Self-Fulfilling Prophecies: A Theoretical and Integrative Review

Lee Jussim
University of Michigan

Self-fulfilling prophecies have become a major area of research for social, personality, developmental, and educational psychologists. This article reviews classroom self-fulfilling prophecies in terms of three sequential stages: (a) Teachers develop expectations, (b) teachers treat students differently depending on their expectations, and (c) students react to this treatment in expectancy-confirming ways. The focus of the review is on the social and psychological events occurring at each of these stages, the causal processes linking one stage to the next, and the conditions limiting the occurrence of self-fulfilling prophecies. Finally, it provides a theoretical framework for both understanding past research and guiding future research on self-fulfilling prophecies.

This article presents a model of the social and psychological processes underlying self-fulfilling prophecies in the classroom. In general, the concept of self-fulfilling prophecy refers to situations in which one person's expectations about a second person lead the second person to act in ways that confirm the first person's original expectation. When applied to classrooms, the self-fulfilling prophecy refers to situations in which a teacher's expectations about a student's future achievement evoke from the student performance levels consistent with the teacher's expectations. Over the last 20 years, self-fulfilling prophecies have generated a tremendous amount of empirical research and several theoretical reviews. The ongoing interest in this area attests to both its theoretical and practical importance.

Two rather similar descriptive models of the stages occurring in self-fulfilling prophecies exist (Brophy & Good, 1974; Darley & Fazio, 1980). Both models incorporate six or seven steps in a sequence of psychological and behavioral events, and both agree on three broad and general stages: Teachers develop expectations, teachers treat students differently depending on their expectations, and students react to this differential treatment in ways that confirm the expectations (Darley & Fazio's model would refer to the teacher and student as, respectively, "perceiver" and "target"). This sequence of three stages will serve as the general framework for the present review.

In this article it is proposed that self-fulfilling prophecies incorporate a broad array of complex social and psychological processes. Perhaps because of this complexity, previous reviews have not provided a comprehensive perspective on self-fulfilling prophecy processes. Some reviews have described empirical findings without clearly delineating underlying causal mechanisms (e.g., Braun, 1976; Brophy, 1983; Brophy & Good, 1974; Finn, 1972). To deal with such complex processes more thoroughly, some previous theorists have limited their perspectives to a single stage of the self-fulfilling prophecy process. Rosenthal (1974) focused on teachers' differential treatment of students, and Eccles and Wigfield (1985) addressed students' reactions to differential treatment. Those who have presented theoretical perspectives on the entire self-fulfilling prophecy process have often focused on a single mediating mechanism. One perspective emphasized the role of attributions (Darley & Fazio, 1980), and another stressed perceptions of control (Cooper, 1979) in explaining self-fulfilling prophecies. Furthermore, with the exception of Cooper (1979), previous reviews have mainly described the various stages of self-fulfilling prophecies without explaining how and why the events occurring at one stage lead to the events occurring at the next stage. Relatively little is known about why expectations lead to specific forms of differential treatment or how differential treatment leads students to perform in expectancy-consistent ways. In addition, most previous reviews do not systematically address the conditions limiting the occurrence of self-fulfilling prophecies. Clearly, however, a thorough perspective on self-fulfilling prophecies requires an understanding not only of how they occur, but also of the conditions under which they are likely to occur at all.

This article is intended to provide a more comprehensive picture of self-fulfilling prophecies. It attempts to account for the major empirical findings by integrating ideas from current theoretical approaches to self-fulfilling prophecies, and from broader and more general theories within psychology. The perspective presented here draws on research and theory developed in many areas of psychology, including social, personality, developmental, and educational. Special emphasis is placed on identifying underlying causal processes and understanding the factors that limit the occurrence of self-fulfilling prophecies.

This review is intended to be integrative rather than exhaustive. It does not present or describe the hundreds of studies relating to self-fulfilling prophecies; moreover, it does not attempt to provide an exhaustive description of all processes that may be involved in self-fulfilling prophecies.

Teacher
Expectations:

| Initial
Expectations

Stereotypes
Reputation
Standardized tests
Early Performance
Naive Prediction
    Processes | → | Maintenance
and Change
of Expectations

Confirmatory Biases
Flexibility of
    Expectations
Strength of Disconfirming
    Evidence |

Differential
Treatment:

| Psychological
Mediators

Perceptions of Control
Perceptions of
    Similarity
Dissonance
Attributions
Affect

Situational
Mediators

Tracking
Ability Grouping
Grade level | → | Treatment
of Students

Feedback
Emotional Support
Types of Assignments
Attention
Opportunities
    to Learn
Amount and difficulty
    of Material Taught |

Students'
Reactions:

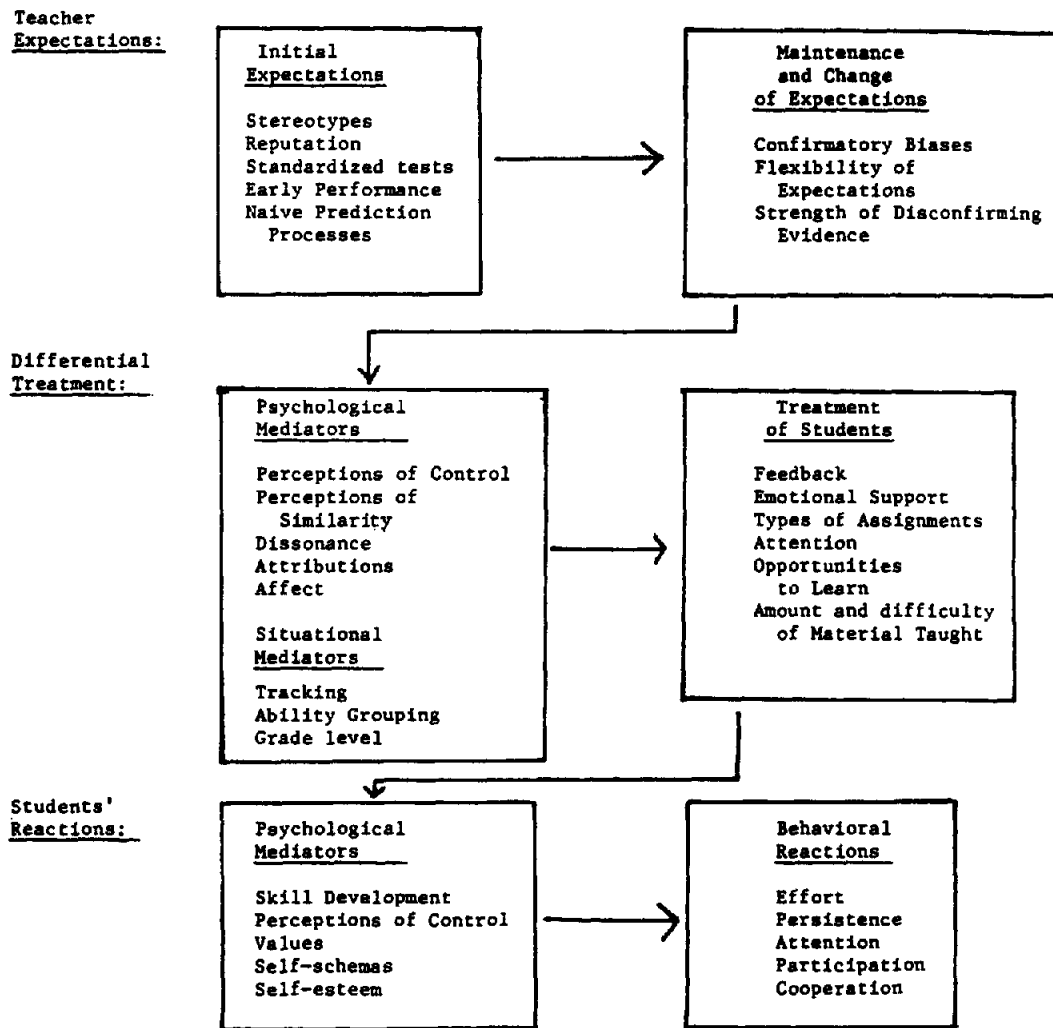| Psychological
Mediators

Skill Development
Perceptions of Control
Values
Self-schemas
Self-esteem | → | Behavioral
Reactions

Effort
Persistence
Attention
Participation
Cooperation |

Figure 1. Self-fulfilling prophecies.

An overview of the three stages of self-fulfilling prophecies is presented in Figure 1. In the first stage of this model, teachers develop expectations for students' future achievement. As the school year progresses, teachers either revise or maintain these expectations in response to students' performances. This model presents the psychological processes involved in teacher expectancy development and change from the standpoint of current perspectives on naive prediction and interpretation processes.

The second stage of the model describes the relationships between teachers' expectations and their treatment of students. The types of differential treatment included in this model correspond to Rosenthal's (1974) four-factor theory: Teachers provide different amounts and types of feedback to highs and lows, are more emotionally supportive of highs, spend more time and effort with highs, and provide highs with greater opportunities to perform and learn. Several processes are presumed to mediate the link between expectations and these sorts of treatment. This model suggests that teachers' expectations lead to different perceptions of control over students and different perceptions of similarity to students. The model further proposes that fac-

tors of control and similarity then lead to various forms of differential treatment. Additionally, cognitive dissonance theory provides the framework for understanding teachers' reactions to expectancy-disconfirming performances.

In the third stage of the model, students react to this differential treatment. Although some components of differential treatment may have a direct impact on students' scholastic skills, students' performance is also assumed to be mediated by cognitive, affective, and motivational factors. The mediating factors addressed in this model include students' perceived control over outcomes, the value that students attach to scholastic activities and achievement, and their intrinsic interest in school. The impact of students' self-concept on their reactions to differential treatment is also discussed. These different cognitive, affective, and motivational reactions, as well as differences in skill development, affect such scholastic behaviors as effort, participation, cooperation, attendance, and so forth, so that ultimately, high-expectancy students often perform at levels superior to those of low-expectancy students. The first step in this process—how teachers develop expectations—is discussed next.

Teacher Expectations

A necessary first step in the self-fulfilling prophecy process is for the teacher to develop expectations for students' achievement. Initial expectations may be based on information obtained prior to interacting with the student, superficial student characteristics, or a minimum of achievement-related information obtained in initial interactions. Two important issues regarding initial expectations concern their accuracy and how easily they are maintained or changed. These issues are important because the extent to which initial expectations are either accurate or readily changeable in response to disconfirming evidence limits their potential biasing impact on students' achievement. Therefore, the development and accuracy of initial expectations and the factors fostering maintenance versus change, are discussed in this section.

