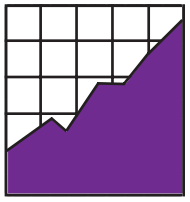
Synthesis Report 55

# Expectations for Students with Cognitive Disabilities: Is the Cup Half Empty or Half Full? Can the Cup Flow Over?



NATIONAL CENTER ON EDUCATIONAL OUTCOMES

*In collaboration with:*

Council of Chief State School Officers (CCSSO)

National Association of State Directors of Special Education (NASDSE)

**Synthesis Report 55**

# Expectations for Students with Cognitive Disabilities: Is the Cup Half Empty or Half Full? Can the Cup Flow Over?

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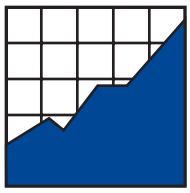

**NATIONAL CENTER ON EDUCATIONAL OUTCOMES**

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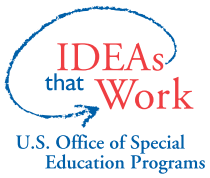


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## Executive Summary

To make informed decisions about the best instruction and assessments for students with cognitive disabilities, several questions need to be answered. For instance, how many students with cognitive disabilities can be expected to achieve the same level of proficiency as other students? To what extent can we predict who these students are? Can we discern whether a student's failure to meet proficiency is due to the student's disabling condition or lack of appropriate instruction? Finally, what effects do teacher expectations have on student achievement?

This report addresses these questions, and includes an analysis of nationally representative cognitive and achievement data to illustrate the dangers in making blanket assumptions about appropriate achievement expectations for individuals based on their cognitive ability or diagnostic label. In addition, a review of research on the achievement patterns of students with cognitive disabilities and literature on the effects of teacher expectations is included.

The literature raises numerous issues that are directly relevant to today's educational context for students with disabilities in which both the Individuals with Disabilities Education Act (IDEA) and the No Child Left Behind (NCLB) Act of 2001 are requiring improved performance. Particularly for those students with cognitive disabilities, the information on expectancy effects should cause us much concern. Is it possible that expectancy effects have been holding students back in the past? Are we under the influence of silently shifting standards, especially for students with cognitive disabilities? It is anticipated that the information in this report will help guide decisions about appropriately high and realistic academic expectations for students with cognitive disabilities.

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## Introduction

Over the past 30 years the United States has slowly and steadily clarified the meaning of access to a free and appropriate public education (FAPE) for students with disabilities. Today's interpretation of FAPE certainly differs from that of 1975 when the Education for All Handicapped Children Act initially was passed into law (EHA, 1975), and even from 1990 when the reauthorization of EHA changed the name to the Individuals with Disabilities Education Act (IDEA, 1990). Case law (e.g., *Board of Education of the Hendrick Hudson Central School District v. Rowley, 1982*), subsequent amendments to IDEA, federal regulations, and guidance continue to create expectations about the extent to which students with disabilities are expected to benefit academically from their education. Unfortunately, there is still limited consensus among educators regarding appropriate achievement expectations for students with disabilities, particularly those with cognitive disabilities.

A concern about low expectations and the need for high expectations was reflected in the IDEA's 1977 Preamble: "Over 20 years of research has demonstrated that the education of children with disabilities can be made more effective by (A) having high expectations for such children and ensuring their access to the general education curriculum to the maximum extent possible . . ." (IDEA, 1997, § 601). IDEA 1997 clarified that all students with disabilities are to have access to instruction focused on the same skills and knowledge as all other students, and that their achievement is to be measured with the same district and statewide assessment programs as used for all students (and, adding an alternate assessment for those students unable to participate in the general assessment).

The *No Child Left Behind (NCLB) Act of 2001* further clarified that schools are to be held accountable for the adequate yearly progress (AYP) of all groups of students. NCLB specifically requires the disaggregation of assessment data for specified subgroups, including students with disabilities. The intended purpose of NCLB is "to ensure that all children have a fair, equal, and significant opportunity to obtain a high quality education and reach, at a minimum, proficiency on challenging State academic achievement standards and state academic assessments" (NCLB, 2001, § 1001). In other words, the expected educational outcomes for students with disabilities, or for any other subgroup of students, are the same high expectations held for all students.

Although data show that some students with disabilities are reaching the state-determined level of proficiency, many students with disabilities are still far from performing at this level (Thurlow & Wiley, 2004). Students with disabilities participate in proficiency assessments in three primary ways: (1) participation in the general assessment without accommodations, (2) participation in the general assessment with accommodations, and (3) participation in an alternate assessment. Federal regulations released December 9, 2003 clarified that an alternate assessment could be based on alternate achievement standards for students with significant cognitive disabilities.

Alternate assessments could also be based on grade-level achievement standards. Both types of alternate assessments are to be aligned to content standards appropriate for the student's grade level of enrollment.

For NCLB accountability purposes, only up to one percent of all students (approximately nine percent of students with disabilities) can be counted for AYP as proficient or advanced based on alternate achievement standards (with possible exceptions for states or districts if certain conditions are met). Thus, with the exception of students working toward alternate achievement standards, (described in the December 9, 2003 regulation as those with significant cognitive disabilities), all students with disabilities are to be held to the same grade-level achievement standards as their peers without disabilities.

Many educators have grown increasingly concerned about the performance of students with cognitive disabilities who are appropriately working toward grade-level achievement standards, but whose current performance is far from a proficient level on grade-level achievement standards as measured by current statewide assessments. Considerable controversy surrounds the issue of what can and should be expected for these students. Some people argue that the vast majority of students with disabilities, when given appropriate access to high quality curriculum and instruction, can meet or exceed the levels of proficiency currently specified. Many special education advocates believe that subscribing to the same high expectations and accountability for student progress will ultimately lead to improved instruction and learning for all students. Others argue that a student's disability will ultimately prevent the student from attaining grade-level achievement standards, even when provided appropriate instruction and accommodations. This latter group believes that it is unjust to punish schools when these students fail to perform at the proficient level.

The discrepant "expectations" arguments reflect very different perspectives regarding the nature of cognitive disabilities. These two perspectives have existed for many years. To make informed decisions about the best instruction and assessments for students with cognitive disabilities, several questions need to be answered. For instance, how many students with cognitive disabilities can be expected to achieve the same level of proficiency as other students? To what extent can we predict who these students are? Can we discern whether a student's failure to meet proficiency is due to the student's disabling condition or lack of appropriate instruction? Finally, what effects do teacher expectations have on student achievement?

This report was prepared to begin to address these issues. It includes an analysis of nationally representative cognitive and achievement data to illustrate the dangers in making blanket assumptions about appropriate achievement expectations for individuals based on their cognitive ability or diagnostic label. In addition, a review of research on the achievement patterns of students with cognitive disabilities and literature on the effects of teacher expectations is included.

It is anticipated that the information in this report will help guide decisions about appropriately high and realistic academic expectations for students with cognitive disabilities.

## Overview

Few would argue that the concept of intelligence (IQ), and tests that measure the construct, have played a long and significant role in education, and special education in particular. The use of practical IQ tests is typically traced to the beginning of the century when Alfred Binet developed a battery of tasks to help identify children with learning difficulties (Neisser et al., 1996). Binet's goal was to develop a means by which to identify struggling students who would then receive remediation via "mental orthopedics." Clearly, Binet did not believe that his measure of intelligence quantified an innate or "fixed" ability. Binet was an optimist who believed that the ability "glasses" of children with lower ability were half full, and that their vessels could be filled further.

