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Naturally Occurring Interpersonal Expectancies

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Social psychology has long emphasized the power of social beliefs to create reality (see Eccles & Wigfield, 1985; Jussim, 1991, 1993; Merton, 1948, for reviews). According to many perspectives, people become what significant others, such as friends, parents, teachers, and employers, expect them to become. But are people so malleable that they readily fulfill others' erroneous expectations? How erroneous are interpersonal expectations? To address these questions, this chapter presents a critical review of evidence on relations between naturally occurring interpersonal expectations and others' behavior. First, we identify three sources of expectancy confirmation, strengths and weaknesses in experimental research on expectancies, and how expectancy effects may be identified under naturalistic conditions. Then we review studies investigating behaviors and achievements in educational and other settings. Finally, we discuss research addressing whether self-fulfilling

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prophecies accumulate or dissipate over time, and briefly review factors that may moderate effects of interpersonal expectancies.

THREE SOURCES OF EXPECTANCY CONFIRMATION

Expectancy confirmation can occur via several processes (see Jussim, 1989, 1991, 1993, in press; Jussim & Eccles, 1992, for more detail). First, perceivers' expectations can be confirmed because they create self-fulfilling prophecies: For example, initially erroneous expectations may lead targets to behave in ways consistent with those expectations. Because self-fulfilling prophecies result from social interactions and social influence over time, because they involve changes in behavior and/or other personological characteristics, and because their magnitude likely depends on the maturity of both the target and the perceiver and on the specific situation, understanding the extent and nature of self-fulfilling prophecies is an important issue for social, personality, and developmental psychology. In addition, because self-fulfilling prophecies may be especially likely when people engage in major life transitions (Jussim, 1990), when individuals confront new situations, and when targets are uncertain of their own abilities and self-perceptions, self-fulfilling prophecies may contribute fundamentally to the development and change of social and personality attributes from the cradle to the grave.

Second, interpersonal expectations can be confirmed because they lead to perceptual biases—perceivers may interpret, remember, and/or explain targets' performance in ways consistent with their expectations. This type of expectancy-confirmation exists in the mind of the perceiver rather than in the behavior of the target. Consequently, perceptual bias is likely to be influenced by all the social and developmental processes linked to social perceptions including social stereotypes, attribution biases, and cognitive maturity.

Self-fulfilling prophecies and perceptual biases represent biasing effects of perceiver expectations on either the targets' actual behavior or the perceivers' evaluations of targets' characteristics. Expectations may also be confirmed because they are accurate. That is, expectations may accurately reflect or predict, without influencing, target behavior (Brophy, 1983; Jussim, 1991).

EXPERIMENTS AND NATURALISTIC STUDIES

The classic self-fulfilling prophecy paradigm involves providing teachers with false information (e.g., bogus high or low standardized test scores) about some randomly selected students (e.g., Rosenthal & Jacobson, 1968). Differences in subsequent performance between these and control students can be attributed only to the expectancy manipulation—that is, self-fulfilling prophecy. The procedure of creating erroneous expectations by providing perceivers with false information about targets has served as the prototype for hundreds of expectancy experiments in social, organizational, personality, and educational psychology (see Eden, 1986; Miller & Turnbull, 1986; Snyder, 1984, 1992, for reviews). Social psychologists often interpret the early studies as showing that (a) self-fulfilling prophecies are a powerful and pervasive phenomenon and (b) the influence of teachers' expectations on students' achievement equals or exceeds the influence of students' achievement on teacher expectations (see, for example, Fiske & Taylor, 1984; Jones, 1986; Miller & Turnbull, 1986).

However, because of several limitations, experimental studies do not definitively support these conclusions. First, conclusions regarding pervasiveness require documentation of naturally occurring, rather than experimentally induced, self-fulfilling prophecies. Second, experiments that require perceivers to develop erroneous expectations do not (and were never intended to) assess the extent to which expectations might be accurate. They provide no basis for comparing the extent of self-fulfilling prophecies to the extent of accuracy. Third, experiments that create false expectations only permit conclusions to be drawn about the relationship between erroneous beliefs and behavior. Under naturalistic conditions, however, expectations may be accurate. Accurate beliefs cannot create self-fulfilling prophecies, because, by definition, self-fulfilling prophecy refers to initially false beliefs becoming true.

NATURALISTIC STUDIES: OVERVIEW

These limitations of experimental studies have led some researchers to study relations between naturally occurring interpersonal expectancies and targets' behavior and motivation. We describe these studies and critically evaluate their ability to meet the conditions necessary for separating self-

fulfilling prophecies, perceptual biases, and accuracy. We have not included the following types of studies.

1. Experiments inducing erroneous expectations, even if they were conducted in field settings
2. Studies reporting only simple correlations, which cannot distinguish between self-fulfilling prophecy, perceptual bias, or accuracy
3. Studies examining only relations between perceivers' expectations and their behavior toward targets
4. Studies examining only relations between perceivers' expectations and targets' beliefs about how they are treated by perceivers (see, for example, Brophy & Good, 1974; Darley & Fazio, 1980; Jussim, 1986; Rosenthal, 1974; Snyder, 1984, for reviews of such studies)

Before presenting our basic model for identifying the various components of expectancy confirmation, we need to define self-fulfilling prophecy, perceptual bias, and accuracy (see Jussim, 1989, 1991, 1993; Jussim & Eccles, 1992, for more details). Within our framework, three conditions must be met to identify naturally occurring self-fulfilling prophecies. First, perceivers' expectations must successfully predict targets' future behavior: Perceivers' expectations at time 1 must positively correlate with targets' behavior at time 2 (see Jussim, 1991, for a possible exception). Second, this predictive validity cannot result entirely from accuracy. If perceivers' expectations successfully predict but do not influence targets' behavior, no self-fulfilling prophecy has occurred. Third, perceivers must not be the main judges of targets' behavior.

Alternatively, perceivers' expectations may influence their judgments of targets' behavior through perceptual biases. When a perceptual bias occurs, perceivers' expectations influence their judgments of targets. Perceivers may evaluate targets' behavior as being more consistent with their expectations than is warranted on the basis of targets' actual behavior. Therefore, perceivers' expectations should more strongly predict their own judgments of targets' behavior than they predict independent assessments of targets' behavior.

Finally, perceivers' expectations can also be confirmed due to accuracy. There are two conceptually distinct aspects of accuracy. Impression accuracy concerns the basis of interpersonal expectations. Expectations based on more valid information can be considered more accurate than expectations based on less valid information. For example, teacher expectations based on pre-

vious grades may be considered more accurate than those based on physical attractiveness or falsified test scores. However, even expectations based on valid information often inaccurately predict future behavior (Kahneman & Tversky, 1973). Consequently, the second aspect of accuracy involves determining the extent to which interpersonal expectations predict targets' behavior without causing it. This is predictive accuracy—predictive validity without (self-fulfilling or biasing) influence.

The Basic Model

Figure 4.1 presents a general model of the role of perceiver expectations in self-fulfilling prophecies and represents the core basis of many of the naturalistic studies. The main ideas are that background information about targets may influence perceiver expectations (Path A); and that perceivers' expectations may influence targets' behavior, achievements, or attributes (Path B) and their own evaluations of targets (Path D). This basic model, in part or total, underlies most naturalistic studies of interpersonal expectancies. Although not specified in Figure 4.1, we assume that developmentally relevant characteristics such as age, cognitive maturity, prior experience, and certainty of one's social and self-perceptions can moderate the strength of all paths. We discuss these possible influences later in the chapter. Unfortunately, few researchers have directly assessed these moderating effects.

NATURALISTIC STUDIES IN THE CLASSROOM: TEACHER EXPECTANCY EFFECTS

We divide naturalistic studies of teacher expectations into three broad groups: Rist (1970), which is a highly cited and methodologically unique study; quasi-experimental studies; and longitudinal path analytic studies, which typically rely on regression and structural equation modelling techniques.