Development of Initial Expectations

Initial expectations are the predictions that teachers develop on the basis of information obtained prior to extensive observation of the student's performance. This includes information obtained prior to any interaction with the student as well as information obtained early in the year. Indeed, research has shown that a host of factors are capable of evoking initial expectations, including physical appearance, race, social class, early performance, ethnicity, sex, speech style, and diagnostic label (e.g., Cooper, Baron, & Lowe, 1975; Rist, 1970; Seligman, Tucker, & Lambert, 1972; see Dusek & Joseph, 1985, for a meta-analysis; see also reviews by Braun, 1976, and Brophy & Good, 1974). Furthermore, most education theorists agree that teachers do form impressions quite early in the year (e.g., Braun, 1976; Brophy, 1983; Brophy & Good, 1974; Dusek, 1975; West & Anderson, 1976). Inasmuch as teachers' more erroneous expectations have a greater potential for biasing students' achievement, an important issue concerns the accuracy of these initial expectations. The next section, then, addresses the accuracy of these expectations.

Accuracy of Initial Expectations

Education theorists have often argued that expectations are accurate if based on the teacher's direct observation of the student's behavior and performance rather than on stereotypes, personal appearance, social status, or bogus information provided by experimenters (e.g., Brophy, 1983; Dusek, 1975; West & Anderson, 1976). This argument, however, can be interpreted as having both a strong form and a weak form. The strong form of the argument has two components: that expectations based on stereotyping, status, and so on, must be inappropriate or inaccurate and that expectations based on direct observation of students are necessarily accurate. Both of these (often implicit) premises are invalid. If, for example, ethnic group or socioeconomic class membership correlate with achievement, then appropriate use of this information can enhance the accuracy of predictions for students' future performance.[1]

The second part of the strong argument, that expectations based on direct observations of students' early performances are necessarily accurate, is also invalid. Much research shows

that under many conditions people have a great deal of difficulty generating accurate predictions from direct observation of data (e.g., Jennings, Amabile, & Ross, 1980; Kahneman & Tversky, 1973; see Crocker, 1981, for a review). Therefore, even if expectations are often based on observation of early performance, they are not necessarily accurate.

In its weaker form, this argument does not claim that expectations based on stereotypes are inappropriate or that expectations based on direct observation of students are necessarily accurate. Instead, this weaker version simply claims that expectations based on direct observation of students are more accurate than expectations based mainly on stereotypes, status, and so forth. Although this weaker argument is probably more valid than the strong argument, it does not address the overall degree of accuracy of teachers' initial expectations.

In practice, then, how valid are teachers' expectations? Unfortunately, this is very difficult to assess adequately, precisely because teachers may evoke expectancy-consistent performances from their students. Thus, the high correlations between teachers' expectations and students' achievement (.5–.9) found in many studies (e.g., Brophy & Good, 1974; Crano & Mellon, 1978; Humphreys & Stubbs, 1977) incorporate both self-fulfilling prophecy effects and accuracy. Even if expectancy effects are relatively small, teachers' expectations must be less accurate than is indicated by these correlations.

The clearest way to test the accuracy of teachers' initial expectations is to give all available information (e.g., standardized test scores, past grades, reputation, and/or information on performance early in the year) to a set of teachers who will not interact much with students and then correlate these expectations with students' later achievement. I found only one study that came close to meeting these requirements. In this study, a graduate admissions committee's ratings of incoming students were correlated with those students' later success in graduate school (Dawes, 1971).[2] This correlation was quite low (.19), indicating a great deal of inaccuracy in these initial expectations.

Overall, then, research on the accuracy of teachers' expectations is ambiguous. Although the low correlations found by

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[1] This is not to suggest that ethnic group or social class membership should be the primary source of expectations. Indeed, when more specific information about a particular student becomes available, it, too, should be taken into account. However, when the *only* available information is students' group membership *and* there are mean differences in group members achievement scores, it is more accurate to use this information than to ignore it. For example, let us say that Nepalese average 300 points higher on the Scholastic Aptitude Test (SAT) than do Kamchatkans and all the information a teacher has is ethnic group membership. In such a situation the teacher who predicts that any given Nepalese student will score higher than any given Kamchatkan student will, on average, be correct more often than a teacher who predicts similar performances for these students—unless, of course, a major source of the ethnic difference in SAT scores is teachers' differential expectations for Nepalese and Kamchatkans!

[2] Even this study does not completely meet these requirements because it is possible that at least some of the admissions committee faculty members did extensively interact with some students. It is unlikely, though, that all of the committee members interacted with all incoming students to an extent comparable to, for example, teacher–student interactions in elementary school classrooms.

Dawes (1971) may not generalize to precollege settings, the high correlations reported in other studies (Brophy & Good, 1974; Crano & Mellon, 1978; Humphreys & Stubbs, 1977) may be somewhat inflated by expectancy effects. Consequently, the degree of accuracy of teachers' initial expectations remains an inadequately assessed empirical question. Nonetheless, a great deal of research in social and cognitive psychology addresses the nature and accuracy of intuitive prediction processes (see, e.g., Crocker, 1981; Kahneman & Tversky, 1973; Nisbett & Ross, 1980). This research can provide insights into the factors likely to affect the degree of accuracy of teachers' initial expectations.

Expectations as Naive Predictions

Expectations can be viewed as teachers' predictions of students' performance based on currently available evidence. Thus, teacher expectations are a real-world example of people using a covariation estimate (i.e., between some observed student characteristic and performance) to predict future outcomes. Often, however, people have difficulties using a covariation estimate to predict future outcomes because they fail to account for regression to the mean (Kahneman & Tversky, 1973). Although this problem will not lead teachers to develop completely erroneous predictions, it may lead them to exaggerate the differences between students.

Failure to account for regression to the mean can lead to inaccuracies because when two variables are less than perfectly correlated, prediction of the outcome should be closer to the mean than is the value of the predictor. For example, a teacher might perceive a relationship between social class and achievement. According to statistical principles, this teacher should expect high and low socioeconomic status (SES) students to be more similar to each other on achievement than they are in social class. Unfortunately, once people perceive a relationship between two variables, they tend to make predictions as if the variables were perfectly correlated (Kahneman & Tversky, 1973). This would lead teachers to predict greater differences between students than actually exist. Thus, even when there are reasonable grounds for believing lower SES students will perform worse, teachers may tend to expect an overly large difference between upper and lower class students.

Similar problems exist when teachers use predictors such as reputation, standardized test scores, and early performances. The use of predictors unrelated to discrimination or superficial characteristics is irrelevant to accounting for regression to the mean. Indicators of previous performance are perfectly appropriate for evaluating past accomplishments; however, past accomplishments are only imperfectly related to future achievement. Consequently, initial predictions of class performance derived on the basis of, for example, standardized test scores and reputation should also account for regression to the mean (see Kahneman & Tversky, 1973). That most people fail to account for the regression effect suggests that even when teachers' initial expectations derive from "appropriate" sources, they may still exaggerate differences between students.[3]

Overall, expectations based on characteristics associated with stereotyping and prejudice and/or on more direct indicators of achievement may exaggerate the differences between students. Any inaccuracy, however, is unlikely to bias students' achievement if teachers alter their impressions in response to corrective feedback.[4] Therefore, the next section discusses the processes affecting the maintenance and change of initial expectations.

Maintenance and Change of Expectations

What determines whether initial expectations change? One obvious factor is whether students' performance is consistent with those expectations. Consistent performances will maintain or strengthen expectations (they confirm for teachers the validity and accuracy of their expectations). Even when teachers receive contradictory evidence, however, their expectations do not necessarily change. To identify the conditions under which expectations are likely to be maintained in response to disconfirming evidence, three factors must be understood: expectancy-maintaining cognitive biases, the degree of flexibility of expectations, and the strength of the disconfirming evidence confronting teachers. In this section, I first discuss some common cognitive biases and then identify some factors leading teachers to develop rigid or flexible expectations. The last part of this section directly addresses the conditions under which rigid and flexible expectations are likely to be maintained when faced with disconfirming evidence.

Expectancy-maintaining biases. One bias induced by expectations is to perceive ambiguous information in expectancy-consistent ways. Research has shown that people evaluate the same test performance differently, depending on whether they have been told the student is from an upper or lower class background (Darley & Gross, 1983). Research in school settings has shown that teachers give high-expectancy students, but not low-expectancy students, the benefit of the doubt in borderline situations (Finn, 1972).

Expectations may also affect evaluations of the diagnosticity of the available evidence. Expectancy-consistent performances

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[3] The reliabilities of most common intelligence and achievement tests are so high (above .9) that there is unlikely to be much regression from one test score to the next. Such standardized tests, however, are less successful at predicting grades within any single class (correlations are about .4–.75; see, e.g., Anastasi, 1982). Thus, even when expectations regarding classroom performance are based on highly reliable standardized tests, predictions that fail to account for regression to the mean may still exaggerate differences among students.

There is, however, one important limitation to the regression effect. When the same variable is measured at two time points, regression to the mean will occur only if the variance of that variable does not increase over time. Thus, predictions of future achievement based on past achievement should be regressive only if variance in students' achievement is about the same in lower and upper grade levels. If the variance in students' grades does increase with grade level, then exact transformation of past grades into expected future grades might actually underestimate differences between students. However, I am not aware of research demonstrating that the variance in students' grades increases with either age or grade level. Nonetheless, this possibility further demonstrates how little we know about the accuracy of teachers' initial expectations and emphasizes the need for more research on this issue.

[4] Such feedback may have already become less "corrective," however, through the operation of self-fulfilling prophecies!

are treated as being more diagnostic of skill level than are expectancy-inconsistent actions. Specifically, expectancy-consistent performances are often attributed to the personal characteristics of actors, whereas expectancy-inconsistent performances are attributed to situational factors (Deaux & Emswiller, 1974; Regan, Straus, & Fazio, 1974). Such biases could lead teachers to perceive the successes, but not the failures, of high-expectancy students to be indicative of their ability. Similarly, these biases can lead teachers to perceive the failures, but not the successes, of low-expectancy students to be indicative of their ability. Thus, expectations may also lead to interpreting students' performance in such a way as to sustain those expectations.

Expectations also affect how relevant situations are remembered. In general, expectancy-consistent results are more likely to be remembered. The frequency of confirming cases is overestimated (Chapman, 1967), and confirming cases are more easily recalled (see Crocker, 1981). Sometimes, people even reconstruct events to be consistent with their expectations. Allport (1954) showed subjects a picture of a black man in a business suit and a white man holding a razor. Later, when subjects were asked to describe the picture, many recalled the white man in a business suit and the black man holding a razor. "Objective" data, such as test scores, may be less subject to these kinds of biases in the classroom. Memories of less rigorously documented aspects of achievement, however, such as class participation and cooperation with the teacher, may indeed be influenced by prior expectations in this way.

Some research shows that especially incongruent information also has an advantage in memory (e.g., Hastie & Kumar, 1979). This occurs, presumably, because incongruent information requires extra cognitive processing in order to be incorporated into existing beliefs. However, as Crocker (1981, p. 278) points out, "If an incongruent item is 'explained' so that it makes sense in the context of the other information, then it is no longer incongruent, or the incongruence is qualified and limited." Thus, prior expectations not only often induce biases in favor of remembering confirming information, they evoke more extensive processing capabilities for the purpose of fitting incongruent information into preexisting beliefs. If this bias operates in classrooms, then teachers may readily recall the few times a low-expectancy student performed highly, precisely because they developed elaborate explanations for such an anomalous event.