In stark contrast to Binet's optimistic position was that of English psychologist Sir Cyril Burt (1911). Burt's work was based on the then popular view that intelligence was a genetically based fixed entity. Burt's ideas influenced the design of educational systems that segregated children in different educational tracks based on ability. According to Burt, "capacity must obviously limit content. It is impossible for a pint jug to hold more than a pint of milk; and it is equally impossible for a child's educational attainments to rise higher than his educable capacity permits." Clearly Binet and Burt viewed the proverbial half-filled glass differently.

A final view, based on the 1994 feel-good movie *Forrest Gump*, can be considered the "cup overflowing" perspective. Briefly, this movie portrayed the fictitious life history of Forrest Gump, an individual who was classified in the mental retardation range early in school. The exchange between the school principal and Forrest's mother clearly illustrated an educational approach grounded in the Burt philosophy:

> School principal: "Your boy's... different, Miz Gump. His IQ's 75."
>
> Ms. Gump: "Well, we're all different, Mr. Hancock. He might be a bit on the slow side. He's not going to a special school to retread tires!"

Ms. Gump's response, and the subsequent string of life achievements of her son Forrest (e.g., star football player in college, world class ping pong player, Vietnam war hero, CEO of successful shrimp company) reflects the "cup flowing over" perspective on IQ test scores. That is, Forrest's achievements were beyond his measured IQ (which was below the average sized "jug" according to Burt).

When faced with students whose classroom performances or achievement test scores surpass their measured (or implicitly estimated) IQ scores by significant amounts, laypersons and professionals (e.g., educators and psychologists) frequently demonstrate an implicit subscription to a Burt philosophy that a person can achieve only up to his or her level of intelligence when they characterize Gump-like students as "overachievers." Ms. Gump's implicit intelligence conception, which was subsequently manifested in Forrest's accomplishments, would suggest that there is more to school learning than the size of a child's "IQ cup or jug"—other variables contribute to achievement.

Half-full or half-empty? Filled to-the-brim or the cup flowing over? Which intelligence-learning metaphor is correct? Burt versus Binet/Gump? Who should be believed during the current standards-driven educational reform fueled by the mantra that "no child shall be left behind" (NCLB), and that all children should reach grade level standards. More importantly, which philosophy should guide educational expectations for students whose primary special education classification is tied closely to IQ scores below the normal range (i.e., students with mental retardation or cognitive disabilities)? Should educational expectations for students with cognitive disabilities be grounded in a Burt philosophy (i.e., expect academic performance and achievement no higher than the student's estimated cognitive ability), or should expectations be based on the more optimistic Gump philosophy (i.e., it is possible for students with cognitive disabilities to achieve higher than their IQ test score and at grade level)? Is the Gump philosophy (i.e., a child's IQ cup can overflow) nothing more than a Pollyannaish belief based in fiction?

The primary purpose of this paper is to address the formation of appropriate expectations for students with cognitive disabilities by exploring the known empirical relations between intelligence and school achievement. In addition, a review of the research literature on how *expectation effects*, which are often based on perceptions of student ability and implicit theories of intelligence, can influence student performance.

## Diversity within Disability Distributions

Probably no environment elicits individual differences sooner in life than formal education. In classrooms teachers strive to arrange conditions to elicit optimal performance among a diverse class of unique learners. However, due to the only true "law" in psychology (the law of individual differences), optimal learning conditions and techniques are not universal across learners.

This holds true for all learners—those with and without disabilities. It is important that students with disabilities not be saddled with group-based stereotyped low academic expectations. Just as the diversity of learning rates for students without disabilities is acknowledged, so it should be for students with disabilities. According to the 1997 National Research Council report *Educating One & All: Students with Disabilities and Standards-Based Reform*, "it is hard to talk

about asking students in special education to the meet the same standards and outcomes as everyone else without paying attention to their *varied characteristics* [italics added]" (Olson, 2004, p. 10).

The federally funded *Special Education Elementary Longitudinal* (SEELS) study, the first ever nationally representative longitudinal investigation of elementary students with disabilities (ages 6 to 12), recently provided empirical support for the diversity of achievement levels of students with disabilities. According to the SEELS project director, José Blackorby, the data indicate that "you can find kids with disabilities who are scoring right near the top—above the 80$^{th}$ percentile—and you you'll find some in the middle…and then a lot more kids in the lowest quartile. So it's heavily weighted toward the low end but there's quite a bit of diversity" (Olson, 2004, p. 10). Although students with disabilities, as a group, tend to achieve in the lower half of the distribution of achievement, "individuals with disabilities can be found across the full range of academic performance" (Olson, 2004, p. 10). What accounts for the diversity of learning among students with disabilities, and for that matter, among all students?

## IQ and Disability: The Misunderstood Common Denominator

Despite their diversity of characteristics, the majority (58%) of students receiving special education services under IDEA share a common experience—most have been classified as having a learning disability or cognitive impairment (mental retardation) with the aid of an intelligence test. Despite many disputes over competing theoretical conceptualizations of intelligence and the utility of intelligence test scores, even the most ardent critics recognize that IQ tests "predict certain forms of achievement—especially school achievement—rather effectively" (Neisser, 1995, p. 96).

Despite a defensible rationale for their early development and continued deployment in the schools (Beirne-Smith, Ittenbach, & Patton, 1998), many people have developed inaccurate perceptions of the power of IQ test scores. Many laypersons, educators, policymakers, and other professionals have developed the inaccurate belief, often reinforced by court decisions (Reschly, 1988), that measured intelligence is a genetically determined, largely fixed, global, and enduring trait that explains most of a student's success (or failure) in school learning. Such a Sir Cyril Burt conceptualization of intelligence can doom a student to low expectations if his or her IQ score is significantly below the norm. This fixed entity view of intelligence, summarized in the belief in the predictive power of the single global IQ score, represents the mental jug or cup being "half-empty" or "filled to the brim" philosophy. According to this view, to expect more academic achievement than a person's estimated or measured IQ score is simply not possible.

A recent *Education Week* (2004) national survey (*Count me in: Special Education in an Era of Standards*) of 800 special and general education teachers suggests that most educators implicitly

subscribe to the Burt IQ-potential philosophy. Eighty-four percent of surveyed teachers did not believe that students in special education should be expected to meet the same set of academic standards as students without disabilities. In addition, approximately 80% of the teachers felt that students with disabilities should not be included in the same state tests as students in general education, especially if the results are used for accountability purposes (Olson, 2004).

The surprising extent to which educators appear to hold alternative (and typically lower) standards and expectations for students with disabilities, although appropriate for many of these students, is troubling given the empirical reality of the predictive power of IQ test scores—scores that are often at the root of lowered expectations. Sir Cyril Burt's IQ-fixed potential legacy appears to be alive and well in America's schools (albeit not typically adopted maliciously or explicitly articulated).

Fortunately, decades of research on intelligence tests have repeatedly converged on a near unanimous consensus on the predictive accuracy of IQ test scores (Neisser, 1995). This consensus, which is explained next, indicates that it is time to "leave the Burt IQ-potential philosophy behind."

