimulus pull" of unavoidable temptations by transforming them cognitively or distracting herself mentally even when they are in view.

The greater availability of alternative strategies with increasing age may also underlie the significant decrease with age found in the relative frequency of distraction compared to task-oriented self-instructions in the children's suggested strategies. This decrease is seen when we compared the strategies suggested by the older (Study I) and younger (Study II) children. As Table 3 shows, distraction is the strategy overwhelmingly offered by younger children, older children, in contrast, suggest more task-oriented strategies, \( \chi^2(1) = 26.77, p < .001 \).

<table>
<thead>
<tr>
<th>TABLE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Suggested Strategies for Effective Delay</strong></td>
</tr>
<tr>
<td>(Studies I and II)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Under 8 years (Study II)</td>
</tr>
<tr>
<td>8 years and over (Study I)</td>
</tr>
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</table>

Note: \( \chi^2(1) = 26.77, p < .001 \)

The delay rule that does not seem to become available until later in childhood (some time between the third and sixth grade) requires recognition of the value of abstract rather than consummatory ideation. The possible links between the development of this understanding and the child's achieving operational thought in the Piagetian sense seem intriguing. In another direction, the relationship between what children tell us about delay strategies and their actual ability to wait and work for delayed gratification effectively also seems worth exploring, and we are now pursing that route.

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