Flexible and rigid expectations. The preceding discussion may seem to suggest that expectations are self-sustaining. This conclusion, however, is not warranted. Although expectations may lead to certain cognitive biases, they do not necessarily render the individual invulnerable to disconfirming evidence. Whether expectations actually change in response to disconfirming evidence can be viewed as a function of the flexibility of those expectations and the strength of the disconfirming evidence. Therefore, I will discuss some of the influences on the development of rigid and flexible expectations.

Many factors affect the flexibility of teachers' initial expectations, including various characteristics of the teacher and the nature of the information on which the expectation is based. Although some teachers generally may be more likely to develop rigid expectations than others, there may be much variability in

the flexibility of a particular teacher's expectations for specific students. Two crucial underlying ingredients for the formation of most rigid expectations may be for teachers to have high confidence in the validity of their expectations and to base the expectations on factors believed to be unchangeable (stable). The more confidence that teachers have in the validity of their expectations, the less likely they are to be convinced by contradictory evidence that their expectations are erroneous. Also, when expectations are based on unchangeable factors, there is no reason for the expectations themselves to change, even in response to some contradictory evidence. Thus, either having low confidence in the validity of the expectation or basing the expectations on factors that may change will generally produce flexible expectations.

What determines teachers' confidence in the validity of their expectations and whether or not an achievement-related characteristic is viewed as stable? The type of information affecting confidence and perceptions of stability may greatly vary, depending on teachers' personal characteristics and beliefs. However, teachers who score high on measures of authoritarianism, dogmatism, or prejudice (e.g., Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950; Allport, 1954; Rokeach, 1960) may be especially likely to develop rigid expectations. Indeed, one classroom study showed that during interactions with students, highly biased teachers treated students primarily on the basis of their expectations, whereas low-bias teachers more often responded to differences in students' behavior (Babad, Inbar, & Rosenthal, 1982). In other words, high-bias teachers were relatively insensitive to actual differences in students' actions. The rigidity of expectations held by high-bias teachers is not surprising inasmuch as highly prejudiced individuals often hold their stereotypic beliefs quite confidently (Allport, 1954) and base their expectations on factors impossible or difficult to change (e.g., race, socioeconomic class).

Many teachers, however, do not develop rigid expectations on the basis of social stereotype information and readily revise their impressions when more direct information about individual students' achievement becomes available (Brophy, 1983). This may occur because stereotypes function mainly as base-rate estimates of personal characteristics (Locksley, Hepburn, & Ortiz, 1982), and the use of base rates in making predictions is readily disrupted by the presence of specific information about a particular person (e.g., Tversky & Kahneman, 1974). Apparently, stereotypes evoke far less confidence in one's expectations than does specific information about a particular person. Consequently, if initial expectations are based on stereotypes, these expectations are likely to be quite flexible in response to even small amounts of mildly inconsistent information (Locksley, Borgida, Brekke, & Hepburn, 1980).

Another factor that may affect the rigidity of expectations is teachers' beliefs about the nature of intelligence. Research has identified two theories of intelligence held by students: (a) intelligence as a global and stable entity and (b) intelligence as the incremental accumulation of skills and knowledge (Dweck & Elliott, 1984). If teachers, too, hold these beliefs, then those subscribing to the entity theory may be most likely to develop rigid expectations because they would believe that students' general intellectual level cannot be altered. Thus, they would be less

likely to change their general impression when students perform at levels inconsistent with their expectations.

In contrast, teachers subscribing to the incremental theory should be quite likely to develop flexible expectations. These teachers may use various indicators of past achievement (such as previous performances, reputation, etc.) to develop initial expectations and to ascertain students' current skill levels. But because they believe intellectual skills can accumulate through experience, they will more readily adjust their expectations in response to students' changing levels of accomplishment.

Of course, even teachers who believe in the entity theory of intelligence may often develop flexible expectations. These theories of intelligence only affect the perceived stability of the basis of the expectation. When teachers are not confident in the validity of the information used to develop an expectation, their expectation may still be quite flexible. Next, therefore, I will discuss some of the influences on teachers' confidence in their expectations.

The types of information that lead teachers to feel confident in the validity of their expectations may vary among individuals. Any one of the various sources of initial expectations may be relied on most heavily by particular teachers. As already discussed, prejudiced teachers may feel quite confident in the validity of expectations based on stereotypes. Less prejudiced teachers may rely heavily on standardized tests or on their own impressions of students' performance early in the year (Brophy & Good, 1974).

One especially powerful factor leading teachers to feel confident in the validity of their expectations may be tracking. Students placed into high- versus low-track classrooms have been institutionally confirmed as belonging in a certain ability level. In psychiatric settings, such institutionally approved labeling has produced quite rigid expectations (Rosenhan, 1973), but little research has directly addressed teachers' beliefs in the validity of tracking. Indirect evidence that tracking does produce rigid expectations is provided by research showing that once students are tracked, they rarely move between tracks (Brophy & Good, 1974, review evidence on the near-permanence of tracking). If teachers' evaluations and expectations for tracked students were more flexible, then there would probably be more evidence of students moving between tracks.[5]

Thus, it seems that when teachers confidently base their impressions on stable factors, rigid expectations result. If teachers lack this confidence in their impressions or base them on unstable factors, their expectations are likely to be more flexible. But can rigid expectations ever be disconfirmed? Can flexible expectations ever produce self-fulfilling prophecies? The next section addresses these questions by analyzing how teachers with rigid versus flexible expectations are likely to respond to disconfirming performances by students.

Effects of disconfirming evidence on flexible and rigid expectations. The previous discussion of rigid and flexible expectations provides a perspective for understanding when expectancy-maintaining biases are likely to function. In general, these biases should be more likely to occur when the teacher has rigid expectations. Rigid expectations, by definition, are more difficult to change, so that interpretive/cognitive biases are more likely to maintain these expectations. Teachers with more flexible expectations, in contrast, need not invoke all this cogni-

tive effort because they will simply adjust their expectations. In some situations, though, even rigid expectations may be changed, and even flexible expectations may induce some biases. Therefore, I shall discuss the types of disconfirming evidence likely to lead holders of both flexible and rigid expectations to maintain or change their expectations.

In this analysis, disconfirming evidence will be broadly categorized into three types: ambiguous, mildly disconfirming, and strongly disconfirming. Some types of performance or behavior might be ambiguous with respect to the expectation. For example, staring at a sheet of paper could be considered either daydreaming or intense concentration. Similarly, more subjective criteria are often involved in evaluating essays and papers than in evaluating solutions to math problems or answers to multiple choice questions. Mildly disconfirming evidence might include performances by a low-expectancy student that are often closer to average than to inferior. Examples of strongly disconfirming evidence might include a low-expectancy student performing at a high level for an extended period of time or scoring three grades above his or her actual level on a highly credible standardized test.

Both rigid and flexible expectations will be maintained when teachers are presented with ambiguous evidence. Because ambiguous performances are not clearly disconfirming, they create no pressure to either change or justify the original expectation. Moreover, such performances are likely to be interpreted in the context of the teacher's existing knowledge about the student, even if such knowledge is held rather tentatively. Thus, even social stereotypes, which have been shown to produce quite flexible expectations (e.g., Locksley et al., 1980), lead to interpretations of ambiguous performances in expectancy-consistent ways (Darley & Gross, 1983).

Therefore, when students' performance is frequently ambiguous, and teachers interpret those performances in expectancy-consistent ways, teachers may become progressively more confident in the validity of their expectations. As a result, teachers' expectations may also become progressively more rigid, thereby leading to expectancy-maintaining biases and, ultimately, self-fulfilling prophecies. Thus, under some circumstances, even flexible expectations may produce self-fulfilling prophecies.

Flexible expectations, however, probably rarely produce self-fulfilling prophecies because they are likely to change when confronted with even relatively mild disconfirming evidence. It has already been suggested that expectations are more flexible when teachers lack confidence in their validity or when the expectations are based on unstable factors. Therefore, it is relatively easy for these teachers to believe either that the basis for their expectations was inaccurate or that the unstable factor had changed.

Teachers with rigid expectations, in contrast, will probably maintain their expectations when confronted with relatively mild disconfirming evidence. According to this analysis, these expectations are based on stable factors and these teachers are

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[5] This is not to suggest that lack of movement between tracks solely results from teachers' rigid expectations. Students in different tracks learn different amounts of material. Thus, the gap between high- and low-tracked students may tend to increase, rendering it difficult to move students between tracks.

quite confident in their validity. Therefore, it is precisely when teachers with rigid expectations are confronted with mildly inconsistent performances that the expectancy-maintaining biases (discussed previously) are likely to function most effectively. These biases will allow the teacher to attribute the performance to situational factors, recall all the previous times the student performed as expected, and reconstruct previous performances to conform to expectations. According to this perspective, mildly disconfirming performances are likely to lead teachers with flexible expectations, but not those with rigid expectations, to change their expectations.

Teachers with flexible and rigid expectations may also encounter strongly disconfirming evidence. If flexible expectations are likely to change in response to mildly disconfirming evidence, then they are certainly going to change in response to strongly disconfirming evidence. When presented with sufficiently strong disconfirming evidence, however, even rigidly held expectations are likely to change, because cognitive processes function largely to organize and simplify an extremely complex environment. At some point, therefore, it becomes easier to perceive consistently high-performing students as smart, even if the teacher is quite certain that they have bad reputations, scored poorly on standardized tests, and are from lower class backgrounds. Indeed, evidence from experimental laboratory studies shows that even strong expectations about another will be disconfirmed when the other's behavior is clearly inconsistent with that expectation (see Swann, 1983, for a review). Teachers, however, may be far more confident in the validity of their expectations than are experimental laboratory subjects because teachers are usually much more familiar with their students than laboratory subjects are with one another. Thus, teachers may require somewhat more, or more convincing, disconfirmatory evidence to change their expectations.

Overall, this analysis indicates that teachers' initial expectations are unlikely to be grossly erroneous but that they may exaggerate differences between students. When teachers readily revise their expectations in response to disconfirming performances, however, they are less likely to bias students' achievement. In addition, even when expectations are relatively rigid, self-fulfilling prophecies can result only when teachers provide different learning environments for their high- and low-expectancy students. Therefore, the next section presents an analysis of the impact of expectations on teachers' treatment of students.

Differential Treatment of Students

Most of the ways in which teachers treat high- and low-expectancy students differently fall into four general categories (see Harris & Rosenthal, 1985; Rosenthal, 1974). Teachers provide more emotional support to their high-expectancy students (e.g., Chaiken, Sigler, & Derlega, 1974; Rist, 1970; Rubovitz & Maehr, 1973); they provide clearer and more favorable feedback to highs (e.g., Brophy & Good, 1970; Cooper, 1977, 1979; Finn, 1972; Weinstein, 1976); they pay more attention and teach more material to highs (e.g., Cooper & Good, 1983; Rist, 1970; Rosenthal, 1974; Rubovitz & Maehr, 1971); and they give highs more opportunities to perform and learn difficult material (e.g., Allington, 1980; Brophy & Good, 1970; Rubovitz & Maehr, 1971).

