Experimental Effects and Person Effects in Delay of Gratification

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The behavior of delay of gratification has been a prominent topic of study in psychology in recent years. The research has examined both situational and personality influences on this behavior, and comparisons between these influences have been made. Some years ago Mischel (1968) summarized his own research on delay of gratification in the following way:

Although often statistically significant, the relations between various individual difference measures and delay preferences generally were too low to account for more than a tiny fraction of the variance. . . . These weak associations, accounting for a trivial portion of the variance, become understandable when the enormous variance due to situational specific variables is recognized. (pp. 82-83)

More recently, Ross (1977) wrote:

Mischel and his associates have . . . demonstrated that in at least one paradigm of general interest—the "delay of gratification paradigm"—relatively subtle situational factors (i.e., the experimenter's suggestion concerning cognitive strategies) overwhelm any individual differences that might be anticipated. (p. 187)

Such comparisons of personal and situational effects have important implications, and make Mischel's latest (1984) research on delay particularly interesting.

In this most recent presentation, Mischel (1984) summarized evidence that various experimental manipulations of children's ideation (e.g., instructions on what to think about) during a waiting period can indeed have strong effects on their abilities to delay gratification. "A child's momentary mental representation of the outcomes in the delay paradigm influences his or her waiting time and allows us to predict it from knowledge of the psychological conditions and how they operate to influence behavior" (p. 354).

However, Mischel also demonstrated the importance of person factors to this behavior, presenting an impressive array of correlations between children's delay performance measured in an experiment when they were aged 4 and Q-sort personality assessments provided by their parents 12 years later (1984, p. 355; comparable patterns were reported by Funder, Block, & Block, 1983). The reported correlations have a median of .29 and range as high as .49. Mischel gave theoretical interpretation to these correlations, implying they are just the ones he would have predicted: "The attributes suggested by the adolescent [personality] ratings are congruent with the cognitive competencies essential for delay revealed by our experimental research." (1984, p. 355).

Although Mischel noted that "these correlations seem impressive," he went on to comment that "the magnitude of these relations is modest, leaving most of the variance unexplained" (1984, p. 355). Setting aside the suitability of "percentage of variance" as a measure of the importance of a relationship (cf. Ozer, 1985; Rosenthal & Rubin, 1979), it can be noted that no information pertaining to the "variance explained" by the various experimental studies, nor any other measure of experimental effect, was included in Mischel's article. As it stands, therefore, Mischel's statement could be taken by some readers to imply that experimental effect sizes are uniformly much larger, and even as tending to support earlier summaries of his research such as were quoted above.

We would like to provide the missing information. Table 1 presents a meta-analysis (Glass, McGaw, & Smith, 1981) of the various experimental studies of delay of gratification summarized in Mischel's article. For each study we have calculated the size of the experimental effect in terms of an r that is analogous to the reported correlations involving personality variables. For nonindependent contrasts within single studies, average effect sizes were calculated.

Each study offered a host of different possible contrasts, some significant, some not, and some more relevant to the various theoretical hypotheses than others. Because selection was necessary, we chose to calculate effect sizes from only those contrasts most relevant to the effects specifically mentioned in Mischel's (1984) article. Furthermore, as standard meta-analytic practice, we based our effect sizes only on r's with a single degree of freedom (Rosenthal, 1984). For example, Mischel (1984) summarized Mischel and Baker (1975) this way: "If the preschoolers ideate about the rewards for which they are waiting in consummatory or 'hot' ways, they cannot delay long" (p. 354). This summary is operationalized by the single degree of freedom contrasts between consummatory relevant images and control, and nonconsummatory relevant images and control (Mischel & Baker, 1975, p. 258), which we averaged for our meta-analysis. In several other cases our procedure involved combining two or three experimental conditions for contrast with another. Of course, if we had simply calculated the size of each overall "effect of experimental condition" by including all reported contrasts, the r's would have been much smaller, just as the average personality effect would have been smaller had we included all correlations, theoretically relevant and irrelevant, significant and insignificant.

It can be seen that the average experimental effect sizes vary widely, from a low of .247 to an astonishing .954. No obvious differences in experimental procedure seem to differentiate the studies with larger and smaller effect sizes, but it is noticeable that larger effect sizes seem to be associated with smaller subject sample sizes (r = -.50). We are led to conclude that the highest and lowest figures are best regarded as "outliers" in the distribution of estimates of the effect of ideation on delay. The simple mean of these estimates is .554, the median is .459, and the average weighted-by-sample size (a standard meta-analytic, summary statistic; Mosteller & Bush, 1954) is .448.

We do not know whether most readers would consider the magnitude of these relations to be "modest," but like the personality effects they do "leave most of the variance unexplained." If one chooses to use such terminology, an effect size of .448 serves to "explain" only 20% of the variance. The experimental effect sizes are somewhat larger than most of the relationships between delay behavior and personality as assessed 12 years later. It is difficult to evaluate precisely this difference between the effects of immediate experimental manipulations and of assessments of personality as filtered through parents' judgments a dozen years after the behavioral fact. It is also less than obvious how representative these samples of situation and person effects might be of the total universe of possible effect size calculations. Perhaps it is sufficient to make a simple

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observation that requires neither precision nor representativeness. At the very least, the two sets of effect sizes lie on overlapping distributions. To the extent that personality's influence on delay can be disparaged on the grounds of small effect size and "variance explained," at least some experimental effects must come in for equivalent disparagement.

It might be wiser to disparage neither these person nor situation effects on the grounds of their effect sizes. A growing body of evidence both empirical (Funder & Ozer, 1983) and statistical (Ozer, 1985; Rosenthal & Rubin, 1979) suggests that effect sizes within the broad range considered here (about .20 to .50) are larger and more important than psychologists have traditionally tended to think. Therefore, although we have tried to provide some important information not included within the Mischel (1984) article, we offer it in the same overall spirit of showing how both personality factors and experimental manipulations of cognition can be important influences on delay behavior.

REFERENCES


More on Determinants of Delay of Gratification

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Funder and Harris (this issue, pp. 475-476) have raised anew the question of the comparative strength of dispositional and situational determinants of behavior. They show, through a reanalysis of data cited by Mischel (1984), that neither "situational" nor dispositional variables account

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