Children's Actual Choices and Their Conception of the Wise Choice in a Delay-of-Gratification Situation

Mordecai Nisan and Asher Koriat

Hebrew University of Jerusalem

NISAN, MORDECAI, and KORIAT, ASHER. *Children's Actual Choices and Their Conception of the Wise Choice in a Delay-of-Gratification Situation.* CHILD DEVELOPMENT, 1977, **48,** 488–494.
Kindergarten children ($N = 162$) were asked to choose between immediate small and delayed larger rewards and also to guess the response of a smart or a stupid child in the same circumstances. The children attributed significantly more delay to the smart child than they attributed to the stupid or displayed themselves in their actual choices. The results suggested that children may perceive delay as the wise response on utility grounds and still choose an immediate reward for themselves. Further support for this proposition was found in a second study in which children's choices were compared with their judgments of the "worthwhile" choice. The results were discussed in relation to 2 approaches to delay behavior: the value-expectancy and the conflict or psychoanalytic models.

Why do people often prefer an immediate reward to a more valuable but delayed reward? This apparently maladaptive behavior has attracted the attention of workers from different disciplines (Ainslie 1975). Two of the theoretical approaches offered to account for this behavior are the value-expectancy and the conflict or psychoanalytic models. The value-expectancy approach (e.g., Rotter 1954) rests on the premise that choice behavior is guided by the tendency to maximize expected utility. The expected utility of a particular course of action is seen to depend on both the perceived probability that it will lead to a particular outcome and the subjective value of that outcome. In the context of this approach, the preference for small early over larger later rewards is likewise seen to be based on utility considerations and to reflect the same processes underlying adaptive or rational behavior (Mischel 1966). Thus delaying a reward is seen to reduce its subjective value (Mischel, Grusec, & Masters 1969) and/or the subjective probability that it will be attained (Mischel 1966). Therefore an immediate reward might ultimately turn out to have a higher expected utility for a person than a more valuable but delayed reward. Within the framework of this model, then, the particularly strong reluctance of young children to delay gratification (Mischel 1966) may be seen to reflect such cognitive deficiencies as an inability to imagine distant goals (Klineberg 1968) which result in the attribution of lower expected utilities to delayed outcomes.

In the conflict or psychoanalytic model (Rapaport 1951), the response in a delay-of-gratification situation is seen to reflect a competition between two opposing forces: the impulsive drive toward immediate gratification (the pleasure principle) and the control or inhibitory forces of the ego (the reality principle) guided by utility considerations. Thus in this approach utility considerations represent only one side in the conflict. The opposing side, the tendency for immediate gratification, may result in the choice of the earlier reward even when delaying is seen as the better course on the basis of utility considerations. This pattern of behavior is particularly likely to occur among young children who have not yet developed sufficient "ego strength" or impulse control and who may therefore choose an immediate reward even when they see delay as the wiser course.

In the present study, a straightforward prediction of the conflict model was evaluated. Kindergarten children were individually presented with a choice between an immediate reward and a larger but delayed reward. They

This research was supported by the Human Development Center of the Hebrew University, Jerusalem. Asher Koriat is now at the University of Haifa, Haifa, Israel. Requests for reprints should be sent to Mordecai Nisan, School of Education, Hebrew University, Jerusalem, Israel.

were also asked to guess what a smart child had chosen under similar circumstances. If the child's response to the "smart child" condition reflects his perception of the wise course to take, then from the conflict model it follows that children will display a stronger preference for the immediate reward than they would attribute to the smart child. Such a systematic discrepancy would not be expected on the basis of the value-expectancy model, under which the child's behavior is seen to depend solely on utility considerations, that is, on the same considerations that he is likely to attribute to the smart child.