It is clear that differential treatment of high- and low-expectancy students can take many forms. Other research shows, though, that these links between expectations and differential treatment are not universal. Some studies show little such evidence at all (e.g., Parsons, Kaczala, & Meece, 1982); others show only a subset of teachers providing preferential treatment to highs (e.g., Babad et al., 1982; Brophy & Good, 1974); and yet others find evidence for only some of the possible forms of differential treatment (e.g., Cooper & Baron, 1977; Rubovitz & Maehr, 1971).

Therefore, two central questions must be addressed by a theoretical analysis of self-fulfilling prophecies: First, what are the psychological processes underlying the link between expectations and the commonly observed forms of differential treatment? Second, under what conditions are expectations likely to produce such forms of differential treatment? In this section I propose several psychological mediators of the links between expectations and treatment. I clearly specify the types of treatment likely to be mediated by each process and also discuss the conditions that limit the likelihood of these processes leading to differential treatment. In the last part of this section I discuss how certain situational factors may further affect the extent to which teachers' expectations lead to differential treatment.

Perceptions of Control

One review of classroom self-fulfilling prophecies suggests that many forms of differential treatment derive from teachers' belief that they have greater control over high-expectancy students' behavior than over low-expectancy students' behavior (Cooper, 1979). Because teachers perceive high-expectancy students as having a greater comprehension of a broader range of topics, they also feel more able to direct, control, and reach understandings with these students. Additionally, Cooper (1979) presents evidence showing that teachers consider their own control to be a more important determinant of lows' performance than of highs' performance. Therefore, teachers feel a greater need to assert their control over lows' behavior than over highs' behavior. Teachers may seek to minimize interactions with lows that are either student-initiated or occurring in public, because they feel less in control of these interactions. Because teachers wish to discourage lows from initiating interactions, they will provide lows with an emotionally less supportive environment and with less praise for success and effort. Moreover, the feedback provided to these students will not always be contingent on their performance. Teachers' feedback will function more to control interactions with lows than to evaluate the quality of their performance. Teachers will tend to monitor lows' activities more thoroughly and to provide them with more structured assignments in order to enhance their own control over lows' behavior. Thus, according to Cooper, the link between expectations and differential treatment is mediated by teachers' perceptions of control over students.

Expectations may influence perceptions of control and differential treatment in one additional way. Some teachers may believe, implicitly or otherwise, that students' high achievement results both from high-quality instruction and from high academic ability. In other words, some teachers may feel that both high-quality instruction and high ability together are necessary,

but that neither alone is sufficient, for high achievement. Thus, they will perceive the nature and quality of their teaching to covary with highs' performance more so than with lows' performance. Highs will be perceived as learning a great deal from superior instruction but relatively little from inferior instruction. In contrast, lows will not be perceived as able to achieve much without massive doses of superior instruction. As a result these teachers will spend more time and exert more effort teaching highs (at least when time is limited).

Several studies support this perspective. One experimental laboratory study showed that when instructors believed that their teaching was a major influence on achievement, they spent more time with high-expectancy students (Swann & Snyder, 1980). Research with actual classrooms has also shown that teachers work harder for high-track classes than low-track classes (e.g., Evertson, 1982), indirectly supporting the idea that at least some teachers feel their efforts will be more fruitful with high-expectancy students.

Limits to perceptions of control as a link between expectations and treatment. The insightful analysis provided by Cooper (1979), as well as other supporting evidence, suggests that teachers' perceived control over students' outcomes is an important mediator of differential treatment. Nonetheless, not all teachers necessarily feel more control over the achievement of highs than lows. Especially when teachers believe ability can be developed through experience, they may be far more likely to feel similar degrees of control over highs' and lows' learning. These teachers will perceive a comparable covariation between their input and both highs' and lows' learning because they believe that lows, too, can readily improve their scholastic competence through the appropriate training. Consequently, these teachers may be far less likely to provide highs with preferential treatment, and they may be more likely to spend extra time with lows in order to compensate for their initial deficits. Hence, it is probably when teachers believe students' natural ability levels cannot be readily altered that they feel the greatest difference in control over highs' and lows' learning.

The perceived control perspective may be useful for explaining the different feedback contingencies provided to highs and lows, the different amounts of time that teachers spend with students, and the differing degrees of flexibility and structure characterizing the work expected of highs and lows. This approach also suggests that affective differences in the treatment of highs and lows occur primarily as a means of controlling interactions. Often, however, teachers may simply like their high-expectancy students more than their low-expectancy students. Therefore, the next section presents an analysis of why teachers may come to like their highs more than their lows.

Similarity

A long tradition of research in social psychology supports the notion that perceived similarity of physical characteristics, socioeconomic background, and beliefs and values leads to liking and interpersonal attraction. Our friends and spouses are far more likely to be similar to us with respect to height, eye color, intelligence, age, race, education, and social status than could reasonably be expected by chance (Rubin, 1973). Of these factors, perhaps the greatest amount of research has investigated

the role of belief and value similarity (see, e.g., Byrne, 1971; Newcomb, 1961; Rokeach, 1960). Much of this research suggests that the impact of physical and socioeconomic similarity is largely mediated by perceived value and belief similarity. That is, in the absence of other information, people think that others with similar physical and social characteristics hold values similar to their own. When they have additional information, they choose people with similar physical and social characteristics for friends, primarily because they often do hold similar values (see, e.g., Gans, 1967; Rokeach, 1960; Rubin, 1973).

This brief discussion of the relationship between similarity and liking may provide insights into teachers' differing emotional responses to different students. Because most teachers are white, middle class, and relatively articulate, in many classrooms, students with similar characteristics will be liked more. Race, economic class (as indicated through personal appearance), and speech style are three immediately available and salient cues in most social encounters. Thus, these factors are likely to have substantial impact on liking, at least in initial interactions.

These three factors may continue to influence liking beyond first impressions owing to their assumed relation to values. For example, minority lower class students speaking nonstandard English styles are likely to be perceived as coming from a very different cultural background than a white, middle-class, standard-speaking teacher. Consequently, the teacher may believe that these students hold very different values, especially with respect to school achievement and behavior. As a result, these students may be at a long-term disadvantage in terms of teacher liking, in comparison with students more similar to the teacher in cultural background.

The factor that probably has the strongest relationship to liking, however, is teachers' perceptions of students' beliefs and values. Research has found that high-performing students are perceived as more similar to teachers than are low-performing students (Hamlish & Gaier, 1954). Research has also shown that teachers assume there is a positive covariation between intelligence and favorable attitudes toward school (Jackson, 1968). Inasmuch as teachers probably hold similar values, they will tend to like highs more than lows. The notion that teachers simply like highs more was supported by a study showing that teachers ascribe a whole constellation of favorable personality characteristics to high achievers (Barnard, Zimbardo, & Sarason, 1968). Thus, perceptions of similarity may mediate the links between expectations and differential treatment in the following way: (a) Expectations lead teachers to perceive themselves as more similar to highs; (b) perceived similarity leads teachers to like highs more than lows; and (c) teachers provide a warmer and more supportive environment for those students (i.e., highs) whom they like more.

Limits to the links between expectations, perceived similarity, and differential treatment. Perceived similarity is probably most useful for understanding the warmer socioemotional climate that teachers sometimes provide for their high achievers and why some teachers spend more time with highs (i.e., because they like highs more). It is less useful, however, for understanding teachers' tendency to interact with lows more privately than publicly, to provide more monitoring and structuring of

lows' activities, or for understanding the differing feedback contingencies sometimes provided to high- and low-expectancy students.

Last, perceived similarity may be useful for understanding differential treatment only in certain classrooms. Specifically, the greatest variability in teachers' perceptions of similarity to individual students should occur in ethnically, economically, and intellectually diverse classrooms. Among more homogeneous classrooms, teachers would be far less likely to develop widely varying perceptions of similarity to students. When teachers do not perceive themselves as more similar to certain students, perceived similarity cannot account for any forms of differential treatment.

Attributions and Differential Treatment

Perceptions of similarity and control may account for many of the forms of differential treatment. Expectations also may be more directly related to teachers' reactions to students, because they often arouse certain attributional biases. Specifically, expectancy-consistent performances are often attributed to individuals' personal characteristics, whereas the importance of expectancy-disconfirming performances can be discounted by attributing them to situational factors (e.g., Deaux & Emswiller, 1974; Regan et al., 1974). Thus, highs' failures and lows' successes may be attributed to situational factors, but highs' successes and lows' failures may be attributed to students' performance-related personal characteristics.

This attributional bias may account for some forms of differential treatment. If teachers attribute highs' failures to situational factors, they may attempt to alter the situation in order to allow highs to express their (perceived) true abilities. This could contribute to the teachers' willingness to persist longer with poor-performing highs by repeating or rephrasing questions, providing clues, and giving more time (e.g., Allington, 1980; Brophy & Good, 1970). In contrast, when lows fail, teachers may believe the failure to be due to the students' lack of competence anyway. Changing the situation is unlikely to lead to much improvement without large doses of teacher time and attention. Thus, some teachers ultimately spend less time with failing lows (e.g., Rist, 1970; Rubovitz & Maehr, 1971), perhaps because they feel these efforts will have little impact. When time and resources are available, however, this belief that lows' successes result from situational factors should lead teachers to actively and forcefully structure lows' learning environment. Thus, this attributional pattern may help explain findings showing that teachers monitor and structure activities for lows more than for highs (Brophy & Good, 1974; Cooper, 1979).

Cognitive Dissonance and Affect

Cognitive dissonance theory (Festinger, 1957) may be especially useful for understanding teachers' reactions to expectancy-disconfirming performances. One of the main premises of dissonance theory is that inconsistent cognitions arouse a noxious state. Violated expectancies make up one important class of such inconsistent cognitions (i.e., the outcome contrasts with one's predictions). Research has shown that disconfirmation of any expectancy, positive or negative, is unpleasant (Ar-

onson & Carlsmith, 1962; Carlsmith & Aronson, 1963). These studies, however, focused on actors' expectations for, and reactions to, their own performance. Nonetheless, when dissonance occurs, whatever its source, it is presumably unpleasant.

This unpleasant experience of dissonance may provide another basis for understanding teachers' differing emotional responses to high- and low-expectancy students. Dissonance occurs when highs fail and lows succeed. If a particular student's performance consistently contradicts expectations, the teacher will repeatedly experience the noxious state of tension aroused by cognitive dissonance. Eventually, he or she may associate the unpleasant feelings with this particular student. As a result, this teacher will be more likely to feel and express negative affect to low-performing highs and high-performing lows.

This process may account for findings that some teachers respond negatively to highs' failures and lows' successes (e.g., Rosenthal & Jacobson, 1968; Rubovitz & Maehr, 1973). By reacting unfavorably to highs' failures, teachers are simply providing highs with clear feedback regarding their performance. In contrast, negative reactions to lows' successes are clearly inappropriate and could be damaging to lows' motivation and learning.