## Reality of the IQ-Achievement Relationship: Statistics Made Simple

In an era of standards-driven educational reform, educators and policymakers must recognize the truth about IQ test scores and the resulting disability categories that are based on a continuum of IQ test scores (e.g., mental retardation). The reality is simple. Given the best available theoretically and psychometrically sound, nationally standardized, individually administered intelligence test batteries, three statements hold true. Each of these can be explained in depth, and some of this explanation is provided in Table 1. For greater conciseness here, the statements that hold true are:

- IQ test scores, under optimal test conditions, account for 40% to 50% of current expected achievement.
    - Thus, 50% to 60% of student achievement is related to variables "beyond intelligence."
- For any given IQ test score, half of the students will obtain achievement scores at or below their IQ score. Conversely, and frequently not recognized, is that for any given IQ test score, half of the students will obtain achievement scores at or *above* their IQ score.

This last truism of intelligence test scores can be demonstrated via statistical equations or with real data. The second option is used here because it provides a more concrete explanation. The statistical explanation is provided in Table 1.

**Table 1. Explanations of Statements about the IQ-Achievement Relationship**

IQ test scores, under optimal test conditions, account for 40 % to 50 % of current expected achievement.

The typical range of reported concurrent IQ-achievement correlations is .40 to .70 (Reschly & Grimes, 1992), with the best batteries consistently displaying correlations from .60 to .70. Correlations of this magnitude are statistically significant and are among the strongest predictive relations reported across all fields of psychology. However, most laypersons, educators, policymakers, and other professionals, fail to recognize that the pragmatic "reality" of correlations is hidden from view. The critical "rubber-meets-the-road" IQ-achievement information lies in the amount of explained *achievement variance*, a value not directly apparent from a reported correlation. Rather, one simply needs to square a correlation (e.g., $.70^2 = .49$), multiply it by 100 (.49 x 100 = 49), and then tack a percentage symbol on the end (49 %). This value represents the amount of explained variance represented by a correlation. For example, an IQ-achievement correlation of .70 would indicate that "the amount of achievement variance accounted for by intelligence is approximately 49 %." A correlation of .60 accounts for approximately 40 % of achievement ($.60^2$ x 100 = 36 %).

50 % to 60 % of student achievement is related to variables "beyond intelligence."

It is beyond the scope of the current paper to review the extensive research on models of school learning that indicate that student intelligence and prior achievement are only two of a number of unique student characteristics (e.g., motivation, self-efficacy, social skills, self-regulatory learning strategies, etc.) that interact in a complex multivariate manner with quantity of instruction, quality of instruction, classroom climate, home environment, peer group, and exposure to mass media outside of school to produce academic learning (Neisser, 1995; Reynolds & Walberg, 1992; Walberg, Fraser & Welch, 1986). See McGrew, Johnson, Cosio and Evans, (2004) for a recent synthesis of essential non-cognitive academic facilitators (often collectively referred to as "conative" abilities) that explain additional portions of academic achievement above and beyond IQ.

**For any given IQ test score, half of the students will obtain achievement scores at or below their IQ score. Conversely, and frequently not recognized, is that for any given IQ test score, half of the students will obtain achievement scores at or *above* their IQ score.**

For statistically inclined readers, this truism of prediction is reflected in the *Standard Error of the Estimate ($SE_{est}$).* Given IQ and achievement tests on a scale with an $M$ = 100 and $SD$ = 15, and an IQ-Ach correlation of $r$, $SE_{est}$ = 15 x SQRT ($1-r^2$). If $r$ = .70 and $SD_{ach}$ = 15, then $SE_{est}$ = 10.7. In real world terms, this means, that for any IQ score for this particular IQ test, the expected/predicted achievement (after accounting for regression to the mean effects) would be bracketed by $\pm$ 10.7 points. That is, for any particular IQ score, 68 % of the population would be expected to show a range of 21.4 achievement standard score points (half above and half below the predicted achievement score). Stated differently, for any given IQ score, the predicted/expected achievement score would be bracketed with a "confidence of prediction band" of $\pm$ 10.7 standard score points.

Figure 1 presents a scatter plot of the general IQ and Total Achievement (average across reading, math, and written language) scores for "real" norm subjects from the standardization of the *Woodcock-Johnson Battery Third Edition* (WJ III; Woodcock, McGrew & Mather, 2001). As can be seen in Figure 1, there is a strong linear relation between IQ and achievement, as evidenced by a strong correlation of .75. For illustrative purposes, subjects with IQs ranging between 70 and 80 are designated in Figure 1.

**Figure 1. The Relationship Between General Intelligence and Total Achievement in a Nationally Representative Sample**

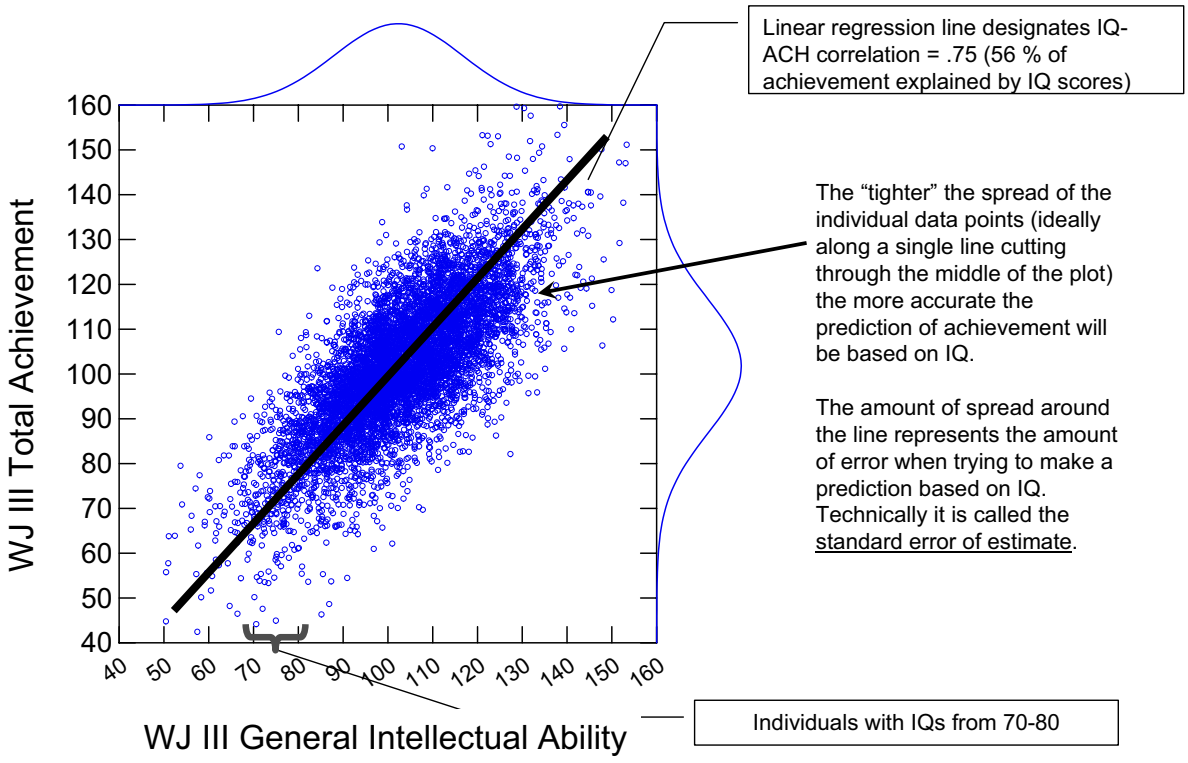


Figure 1. The relationship between general intelligence and total achievement in a nationally representative sample – these are REAL subjects from the WJ III standardization sample (McGrew & Woodcock, 2001) (Note. Scores are in standard score metric with Mean = 100, Standard Deviation = 15)

The data presented in Figure 1 are based on unpublished analyses of the WJ III standardization by the first author of the current paper (McGrew, et al., 2004).