Rist (1970)

Rist's (1970) study is often cited as evidence of powerful naturally occurring self-fulfilling prophecies (e.g., Miller & Turnbull, 1986; Myers, 1987; Snyder, 1984). However, the study was based almost entirely on Rist's observations of a single inner-city kindergarten class over a school year (and

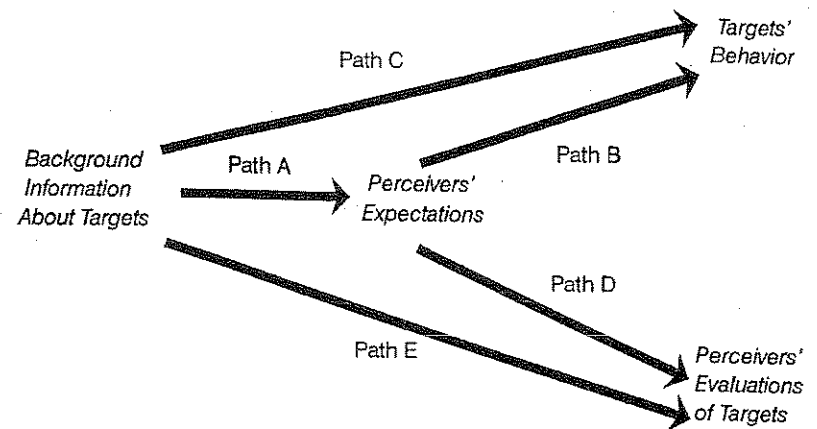


Figure 4.1. Basic Model for Assessing Relations Among Perceivers' Expectations and Targets' Behavior

first- and second-grade follow-ups). Consequently, the extent to which Rist's observations were influenced by his own hypotheses and expectations is not known. Even if Rist's observations were objective, the study provides no basis for concluding that self-fulfilling prophecies are powerful or pervasive. Because the study was based on interactions between a single teacher and a class of 30 students, it provides little basis for broad conclusions about relations between teacher expectations and student achievement. Furthermore, even Rist's own data and observations provide little evidence of self-fulfilling prophecy. Rist observes that, by the 8th day of class, the teacher had divided the class into three groups—a supposedly smart, average, and dumb group. Each group sat at its own table (Tables 1, 2, and 3, respectively). However, there were no mean differences in IQ scores among the three tables on a test administered at the end of the school year. Instead, the main difference was social class. In comparison with the other students, Table 1 students came from homes that had greater income and were more likely to have both parents present; they were also better dressed. There were comparable differences between the students at Tables 2 and 3. Table 1 was positioned closest to the teacher, and she directed nearly all of her time, attention, and personal warmth to those students. Such differences in treatment would be inappropriate and unjustified even if there were real differences in the intelligence of the children at the different tables. Nonetheless, there was

no evidence of self-fulfilling prophecy. The only objective performance data provided were the IQ test scores, and they did not differ by group at the end of the school year.

In contrast, Rist provides good evidence of perceptual bias. He quotes the teacher as claiming several times throughout the year that the children at Table 1 were interested and involved in learning, whereas the other children seemed to "have no idea of what is going on in the classroom." Rist provides numerous examples of behavior suggesting that this was an inaccurate perception of differences in the children's motivation and interest. In addition, given the absence of differences in IQ score, these statements likely reflect perceptual bias stemming from the teacher's stereotypes regarding people from various socioeconomic groups.

Rist's study provides only indirect and incomplete evidence regarding accuracy. Any inferences regarding accuracy must be indirect because he did not assess the teacher's expectations. To the extent that the teacher used social class as a basis for her expectations, those expectations were probably inaccurate (because there were no social class differences in IQ). Whether the teacher's expectations were also based on other, more appropriate, factors cannot be determined.

The Quasi-Experimental Studies

Palardy (1969)

This study examined whether teachers' beliefs about sex differences in ability to learn how to read might be self-fulfilling. Palardy (1969) started with a pool of 42 first-grade teachers and identified two groups: One group believed that boys and girls learn to read equally well (Group A), and a second group believed that girls learn to read more quickly than boys (Group B). Five teachers from each group were then matched on demographics, teaching experience, and teaching methods. Reading readiness scores at the beginning of first grade and reading achievement scores at the end of first grade were obtained for 53 boys and 54 girls in Group A, and for 58 boys and 51 girls in Group B. The reading readiness scores were nearly identical for all four groups. The end of first grade reading achievement scores were then submitted to a two (student gender) by two (teacher expectancy group: A, B) analysis of covariance (with IQ scores as the covariate). The self-fulfilling prophecy prediction is that gender and teacher expectancy groups will inter-

act so that there would be little difference between boys' and girls' reading achievement in Group A, whereas girls would outperform boys in Group B. This is exactly what Palardy found. The interaction was statistically significant and reflected an effect size of .14.¹ There were no main effects of student gender or group. The main strengths of this study are the careful matching of teachers with different expectations and the inclusion of initial reading readiness scores as a covariate. Although naturalistic studies can never eliminate alternative explanations to the same extent as experiments, Palardy's procedures kept such alternatives to a minimum.

Doyle, Hancock, and Kifer (1972)

This study of 11 teachers and 245 students focused on three predictions: First-grade teachers have higher expectations for girls than boys; these different expectations are erroneous; and erroneous expectations will be self-fulfilling. All three predictions were supported. Although there were no objective differences in boys' and girls' IQ scores, teachers estimated that boys had IQ scores averaging 99.9 and girls had scores averaging 104.5. The teachers underestimated the IQs of nearly 59% of the boys and overestimated the IQs of nearly 57% of the girls. Doyle, Hancock, and Kifer (1972) then divided the students into two groups: those whose IQ scores were overestimated and those whose scores were underestimated. The main outcome variable, reading achievement scores, was then submitted to a discrepancy (over- versus underestimated) by gender ANCOVA (using actual IQ scores as a covariate). Results were consistent with a self-fulfilling prophecy: Despite slightly lower IQ scores, girls had higher reading achievement scores. In addition, the effect for discrepancy was highly significant: Students with a mean IQ of 98 (those in the overestimated group) actually outperformed those with a mean IQ of 107 (those in the underestimated group). The expectancy effect size was .3.

Seaver (1973)

Seaver (1973) examined effects of expectations originating from teachers' experiences instructing older siblings. Seaver assumed that teachers would hold higher expectations for a child if they had taught a high achieving older sibling than if they had taught a low achieving older sibling. Although Seaver did not directly assess teacher expectations, research shows that teachers do base their expectations, in part, on experiences with siblings (Thurlow,

Christensen, & Ysseldyke, 1983). Seventy-nine sibling pairs and an unspecified number of teachers were included in the study. The students were divided into two teacher expectancy groups based on whether the older sibling's performance was high or low in first grade. Twenty-seven of the younger siblings were assigned to the same first-grade teacher who had taught their older sibling. There were eight measures of achievement in first grade: six achievement test scores (five verbal and one math, all assessed in May) and winter and spring grade point averages. The performance of high and low expectation students was compared with the performance of "no expectation" students, whose teachers had had no prior contact with their older siblings. Consistent with the self-fulfilling prophecy hypothesis, children with high achieving older siblings performed better when their sibling had been taught by the same teacher (i.e., when their teacher held high expectations for them) than when their sibling had been taught by another teacher. Similarly, children with low achieving older siblings performed worse when their teacher had had prior experience instructing their older sibling. However, of these differences, only two reading achievement scores and the math achievement score reached statistical significance. The effect sizes ranged from near 0 to .28. Because there were weaker effects for grades than for standardized test scores, Seaver found no evidence of perceptual biases.