Limits to the links between expectations, attributions, dissonance, and differential treatment. According to this analysis, attributions and cognitive dissonance may account for many types of differential treatment. Nonetheless, this perspective suggests that these processes will lead to differential treatment primarily when teachers hold rigid expectations. Disconfirmed flexible expectations are far less likely to produce the attributional biases proposed to lead to some forms of differential treatment (see *Rigid and Flexible Expectations* section). Moreover, because flexible expectations readily change in response to disconfirming evidence, a consistently high-performing low-expectancy student will not repeatedly evoke cognitive dissonance. This is because a few strong performances will lead a teacher with flexible expectations to revise those expectations upward so that additional high achievement is no longer contradictory and no longer generates dissonance. Supporting this perspective, the Babad et al. (1982) study found that only high-bias teachers, who tended toward a rigid cognitive style, provided preferential treatment to highs. Thus, the rigidity of expectations may be a crucial individual difference factor accounting for findings that only some teachers provide highs with preferential treatment (e.g., Brophy & Good, 1974; Meichenbaum, Bowers, & Ross, 1969).

Similarly, this approach may also help account for findings that the same teacher may vary in the extent to which he or she provides favorable treatment to highs (Brophy & Good, 1974). One case occurs when a teacher holds more rigid expectations in one class than another. This could happen for many different reasons. For example, in one class a teacher may know many students from having taught them the previous year, or the teacher could have heard more from other teachers about the students in one class. The result may be that some teachers provide more differential treatment in one class than in another.

Even within the same class, the teacher may develop rigid expectations only for some students (e.g., students who fit his or her stereotypes most closely, students about whom he or she has more background information, etc.). Therefore, teachers should mainly provide differential treatment to those students

for whom they have rigid expectations. Thus, this perspective suggests that by evaluating the rigidity of teachers' expectations, one will be more able to predict when (a) some teachers will be more likely than others to favor highs, (b) some teachers may provide preferential treatment to highs only in some classrooms, and (c) some teachers may provide preferential treatment to only some of the highs within any particular classroom.

Situational Mediators of Differential Treatment

The grade level of the class and whether students are tracked by ability level may be two situational factors especially relevant to understanding patterns of differential treatment. Teacher-student interaction patterns are often quite different in elementary schools and secondary schools, thereby affecting the ways teachers can act on their expectations. Tracking is important because it affects both the variability of the ability level of students within classes and the degree of differences between classes. First, I will discuss the impact of grade level on expression of expectations, and then the role of tracking.

Grade level and dyadic interactions. Differences in interaction patterns characterizing upper and lower grades may lead teachers to express their expectations in very different ways. In general, elementary school teachers often have far more dyadic interactions with students than do secondary school teachers. This occurs because classes are much more structured and businesslike in secondary schools, and because individual teachers simply have less time to spend with students than do elementary school teachers (this is discussed in more detail in Brophy & Good, 1974).

This difference between upper and lower level classes means that any form of differential treatment occurring in dyadic interactions should be less evident in upper level classes (because there are simply far fewer overall dyadic interactions). Indeed, research on upper grade levels has often failed to find many differences in the frequency or supportiveness of teachers' interactions with individual highs and lows (e.g., Brophy & Good, 1974; Parsons et al., 1982). It may be, therefore, that the infrequency of dyadic interactions limits teachers' opportunities to favor highs.

Nonetheless, secondary school teachers should still provide differential treatment similar to that of primary school teachers when they do have the opportunity. In fact, experimental laboratory studies provide just such an opportunity, because they usually involve interactions between a teacher and no more than four students at a time. Indeed, laboratory studies generally find patterns of differential treatment similar to those of primary school teachers, even when students are of secondary school age (for laboratory studies of differential treatment, see, e.g., Chaiken et al., 1974; Rubovitz & Maehr, 1971, 1973; Taylor, 1979; for studies of differential treatment in real classrooms, see, e.g., Brophy & Good, 1970, 1974; Cooper, 1977; Cooper & Baron, 1977; Parsons et al., 1982). One study finding clear evidence of preferential treatment of highs by secondary school teachers focused on physical education classes (Babad et al., 1982). But gym classes may often be characterized by far less structure than regular classes, thereby providing teachers with more opportunities to express their expectations through dyadic interactions.

Tracking and ability grouping. Tracking and ability grouping are other situational factors capable of affecting teachers' expression of expectations. When students are tracked according to their ability levels, classes become much more intellectually homogeneous. Consequently, teachers should be less likely to develop widely disparate expectations for students within tracked classes. Thus, the forms of differential treatment previously discussed should occur less frequently.

Tracking also leads the teacher to expect relatively large differences between students in different classes. Therefore, even though there may be less evidence of many within-class forms of differential treatment, teachers may act very differently in each class. Indeed, research supports the notion that teachers seem to prepare more thoroughly for, care more about, and are more interested in their high-track classes (Evertson, 1982).

A similar analysis can be applied to predicting differential treatment when teachers group students by ability levels within a class. Differential treatment should be more obvious between than within ability groups. Consistent with this hypothesis, research has found that teachers give low-group students less of a chance to perform either by giving them less time to answer, interrupting them more frequently, or giving them the answer (Allington, 1980).

In this section, I have presented several psychological mechanisms as potential links between teachers' expectations and their treatment of students. The basic ideas have been that expectations affect perceptions of control and similarity and that expectancy violation may evoke attributional biases and cognitive dissonance. I have discussed which types of differential treatment are likely to be mediated by these cognitive and affective factors and also some situational influences on teachers' expressions of their expectations. In this way I have attempted to provide insights into the causes underlying empirically observed associations between teachers' expectations and their actions. The remaining question, then, concerns how students respond to these forms of differential treatment. This issue is addressed in the next section.

Students' Reactions

In contrast to the large body of research documenting associations between teachers' expectations and their treatment of students, much less research has investigated links between treatment and students' reactions. Self-fulfilling prophecies do occur, though, so that it is known that some forms of differential treatment must evoke expectancy-consistent performance. Moreover, theories and research on the bases of motivation, achievement, success, and so on, are quite plentiful within the areas of educational, personality, developmental, and social psychology. In this section, therefore, I present several theoretical approaches to understanding the ways students may be affected by the differential treatment occurring in the classroom. The first part of this section addresses some of the general ways differential treatment may affect students, including its impact on students' skill development, perceptions of control over outcomes, and the value that students place on learning and achievement.

Additionally, some types of individuals may be more susceptible to teacher expectation effects than others. Although treat-

ment potentially could interact with a host of personality variables, I focus primarily on the ways in which the self may mediate students' reactions to the teacher. This focus on the self incorporates cognitive mediators (self-schemas) and affective mediators (self-esteem) of teachers' influence. The self-concept may be an especially useful way to understand students' likely reactions to the treatment they receive in the classroom because the self may be the primary mediator of one's perceptions and interactions with the environment (e.g., Coombs & Snygg, 1959; Epstein, 1973). Moreover, a great deal of research specifically addresses the role of the self in achievement motivation and performance. In the section below, I discuss some broad and general effects of differential treatment, and later I address how the self may further mediate the impact of the teacher's behavior.

Skill Development

Some forms of differential treatment may lead directly to differences in skill development without much mediation by social, cognitive, or affective processes. For example, feedback provides students with information regarding right and wrong answers. Positive feedback for success and negative feedback for failure, such as provided for high-expectancy students, convey clear information distinguishing between high- and low-quality work. As discussed previously, however, some teachers do not provide lows with appropriate feedback. When teachers react negatively or with muted praise to lows' successes, they fail to provide the information enabling lows to discriminate between high- and poor-quality scholastic performances.

Research on classroom interactions also shows that teachers provide lows with fewer opportunities to perform (see Differential Treatment of Students section). Lows are called on less frequently and have their answers cut off or provided for them more quickly. As a result of having fewer performance opportunities, lows have less experience and practice at developing important intellectual skills. Being called on less and having their attempts at classroom participation terminated more quickly are two ways that teachers give lows less feedback regarding the quality of their work. It also gives them less chance to think spontaneously, to attempt to articulate their ideas, to become aware of their own mistakes, and to make their own corrections.

Overall, then, the clarity of the feedback and the nature and frequency of performance opportunities provided for high- and low-expectancy students can impact on the skills and knowledge they glean from their classroom experiences. Nonetheless, differences in skill development may be only one way differential treatment enhances highs' and inhibits lows' achievement. Indeed, this skill development perspective does not even address how students may react to more affective aspects of differential treatment. Furthermore, even when students have similar levels of competence, differential treatment may still affect their motivation to achieve; these motivational factors may then affect students' performance. How some of these motivational factors may mediate the effects of differential treatment is discussed next.

Perceived Control

One of the most important ways differential treatment may influence students is by affecting their perceptions of control over academic outcomes. According to several theoretical perspectives, performance-contingent feedback enhances students' perceived control over outcomes, whereas feedback that is noncontingent on performance prevents students from coming to believe they can control their outcomes. Perception of control over outcomes is a major determinant of motivation and performance (see Stipek & Weisz, 1981, for a review). I next discuss the insights into self-fulfilling prophecies that may be provided by these perceived control perspectives.

Social learning theory directly addresses the effects on performance of perceived control over outcomes. Social learning theory distinguishes between expectations that certain behaviors will produce success (outcome expectations) and expectations that one can engage in the necessary behaviors (efficacy expectations; Bandura, 1977). Thus, to attain high achievement levels, students must come to believe they are capable of engaging in the behaviors (e.g., effort, studying, doing homework, persisting) that are the means for attaining the goal (scholastic success). Students who either do not believe that these behaviors lead to success or believe that they are incapable of engaging in these behaviors will be likely to perform poorly.

This social learning perspective can provide insights into the ways different feedback patterns may affect students' motivation. Lows, who receive less positive feedback for success and feedback for actions unrelated to performance, will be less able to learn which behaviors lead to scholastic success. It is quite difficult to achieve highly when the bases of success are unclear. Consistent with this perspective, some research shows that students who do not know the causes of success and failure in the classroom also perceive themselves as less competent (Harter, 1984).

Of all possible outcome expectations, perhaps the most important and most thoroughly researched has been perceptions of effort–outcome covariation. One review of teacher expectation effects suggested that in addition to the differing performance contingencies facing highs and lows, teachers also praise highs more for strong efforts (Cooper, 1979). As a result, highs, but not lows, come to believe that their efforts can lead to success. Students who think trying hard can be worthwhile are more likely to show stronger effort than those who believe effort is irrelevant to performance (e.g., Dweck, 1975; Kukla, 1972). Research relating attributions to achievement (see Weiner, 1979, for a review) shows that students who perform poorly continue to fail when they ascribe their performance to lack of ability but improve when they believe either that their past outcomes were due to lack of effort (Dweck, 1975) or that increased effort will improve future results (see Eccles & Wigfield, 1985). The belief that one's own actions do not affect outcomes is one of the major ideas behind the attributional approach to learned helplessness (Abramson, Seligman, & Teasdale, 1978). Therefore, by providing noncontingent feedback to lows, and generally less favorable feedback, teachers will lead many lows to believe that performance is not contingent on effort. As a consequence, lows will not try as hard, persist as long, or, more generally, understand which behaviors lead to scholastic success. Ultimately, this leads to lower levels of performance.