A trend supporting the conflict model was indeed obtained in a preliminary study (Koriat & Nisan, in press) using hypothetical delay-of-gratification questions. In this study, a questionnaire was administered to fifth graders which included two delay-of-gratification questions in counterbalanced order. One required a choice between an immediate and a more valuable but delayed reward (Self) the other required subjects to predict a smart child's choice (Smart). Although subjects tended to make consistent choices for Self and Smart, when they made inconsistent choices, they attributed significantly more delay of gratification to the smart child than they displayed themselves, their choices for Self thus departing from what they believed to be the intelligent course.

The present study attempted to replicate these findings using actual choice in a concrete rewarding situation rather than verbal responses to hypothetical situations, as had been the case in the previous study. The subjects were kindergarten children who, according to the conflict model, have less well-developed impulse control and for whom therefore the choice for Self is particularly likely to depart from the wise choice. Furthermore, a third condition was added requiring the child to guess the response of a "stupid" child in the same circumstances. This condition provided an important control. Were the predicted Smart-Self difference to be obtained, it could be explained by assuming that the smart child is likely to elicit more delay responses simply because he is another person, different from self, not necessarily because he is wise. The grounds for this expectation are the proposition that, when imagining others facing delay-of-gratification conflicts, people tend to devalue the role of impulsive forces, in contrast to situations in which they see themselves facing similar conflicts. Thus a smart child may be expected to exhibit more delay than Self, first, because he is "smart," and second, because he is "another" person. The "Stupid" condition is intended to aid in the interpretation of the results obtained with Smart. Since Stupid shares the aspect of "otherness" with Smart, the difference between Smart and Stupid should reflect only the child's perception of the "wise" choice.

Accordingly, the experiment involved individual presentation of two questions to each child in counterbalanced order. The questions were either Self and Smart or Self and Stupid.

The first hypothesis is that subjects will attribute more delay to Smart than they will attribute to Stupid or will display themselves.

A second hypothesis concerns the order in which the questions are presented. It may be speculated that the presentation of either the Smart or the Stupid question first increases the salience of rational considerations in the child's subsequent performance and thus leads to a stronger preference for a delayed reward for Self.

It is therefore hypothesized that children will display stronger preference for the delayed reward when the Self question follows either the Smart or the Stupid question than when the Self question is presented first. If the presentation of Smart first is found to increase delay choices for Self, this would be consistent with the social-learning approach which emphasizes the role of a model in eliciting delay behavior (Bandura & Mischel 1965).

Method

Subjects.—Children 5–6 years old enrolled in seven different kindergartens in Jerusalem were tested. Most children came from middle-class homes. About 20% of the children approached had to be eliminated from the final sample because they refused to participate or to complete the interview or because they seemed to misunderstand the instructions (saying, e.g., "I want two candies now"). The final sample included 162 children, 79 boys and 83 girls.

Procedure.—All children were tested individually by a female graduate student. The child was asked to draw a triangle, then a square, and then a circle. When these tasks had been completed, the child was told, "Since you have drawn very nicely, I want to give you a

present." The child was then presented with two delay-of-gratification questions, one pertaining to Self and the other to a Smart or to a Stupid child. Group 1 ($N=37$) received the Self and Smart questions in that order, and Group 2 ($N=39$) received these questions in reverse order. Group 3 ($N=47$)[1] received the Self and Stupid questions in that order, and Group 4 ($N=39$) received these questions in reverse order. Approximately equal numbers of boys and girls were included in each group.

After the first 60 subjects had been run, the procedure was slightly modified by adding a third condition to each group: following the two questions, either the Smart or the Stupid questions, whichever had not yet been mentioned, was presented. In all groups, when the immediate reward was chosen for Self, it was awarded only when all tasks had been completed; when the delayed reward was chosen, it was administered a day later. In Groups 2 and 4, where Self was the second task, the child was told that he must answer one more question before he would receive the present.

The delay-of-gratification questions were approximately as follows (translated from Hebrew):

Self: "I have here a bag of candies. You may either have one candy now, or you may have two candies tomorrow. I'll be back tomorrow and will bring with me the bag of candies. So what would you rather have, one candy now or two candies tomorrow?"