The main strength of Seaver's study is its nonreactivity. The study was conducted entirely from school archival records. However, because teacher expectations were not measured, and because Seaver did not control for any student background variables, there may be alternative explanations for the main findings (see, for example, Mitman & Snow, 1985) and there is no way to estimate accuracy. The results do suggest, however, that teachers may rely too heavily on their experiences with siblings as a basis for their expectations.

Sutherland and Goldschmid (1974)

Sutherland and Goldschmid (1974) focused on effects of inaccurate teacher expectations. Six first- and second-grade teachers provided their expectations for all students in their classes 2 months into the school year. Ninety-three students were divided into five teacher expectation groups (ranging from "poor" to "superior"). The students were administered two intelligence tests (the WISC for children and the Lorge-Thorndike Group Intelligence Test) twice: 2 months and 7 months into the school year. Stu-

dents with below average IQ scores were divided into two groups: those whom teachers believed had average intelligence (erroneously high expectation) and those whom teachers believed had below average intelligence (accurately low expectation). The self-fulfilling prophecy prediction is that students in the first group would show greater increases in IQ over the year. The pattern of increases confirmed the prediction for both IQ tests, but the difference was not statistically significant (effect sizes of .1 to .2).

Next, Sutherland and Goldschmid divided students with above average IQ test scores into two groups: those whom teachers believed had above average intelligence (accurately high expectation) and those whom teachers believed had average intelligence (inaccurately low expectations). The self-fulfilling prophecy prediction is that students in the second group would show lower increases or greater decreases in IQ test scores than students in the first group. This prediction was confirmed for both measures; in addition, these differences were statistically significant, and quite strong (*rs* of .45-.55).

The Path Analytic Studies

The path analytic studies differ from the other studies in several important respects. They generally include much larger samples of teachers and students, enhancing both their statistical power and their generalizability. They often include a wider array of student variables, which strengthens their ability to identify and control for sources of accuracy. They often include more than one teacher variable, which allows for examination of whether various types of teachers' perceptions and expectations are related differently to students' motivation and achievement. And the authors of path analytic studies generally present explicit models underlying their theoretical approach and empirical analyses.

Basic Assumptions

The model presented in Figure 4.1 captures the main ideas of most of the path analytic studies. Before describing how this model can be used to separate and identify self-fulfilling prophecies, perceptual biases, and accuracy, several clarifications are needed. First, the model requires that there be some time lag between variables as one moves from left to right—student background variables should be assessed prior to the assessment of teacher expectations, which, in turn, should be assessed prior to students' grades and standardized test scores. Second, in this chapter we focus exclusively on

standardized path coefficients (which we will refer to as "betas," regardless of whether regression, LISREL, or some other technique was used to estimate them). Third, in any given study, each path in Figure 4.1 may correspond to several operational paths. Models may include many different aspects of students' background, multiple measures of teacher expectations, multiple standardized test scores, and final grades for more than one course. Fourth, the model makes no assumptions regarding the values any of the paths may take.

Paths C and E represent influences of students' background on their future achievement. Paths B and D represent the extent to which teacher expectations predict students' standardized test scores and final grades, respectively, after controlling for student background. Positive values for Path B represent self-fulfilling prophecy effects. If Path D is similar in magnitude to Path B (and if both are positive and significant), then Path D represents self-fulfilling prophecy. Results showing that Path D exceeds Path B represent perceptual bias. Such results mean that teachers evaluate students' performance in a manner more consistent with teachers' expectations than is justified on the basis of students' objective achievement (standardized test scores). Path A represents the influence of student background characteristics on teacher expectations, and is an index of impression accuracy. To the extent that teachers base their expectations on appropriate factors, such as students' achievement and motivation, those expectations may be considered accurate. If teachers base their expectations on inaccurate information, the expectations, too, will be inaccurate.

The model can also be used to identify predictive accuracy. It shows that teacher expectations will correlate with students' future standardized test scores and grades even if teacher expectations do not influence student achievement (i.e., if Paths B and D are both zero). The extent to which teacher expectations predict but do not influence standardized test scores equals Path A times Path C; the extent to which teacher expectations predict but do not influence final grades equals Path A times Path E. Predictive accuracy is statistically identical to a spurious correlation—to the extent that teacher expectations and student future achievement are both related to some third variable(s), teacher expectations will predict without causing student achievement. In practice, it is easier to estimate predictive accuracy by subtracting Path B from the zero-order correlation between teacher expectations and standardized test scores, and by subtracting Path D from the zero-order correlation between teacher expectations and grades. This is mathematically identical to Path A times Path C and Path A times Path E, respectively. Figure

4.1 shows $r(\text{TEs, STD}) = (\text{Path A} \times \text{Path C}) + \text{Path B}$; and $r(\text{TEs, Grades}) = (\text{Path A} \times \text{Path E}) + \text{Path D}$, where r = Pearson's correlation, TEs = teacher expectations, Grades = final grades, and STD = standardized test scores. Thus simple algebraic manipulation of these equations shows $\text{Path A} \times \text{Path C} = r(\text{TEs, STD}) - \text{Path B}$, and $(\text{Path A} \times \text{Path E}) = r(\text{TEs, Grades}) - \text{Path D}$.

The Omitted Variables Problem

All path analytic studies are subject to one major limitation: Paths assessed in the model are valid estimates of causal effects only if all influences on the dependent variable(s) are included. In the social sciences, one can never be certain that this assumption has been met. This is known as the *omitted variables problem*. For example, if a variable that influences both teacher expectations and student future achievement is excluded from a model, the paths representing self-fulfilling prophecy and perceptual bias will be inflated and accuracy will be underestimated. Nonetheless, an effort can be made to include as many potential influences as possible. Therefore, our review of the path analytic studies includes a particular emphasis on evaluating their success at including potential influences on teacher expectations and student achievement.

Williams (1976)

This study included more than 10,000 high school students in Ontario (no information on the number of teachers was provided). Williams's (1976) model is nearly identical to Figure 4.1, except that it included multiple operationalizations of nearly every variable. Student background variables included socioeconomic status (SES), IQ scores, their educational ambitions, previous grades, and their track (vocational or college). Two types of teacher expectations were assessed: cognitive (beliefs about students' performance) and behavioral (beliefs about students' cooperativeness, reliability, and industry). Measures of future achievement included two standardized achievement tests and final grades. Williams's results provide very little evidence of self-fulfilling prophecy. Of the eight possible coefficients (two types of expectations relating to two standardized tests, computed separately by student gender) only one reached statistical significance and even this effect was quite small ($\beta = .13$) and only true for boys. In contrast, Williams found clear evidence of perceptual biases. Both types of expectations significantly predicted grades for boys and girls (β s = .14 to .27), after controlling for

IQ, previous grades, motivation, and SES. These results suggest that teachers' expectations influence their evaluations of students' performance (grades) more strongly than they influence students' actual learning (as indicated by the standardized tests). Williams's results also provide strong evidence of impression accuracy. Teachers' expectations were largely based on appropriate factors (IQ scores, grades, and motivation), and not on students' SES or gender. Results also show considerable evidence of predictive accuracy. Teachers' cognitive expectations correlated .40 to .63 with future standardized achievement test scores and .25 to .40 with their behavioral expectations. However, the path coefficients relating both types of teacher expectations to future standardized test scores (in the context of the model including all the student background variables as controls) were near zero. Consequently, there was no evidence that teacher expectations influenced these test scores. Instead, teacher expectations predicted, without causing, future standardized achievement test scores—that is, they were accurate. Furthermore, the main reason teacher expectations predicted grades was because they were accurate. Zero-order correlations of both types of expectations with grades were between .62 and .67; path coefficients ranged from .14 to .27. Thus path coefficients accounted for only 20% to 40% of the zero-order correlations. This means that about 60% to 80% of the zero-order correlations reflected predictive accuracy, and the remaining 20% to 40% reflected perceptual bias.