According to this analysis, perception of control is an important motivational mediator of the impact of differential feedback. This perspective, however, is less useful for understanding

students' reactions to other forms of differential treatment (i.e., attention, supportiveness, monitoring, and structure). Moreover, perceptions of control over outcomes impact mainly on students' expectations regarding achievement. This approach does not even address the impact that differential treatment may have on students' desire to learn in school. Nonetheless, the value that students place on learning and achievement is another major determinant of motivation (e.g., Eccles & Wigfield, 1985; Parsons et al., 1983). Therefore, the next section focuses on the relations between differential treatment and students' values.

Achievement-Related Values

Values, which generally refer to the desirability or importance of an activity or outcome, play a major role in most theoretical approaches to motivation (e.g., Atkinson, 1964; Deci, 1975; Dweck & Elliott, 1984; Nicholls, 1979; Parsons et al., 1983). Most previous reviews of self-fulfilling prophecies, however, have not addressed how differential treatment may affect the value that students place on achievement.[6] The purpose of this section, therefore, is to propose some of the ways students' values change in response to and mediate the impact of differential treatment.

Social exchange theory (e.g., Homans, 1976) provides some useful insights into possible relations between differential treatment and students' values. Homans (1976, p. 162) starts with the basic idea that "The more valuable the reward of an activity is to a person, the more likely he is to perform the activity." Even this relatively simple point has more subtle implications. Specifically, this idea suggests that the more highly students value the teacher's reactions, the more susceptible they may be to confirming the teacher's expectations. This is because these students, as compared to those who care less about the teacher's evaluations, will be more likely to behave in ways designed to evoke favorable reactions from the teacher. As already discussed, expectancy-consistent actions are more likely to evoke favorable reactions.

Consistent with this perspective, students who are heavily dependent on the teacher for information are more likely to confirm teachers' expectations (West & Anderson, 1976). One can probably assume that students more dependent on the teacher generally value the teacher's reactions more highly. This is because these students either have fewer alternative sources of rewards or information or feel that the teacher's reactions are especially important to them. Social exchange theory accounts for these findings and goes further by suggesting that anything leading to a lowering of the value placed on the teacher's reactions would lead to lowered susceptibility to expectancy effects. Thus, factors such as parental encouragement of independence, the availability of alternate sources of scholastic success and rewards, or a simple lack of respect for the teacher may attenuate some expectancy effects.

Additionally, social exchange theory (as well as other learning theories) proposes that (a) more punishing activities are less likely to be performed and (b) punishment renders any activity that results in avoiding punishment more likely. Thus, the reinforcement contingencies faced by highs serve as a powerful force maintaining their performance. The negative feedback

evoked by poor performance decreases the likelihood of engaging in activities that lead to poor performance. If only negative feedback for poor performance were involved, highs might evade punishment by missing classes, not participating, and so forth. The positive feedback obtained for successes, however, and the generally warm and supportive classroom environment, provide an even better alternative. Thus, studying and working hard not only avoid punishment (as do other activities), they lead to rewards in the form of teacher praise, positive affect, and high grades. Consequently, working hard for school should become a relatively highly valued activity for high-expectancy students.

In contrast, the reinforcement contingencies faced by low-expectancy students would tend to hinder academic achievement. As discussed earlier, lows may be criticized more for failure, praised less for success, and face a less supportive emotional atmosphere. Overall, school may come to be perceived as a punishing situation. Lows who are treated in this way may come to value any activity that avoids the punishment they receive in school. Because lows receive fewer positive rewards for success and effort, the achievement behaviors that lead to high performance will not become highly valued. Other methods of avoiding the classroom's punishing atmosphere, such as missing classes and withdrawing from classroom activities, become more appealing alternatives. Thus, a cycle of low academic performance is perpetuated.

One particular type of value may be an especially likely mediator of the effects of differential treatment on motivation. *Intrinsic value* refers to the enjoyment or pleasure one receives from simply engaging in an activity (regardless of outcomes and evaluations) and has been incorporated into many approaches to motivation (e.g., Deci, 1975; Harter, 1981; Lepper, Greene, & Nisbett, 1973; Nicholls, 1979; Parsons et al., 1983). Some students may simply enjoy certain scholastic experiences (e.g., computer programming, writing, performing experiments, playing a musical instrument, etc.), and these students will be more motivated to perform these activities frequently and to develop expertise in them.

Of all the approaches to intrinsic value and motivation, cognitive evaluation theory (Deci, 1975) may be most directly applicable to understanding how some types of differential treatment affect students' intrinsic interest in school. This theory, which has been supported by a great deal of empirical research (see Ryan, Connell, & Deci, 1985, for a review), proposes that intrinsic motivation decreases in response to three types of feedback patterns: (a) those that are primarily designed to control the behavior of the rewardee, (b) feedback that is not contingent on effort or performance, and (c) negative feedback. The controlling aspect of rewards conveys the message that the student is urged to engage in activities in order to satisfy the demands of others (e.g., teachers, parents). As a result, the student's intrinsic interest in the activity declines (see Ryan et al., 1985). Research on elementary school classrooms has shown

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[6] Although Eccles and Wigfield's study (1985) is an exception, they focused more on understanding the sources of students' motivation and less on the relations between differential treatment and motivation. In this section, though, the relations between teachers' treatment and students' motivation is the major focus.

that when teachers are more concerned with issues of control, their students are less intrinsically interested in school (Deci, Nezlek, & Sheinman, 1981).

Similarly, cognitive evaluation theory proposes that intrinsic motivation is enhanced by feelings of mastery. Because excessive negative feedback and feedback that is noncontingent on performance are likely to lead to feelings of incompetence (e.g., Abramson et al., 1978; Cooper, 1977, 1979; Murray & Jackson, 1983; Ryan et al., 1985), these reward patterns also undermine intrinsic interest in school.

This cognitive evaluation theory perspective may be especially useful for understanding at least part of the impact of differential treatment in the classroom. The feedback patterns found to lead to low intrinsic motivation correspond very closely to the pattern confronting at least some low-expectancy students (i.e., teachers feel more compelled to assert their control over lows' actions, and they provide lows with feedback less contingent on effort and performance and with generally more negative feedback). Consequently, when lows receive this sort of treatment, they are likely to decrease their intrinsic interest in learning. In contrast, intrinsic motivation is likely to be enhanced among highs because teachers are less concerned about controlling them, because teachers provide highs with feedback contingent on effort and performance, and because they provide highs with generally more positive feedback.

In this section I have analyzed how forms of differential treatment commonly observed in the classroom and laboratory are likely to affect high- and low-expectancy students. I have focused on the ways differential treatment can affect high- and low-expectancy students' development of scholastic skills and its impact on two important motivational factors: perceptions of control and achievement-related values. The perspectives presented here suggest a broad and general impact of differential treatment on students. Perhaps the major limitation of these perspectives is that they provide few insights into why some students may be more resistant to expectancy effects than others. One of the primary mediators of degree of susceptibility may be the nature and strength of students' self-concept. Therefore, the next section presents an analysis of how self-concept differences may affect students' reactions to differential treatment.

Role of the Self

One of the most important factors mediating the impact of teacher expectations may be students' sense of self. The perspective taken here is that the self has two conceptually distinguishable aspects—one primarily cognitive and the other primarily affective. The cognitive aspect of the self can be viewed as the individual's self-theory, a highly organized, internally consistent, relatively stable (but also open to change) means for understanding oneself and one's relationship to the environment (Epstein, 1973). The affective aspect of the self corresponds to self-esteem and refers to how the individual feels about, or evaluates, him- or herself. Of course, the cognitive and affective aspects of the self are extensively interrelated, but this conceptual distinction will be useful in the following analysis of how the self may mediate self-fulfilling prophecies. First, I discuss the ways in which the self-theory affects students' reactions to differential treatment.

Self-Schemas

If the self is viewed as a self-theory, then self-schemas (Markus, 1977) can be considered self-hypotheses, that is, generalizations and predictions about the self in more restricted domains. Research has demonstrated that people may hold schemas related to their degree of independence (Markus, 1977), sex-roles (Markus, Crane, Bernstein, & Siladi, 1982), and creativity and body weight (Markus, 1980). Indeed a whole host of trait-related schemas may exist, including characteristics such as friendly, smart, motivated, sensitive, and so on. These self-schemas can be extremely important influences on interpretation of information. If an individual has a schema for a particular trait, he or she can more quickly process information related to that trait, more easily retrieve behavioral examples, more accurately predict future behavior, and more readily resist counterschematic information. These characteristics of self-schemas are important because they provide insight into why different students may react differently to similar treatment by teachers.

Schemas most relevant to classroom achievement situations include aspects such as smart, competent, motivated, and so forth. For example, students may hold schemas that they are smart or that they are dumb, or they may be aschematic with respect to intelligence. This section, therefore, provides a theoretical analysis of how students who are smart schematic, dumb schematic, or aschematic will react to the treatment provided by teachers holding high or low expectations.

High-expectancy students who are also smart schematic have the optimal situation. In addition to actually receiving generally favorable treatment from the teacher, they are more likely to interpret ambiguous treatment as favorable, discount the importance of unfavorable treatment, and recall the instances of positive rather than negative treatment. Thus, both the treatment they receive and their own cognitive biases will act to maximize their confidence and self-esteem in school situations. Such students are likely to maintain high levels of motivation for school and may be more likely to be perceived as pleasant, competent, and successful by their teachers.

Low-expectancy students who are also dumb schematic experience school very differently. These students are more likely to interpret treatment as unfavorable, discount the importance of favorable treatment, and recall instances of unfavorable treatment. Furthermore, for these students the emotional impact of success and failure may be somewhat mitigated. They may respond less intensely to success, because they would either tend to diminish its importance or derogate their role in attaining it. They might also respond less intensely to lower performance than highs because they would expect to do less well. Unfortunately, because these students react less intensely to school performance, the teacher may infer that they do not care much about school, thereby reinforcing the teacher's original expectancy.

In some situations, the students' schema and the teacher's expectations may be inconsistent. How do smart schematics react when the teacher treats them as low achievers? These students would probably actively and purposefully attempt to dispel what they perceive as the teacher's erroneous conception. Indeed, such students might initially evidence a response similar

to reactance (e.g., Wortman & Brehm, 1975). The basic idea behind reactance theory is that people come to value options more highly when they become unavailable or prohibited. Similarly, it may become especially important for smart schematics to demonstrate their competence to unbelieving teachers. Some recent research supports this general notion. Dominant people mislabeled as submissive become more assertive in subsequent interactions, whereas submissive people mislabeled as dominant become more docile (Swann & Hill, 1982). In an analogous way, smart schematics may work quite hard to overcome teachers' beliefs that they are not too bright.