**Figure 2. Distribution of WJ III Total Achivement Scores for WJ III Norm Subjects with IQs 70-80**

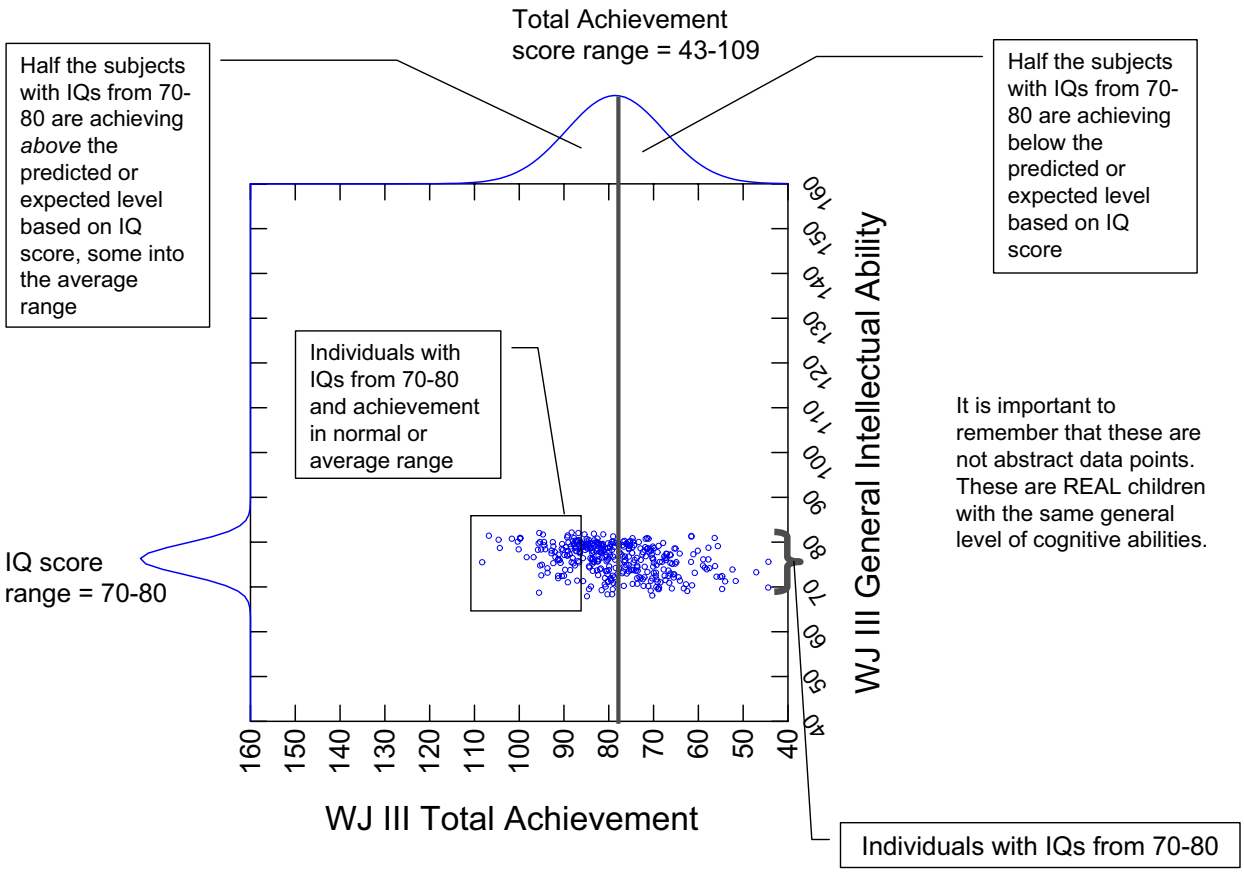


Figure 2. Distribution of WJ III Total Achievement scores for WJ III norm subjects with IQs 70-80. Note that the axes of this figure have been rotated from that in Figure 1.

The data presented in Figure 2 are based on unpublished analyses of the WJ III standardization by the first author of the current paper (McGrew, et al., 2004).

Figure 2, which is a rotated and "windowed" view of a select portion of the same data as are in Figure 1 (i.e., subjects with IQs from 70-80), clearly shows that even IQ tests that demonstrate some of the strongest correlations with achievement ($r = .75$) cannot be used to provide perfect estimates of predicted achievement for *individual* students. The range of total achievement scores displayed at the top of the Figure 2 illustrates that for subjects with IQs from 70-80, expected achievement scores range from a low of approximately 40 to a high of approximately 110. More importantly, the distribution of subjects (the data points) shows that half of the individuals with IQs between 70-80 achieve at or below IQ-predicted achievement, and the other half of these individuals score at or *above* IQ-predicted achievement.

The data presented in Figures 1 and 2 suggest that the proper metaphor for the IQ-achievement prediction relationship is that the "cup can flow over." The carte blanch assumption that all students with disabilities should have an alternative set of educational standards and an assessment system is inconsistent with empirical data. Known IQ-achievement prediction research reinforces the position of Martha Thurlow, the director of the National Center on Educational Outcomes, who stated that "we have a range of students who have disabilities, so I would adamantly reject, as a blanket statement, that students with disabilities can't meet the same achievement targets…I would say that's not the case for the broad majority of students with disabilities" (Olson, 2004, p. 10).

The only time when IQ test scores could be used to make perfect predictions about expected achievement for individual students would be when the IQ-achievement test correlation approaches a perfect 1.0. No intelligence test will ever reach this level of prediction, with the reported range of correlations of .40 to .70+ most likely representing a ceiling on IQ-based prediction. This range of correlations refers to ***concurrent*** correlations, where IQ and achievement tests are typically administered during the same period in time. The correlations between IQ test scores and future achievement (e.g., one year later) are typically lower than concurrent correlations, which makes the prediction of AYP (annual yearly progress) based on IQ test score (or disability status as a crude intelligence proxy variable) even less precise.

The current reality is that despite being one of the flagship developments in all of psychology (Embretson, 1996; Neisser, 1995), intelligence tests are fallible predictors of academic achievement. IQ test scores (and associated IQ-based disability category labels) are adequate, but not nearly sufficient metrics, by which to make reasonably precise predictions about any particular *individual* student's future expected achievement progress. It simply cannot be done beyond a reasonable doubt.

The fallibility of IQ tests, coupled with the enduring presence of the ghost of Sir Cyril Burt's deterministic IQ-achievement educational philosophy, in the context of today's high-stakes educational accountability environment, raises the specter of many children with disabilities being denied the right to appropriate and demanding expectations. Stereotyping students with disabilities (often on the basis of disability label or test scores) as a group that should be excluded from general education standards and assessments is not supported by the best evidence from current science in the field of psychological and educational measurement. The potential soft bigotry of setting a priori IQ or disability label-based low academic expectations (for students with disabilities) needs to be recognized, understood, and minimized, if all children are not to be left behind.