This early path analytic study remains one of the strongest naturalistic studies to date. By including so many student background variables, Williams's (1976) study reduced the omitted variables problem to a minimum. However, he does not report when teacher expectations were assessed. If they were assessed late in the school year (e.g., March or April), accuracy is a plausible alternative explanation for path coefficients relating teacher expectations to grades. By spring, teachers may simply know what grades they are going to assign.

West and Anderson (1976)

West and Anderson (1976) were among the first to present an explicit model of relations between naturally occurring teacher expectations and student achievement. Their model is captured by Paths A, B, and C in Figure 4.1 (they did not address perceptual biases). In particular, they address whether the association of teacher expectations with student achievement (self-fulfilling prophecy—Path B) was larger than the association of student achieve-

ment with teacher expectations (impression accuracy—Path A). Although West and Anderson indicated that their data were based on 3,000 high school students, they did not provide much additional detail (e.g., there is no information about the timing of the data collection, the number of teachers, correlations among variables, or even what constituted "student achievement"). Their results clearly showed that student achievement freshman year predicted sophomore year teacher expectations (beta = .37) more strongly than teacher expectations freshman year predicted student sophomore year achievement (beta = .12). However, the lack of detail makes it difficult to critically evaluate specific aspects of the study. Nonetheless, the study does represent an early attempt to compare accuracy to self-fulfilling prophecy, and its results are consistent with those of nearly all other path analytic studies.

Parsons, Kaczala, and Meece (1982)

This study of 275 fifth- to ninth-grade students in 17 math classrooms in southeastern Michigan investigated the role of teacher expectations in shaping gender differences in students' expectations for their own performance in math and students' ratings of their own math ability. It included the following measures: teachers' expectations for each student in their math class (teachers' ratings of how good they thought each student was at math and how well they expected each student to perform in an advanced math class), students' prior performance in math, students' expectations for their own performance in future math courses, and students' estimates of their own math ability. These measures can be used to evaluate Paths A, B, and C in Figure 4.1, with student expectations and ability self-concepts as the outcomes. First, there was strong evidence of accuracy (Path A, the zero-order correlation of teacher expectations with the indicator of prior math achievement, was .47). Second, students' expectations and ability self-concepts were significantly related to prior achievement levels (Path C); these correlations ranged from .28 to .49 depending on the sex of the child and the specific dependent measure. Finally, and most importantly for this chapter, teachers' expectations were significantly related to students' expectations and self-concepts even after the association of these measures with past performance was controlled (partial r of teacher expectancy to students' self-concept of math ability was .43 and to students' future expectations was .26). The study has two limitations: Prior student expectations and ability self-concepts were not included in the analyses, and all data were collected in the spring. The extent to which

differences in student motivation and self-perceptions during the fall and winter influenced teachers' expectations in the spring cannot be determined. If this influence is large, it could account for the partial correlations reported above.

Brattesani, Weinstein, and Marshall (1984)

Brattesani, Weinstein, and Marshall (1984) addressed influences of teacher expectations on students' own performance expectations and their reading achievement test scores among 234 fourth-, fifth-, and sixth-grade students in 16 classrooms. The authors' model is a variation of that depicted in Figure 4.1. One student background variable was assessed: prior reading achievement scores. Teacher expectations for students' schoolwork and reading achievement were assessed in April. Brattesani et al. indicated that reading achievement scores were assessed at "the end of the school year." These authors reported proportion of variance accounted for by teacher expectations (after adding them to a model that already included prior reading achievement). Consistent with the self-fulfilling prophecy hypothesis, teacher expectations accounted for about 7% of the variance in reading achievement scores and 2% to 4% of the variance in student expectations. Brattesani et al. also provided evidence of impression accuracy. Because there was only a single student background variable, Path A is simply the correlation between prior reading achievement and teacher expectations. That correlation was .69 and .77 for high and low perceived differential treatment classes, respectively, indicating substantial accuracy in teachers' impressions of students.

The main goal in this study, however, was to discover whether student perceptions of differential treatment moderate expectancy effects. To address this question, Brattesani et al. divided classrooms into two groups: one in which students believed teachers treated high ability students more favorably than they treated low ability students; and one in which students believed teachers treated high and low ability students similarly. Supporting the moderation hypothesis, teacher expectations accounted for more variance in student expectations (R^2 increments of 6% to 12%) and achievement (R^2 increments of 14% to 16%) in high differential treatment classes than in low differential treatment classes (for student expectations, R^2 increments were near zero; for achievement, R^2 increments were 3%).

However, there are several important limitations to this study. First, teacher expectations were assessed late in the school year (April). After 8

months, teachers have had ample opportunity to discover how students' achievement differed in the current year from the previous year. Therefore, teachers' expectations might have predicted changes in future achievement, not because of self-fulfilling prophecies, but because teachers accurately perceived genuine changes in students' achievement. Second, there was only one control variable—initial reading achievement. Teachers may also base their expectations on students' grades and motivation levels (which were not controlled and which may enhance accuracy). Omitting these variables might inflate estimates of self-fulfilling prophecy effects. Third, students' initial expectations were not controlled. Therefore, the small R^2 increments in predicting student expectations may have resulted almost entirely from a spurious influence of students' initial expectations on both teachers' expectations and students' subsequent expectations. Fourth, by April, perhaps both teachers and students knew how students' current achievement differed from their previous achievement. This represents another source of correspondence between students' and teachers' expectations that is not explicitly incorporated into the model. Thus the R -squared increments in predicting student expectations probably were inflated. This study probably does show that self-fulfilling prophecies are stronger in classes where students perceive more differential treatment, although the absolute magnitude of self-fulfilling prophecies was probably lower than indicated by the researchers' analyses.

Jussim (1989) and Jussim and Eccles (1992)

These two studies were the first to assess and compare self-fulfilling prophecy, perceptual bias, and accuracy explicitly. Together, they included about 100 teachers and 1,700 students in sixth-grade math classes. Both studies assessed models that were more complex versions of the model presented in Figure 4.1. Several student background variables were included: previous standardized test scores, previous year grades, several motivational variables (self-concept of math ability, self-perceptions of effort and time spent on homework, and intrinsic and extrinsic value of math), and gender. Fall and spring assessments of the motivational variables were included in Jussim's (1989) study; only fall assessments were included in Jussim and Eccles's (1992) study. There were two outcome measures of achievement: final math grades and math scores on the Michigan Educational Assessment Program (MEAP, a standardized test administered to students in Michigan early in seventh grade). Three teacher expectation variables were assessed in early

October of sixth grade: teacher perceptions of students' performance, talent, and effort at math. Because results reported here are from two studies, they are presented in pairs. The first reference refers to Jussim (1989) and the second refers to Jussim and Eccles (1992). Although the main analyses were performed using the LISREL VI program, results are reported below as betas because they are standardized path coefficients.

Consistent with the self-fulfilling prophecy hypothesis, teacher perceptions of students' performance in October were significantly related to sixth-grade final grades (betas = .21 and .34) and MEAP scores (betas = .10 and .15). In Jussim's (1989) study, teacher perceptions of students' talent at math significantly related to both standardized test scores (beta = .17) and final grades (beta = .12); and teacher perceptions of performance significantly predicted changes in students' self-concept of math ability in the spring (beta = .11).

Results consistent with the perceptual bias hypothesis showed that teacher perceptions of students' effort significantly predicted grades (betas = .19 and .19) to a larger extent than they predicted standardized achievement test scores (betas = 0 and -.07). Teachers apparently assigned higher grades to students whom they perceived to be hard workers than to students whom they perceived to be lazy (see Jussim, 1989; Jussim & Eccles, 1992, for the basis for concluding that this represents bias rather than teachers simply rewarding hard-working students).