Several courses of action are open to smart-schematic students who wish to upgrade a teacher's low opinion of them. One option is simply to increase effort and motivation in the hope that the teacher cannot continuously misinterpret consistently high performance. Many teachers may be receptive to this type of corrective feedback. Even rigid expectations usually will be altered by unambiguous and consistent contradictory evidence. Thus, increasing effort may be a quite successful strategy for inaccurately perceived smart schematics (assuming, of course, that they can actually maintain high performance).

In some cases, though, teachers may hold especially rigid negative expectations. It might be very difficult for even a persistent smart schematic to change such a teacher's expectations. At some point, even these students may give up trying to change the teacher's beliefs. They may begin to resent the teacher's insensitivity, become somewhat rebellious and/or withdrawn, and become less willing to work diligently in this particular class. As Homans (1976, p. 73) wrote, "A man to whom the powerful man has done wrong is a fellow who may want to get back at him, and what better way is there than *not* doing what the powerful man says, just because he says it." With sufficient alternate sources of support (family, friends, etc.), the student need not necessarily alter his or her self-conception. Nonetheless, motivation to perform in this particular class may sharply decrease, again leading to a confirmation of the teacher's expectations. Such self-fulfilling prophecies are probably relatively short lived, however, and may not carry over from one year to the next, or even from one teacher to the next.

In some situations, the teacher may have high expectations for dumb schematics. Even though people usually prefer to have their self-conceptions verified (Swann & Ely, 1984), schema-inconsistent treatment for these students is relatively favorable. Consequently, although there may be initial disbelief that they deserve positive treatment, the schemas held by these students may be less resistant to change. Indeed, these students may even maintain their schemas that they lack intelligence by attributing their increased performance to effort, or to external factors. Thus, whether or not these students' schemas change, they may still come to fulfill the teacher's expectations.

In general, situations are inherently unstable when the teacher's expectations are inconsistent with the student's school-related schemas. Either the student's self-schemas, the teacher's expectations, or both will eventually change. What determines the nature of this change? Recent research contrasting self-verification (the tendency to act in ways consistent with one's self-conceptions) and behavioral confirmation (the tendency to act in ways consistent with others' expectations) sheds light on this issue. The major findings are that strong self-conceptions (such

as might be held by schematics) usually lead to self-verification but that when the perceiver holds strong expectations and the target's self-conceptions are unclear (such as might be the case with aschematics), behavioral confirmation results (Swann & Ely, 1984).

In many studies on self-verification, however, researchers have employed interactions between equal-status strangers. In the classroom though, long-term interpersonal relationships are established, and a huge power differential exists between teachers and students. Indeed, a recent review of self-verification suggests that "People will change their self-ratings only when they receive self-discrepant feedback in highly structured situations in which they have little opportunity to influence or resist the treatment they receive" (Swann, 1983, p. 51). This description may fit many classrooms quite well, suggesting that some students would find it difficult to resist internalizing a self-definition implicit in the way they are treated by teachers. Indeed, recent research has supported the general proposition that students' self-conceptions change as a function of teachers' expectations (Parsons et al., 1982).

Last, there are students who hold no particularly strong view of their intelligence, ability, and so on (students aschematic with respect to these characteristics). Research indicates that these students may be most susceptible to expectancy effects. Individuals without strong self-conceptions in particular areas are more likely to believe others' descriptions of them (Markus, 1977) and more likely to confirm another's expectations (Swann & Ely, 1984). Younger children, especially, may start out aschematic with respect to school achievement. Consistently favorable or unfavorable treatment by the teacher, however, may be one of the primary factors leading to the development of self-schemas regarding academic competence. This is because particular self-schemas develop from individuals' generalizations about themselves derived from their past experiences (Markus, 1977). This process may account, in part, for younger students' greater susceptibility to expectancy effects (e.g., Rosenthal & Jacobson, 1968).

Self-Esteem

Self-theories and self-schemas refer mainly to issues in the content, structure, and processing of information related to the self. The focus of these concepts is primarily on the more cognitive aspects of the self. Nonetheless, Epstein (1973) proposed that the main purposes of the self-theory are primarily affective, that is, to "optimize the pain/pleasure balance" and to maintain self-esteem. Similar to its usage by most other theorists (see Harter, 1984, for a review), self-esteem here refers to one's evaluation of oneself, including feelings of self-worth, self-respect, and so forth.

One of the most influential sources of self-esteem, especially among children, is the evaluations provided by powerful others (Harter, 1984). Apparently, then, teachers' evaluations of students may have quite a strong impact on their development of self-esteem. Thus, teacher expectations, by leading to differential evaluation and treatment, may be one factor leading to the development of high or low self-esteem among students.

Although the teacher's impact on self-esteem is an important issue in its own right, a self-fulfilling prophecy will result only

if higher self-esteem leads to higher performance. Although experimental laboratory studies have consistently demonstrated that self-esteem does influence performance, the findings from field studies have been less consistent (see Eccles & Wigfield, 1985). Recently, however, researchers have found that high self-esteem leads to certain behavioral orientations associated with high achievement, including intrinsic motivation, task orientation, and preference for challenge (see Harter, 1984). Thus, it seems that self-esteem can indeed have an important influence, albeit sometimes indirectly, on students' performance in school.

Once feelings of high or low self-esteem develop, they may mediate the impact of treatment by teachers. Specifically, high self-esteem may partially insulate students from the effects of teachers' unfavorable feedback and negative affect. Students who are high in self-esteem generally evaluate themselves quite favorably (by definition). Therefore, it may be much easier for these students to discount the validity or importance of small to moderate amounts of unfavorable treatment. In contrast, students low in self-esteem cannot readily discount failures, because these outcomes are consistent with their own generally unfavorable self-evaluations. Indeed, failures may reinforce and make salient these students' negative self-evaluations. Consequently, failure should be much more affectively and motivationally damaging to students low in self-esteem. Consistent with this perspective, research has revealed that after failure students with lower self-esteem decrease their self-evaluations more (Shrauger & Rosenberg, 1970) and persist less and perform worse (Brockner, 1979; Shrauger & Sorman, 1977), especially if the failure is prolonged (Brockner et al., 1983).

Overall, self-esteem may be an important factor in self-fulfilling prophecies. A teacher's treatment may affect the development of high or low self-esteem, especially among younger students. Moreover, high self-esteem leads to behaviors associated with higher performance, and some research shows a direct connection between self-esteem and achievement. Finally, high self-esteem may serve to protect students from overreacting to poor performance and/or criticism from others. Thus, self-esteem can play a major role in determining students' susceptibility to teacher expectation effects.

Concluding Remarks

The three-stage model presented here depicts self-fulfilling prophecies as deriving from a rich array of complex social and psychological processes. Even though there is a certain elegance in the simplicity of models emphasizing a single mechanism (e.g., Cooper, 1979; Darley & Fazio, 1980), empirical research on self-fulfilling prophecies in the laboratory and classroom implicates a host of seemingly diverse processes. Fortunately, the various processes involved in self-fulfilling prophecies have often received extensive theoretical and empirical attention from researchers in social, cognitive, developmental, personality, and educational psychology. Self-fulfilling prophecies, themselves, have often been the focus of psychological researchers. By integrating such a wide body of literature, the model presented herein describes many of the social and psychological events occurring at each step of the self-fulfilling prophecy, identifies causal processes linking each stage to the next, and specifies conditions limiting the likelihood of students performing at lev-

els consistent with the teacher's expectations. This triple emphasis on describing events, identifying causal processes, and limiting conditions is unique to this article but clearly essential for a comprehensive understanding of self-fulfilling prophecies. Studies vary so widely in the extent to which they uncover evidence of teacher expectation effects that theory must at least attempt to specify how self-fulfilling prophecies occur and when they are likely to occur at all. By making this attempt, it is hoped that this article contributes to the conceptual clarity of theories of and research into self-fulfilling prophecies.

References

Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness: Critique and reformulation. *Journal of Abnormal Psychology, 87,* 49–74.

Adorno, T., Frenkel-Brunswick, E., Levinson, D., & Sanford, R. N. (1950). *The authoritarian personality.* New York: Harper.

Allington, R. (1980). Teacher interruption behaviors during primary grade oral reading. *Journal of Educational Psychology, 72,* 371–377.

Allport, G. (1954). *The nature of prejudice.* Cambridge, MA: Addison-Wesley.

Anastasi, A. (1982). *Psychological testing.* New York: Macmillan.

Aronson, E., & Carlsmith, J. M. (1962). Performance expectancy as a determinant of actual performance. *Journal of Abnormal and Social Psychology, 65,* 178–182.

Atkinson, J. W. (1964). *An introduction to motivation.* Princeton, NJ: Van Nostrand.

Babad, E., Inbar, J., & Rosenthal, R. (1982). Pygmalion, Galatea, and the Golem: Investigations of biased and unbiased teachers. *Journal of Educational Psychology, 74,* 459–474.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice-Hall.

Barnard, J. W., Zimbardo, P. G., & Sarason, S. B. (1968). Teachers' ratings of student personality traits as they relate to IQ and social desirability. *Journal of Educational Psychology, 59,* 128–132.

Braun, C. (1976). Teacher expectation: Sociopsychological dynamics. *Review of Educational Research, 46,* 185–213.

Brockner, J. (1979). The effects of self-esteem, success–failure, and self-consciousness on task performance. *Journal of Personality and Social Psychology, 37,* 1732–1741.

Brockner, J., Gardner, M., Bierman, J., Mahan, T., Thomas, B., Weiss, W., Winters, L., & Mitchell, A. (1983). The roles of self-esteem and self-consciousness in the Wortman-Brehm model of reactance and learned helplessness. *Journal of Personality and Social Psychology, 45,* 199–209.

Brophy, J. (1983). Research on the self-fulfilling prophecy and teacher expectations. *Journal of Educational Psychology, 75,* 631–661.

Brophy, J., & Good, T. (1970). Teachers' communication of differential expectations for children's classroom performance: Some behavioral data. *Journal of Educational Psychology, 61,* 365–374.

Brophy, J., & Good, T. (1974). *Teacher–student relationships: Causes and consequences.* New York: Holt, Rinehart & Winston.

Byrne, D. (1971). *The attraction paradigm.* New York: Academic Press.

Carlsmith, J. M., & Aronson, E. (1963). Some hedonic consequences of the confirmation and disconfirmation of expectancies. *Journal of Abnormal and Social Psychology, 66,* 151–156.

Chaiken, A. L., Sigler, F., & Derlega, V. J. (1974). Nonverbal mediators of teacher expectancy effects. *Journal of Personality and Social Psychology, 30,* 144–149.

Chapman, L. J. (1967). Illusory correlation in observational report. *Journal of Verbal Learning and Verbal Behavior, 6,* 151–155.

Coombs, A., & Snygg, D. (1959). The development of the phenomenal

self. In A. Coombs & D. Snygg (Eds.), *Individual behavior* (2nd ed., pp. 122–144). New York: Harper.