Smart: "Yesterday I was in another kindergarten, and there I met X [name of a child the same sex as the subject]. He [or she] also made nice drawings, and I offered him [her] a present. X had to choose between one candy the same day and two candies the next day. Now X is a very smart kid; the kindergarten teacher thinks he is a smart kid, and his friends also think he is smart. What do you think X chose, one candy the same day or two candies the next day?"

Stupid: This question contained the same instructions as for Smart except that the word "stupid" was substituted for the word "smart."

The name used for the other child in each interview was randomly selected from a list of many names in order to avoid systematic effects which might be due to individual experiences with actual children bearing these names.

Results

Preliminary analyses indicated no sex differences in reactions to the Self, Smart, and Stupid questions, either when they were administered first or when they were administered second. Data for both sexes were therefore combined in the following analyses.

Table 1 presents the frequency of immediate and delayed choices for Self, Smart, and Stupid for each of the four groups. The safest conclusions can probably be drawn from analysis of responses to the question presented first. For this analysis, data for Self in Groups 1 and 3 were combined, since both received the Self question first. For the two groups combined, the percentage of delay responses for Self was 48.81. The percentages for Stupid (Group 4) and Smart (Group 2) were 48.72 and 79.49 respectively. Chi square analyses indicated that the proportion of delayed choices is significantly greater for Smart than for either Self ($\chi^2 = 10.33$; $p < .01$) or Stupid ($\chi^2 = 8.02$; $p < .01$).

The same trend was evident in responses to the question presented second. The mean percentages of delay choices were as follows: 33.33 for Self (Groups 2 and 4 combined), 34.04 for Stupid (Group 3), and 86.49 for Smart (Group 1). Once again, the proportion of delay choices is significantly greater for Smart than for either Self ($\chi^2 = 28.36$; $p < .001$) or Stupid ($\chi^2 = 23.26$; $p < .001$).

TABLE 1

FREQUENCY OF IMMEDIATE AND DELAYED CHOICES FOR SELF, SMART, AND STUPID

		First Question			Second Question		
Group	*N*	Condition	Immediate	Delayed	Condition	Immediate	Delayed
1.....	37	Self	17	20	Smart	5	32
2.....	39	Smart	8	31	Self	25	14
3.....	47	Self	26	21	Stupid	31	16
4.....	39	Stupid	20	19	Self	27	12

[1] The larger *N* used in this group is due to a procedural error.

In conclusion, children tend to attribute significantly more delay of gratification to the Smart child than to the Stupid child. They themselves display significantly less delay of gratification than they attribute to the Smart child but not more than they attribute to the Stupid child.

It was hypothesized that increasing the salience of utility considerations by presenting first the Smart or the Stupid question and then the question for Self will tend to increase the probability of delaying reward for Self. This hypothesis is not supported by the data: the tendency to delay gratification for Self is in fact higher when Self comes first (48.81%) than when Self follows either Smart (35.89%) or Stupid (30.77%), although the difference is not significant in either case.

A key to the absence of order effects may be found in analysis of intraindividual consistency in responding to Self and Smart or to Self and Stupid. Children in each group were classified into four types according to the pattern of responses they made to the two questions. The number of children displaying each pattern is presented in table 2.

The data for each group may be examined with respect to the degree of consistency displayed in reaction to the two questions presented and also with respect to the type of shift exhibited by children displaying inconsistent choices. Examining the second issue first, χ^2 analyses of changes (McNemar 1962) were carried out using, for each group, children who indicated different choices in response to the two questions. Of those who gave different responses to Self and Smart in Groups 1 and 2, the number of children who preferred an immediate reward for Self but a delayed reward for Smart was about eight times as high as the number of those who exhibited the reverse pattern. A χ^2 analysis of changes yielded $\chi^2 = 6.72$, $p < .01$, for Group 1 and $\chi^2 = 13.47$, $p < .001$, for Group 2.