## Expectancy Effects: A Brief History and Literature Review

Since the 1970s, the notions of the "self-fulfilling prophecy" (SFP), the "Pygmalion Effect" (PE), and more recently, "expectancy effects" (EE), have become commonplace in the educational psychology literature. In general, these terms refer to similar phenomena. The research literature on teacher expectancy effects is large. For the purposes of the current paper, we have relied extensively on a number of key research syntheses, many that have included multiple meta-analyses. Key sources (and recommended reading) include Babad (1993), Cotton, (1999), Jussim, Madon, and Chatman (1994), and Spitz (1999).

Merton (1948) is recognized as the first to coin the term "self-fulfilling prophecy" (which has now evolved into the more general phenomena of "expectancy effects"; Jussim, Madon & Chatman, 1994; Spitz, 1999). According to Merton (1948), SFP occurs when an inaccurate definition of a situation elicits new behaviors which, in turn, make the originally inaccurate conception a reality. SFP is a compelling theory, largely because of its potential implications and elegant simplicity.

> The concept is simple enough: If we prophesy (expect) that something will happen, we behave (usually unconsciously) in a manner that will make it happen. We will, in other words, do what we can to realize our prophecy (Spitz, 1999, p. 200).

In most EE research, it is usually a person in a position of authority (e.g., an employer, medical professional, parent, teacher, etc.) who holds expectations about an individual (or group) under their supervision. According to the EE research, expectations expressed by an authority figure via verbal and nonverbal communication often influence the self-image and the behavior of the supervised person in such a way that the expectations held come to pass.

### Origins of Expectancy Effects

The "self-fulfilling prophecy" (SFP) has long been studied by sociologists and psychologists under various labels (Gozali & Meyen, 1970; Rosenthal & Jacobson, 1966; Wineburg, 1987; Zuroff & Rotter, 1985). SFP is also often referred to as the "Pygmalion Effect" which was drawn from the title of the original book (Rosenthal & Jacobson, 1968a; *Pygmalion in the Classroom*) that reported the phenomenon. SFP first appeared in early psychological research studies where it was demonstrated that experimenters could unwittingly influence the behavior of animal and human subjects during an experiment (Rosenthal & Jacobson, 1966). In 1968, Rosenthal and Jacobson substituted teachers for experimenters in order to investigate the effects of teachers' expectancies on the intelligence test scores of their pupils. The Rosenthal and Jacobson (1968b) study was designed to measure "whether those children for whom the teachers held especially

favorable expectations would show greater intellectual growth than the remaining or control-group children'' (p. 68) when evaluated approximately 5, 8, and 20 months later. Cotton (2001) provided a succinct summary of the original Pygmalion study:

> The Rosenthal/Jacobson study concluded that students' intellectual development is largely a response to what teachers expect and how those expectations are communicated. The original Pygmalion study involved giving teachers false information about the learning potential of certain students in grades one through six in a San Francisco elementary school. Teachers were told that these students had been tested and found to be on the brink of a period of rapid intellectual growth; in reality, the students had been selected at random. At the end of the experimental period, some of the targeted students—and particularly those in grades one and two—exhibited performance on IQ tests which was superior to the scores of other students of similar ability and superior to what would have been expected of the target students with no intervention (¶ 4).

The Rosenthal and Jacobson (1968a) report suggested that teacher expectations could increase or decrease intelligence (IQ) test scores. Understandably, this report created a media sensation (see Elashoff & Snow, 1971; Spitz, 1999; Wineburg, 1987). The possibility that teachers could effect change (either positive or negative) in a student's IQ scores held considerable popular interest and appeal. According to Cotton (2001):

> These results led the researchers to claim that the inflated expectations teachers held for the target students (and, presumably, the teacher behaviors that accompanied those high expectations) actually CAUSED the students to experience accelerated intellectual growth. Few research studies in the field of education have generated as much attention and controversy among educators, researchers, and the general public as Rosenthal and Jacobson's Pygmalion study…in the popular press, articles began appearing which used the Pygmalion findings as a springboard for the claim that perhaps "Johnny can't read" because his teachers don't have faith in his abilities and don't encourage him, particularly if he is poor or a member of a minority group. Other articles looked at the positive side, giving teachers and parents the message that they could improve children's school performance dramatically by communicating high expectations to them (¶ 6).

Since the publication of Rosenthal and Jacobson's original 1968a study, SFP/EE research has enjoyed a long and controversial history in the educational psychology literature. Controversies have focused primarily on methodological (e.g., technical adequacy of measures, individual differences between teachers in studies, etc.) and dependent variable (i.e., affecting intelligence, behavior, achievement, etc.) issues (see Babad, 1993; Spitz, 1999). In general, contemporary

research syntheses (including meta-analyses) indicate that the expectations of one person can influence the behavior or performance of another person (Babad, 1993; Jussim et al., 1994). Based on a comprehensive review of the literature, Cotton (2001) concluded that "teacher expectations are, of course, a component of school wide expectations…the most important finding from this research is that teacher expectations can and do affect students' achievement and attitudes" (¶ 21). The prevailing conclusion is that some SFP/EE effects exist with regard to certain student characteristics (Jussim et al., 1994). According to Babad (1993):

> Today there is no doubt that SFP effects exist, and teacher expectations—based on fabricated information as well as on real differences among students—can have systematic influences on (in descending order of effect magnitude) teachers' impressions of students, teachers' grades, students' performance on objective achievement tests…However, the phenomenon is probabilistic, and SFP effects do not take place in every classroom and for every teacher. (p. 128)

## Expectancy Effects and Intelligence

It would be an understatement to describe the EE research focused on the relations between teacher's expectations and intelligence as contentious (Babad, 1993; Spitz, 1999). Post hoc re-analysis of the original classic Rosenthal and Jacobson (1968a) investigation raised many questions about the study's methodology. Numerous attempts to replicate the Pygmalion effect (i.e., teacher expectations can increase or decrease student IQ scores) have proven unsuccessful; in fact, only one doctoral dissertation (of 20) was deemed a success in Spitz's review (1999). In many of the subsequent follow-up studies the control groups often gained more IQ points than the experimental groups. In addition, a number of prominent educational and psychological researchers (e.g., Cronbach, Snow, and Thorndike) provided very negative reviews of Rosenthal and Jacobson's (1968a) original research (see Spitz, 1999).

It is clear from a review of the voluminous literature that the specific effect of teachers' expectations on children's *intelligence* had, over time, been lost and blended together with teacher expectancy effects on variables other than intelligence (Elashoff & Snow, 1971). Rosenthal resolutely withstood withering criticism on these points, and as time passed, further obfuscated the issue of the Pygmalion Effect (PE) by not clearly delineating the difference between cognitive effects (which were not clearly proven over time) and other classroom expectancy effects (e.g., academic achievement). Rosenthal did, however, bring this important area of study into the classroom.