Cooper, H. (1977). Controlling personal rewards: Professional teachers' differential use of feedback and the effects of feedback on the student's motivation to perform. *Journal of Educational Psychology, 69,* 419–427.

Cooper, H. (1979). Pygmalion grows up: A model for teacher expectation communication and performance influence. *Review of Educational Research, 49,* 389–410.

Cooper, H., & Baron, R. (1977). Academic expectations and attributed responsibility as predictors of professional teachers' reinforcement behavior. *Journal of Educational Psychology, 69,* 409–418.

Cooper, H., Baron, R., & Lowe, C. (1975). The importance of race and social class in the formation of expectancies about academic performance. *Journal of Educational Psychology, 69,* 409–418.

Cooper, H., & Good, T. (1983). *Pygmalion grows up: Studies in the expectation communication process.* New York: Longman.

Crano, W. D., & Mellon, P. M. (1978). Causal influence of teachers' expectations on children's academic performance: A cross-lagged panel analysis. *Journal of Educational Psychology, 70,* 39–49.

Crocker, C. (1981). Judgment of covariation by social perceivers. *Psychological Bulletin, 90,* 272–292.

Darley, J. M., & Fazio, R. H. (1980). Expectancy-confirmation processes arising in the social interaction sequence. *American Psychologist, 35,* 867–881.

Darley, J. M., & Gross, P. H. (1983). A hypothesis-confirming bias in labeling effects. *Journal of Personality and Social Psychology, 44,* 20–33.

Dawes, R. (1971). A case study of graduate admissions: Application of three principles of human decision making. *American Psychologist, 26,* 180–188.

Deaux, K., & Emswiller, T. (1974). Explanations of successful performance on sex-linked tasks: What is skill for the male is luck for the female. *Journal of Personality and Social Psychology, 29,* 80–85.

Deci, E. L. (1975). *Intrinsic motivation.* New York: Plenum Press.

Deci, E. L., Nezlek, J., & Sheinman, L. (1981). Characteristics of the rewarder and intrinsic motivation of the rewardee. *Journal of Personality and Social Psychology, 40,* 1–10.

Dusek, J. (1975). Do teachers bias children's learning? *Review of Educational Research, 45,* 661–684.

Dusek, J., & Joseph, G. (1985). The bases of teacher expectancies. In J. Dusek (Ed.), *Teacher expectancies* (pp. 229–250). Hillsdale, NJ: Erlbaum.

Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology, 31,* 674–685.

Dweck, C. S., & Elliott, E. S. (1984). Achievement motivation. In P. H. Mussen (Ed.), *Handbook of Child Psychology* (Vol. 4, pp. 643–691). New York: Wiley.

Eccles, J., & Wigfield, A. (1985). Teacher expectations and student motivation. In J. Dusek (Ed.), *Teacher expectancies* (pp. 185–226). Hillsdale, NJ: Erlbaum.

Epstein, S. (1973). The self-concept revisited, or a theory of a theory. *American Psychologist, 28,* 405–416.

Evertson, C. (1982). Differences in instructional activities in higher and lower achieving junior high English and math classes. *Elementary School Journal, 82,* 329–350.

Festinger, L. (1957). *A theory of cognitive dissonance.* Stanford, CA: Stanford University Press.

Finn, J. (1972). Expectations and the educational environment. *Review of Educational Research, 42,* 387–410.

Gans, H. J. (1967). *The Levittowners: Ways of life and politics in a new suburban community.* New York: Vintage Books.

Hamlish, E., & Gaier, E. L. (1954). Teacher–student similarities and marks. *School Review, 62,* 265–273.

Harris, M. J., & Rosenthal, R. (1985). Mediation of interpersonal expectancy effects: Thirty-one meta-analyses. *Psychological Bulletin, 97,* 363–386.

Harter, S. (1981). A new self-report scale of intrinsic versus extrinsic orientation in the classroom: Motivational and informational components. *Developmental Psychology, 17,* 300–312.

Harter, S. (1984). Developmental perspectives on the self-system. In P. H. Mussen (Ed.), *Handbook of child psychology* (Vol. 4, pp. 276–384). New York: Wiley.

Hastie, R., & Kumar, P. A. (1979). Person memory: Personality traits as organizing principles in memory for behaviors. *Journal of Personality and Social Psychology, 37,* 27–38.

Homans, G. C. (1976). Fundamental processes of social exchange. In E. P. Hollander & R. G. Hunt (Eds.), *Current perspectives in social psychology* (pp. 161–173). New York: Oxford University Press.

Humphreys, L. G., & Stubbs, J. (1977). A longitudinal analysis of teacher expectation, student expectation, and student achievement. *Journal of Educational Measurement, 14,* 261–270.

Jackson, P. W. (1968). *Life in classrooms.* New York: Holt, Rinehart & Winston.

Jennings, D. L., Amabile, T., & Ross, L. (1980). The intuitive scientist's assessment of covariation: Data-based vs. theory-based judgments. In A. Tversky, D. Kahneman, & P. Slovic (Eds.), *Judgment under uncertainty: Heuristics and biases* (pp. 211–230). New York: Cambridge University Press.

Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. *Psychological Review, 80,* 237–251.

Kukla, A. (1972). Foundations of an attributional theory of performance. *Psychological Review, 79,* 454–470.

Lepper, M. R., Greene, D., & Nisbett, R. (1973). Undermining children's intrinsic interest with extrinsic reward: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology, 28,* 129–137.

Locksley, A., Borgida, E., Brekke, N., & Hepburn, C. (1980). Sex stereotypes and social judgment. *Journal of Personality and Social Psychology, 39,* 821–831.

Locksley, A., Hepburn, C., & Ortiz, V. (1982). Social stereotypes and judgments of individuals: An instance of the base-rate fallacy. *Journal of Experimental Social Psychology, 18,* 23–42.

Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology, 35,* 63–78.

Markus, H. (1980). The self in thought and memory. In D. M. Wegner & R. R. Vallacher (Eds.), *The self in social psychology* (pp. 102–130). New York: Oxford University Press.

Markus, H., Crane, M., Bernstein, S., & Siladi, M. (1982). Self-schemas and gender. *Journal of Personality and Social Psychology, 42,* 38–50.

Meichenbaum, D. H., Bowers, K. S., & Ross, R. R. (1969). A behavioral analysis of teacher expectancy effect. *Journal of Personality and Social Psychology, 13,* 306–316.

Murray, C. B., & Jackson, J. S. (1983). The conditioned failure model of black educational underachievement. *Humboldt Journal of Social Relations, 10,* 276–300.

Newcomb, T. M. (1961). *The acquaintance process.* New York: Holt, Rinehart & Winston.

Nicholls, J. G. (1979). Quality and equality in intellectual development: The role of motivation in education. *American Psychologist, 34,* 1071–1084.

Nisbett, R., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgment.* Englewood Cliffs, NJ: Prentice-Hall.

Parsons, J. E., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J. L., & Midgley, C. (1983). Expectancies, values, and aca-

demic behaviors. In J. Spence (Ed.), *Achievement and achievement motivation* (pp. 75–146). San Francisco: W. H. Freeman.

Parsons, J. E., Kaczala, C. M., & Meece, J. L. (1982). Socialization of achievement attitudes and beliefs: Classroom influences. *Child Development, 53,* 322–339.

Regan, D. T., Straus, E., & Fazio, R. (1974). Liking and the attribution process. *Journal of Experimental Social Psychology, 10,* 385–397.

Rist, R. (1970). Student social class and teacher expectations: The self-fulfilling prophecy in ghetto education. *Harvard Educational Review, 40,* 411–451.

Rokeach, M. (1960). *The open and closed mind.* New York: Basic Books.

Rosenhan, D. L. (1973). On being sane in insane places. *Science, 179,* 250–258.

Rosenthal, R. (1974). *On the social psychology of the self-fulfilling prophecy: Further evidence for Pygmalion effects and their mediating mechanisms.* New York: MSS Modular Publications.

Rosenthal, R., & Jacobson, L. (1968). *Pygmalion in the classroom: Teacher expectation and student intellectual development.* New York: Holt, Rinehart & Winston.

Rubin, Z. (1973). *Liking and loving.* New York: Holt, Rinehart & Winston.

Rubovitz, R., & Maehr, M. (1971). Pygmalion analyzed: Toward an explanation of the Rosenthal-Jacobson findings. *Journal of Personality and Social Psychology, 19,* 197–203.

Rubovitz, R., & Maehr, M. (1973). Pygmalion black and white. *Journal of Personality and Social Psychology, 25,* 210–218.

Ryan, R. M., Connell, J. P., & Deci, E. L. (1985). A motivational analysis of self-determination and self-regulation in education. In C. Ames & R. E. Ames (Eds.), *Research on motivation in education: The classroom milieu* (Vol. 2, pp. 13–51). Orlando, FL: Academic Press.

Seligman, C., Tucker, G., & Lambert, W. (1972). The effects of speech style and other attributes on teachers' attitudes toward pupils. *Language in Society, 1,* 132–142.

Shrauger, J. S., & Rosenberg, S. E. (1970). Self-esteem and the effects of success and failure feedback on performance. *Journal of Personality, 38,* 404–417.

Shrauger, J. S., & Sorman, P. B. (1977). Self-evaluations, initial success and failure, and improvement as determinants of persistence. *Journal of Consulting and Clinical Psychology, 5,* 784–795.

Stipek, D. J., & Weisz, J. R. (1981). Perceived personal control and academic achievement. *Review of Educational Research, 51,* 101–137.

Swann, W. B. (1983). Self-verification: Bringing social reality into harmony with the self. In J. Suls & A. G. Greenwald (Eds.), *Psychological perspectives on the self* (Vol. 2, pp. 33–66). Hillsdale, NJ: Erlbaum.

Swann, W. B., & Ely, R. J. (1984). A battle of wills: Self-verification versus behavioral confirmation. *Journal of Personality and Social Psychology, 46,* 1287–1302.

Swann, W. B., & Hill, C. A. (1982). When our identities are mistaken: Reaffirming self-conceptions through social interaction. *Journal of Personality and Social Psychology, 43,* 59–66.

Swann, W. B., & Snyder, M. (1980). On translating beliefs into action: Theories of ability and their application in an instructional setting. *Journal of Personality and Social Psychology, 38,* 879–888.

Taylor, M. (1979). Race, sex, and the expression of self-fulfilling prophecies in a laboratory teaching situation. *Journal of Personality and Social Psychology, 37,* 897–912.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science, 185,* 1124–1131.

Weiner, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology, 71,* 3–25.

Weinstein, R. S. (1976). Reading group membership in first grade: Teacher behaviors and pupil experience over time. *Journal of Educational Psychology, 68,* 103–116.

West, C., & Anderson, T. (1976). The question of preponderant causation in teacher expectancy research. *Review of Educational Research, 46,* 613–630.

Wortman, C. B., & Brehm, J. W. (1975). Responses to uncontrollable outcomes: An integration of reactance theory and the learned helplessness model. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 8, pp. 277–336). New York: Academic Press.