TABLE 2

FREQUENCY OF PATTERN OF CHOICES FOR SELF AND SMART AND FOR SELF AND STUPID

Choice Pattern	Group 1	Group 2	Group 3	Group 4
Self-Smart:				
I-I	2	7	...	...
I-D	15	18	...	...
D-I	3	1	...	...
D-D	17	13	...	...
Self-Stupid:				
I-I	...	...	16	12
I-D	...	...	10	15
D-I	...	...	15	8
D-D	...	...	6	4

NOTE.—*I* = immediate reward; *D* = delayed reward.

Similar analyses carried out for the Self-Stupid comparison, however, yielded $\chi^2 = 0.64$ for Group 3 and $\chi^2 = 1.57$ for Group 4, both not significant.

We will now turn to the consistency aspect. If the choice for Self is determined or at least affected by utility considerations and if Smart is understood by children as one who makes wise decisions, the choices for Self would be expected to coincide with the choices made for Smart. Inspection of the data of table 2, however, reveals little consistency in Self and Smart in either Group 1 or 2. Thus across both groups 39 children made the same choice to Self and Smart, and 37 made different choices (contingency coefficient [C] = .13, N.S.).

Similarly, if Stupid is perceived as one who makes unwise decisions, the choice for Self should be expected to correlate negatively with the choice for Stupid. Although the results suggest a trend in this direction which is somewhat stronger for the Stupid-Self order, this trend is not significant. Thus when Groups 3 and 4 are combined, the contingency coefficient is only .17.

The absence of consistency in response to Self and Smart found in the present study stands in contrast to the rather high consistency ($C = .52$, $p < .001$) found for fifth graders in the previous study (Koriat & Nisan, in press). The consistency among the fifth graders may be interpreted in two ways. First, it may be seen to support the contention that individuals tend to make for themselves what they consider to be a wise choice. Alternatively, it might reflect an experimentally induced response set, that is, a tendency to make the response for Self consistent with the response for Smart, especially when the Smart question is presented first. Accordingly, the absence of intraindividual consistency in reacting to Self and Smart among kindergarten children may be seen to indicate either that at this age children's delay behavior is not yet affected by utility considerations or that at this age there is little tendency for children to present themselves as "self-consistent" by avoiding seemingly contradictory responses. It should at least be clear, however, that a third interpre-

tation—that the children's reactions are simply random—can be readily eliminated on the basis of the systematic Self-Smart differences consistently found in Groups 1 and 2.

Additional data collected on part of the sample only may cast some light on the apparent independence of the choice made for Self from that made for Smart or Stupid. As was mentioned earlier, 102 children received all three questions. The response to the third condition probably represents a mixture of effects, and therefore the data derived from it were not used in evaluating the main hypothesis of the present study (although they are entirely consistent with the results reported above). The results of this condition may, however, be instructive with regard to the consistency issue.

Twenty-four of the children in Group 1 received the Stupid question immediately following the Self and Smart questions. For these children, the negative correlation between Smart and Stupid was perfect, in that all of the 22 children who delayed for Smart chose an immediate reward for Stupid, and the two children who chose an immediate reward for Smart chose a delayed reward for Stupid. Similarly, 30 of the children in Group 3 received a Smart question immediately following the Self and Stupid questions. Of these, 18 children chose an immediate reward, and 12 chose a delayed reward for Stupid, and all except four children (two in the first and two in the second group) reversed these choices under the Smart instructions ($C = .59, p < .001$). The contingency coefficients between the Smart and Stupid conditions in the remaining two groups, where a concrete choice for Self intervened between them, were far lower (with 48 children in Groups 2 and 4 combined, $\chi^2 = 6.98$, $p < .01$; $C = .36$).