Teacher impressions were both accurate and inaccurate. Teacher impressions were largely accurate because they were most strongly based on appropriate factors: previous grades and standardized test scores, teacher perceptions of in-class performance, and student motivation (the multiple correlation of these factors with teacher expectation variables ranged from about .6 to .8). However, both studies showed that teacher expectations were biased by student gender. Teachers believed that boys were slightly more talented at math than girls (betas = .07 and .08) even though there was no gender difference in standardized test scores; girls received slightly higher grades than boys; and the analyses controlled for any differences in performance and motivation. Teachers also believed that girls tried harder than boys (betas = -.15 and -.11), even though there were no gender differences in self-perceptions of effort or time spent on homework and even though the analyses controlled for differences in performance and motivation. These results provided evidence of a small but consistent pattern of gender bias in teacher perceptions of students' effort and talent at math. Results from both studies also provided considerable evidence of predictive accuracy. The

zero-order correlations of teacher perceptions with MEAP scores ranged from .34 to .57, and the path coefficients ranged from -.07 to .15. The path coefficients relating teacher perceptions to MEAP scores accounted for about 20% to 30% of the zero-order correlations; the remaining 70% to 80% represented predictive validity without influence, that is, accuracy. There was a similar pattern for final grades. Zero-order correlations of teacher perceptions with grades ranged from .50 to .71. Path coefficients ranged from .04 to .34. The path coefficients relating teacher perceptions to grades accounted for about 30% to 40% of the zero-order correlations; the remaining 60% to 70% represented accuracy.

Jussim (1989) and Jussim and Eccles (1992) address some of the major ambiguities and limitations in previous path analytic studies. Teacher expectations were assessed in early October, reducing the likelihood that teachers could accurately perceive clear achievement discrepancies in the current year as compared to the previous year. In addition, Jussim and Eccles are among the few studies that include multiple measures of teacher expectations and grades and standardized test scores. These are the only studies to include multiple measures of motivation. When many potential sources of spurious relations are included in a model, path coefficients are more likely to reflect influences of teacher expectations on student achievement.

NATURALISTIC STUDIES OUTSIDE OF THE CLASSROOM

Berman (1979)

Berman assessed relations among clinicians' expectations for their clients and the outcome of therapy. Forty-four therapists were divided into 22 pairs. Each pair of therapists interviewed two patients. After the interview, Berman assessed each therapist's expectations regarding the outcome of therapy for the two patients they had interviewed. Each therapist then treated one of the two patients for 1 month. There were several outcome measures: therapist and patient reports of distress (global and specific), improvement, and self-concept; patient scores on a clinical questionnaire (the Hopkins Symptom Checklist); and therapist ratings of the patients on a scale assessing psychiatric symptoms (the Brief Psychiatric Rating Scale). If therapists' expectations were accurate, they should predict (correlate with) the outcome of the patients they did not treat. There was no evidence of accuracy. Therapist expectancy did not significantly correlate with any outcome measures for the

patients they did not treat. If therapists' expectations created self-fulfilling prophecies, they should have correlated more strongly with the outcome of the patients they did treat than with the outcome of the patients they did not treat.

The results regarding self-fulfilling prophecy were mixed. Among the patients they did treat, therapists' expectations significantly correlated (around .3) with two of the five patient-reported outcome measures but with none of the five therapist-reported outcome measures. There also was no evidence of perceptual bias. If therapists' expectations biased their interpretations of patient outcomes, then they should have correlated more strongly with therapists' own ratings of the patients' improvement and distress than with patients' ratings. However, therapist expectations predicted patient-reported outcomes more strongly than therapist-reported outcomes.

The implications of this study are limited by the small sample, the brief time frame, and the lack of an independent assessment of patient outcome. However, it is an important study. The methodology of having perceivers provide expectations for targets and then interact only with a subset of those targets may be extremely useful for disentangling self-fulfilling prophecy, perceptual bias, and accuracy in other settings. In addition, the modest expectancy effects are consistent with results obtained from the classroom studies.

Eccles and Colleagues

Eccles and her colleagues have done a series of studies looking at the potential impact of parents' expectations for their children's performance on children's self-perceptions and expectations. Although these studies do not use course grades or achievement on standardized tests as the outcome variable, they are relevant to this chapter because they use the primary psychological predictors of achievement performance according to most theories of motivation and achievement.

(Eccles) Parsons, Adler, and Kaczala (1982)

(Eccles) Parsons, Adler, and Kaczala (1982) involved 270 fifth- to twelfth-grade students and their parents from southeastern Michigan. Although extensive information was gathered from the participants, we focus here on those aspects of the study most directly relevant to the model presented in Figure 4.1. Multiple measures assessed parents' perceptions of their chil-

dren's math ability and difficulty in math. Comparable items assessed the adolescents' own expectations and ability self-concepts. The adolescents' prior math grades and math test scores were used as independent indicators of the adolescents' math aptitude. Parents' ratings of their children's math ability and of the difficulty of math for their child were reasonably accurate. The betas for the association of these perceptions with the child's past performance in math ranged from $-.36$ (for the difficulty items) to $.53$ (for the ability/expectancy items). In turn, parents' perceptions significantly related to adolescents' own ability self-concepts (betas ranged from $.37$ to $.53$). Finally, and most important for this chapter, despite the fact that past performance was significantly correlated with the adolescents' ability self-concepts and expectations (r s ranged from $.25$ to $.34$), the Path C coefficient (the link between prior grades and the adolescents' own ability self-concepts and expectations once parent expectations are entered into the path model) was nonsignificant for each of the adolescents' self-ratings.

Although this study provides preliminary evidence consistent with a self-fulfilling prophecy interpretation, it also provides evidence of accuracy in parents' expectations. It also does not control for the adolescents' prior self-perceptions, and the study was not longitudinal. Consequently, the possibility that the adolescents' own prior self-concepts and expectations are responsible for the association between their parents' expectations and their own subsequent self-concepts cannot be ruled out. This problem was dealt with in the studies summarized next.

*Eccles et al. (1991), Eccles (1993), and
Eccles, Yoon, Wigfield, and Harold (1993)*

This series of studies replicated the (Eccles) Parsons et al. (1982) study on a sample of 1,500 families of sixth- and seventh-graders, extended the domains to English and sports, and used the longitudinal results of the replication sample (the Michigan Study of Adolescent Life Transitions—MSALT) and two additional longitudinal studies to do cross-lagged analyses of possible reciprocal causal relations between parent and child expectations. Parents' expectations for their children's math and English ability and future performance were strongly related to the children's previous performance in these subjects and to the current teachers' rating of the children's ability (betas ranged from $.48$ to $.64$). Parents' expectations were also significantly related to the children's rating of their own abilities in each domain (betas, controlling for teachers' ratings, ranged from $.20$ to $.38$). Finally, despite sig-

nificant zero-order correlations between teachers' ratings and children's ability self-concepts, these relations (the Path A coefficients) were nonsignificant once parents' expectations were entered into the model. However, like the (Eccles) Parsons et al. (1982) study, these replications suffered from the omission of an indicator of the children's prior ability self-concepts.

Eccles (1992) and Eccles, Yoon, Wigfield, and Harold (1993) used cross-lagged structural equation modeling to deal with this problem. First, using just the subjects from MSALT, these investigators estimated the path coefficients for the model illustrated in Figure 4.2. Figure 4.2 shows the path coefficients for sons in the domain of math. Similar results emerged for both sons and daughters in math, English, and sports. In all three domains, both mothers' and children's perceptions of the children's ability were strongly related to the teacher's assessment of the child's ability, suggesting that there is a strong element of accuracy in these expectations. In addition, by Grade 6 both mothers' and children's perceptions of the children's ability were quite stable over a 6-month period (the time between Wave 1 and Wave 2). Finally, and most important for assessing the self-fulfilling prophecy hypothesis, the relation of mothers' expectations at Wave 1 to children's self-perceptions at Wave 2 was significant in each domain, but the relation of children's expectations at Wave 1 to mothers' expectations at Wave 2 was not. This shows that parents' expectations produce changes in the children's self-perceptions over time, not vice versa.