Many other researchers have continued to examine the teacher-student expectancy effect. A clear connection between expectancy effects and IQ has not been established (Brophy, 1983; Jussim, Madon, & Chatman, 1991; Jussim & Eccles, 1995; Raudenbush, 1984; Rosenthal &

Rubin, 1978; Spitz, 1999). However; *expectancy effects and academic achievement do appear to correlate positively*.

## Expectancy Effects: How Large?

A frequently quoted estimate of the magnitude of Expectancy Effects (EE) in education is that 5% to 10% of student achievement performance might be ascribed to the influence of differential teacher expectations (Brophy, 1983). More recently, average expectancy effect sizes from 0.1 to 0.3 have been reported, although it is "likely that under certain conditions expectancy effects may be larger or smaller" (Jussim et al., 1994, p. 324). On first inspection, effect sizes of 0.1 to 0.3 appear to be of little practical import. This is wrong. According to Jussim et al. (1994), when discussing students who are the "targets" of EE, "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" (p. 327). The pragmatic impact of such effects is cogently articulated by Jussim et al. (1994):

> One way to highlight the importance of this is to consider the effect as if it were the result of some large-scale social program…We suspect that a program that led 10% of students who had been performing below average to perform above average would be viewed as highly successful; a social policy that undermined students' performance so that 10% of those who had been above-average became below average, would be considered an outrage. Of course, the figure may be much larger than 10% among more susceptible children and if expectancy effects do accumulate (p. 327).

To reassure the reader of the importance of what appear to be significant, yet small correlations or effect sizes, one only needs to be reminded that many significant public and social policy decisions have been made on the strength of relations between variables that are of the same magnitude or lower than those reported for EE. For example, a special American Psychological Association (APA) *Psychological Assessment Work Group* (PAWD) provided the following examples:

- The reduction of the risk of dying from a heart attack by taking aspirin is based on $r$ = 0.02
- The impact of chemotherapy on breast cancer survival; $r$ = .03
- The value of antihistamines for reducing sneezes and a runny nose; $r$ = .11
- The impact of Viagra on improved sexual functioning; $r$ = .38

Furthermore, much like the long-term insidious effect of long-term exposure to subclinical levels of lead, asbestos, second-hand smoke, and other toxins, some research studies have suggested

that even small EE can result in larger cumulative effects over time. Small EE could exert a substantial influence on student achievement, particularly for more vulnerable and "at risk" students (Jussim et al., 1994).

## Expectancy Effects and Student Characteristics

In the field of special education, EE was first investigated (in the 1970s and 1980s) with regard to the potential negative consequences of being labeled "mentally retarded" (see Mercer, 1973). In general, this "stigma" research suggested that being labeled mentally retarded often led to changes in the behavior of adults who encouraged "learned helplessness" (Yeates & Weisz, 1985). These studies reported that the attribution for success or failure for a mentally retarded person was more frequently assigned to the person's inherent low ability, while failure attribution for others was more frequently assigned to the person's effort.

Researchers have found that, in general, EE in classrooms are often related to a number of different student characteristics. "Teachers overestimate the achievement of high achievers, underestimate that of low achievers, and predict least accurately the responses of low achievers" (Gottfredson, Marciniak, Birdseye, & Gottfredson, 1995, p. 156). Although low-achieving students have been found to receive more learning support, they also are communicated lower expectations via less pressure to achieve than high achieving students (Babad, 1990). Additional student characteristics associated with teacher expectations include race, ethnicity, SES, physical appearance or attractiveness, oral language patterns (i.e., use of standard English), prior negative comments or evaluations about a student by other teachers, readiness/maturity, and grouping/tracking effects (Cecil, 1988; Cotton, 2001; Dusek & Joseph, 1983; Gaines & Davis, 1990; Jussim et al., 1994; Kenealy, Neil, & Shaw, 1988; Williams & Muehl, 1978). Similar to the early MR-stigma research, some teachers have been found to associate success to inherent ability in the case of high achieving students and luck or chance for perceived low achievers.

Negative educational EE appear to be differentially more influential for younger students and students with lower achievement (Cotton, 2001). Children may also be most vulnerable to teacher expectation effects at key transition points (e.g., school entry, change of schools, elementary to junior high transition, etc.) (Hauser-Cram, Sirin, & Stapele, 2003). Finally, it is important to recognize that some vulnerable or "at risk" students, nevertheless, are more resilient than others and seem impervious to the deleterious impact of negative EE (Jussim et al., 1994).

As is the case with most documented psychological research effects, sweeping generalizations are inappropriate. The group-based self-fulfilling prophecy effects are moderated by a number of student-specific characteristics. For example, using data from the Michigan Study of Adolescent Life Transitions, Eccles (1988), Madon, Jussim, and Eccles (1997) reported that for nearly 100 teachers and more than 1,500 students in sixth-grade public school math classes, EEs were

moderated via the interaction of level of student achievement (as measured by the math section of the Michigan Educational Assessment Program—MEAP), SFP valiance (i.e., teachers having either positive or negative expectations for student growth), and student achievement domain self-concepts. Madon et al. (1997) reported that:

- High achievers were nearly invulnerable to teacher perceptions that underestimated their ability; high achievers also increased in achievement when teachers overestimated their predicted growth.
- Low achievers were differentially responsive to teacher's over- or under-estimating predicted achievement growth. That is, when teachers under-estimated their achievement, low achievers achieved lower; when teachers over-estimated their predicted growth, low achievers achieved higher.
- For low achieving students, increases in achievement predicted by teacher overestimates were greater than decreases predicted by teacher underestimates.
- Students with low achievement (i.e., math) self-concepts were more susceptible to self-fulfilling prophecies than students with high achievement self-concepts.

In general, Madon et al.'s (1997) large-scale study suggests that teacher perceptions and expectations have a greater relative impact on achievement among low achievers than among high achievers. That is, "low achievers are more susceptible to self-fulfilling prophecies than are high achievers" (p. 792).

## Expectancy Effects: The Student's Perspective

The extant research literature has demonstrated that children, from their first years in school, are highly sensitive to differential teacher behaviors (Babad, 1990; Cooper & Good, 1983; Gottfredson et al., 1995; Weinstein, 1985). This research has found that students' sensitivity to differential behaviors cuts across grades (e.g., first graders display as much sensitivity as older children), gender, and ability levels.

Research reviews (Babad; 1993; Gottfredson et al., 1995) have suggested that students perceive low achieving students as typically receiving more vigilance directed towards them, fewer chances, more negative feedback and direction, more negative affect, and more frequent work- and rule-oriented treatment. In contrast, students typically perceive high achievers as being the recipients of higher expectations and academic demands, more emotional supports and special privileges, and increased opportunities to make choices. Furthermore, some studies (Cooper, 1983) have found that "low-expectation students receive more non-effort-contingent feedback designed to control their behavior; consequently, those students are less likely to develop beliefs

in the value of effort, are less persistent, and less successful" (p. 156).

### Expectancy Effects: Peer-to-Peer

If a certain group-based identity or label has pejorative connotations, peers may behave toward the "target" individual in ways consistent with expected stereotypical behaviors associated with the group or label. Being labeled as a "student with a disability" or a "special education" student has been demonstrated to influence peer expectations and social relations (Miller, Clarke, Malcarne, & Lobato, 1991; Rothlisberg, Hill, & D'Amato, 1994). For example, in a study of the expectations for students labeled mentally retarded, students without disabilities communicated differently with other target students who were either labeled normal or mentally retarded (despite the fact that the communication behaviors of the target students were held constant across both groups). Miller et al. (1991) reported that non-retarded children adopted simpler speech when addressing a child described as having learning problems. Rothlisberg et al. (1994) reported that a student's willingness to befriend another child varied as a function of the target child being labeled as being mentally retarded or normal.