The results of this examination indicate that, apart from a tendency to attribute more delay to the Smart than to the Stupid child, children tend clearly to attribute opposite choices to Smart and Stupid when they are presented in immediate juxtaposition. Thus the absence of consistency in responding to Self and Smart and to Self and Stupid cannot be explained by assuming that children of this age have no tendency to present themselves as self-consistent; rather, it probably suggests that they do not perceive "smart" or "stupid" considerations as pertinent when making concrete choices for themselves. Apparently processes are involved in the choice for Self which do not come to the fore in judgments based purely or mostly on cognitive considerations.

Discussion

The major finding of the present study pertains to the higher incidence of delay choices for Smart relative to Self. This difference was found significant in both a between- and a within-individual analysis. This finding suggests that children's delay behavior is not entirely determined by what they judge to be the wiser choice in a given situation. Rather, the child's actual choice may depart systematically from what he perceives as the rational choice in the direction of impulsivity. This departure may be seen as supporting the conflict model, which postulates an opposition between a tendency toward immediate gratification and a tendency to act in accordance with reality considerations. We shall return to this point briefly.

The Smart-Stupid comparisons indicate, first, that children expect opposing courses of action on the part of the Smart and the Stupid child and, second, that the Smart child is expected to display on the average stronger preference for the delayed outcome than the Stupid child. The latter finding suggests that the Smart-Self discrepancy in delay cannot be attributed, at least not entirely, to the Smart child being an "other" person.

In light of these findings, it is surprising that Stupid does not display stronger preference for the immediate reward than Self. There are several possible explanations for this observation. First, as already suggested, Stupid may be expected to display less delay than Self on account of being "unwise" but more delay on account of being just "other." If both processes do indeed operate, these effects may cancel each other out and yield a probability of delay similar to that obtained for Self. Second, several comments of the children in the postexperimental inquiry suggested that Stupid (except when presented immediately following Smart) was not necessarily perceived to imply a person who consistently makes the wrong decision. The choice attributed to the Stupid child therefore may not be as revealing of the perceived utility of the alternative decisions as that attributed to the Smart child.

This interpretation points to a possible drawback of the procedure employed in the

present study to uncover the child's conception of the wise and unwise choices. Although the requirement of guessing the response of a "smart" or "stupid" child seems to represent a rather concrete and meaningful task for a 5-year-old child, the interpretation of the child's guesses requires certain assumptions regarding his conception of a "smart" or "stupid" child. Thus perhaps the "smart" child is seen to delay gratification because he is perceived as one who behaves in accordance with adult expectations rather than utility considerations. Perhaps inquiring about the wise decision rather than about a wise person may overcome these difficulties, provided that this task proves meaningful to a kindergarten child. Such a task was employed in an ancillary study. In this study, 46 children aged 5–6 were presented with two delay-of-gratification questions in counterbalanced order. In the first (Self), they were to choose between one candy the same day or two candies the next day; in the second (Worthwhile), they were told about a second child facing the same dilemma and were asked to judge what would be "worthwhile for him to choose." The Hebrew expression employed clearly called for the most profitable or expedient course of action on the basis of utility considerations. Twenty-four children received Self first, and 22 children received Worthwhile first. Since there were no sex differences, the results for boys and girls were combined and are shown in table 3. As can be seen, the percentage of delayed choices is clearly higher for Worthwhile than for Self. The difference is significant for both orders of presentation. Thus, across both orders, 26.09% of the children delayed for Self and 69.57% for Worthwhile. There was little consistency in response to Worthwhile and Self, and all of the 20 children displaying inconsistent choices chose an immediate reward for Self while acknowledging delay as the best course.

TABLE 3

FREQUENCY OF IMMEDIATE (*I*) AND DELAYED (*D*) CHOICES FOR SELF AND WORTHWHILE

CHOICE PATTERN (Self-Worthwhile)	ORDER OF PRESENTATION		
	Self-Worthwhile	Worthwhile-Self	Total
I-I	6	8	14
I-D	13	7	20
D-I	0	0	0
D-D	5	7	12

These results may be seen to lend further support to the conclusion drawn from the results of the main study, namely, that children's actual choices systematically deviate from their conception of the profitable choice in the direction of stronger preference for the immediate reward.