Eccles et al. (1993) replicated these cross-lagged analyses across ages by using information from three similar longitudinal studies. The first study included approximately 300 children initially in Grades 1, 2, and 4. The second study was the MSALT study already described. The third study involved 260 children in Grades 5 to 6 and 9 to 12. Interesting developmental differences emerged. In Grades 2 through 6, results were similar to those reported in the paragraph above. The betas for the time 1 mother to time 2 child path ranged from .23 to .28. In contrast, these beta coefficients were not significant for children initially in Grade 1 or Grades 9 to 12. For these children, there was no evidence of a self-fulfilling prophecy effect for mothers' expectations.

Taken together, these results suggest that although parents' expectations for their children's ability may be largely accurate, parents' expectations also influence their children's ability self-concepts and expectations for future performance. However, these studies, too, may overestimate self-fulfilling effects of parents' expectations. Parents may use other cues, such as their perception of their children's motivation and interest, when they form their

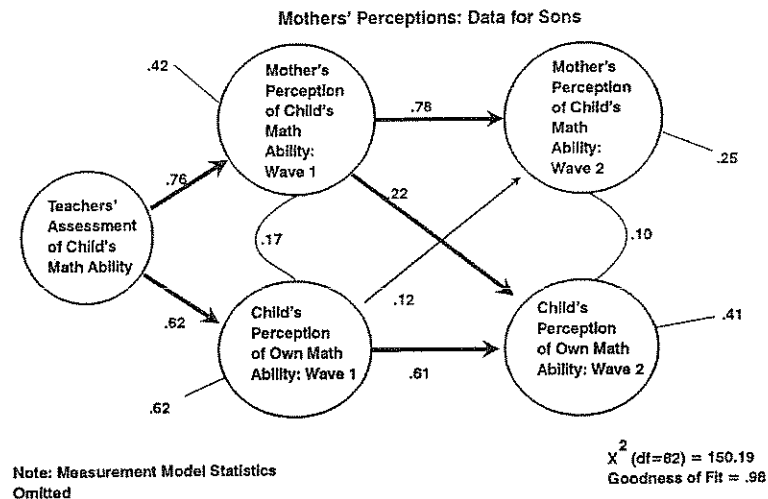


Figure 4.2. Cross-Lagged Structural Equation Modelling of Causal Directions and Mediating Influence

expectations for their children. If so, then these analyses also suffer from the omitted variable problem. Future research needs to examine this possibility.

Jacobs and Eccles (1992)

Many theoreticians argue that self gender-role stereotypes create self-fulfilling prophecies that lead to gender differences in adolescents' achievement expectations and self-perceptions of ability (see Eccles, Jacobs, & Harold, 1990). Jacobs and Eccles (1992) explicitly tested this prediction. Eccles et al. (1991) and Eccles (1992) present evidence that, by the time children are in Grade 6, parents have gender-stereotypic perceptions of their children's ability and future potential in math, English, and sports. Are these differences accurate or biased, and do they relate to children's own ability self-concepts once an independent rating of the children's actual ability is taken into account? Jacobs and Eccles's (1992) research was designed to answer these questions, using data from MSALT. In addition to the measures already reported, parents in MSALT indicated the extent to which they endorsed tradi-

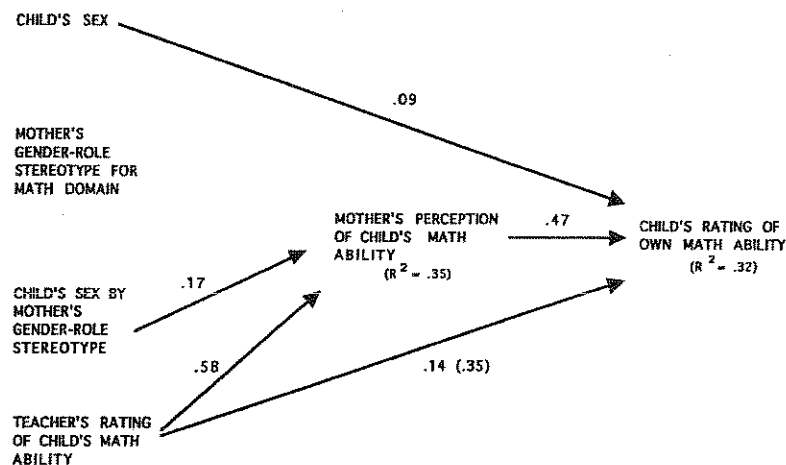


Figure 4.3. Moderating Effect of Mother's Gender-Role Stereotype for the Math Domain on the Impact of Child's Sex on Mother's Perceptions of Her Child's Abilities in Math
SOURCE: Data from Jacobs and Eccles (1992).

tional gender-role stereotypes regarding the ability of males and females in math and sports, and the relative importance of having high ability for males and females in each of these domains. The extent to which parents endorsed the traditional gender-role stereotypes was estimated, with scores ranging from no endorsement (egalitarian beliefs) to strong endorsement. Path analyses then estimated the various effects illustrated in Paths A, B, and C in Figure 4.1. Several background characteristics of both the target and the perceiver were taken into account. The specific model estimated for the math domain is shown in Figure 4.3.

The impression accuracy hypothesis predicts a significant relation between an independent indicator of the child's ability and the perceiver's expectation (in this case the mothers' ratings of their children's math ability). This prediction was confirmed. The expectancy bias hypothesis predicts a significant child-sex-by-parental-stereotyping interaction once the effect of the teacher rating and child sex has been controlled. Again this prediction was confirmed. By controlling for both child's sex and the teacher's ratings of each child's ability, this analysis controls for the possibility that the zero-

order relation of children's sex to mothers' rating of their children's math ability reflects accuracy. The results suggest that there is a small element of bias (inaccuracy) in the mothers' expectations. The fact that the path from the mothers' expectations to the children's own ability self-perception is substantially larger (beta = .47) than the direct path from the teachers' rating to the children's ability self-concept (beta = .14) is consistent with a self-fulfilling prophecy hypothesis. Similar results emerged for sports.

Jacobs (1992)

Using data from the third study described under Eccles et al. (1993), Jacobs (1992) employed path analyses to examine the link between parents' expectations and children's math grades. Jacobs first assessed the relation of mothers' (and fathers') expectations for children's future performance in math to the children's previous math grade; these relations were strong (betas were .41 and .53, respectively). She then assessed the relation of both previous grade and mothers' (fathers') rating on the children's own future expectations. Like the other studies presented thus far, Jacobs found significant betas for all four relations, with the betas from each parents' expectation being larger (.37 for mothers and .43 for fathers) than the betas from previous grades (.24 for mothers and .19 for fathers). Finally, she regressed the children's year-end math grade on their mothers' (fathers') expectation, their own expectation, and their previous grade. Year-end grade was more strongly related to parents' expectations (.34 for mothers and .28 for fathers) than to either the children's own expectation (.22) or to previous grade (.25). These results show substantial impression accuracy, some predictive accuracy, and small self-fulfilling prophecy. However, like the other studies in this series, this study potentially suffers from the omitted variable problem by not including children's prior motivation and interest.