These research studies, and others, suggest that labeling (e.g., special education; mentally retarded; etc.) may result in peers altering their social behavior toward the labeled child based on perceived academic and social stereotypes associated with the label. Labeling of students appears to draw attention to the individual's deficits, rather than his or her academic and social accomplishments and strengths, which in turn increases the probability of peers adopting lower and more negative expectations for the labeled student (Rothlisberg, et al., 1994).

### Expectancy Effects: Educator Behaviors

Although the claim that teacher expectancies can raise student intelligence has been effectively rebuked, most vocal critics have expressed the belief, supported by research, that expectancy effects do influence teacher-to-student performance and behavior (Spitz, 1999). "Teachers' expectations of their students are related to students' subsequent achievement, even when teacher's expectations do not conform to student's prior performance" (Carr & Kurtz-Coates, 1994).

Expectancies can be expressed both verbally and non-verbally. Although most teachers report that they can fully control their behavioral affect and deceive students whenever necessary, at times the two primary modes of communication can send mixed signals. Communication "leakage" is present when an individual tries to conceal a particular affect (e.g., negative) toward another individual by consciously controlling their obvious communication behavior (e.g., speech content). But the opposite message (i.e., negative affect) can still be transmitted via less controllable communication behavior (e.g., the face and then the body) (Babad, 1993; VanOudenhoven, 1985). Furthermore, research has suggested that when people try to consciously

conceal negative affect and instead transmit false-positive affect, the deceit is more successful in the controllable channels (e.g., speech content) and not as successful in less controllable channels (e.g., the face and then the body).

The literature on how different types of information, biases, and stereotypes influence the formation of expectations is rich (Babad, 1993; Cotton, 2001; Jussim et al., 1994), with a thorough treatment beyond the scope of the current paper. In general, this research suggests that:

> Expecters behave (via fine and subtle nuances) in ways that cause expectees to respond in ways that would strengthen the expectations. Thus, even if expectations have an initial reality base, the circular process of self-confirmation is likely to deviate from reality and exaggerate existing differences. This is certainly true for racial or gender stereotypes, which constitute primary bases of teacher expectations. (Babad, 1993, p. 132)

VanOudenhoven (1985) reported that students for which teachers held lower expectations received, in addition to more encouragement, more "negative, nonverbal evaluative feedback" (p. 760). Of significance was the conclusion that the low teacher expectations were expressed primarily via less controllable nonverbal teacher behavior. In Babad's review (1993) it was found that "teachers were not able to conceal their negative affect in the less controllable channels" (p, 136-137). For example, extremely small differences in length of sustained eye contact was observed (i.e., more eye contact for high- versus low-expectancy students following an inadequate or wrong answer) (Babad, 1993). Even brief exposure to a teacher's face or body movements (e.g., differences in voice inflection) can provide a student with enough information to communicate expectancies (Babad, 1993; Babad, Bernieri, & Rosenthal, 1991). Teacher behaviors associated with the communication of low achievement expectancies to low achievement students have included (Cotton, 2001; Gottfredson et al., 1995):

- The provision of fewer opportunities to learn new material.
- Less "wait" time provided to answer questions.
- Providing answers or calling on someone else.
- Inappropriate feedback (more frequent and severe criticism for failure; insincere praise), limited reinforcement (e.g., giving reinforcement that is not contingent on performance), or rewarding more incorrect answers or inappropriate behavior.
- Providing less attention and more interaction in private settings.
- Providing differential treatment in grading (less frequently giving "the benefit of the doubt") and personal interactions (e.g., teachers less friendly or responsive; making less eye contact; giving fewer smiles).

- Providing briefer and less informative feedback.
- Providing less stimulating, and lower-level cognitive questions.
- Providing less effective (but time consuming) instructional methods.

## Expectancy Effects: Why Do They Occur?

Although the original research on expectancy effects was based primarily on studies where educators were provided false information regarding student potential, "most researchers have concluded that teacher expectations are not generally formed on the basis of 'false conceptions.'" Rather, they are based on the best information available about the students (Cotton, 2001). Furthermore, even if the initial expectations a teacher forms for a student are realistic and appropriate, student learning and self-concept development can be limited as a result of *sustained expectation effects* (Cotton, 2001). The adverse impact of sustained expectations can occur when teachers continue to engage in behaviors that result in the maintenance of previously formed low expectations (e.g., by giving low-expectation students only drill work) (Cotton, 2001).

### Affect-Effort Theory

*Affect-effort theory* (Harris, Milich, Corbitt, Hoover, & Brady, 1992) has been posited as a potential causal explanation of expectancy-based differential treatment of students by educators. Simply described, research has suggested that some teachers prefer or "like" working more with high (versus low) ability students due to: (a) perceived greater personal similarity with the students in shared values, beliefs, and attitudes, (b) greater levels of student cooperation, and (c) higher levels of teacher reward based on greater rates of student success (Jussim et al., 1994).

### Single-Indicator Generalization

Carr and Kurtz-Coates (1994) research also sheds light on potential mechanisms underlying the development of expectancy effects. These researchers found that even when teachers are fairly accurate regarding the evaluation of a student's academic ability, their perceptions of student self-concept and attribution beliefs were not accurate. These findings are consistent with other investigators who have reported inconsistencies between teachers' perceptions of students' self-esteem and students' reported self-esteem (Connell & Ilardi, 1987; Itskowitz, Navon & Strauss, 1988). Kurtz-Coates (1994) concluded that "teachers rely heavily on achievement level to estimate children's metacognitive capabilities, self-concept, and beliefs about the reasons underlying task outcomes. Although high ability children possessed more metacognitive knowledge and higher self-concepts than low and average ability children, teachers' perceptions of those variables showed an exaggerated relationship to achievement. That is, even with

children's actual metacognition and self-concept scores covaried, teachers rated high achievers more positively than average and low achievers" (p. 272). These studies suggest that teachers may miss certain important information about students by *basing their perceptions of student motivational-affective characteristics on a unidimensional evaluation of achievement levels*. That is, teachers may "rely on a single indicator, achievement, to estimate other cognitive and motivational characteristics of their students" (Carr & Kurtz-Coates, 1994).

## Cognitive Heuristics

Based on research in cognitive psychology, Jussim et al. (1994) hypothesized that expectancy effects may be a function of teachers' developing and using certain cognitive *heuristics* (mental "shortcuts") when confronted with the large mass of information regarding a classroom of students (e.g., labels, test scores, in-class performance, quality of homework, behavior, etc.). Cognitive heuristics are based on Herbert Simon's original notion of *bounded rationality* (Bröder, 2003) where it is hypothesized that human decision making is often based on only a small proportion of available information, and these frugal shortcuts often lead to reasonable (yet imperfect) judgments and evaluations. According to this cognitive model of decision-making, the mind is viewed as an *adaptive toolbox* where humans "are thought to react adaptively to their environment by choosing the appropriate heuristics contingent on task demands" (Bröder, 2003, p. 611). Three different types of cognitive heuristics have been discussed in the context of expectancy effects—representativeness and regression, representativeness and base rates, and availability and expectations.