These results thus lend support to the conflict model of delay behavior, according to which the impulsive tendency toward immediate gratification competes with and may often overcome a rational decision to delay reward. The finding that drawing the child's attention to the "smart" or "worthwhile" choice does not increase the proportion of delayed choices may be taken to suggest that a child may ordinarily prefer an immediate reward over a delayed reward without having to distort or ignore defensively utility considerations.

The conflict position is also supported in the recent studies of Mischel and his co-workers (Mischel 1974) on the ability to wait for a preferred reward. In these studies, children could have a preferred food if they waited for a certain period or a less preferred food immediately, whenever they wanted to stop waiting. The observation that some of the children started waiting but then succumbed to the temptation of the immediate reward may suggest the operation of a conflict between a rational decision to wait and an inability to execute this decision in the presence of the tempting immediate reward. The techniques employed by individuals in this and other situations (see Ainslie 1975) suggest further that the fact that a given course of action is favored on utility grounds does not in itself ensure its actual choice.

Mischel (1974) proposed a two-stage model of delay behavior. The first stage involves the choice to delay for the sake of a more preferred but delayed outcome, and the second involves the postchoice attempt to sustain delay in order to gain the chosen reward. It is with regard to the second stage that Mischel seems to evoke a conflict type of model. With regard to the first stage, on the other hand, he seems to adhere more to the rational model emphasizing the predominance of utility considerations in determining one's choice. The results of the present study seem, however, to indicate that even the choice itself involves a competition between an impulse for immediate gratification and a tendency to behave in accordance with utility considerations.

The findings of the present study have a clear implication for the question of modifying delay behavior (Walls & Smith 1970). These findings suggest that merely convincing an individual of the advantages of delay should not by itself necessarily affect actual choice. This implication seems consistent with Mischel's results with regard to waiting, which reveal that thinking about the larger delayed reward does not increase the amount of waiting (Mischel 1974).

References

Ainslie, G. Specious reward: a behavioral theory of impulsiveness and impulse control. *Psychological Bulletin*, 1975, **82,** 463–496.

Bandura, A., & Mischel, W. Modification of self-imposed delay or reward through exposure to live and symbolic models. *Journal of Personality and Social Psychology*, 1965, **2,** 698–705.

Klineberg, S. L. Future time perspective and the preference for delayed reward. *Journal of Personality and Social Psychology*, 1968, **8,** 253–257.

Koriat, A., & Nisan, M. The nature of the conflict in delay of gratification. *Journal of Genetic Psychology*, in press.

McNemar, Q. *Psychological statistics*. New York: Wiley, 1962.

Mischel, W. Theory and research on the antecedents of self-imposed delay of gratification. In B. Maher (Ed.), *Progress in experimental personality research*. Vol. **3.** New York: Academic Press, 1966.

Mischel, W. Processes in delay of gratification. In L. Berkowitz (Ed.), *Advances in experimental social psychology*. Vol. **7.** New York: Academic Press, 1974.

Mischel, W., Grusec, J.; & Masters, J. C. Effects of expected delay time on the subjective value of rewards and punishments. *Journal of Personality and Social Psychology*, 1969, **11,** 363–373.

Rapaport, D. Toward a theory of thinking. In D. Rapaport (Ed.), *Organization and pathology of thought*. New York: Columbia University Press, 1951.

Rotter, J. B. *Social learning and clinical psychology*. Englewood Cliffs, N.J.: Prentice-Hall, 1954.

Walls, R. T., & Smith, T. S. Development of preference for delayed reinforcement in disadvantaged chidren. *Journal of Educational Psychology*, 1970, **6,** 118–123.