Frieze, Olson, and Russell (1991)

Although Frieze, Olson, and Russell (1991) focused on relations between physical attractiveness and income, this study is included here because the authors frame their predictions almost entirely in self-fulfilling prophecy terms. On the basis of experimental research showing that people often view attractive targets more favorably than unattractive targets and that these views can be self-fulfilling (see reviews by Hatfield & Sprecher, 1986;

Snyder, 1984), these authors predicted that attractive recipients of master's in business administration (MBAs) would receive higher starting salaries than unattractive MBAs, and that these differences would increase over time. Four raters evaluated the attractiveness of MBAs based on head-and-shoulders photographs in a picture book taken early in students' matriculation in their MBA program. Questionnaires were sent to more than 2,000 MBAs who graduated between 1973 and 1982. More than 70% responded and Frieze et al. had pictures of 737 of those. Analyses were based on this sample.

Frieze et al. estimated separate regression equations for men and women. Starting salaries were predicted from attractiveness, years of full-time work prior to receiving the MBA, and the year in which subjects took their first full-time job after receiving the MBA (to control for real time differences in salaries). A second set of analyses added height and whether or not the MBA was overweight as predictors of starting salary. Analyses partially supported the self-fulfilling prophecy hypothesis. Attractive men received significantly higher starting salaries than unattractive men, but attractiveness was not significantly related to the starting salaries of women. The second analysis showed that more attractive and less overweight men received significantly higher starting salaries, but again there were no effects of attractiveness or weight for women. A third set of analyses showed that physical attractiveness significantly predicted subsequent salaries for both men and women. Frieze et al. concluded that their research confirmed that "underlying beliefs about people based on their physical appearance affect their judgments and behaviors toward those individuals" (p. 1053).

Several important limitations, however, may undermine the viability of this conclusion. Perhaps most important, there was no assessment of employers' expectations for individual employees. The study clearly shows that MBAs' physical attractiveness predicts subsequent income. Whether this effect is mediated by employers' physical attractiveness stereotypes, however, is unknowable given the data available in this study. Further, the study likely suffers from at least one omitted variable problem. More attractive adults are in fact more socially skilled than less attractive adults, and self-fulfilling prophecies are unlikely to account for these social skill differences (Feingold, 1992). More socially skilled MBAs might deserve and receive higher salaries than less socially skilled MBAs. Finally, Frieze et al. also report only unstandardized regression coefficients and *t* values; no information is provided regarding means, standard deviations, correlations, or stan-

dardized coefficients. This renders it difficult to compare their results with those of other studies or to compare the extent of self-fulfilling prophecy versus accuracy. However, results seem to provide considerable evidence of accuracy. In nearly all models, the work-experience variables significantly and substantially predicted income. Further, the *t* values for these effects were generally much higher than those for attractiveness, height, and weight.

ACCUMULATION OF EXPECTANCY EFFECTS

Even small self-fulfilling prophecy effects, if they accumulate over time, might lead to large differences between targets of high versus low expectations. The idea that self-fulfilling prophecy effects accumulate over time lies at the heart of claims emphasizing the power of social beliefs to create social reality (e.g., Snyder, 1984). Consider a hypothetical example in which teachers' high expectations increase an average student's IQ by 3 points each year, and teachers' low expectations decrease an average student's IQ by 3 points each year. If this occurs each year from first grade through sixth, a student with an originally average IQ of 100, but who was the target of high teacher expectations, would have an IQ of 118. An originally identical student who was the target of low teacher expectations would have an IQ of 82 by the end of sixth grade. Such is the power of "small" effects that accumulate. But do expectancy effects actually accumulate? Perhaps they dissipate over time. Even if a teacher does create a 6-point IQ difference between two students, perhaps the next year that difference will lessen or disappear completely. We know of only four studies that have empirically assessed accumulation of expectancy effects.

Rosenthal and Jacobson (1968)

Rosenthal and Jacobson (1968) manipulated teachers' expectations in the first year by randomly selecting students and designating them as "late bloomers." However, in the second year, teachers developed expectations without direct intervention by the experimenters. The accumulation hypothesis predicts that there would be greater differences between late bloomers and controls in the second year than in the first year. In fact, the opposite was found: The differences between these students significantly declined after 2 years. On average, late bloomers had a 3.80 IQ point advantage over con-

trols at the end of the first year, but only a 2.67 IQ point advantage at the end of the second year.

Rist (1970)

Rist (1970) followed a class of kindergarten students through second grade. Unfortunately, however, he provided no quantitative information regarding students' learning, IQ scores, or achievement in first or second grade. Thus it is impossible to determine clearly whether expectancy effects accumulated. Although Rist concludes that he observed a rigid castlike system based on social class, which suggests large and powerful accumulation effects, his observations actually suggest dissipation instead. As did the kindergarten teacher, the first-grade teacher assigned students to three tables (apparently according to her beliefs about the smart, average, and dumb students). All of the Table 1 ("smart") students in kindergarten were assigned to Table A in first grade. However, students at Tables 2 and 3 in kindergarten were all assigned to Table B. Thus, if table assignment is the criterion, kindergarten differences between Tables 2 and 3 disappeared by first grade, although differences between those children and Table 1 students were maintained. Rist reports further reduction of apparent differences in second grade. Again, the Table A students were all assigned to their own table (they were referred to as "Tigers"). Students from Tables B and C were assigned to a second table (referred to as "Cardinals"). None of the students from first grade were assigned to the "slow" table (called "Clowns"). In addition, Rist observes that in January, two of the Tigers were moved to the Cardinals' table, and two of the Cardinals were moved to the Tigers' table. Thus, although some of the differences among students in kindergarten were maintained through second grade, overall differences among the groups seem to have declined.

West and Anderson (1976)

West and Anderson (1976) included data on students in freshman, sophomore, and senior years of high school. The accumulation hypothesis predicts that the coefficients relating freshman year teacher expectations to senior year achievement will be larger than those relating to sophomore year achievement. However, the results supported the dissipation hypothesis: The coefficient relating freshman year teacher expectations to senior year

achievement (.06) was smaller than the coefficient relating to sophomore year achievement (.12).

Frieze et al. (1991)

Frieze et al. (1991) addressed the accumulation issue by comparing the extent to which MBAs' attractiveness predicted starting salary versus salary in 1983. The unstandardized coefficients relating attractiveness to 1983 salary (2.60, 2.13 for men and women, respectively) were higher than those relating to starting salary (1.13, 0.28). Although these results are consistent with the accumulation hypothesis, they are also consistent with the social skills interpretation discussed earlier. Perhaps attractiveness differences in income increase over time (in part or in total) because attractiveness is a proxy for social skill. More socially skilled MBAs are likely to be more capable and deserving managers, administrators, and executives. Therefore, they would also be likely to receive higher salaries than their less socially skilled peers.

ARE EXPECTANCY EFFECTS UNIMPORTANT?

Although self-fulfilling prophecies and perceptual biases may not be as large as once claimed, nor are they trivial. A naturally occurring effect of "only" .2 means that, on average, of all targets of high expectations, 10% show substantial improvement and, of all targets of low expectations, 10% show substantial decreases in performance (see Rosenthal, 1984). Most researchers agree that such effects are important (e.g., Brophy, 1983; Jussim, 1990, 1991; Rosenthal & Jacobson, 1968). One way to get a sense of just how important this might be is to consider the effect as if it were the result of a large-scale social program (Rosenthal & Jacobson, 1968). A program that led 10% of the students who had been performing below average to perform above average probably would be viewed as a major accomplishment; a social policy that undermined students' performance so that 10% of those who had been above average achievers became below average probably would be considered an outrage. In addition, even though accuracy may prevent self-fulfilling prophecies from pervading and dominating dyadic social interactions, stereotype-based expectations may create differences between social

groups (based on gender, ethnicity, social class) where none previously existed. This is the power of "small" expectancy effects.

FACTORS MODERATING EXPECTANCY EFFECTS

The small expectancy effect sizes in the naturalistic studies represent average effect sizes. It is likely that there are conditions under which expectancy effects are much larger or smaller. The experimental laboratory evidence is reviewed elsewhere (e.g., Snyder, 1992; see Cooper & Hazelrigg, 1988, for a meta-analysis; see also Jussim, 1990, 1993, for general reviews of moderating factors). Although few naturalistic studies have addressed factors moderating expectancy effects, three factors seem likely: characteristics of the perceiver; characteristics of the target; and situational factors.

Perceiver Characteristics: Prejudice, Cognitive Rigidity, and Belief Certainty

Prejudiced individuals seem especially unlikely to be motivated to be accurate. Instead, they seem likely to prefer to conclude that members of a stigmatized group have negative, enduring attributes. People high in cognitive rigidity or belief certainty also may not be motivated to consider viewpoints different than their own. People high in cognitive rigidity or belief are similar in that they may be unlikely to alter their beliefs when confronted with disconfirming evidence. Whether the source is prejudice, cognitive rigidity, or belief certainty (which may tend to co-occur within individuals—see Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950), people overly confident in their expectations may be most likely to maintain biased perceptions of individuals and to create self-fulfilling prophecies.

Target Characteristics

Self-Concept

When people have unclear self-perceptions, they are more susceptible to all sorts of social influence, including self-fulfilling prophecies. In contrast, when people have clear self-perceptions, they are not only less likely to fulfill

others' expectations, but they often convince perceivers to view them much as they view themselves (see Jussim, 1986, 1990, 1993, for reviews).

Age

There are several reasons why age might be an important moderator. First, to the extent that targets need to understand the perceiver's expectations, cognitive maturity is an important moderator. Second, targets' confidence in their self-perceptions is likely to vary with age. Children between ages 4 and 7 are very positive and very confident in their ratings of their own abilities. Consequently, they may be less influenced by the subtle types of messages associated with some self-fulfilling prophecy mechanisms. However, by Grade 2 some of this confidence begins to wane and, because children at this age have had limited experience on which to base their estimates of their own academic abilities, children between Grades 2 and 6 may be especially susceptible to teacher expectancy effects. In contrast, given their cognitive maturity, their social comparison abilities, and the number of years of experience they have had to form their ability self-concepts, high school students may be less susceptible to erroneous teacher expectancies. Finally, children of different ages are more or less likely to undergo various life transitions. The impact of new situations and transition is discussed below.

Unfortunately, few researchers have looked at age as a moderator variable. Self-fulfilling prophecies were strongest among the youngest students in the original Rosenthal and Jacobson (1968) study, suggesting that younger children may be more malleable than older children and adults. However, a meta-analysis shows that the strongest teacher expectation effects occur in first, second, and seventh grade (Raudenbush, 1984). Further, the largest self-fulfilling prophecy effects yet reported were obtained in a study of adults (Eden & Shani, 1982). In Eccles et al.'s (1993) study of parents' expectations, larger expectancy effects were found in Grades 2 to 6 than in Grades 1 or 9 to 12. Although these findings do not deny a moderating role for age, they suggest that situational factors may also influence targets' susceptibility to self-fulfilling prophecies.

It also seems likely that targets' perceptions of the legitimacy of the perceivers' evaluations would affect the extent to which the target paid attention to messages from the perceivers about the target's abilities. Again this possible moderator is likely to vary with age and the specific role of the perceiver. It is also likely to vary with the status differential between the target and the perceiver. We know of no studies that have assessed these hypotheses.

Situational Factors

People may be more susceptible to confirming others' expectations when they enter new situations. Whenever people undergo major life transitions, such as entering a new school or starting a new job, they may be less clear and confident in their self-perceptions. As previously discussed, unclear self-perceptions render targets more susceptible to confirming perceivers' expectations. This analysis may help explain the seemingly inconsistent findings regarding age. Students in first, second, and seventh grade and new military inductees are all in relatively unfamiliar situations. Therefore, all may be more susceptible to self-fulfilling prophecies than other students or adults in more familiar surroundings. This may also account for Eccles et al.'s (1993) finding of minimal effects of parents' expectations in Grades 9 to 12 (by this time, students usually have clear ideas about their academic and athletic abilities).

Why were there larger effects in Eccles et al.'s (1993) study in Grades 2 to 6 than in first grade? Perhaps parents become more involved in students' schoolwork in Grades 2 to 6 than in first grade. There may be less academic work, such as homework and papers, in first grade than in later elementary school grades. Receiving larger amounts of parental time and attention focusing on schoolwork may be relatively new for most younger children, who might therefore be more susceptible to confirming their parents' expectations. Greater involvement also provides parents with greater opportunity to act on their expectancies and to influence their children. Alternatively, as we discussed earlier, perhaps younger children are simply insensitive to the types of subtle messages parents might be communicating about their view of their children's abilities.

CONCLUSION

This review yields several broad conclusions and suggests important directions for future naturalistic research on expectancy effects. First, perceivers' naturally developed expectations sometimes create self-fulfilling prophecies and perceptual biases. Expectancy effects clearly occur in educational settings and between parents and children. Although studies suggest that naturally occurring expectancy effects may also occur in clinical and business settings (Berman, 1979; Frieze et al., 1991), this research has sufficient limitations to render premature any conclusion about the size or even

the existence of expectancy effects in these contexts. Additional research on naturally occurring expectancy effects outside of the classroom is greatly needed.

The evidence across the entire set of studies reviewed also clearly indicates that naturalistic self-fulfilling prophecies and perceptual biases tend to be relatively modest in size, ranging from about .1 to about .3 (although some studies fail to show any evidence of self-fulfilling prophecy—Rist, 1970, and Williams, 1976; and others show no evidence of perceptual bias—Berman, 1979, and Seaver, 1973). Further, with the exception of Berman (1979), all studies that provide evidence about accuracy (Brattesani et al., 1984; Eccles, 1992; Eccles et al., 1991; Eccles et al., 1993; Eccles Parsons, Adler, & Kaczala, 1982; Frieze et al., 1991; Jacobs, 1992; Jacobs & Eccles, 1992; Jussim, 1989; Jussim & Eccles, 1992; Parsons, Kaczala, & Meece, 1982; West & Anderson, 1976; Williams, 1976) show more evidence of accuracy than of self-fulfilling prophecies or perceptual biases. The difference in perceiver accuracy between Berman's (1979) study and the teacher expectation studies may have broader implications for understanding the nature of accuracy in person perception. Berman's (1979) therapists generated expectations after a single 30-minute session with their patients, but teachers often had weeks, and sometimes months, to observe students in the education studies. In general, it seems likely that initial impressions of targets based on limited information are far less likely to be accurate than impressions based on rich and extensive information obtained within the context of ongoing social relationships lasting weeks, months, or more.

Both the naturalistic studies and the meta-analyses (e.g., Rosenthal & Rubin, 1978; Smith, 1980), which focused primarily on experiments, converge on the conclusion that although expectancy effect sizes may occasionally be quite large, they are generally quite small. Social psychological perspectives on expectancy effects were once dominated by claims emphasizing their power and pervasiveness (see Jussim, 1991, 1993, for reviews). Neither the experimental nor naturalistic evidence, however, supports such claims. Despite the current lack of support, it remains possible that there are conditions under which naturally occurring expectancy effects are pervasive and powerful. Although small expectancy effects hypothetically may accumulate to create large differences among targets, existing research provides more evidence that expectancy effects dissipate over time than that they accumulate. Of course, even the typically "small" effects are practically and theoretically important. Unfortunately, however, few naturalistic studies have examined the conditions under which expectancy effects are large or

small. Given the potential to contribute to social and intellectual development, inequality, and injustices, we believe an important challenge for future research is to identify naturally occurring conditions under which expectancy effects are powerful and pervasive.

NOTE

1. Throughout this chapter, whenever we use the term *effect size*, we refer to the correlation coefficient, *r*, except where otherwise noted.

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