The *representativeness heuristic* (based on the assumption that past performance is representative of the students' capabilities and is the best predictor of future performance) does indeed predict future performance quite well. When a teacher develops student expectancies based on years of experience with beginning-to-end of school year achievement patterns, on the average, the teachers' expectancies are confirmed. The flaw in excessive reliance on an implicit or explicit past-to-future achievement representativeness heuristic is the failure of teachers (and most humans) to recognize the lack of the perfect past-to-future achievement relationship, a phenomena that requires teachers to be "regressive" in expectation formation.

Less than perfect prediction relationships require an adjustment to some predictions due to the phenomena of "regression to the mean." Without delving into the statistical basis of regression effects (in the current context, the reader should simply accept the notion that regression to the mean reflects that observation that "mother nature abhors extremes"), "teachers should expect students who previously performed highly to perform somewhat less highly in the future, and they should expect students who previously performed poorly to improve somewhat. Even when their expectancies are based on past performance, teachers may exaggerate differences between students if they fail to account for regression to the mean" (Jussim et al., 1994, p. 320). As result

of the representativeness-regression heuristic, teachers are more likely to develop small self-fulfilling prophecies and biases for some students (i.e., those farther away from the average)

The representativeness heuristic is also manifested in the tendency of humans to focus on more readily available cheap (in terms of cognitive or mental effort) information while concurrently ignoring more costly (in terms of information availability and retrievability) empirically-derived *base-rate* information. The *representativeness-base rate* heuristic would be evidenced by ignoring the fact (largely due to a lack of information or the fact that too much effort must be expended to secure the information) that half of all students at any IQ level demonstrate achievement at or above IQ-based predicted/expected achievement (see Figure 2 and related text). Instead, readily retrievable personal experiential information (e.g., history of working with students with certain low test scores) is more likely used to form new expectancies. As demonstrated in Figure 2, the use of this mental shortcut can result in the formation of IQ-based student expectancies in the absence of all relevant empirical information. The result is a downward bias in academic expectancies for students who are below the norm in general cognitive ability.

Similarly, the *availability heuristic* refers to the tendency of people to form judgments and make conclusions on information that is more easily obtained. For example, research has reported that teachers' expectations for students are often influenced by prior experience with older siblings (Seaver, 1973; Thurlow, Christensen & Ysseldyke, 1983). Given the likelihood that memories of an older sibling will be readily retrieved to current memory, there is an increased probability that a teacher may base initial expectations for the younger sibling on the older sibling's accomplishments.

It is clear that a number of viable, and probably interacting, psychological theories and hypothesis may explain the dynamics of expectancy effects. As described above, theories have focused on both the affective and cognitive domains of teacher functioning.

## Attribution Theory

Certain beliefs about intelligence and learning may lead to lowered expectations for low achieving students and students with cognitive disabilities (Cotton, 2001; Lee, 1996). In particular, contemporary social cognitive psychology research has suggested that *attribution theory* (Graham, 1990, 1991, Weiner, 1979, 1985, 1986) is a "useful framework for exploring teachers' response to children's academic outcomes, such as success or failure, in the general education classroom" (Clark, 1997, p. 69).

Briefly, attribution theory research has demonstrated that individuals (e.g., teachers) tend to attribute success or failure for an individual (e.g., students) to one of two different human characteristics—*ability* or *effort*. Graham and Weiner's (Graham & Wiener, 1986; Weiner, 1986)

studies found that the initial response of many classroom teachers to a negative student outcome is either anger or pity. Furthermore, the elicitation of anger or pity was differentially linked to the degree to which teachers perceived the student as responsible for his or her failure. Typically, when faced with student failure, a teacher pity response was elicited for students of low abilities while anger was the more frequent response to high ability students (due to a perceived lack of effort or motivation). Furthermore, these researchers found that the anticipation of future failure for students was directly related to the perceived stability of the cause of the student failure. "Failure due to causes that are viewed as stable, such as low ability, will result in a high expectation that failure will recur, whereas failure due to unstable causes, such as effort or task difficulty, will result in a lower expectation of repeated failure" (Clark, 1997, p. 70).

Of interest for students identified and classified according to a medical model of disabilities (e.g., mental retardation), is Weiner's (1993) hypothesized *sin versus sickness* causal attribution for educational outcomes. Briefly, a "sickness" attribution (and subsequent teacher reactions of high pity and low anger) is often made by teachers to explain the failure of students who are viewed as having a relatively stable (permanent) inherent cause (mental disability) that is outside the control of the individual student. In contrast, if the educational failure is viewed as related to unstable causes that are controllable by a student (e.g., motivation, effort), typical teacher responses are more in line with a "sin" causal attribution (resulting in less pity and more anger).

In a sample of 97 elementary-school teachers, Clark (1997) found results consistent with the sin/sickness attribution-response hypothesis in the evaluation of failure for students with or without learning disabilities. Clark concluded that, despite good intentions, the causal attributions teachers displayed (in response to educational failure) toward children perceived as having a stable, inherent disability sends the unintentional message that "they are less competent than their nondisabled peers and should expected to accomplish less as a result. When students use attribution information to make inferences about their own ability and effort, these inferences are manifest in the students' self-esteem, expectations for their own future successes and failures, and their classroom performance" (p. 77).

### Implicit Theories of Intelligence

More recently, causal attribution research has focused on the *Implicit Theories of Intelligence* (ITI) that people adopt (Perkins, Tishman, Ritchhart, Donis, & Andrade, 2000). Briefly, *ability conception* is an individual's beliefs about the nature of a person's cognitive-related skills and abilities, including a personal view on how a person's skills and abilities operate or work (McGrew, Johnson, Cosio, & Evans, 2004). Two general ability conceptions have been identified in the research literature. A "trait-oriented system" (often called the *entity* view of ability) perceives a learner's abilities as being relatively fixed internal quantities. Since traits are fixed,

the result is the implicit or explicit belief that it cannot be changed via effort (e.g., motivation). The entity view is consistent with the previously described Burt position that children can only achieve according to the size of their intellectual "jug."

In contrast, a "process-oriented system" (*incremental* view of ability) is the belief that ability can be developed and that effort and strategies (i.e., noncognitive or conative abilities) are important for learning. The process-oriented ability conception implies a more optimistic view of learners—there is room for improvement in personal ability via effort and work. In terms of student ability conception self-beliefs, an incremental or process view is associated with higher levels of student intrinsic motivation and academic self-efficacy (McGrew et al., 2004). An incremental view of abilities is consistent with the glass/cup/jug half-full or flowing over IQ-learning metaphors of Binet and Gump.

A significant body of research (see McGrew et al., 2004) has indicated that student implicit theories of intelligence (ITI) "orient learners toward particular goals and that these goals set up different behavioral patterns" (Lee, 1996, p. 1). According to Dweck and Leggett (1988), entity learners tend to pursue *performance goals*, which are focused on gaining favorable judgments about their competencies. As a result, *entity performance goal-oriented* learners are more vulnerable to failure and the adaptation of maladaptive learning patterns and behaviors. In contrast, learners with a more optimistic malleable view of intelligence (*incremental* ITI) tend to adopt a *learning goal-orientation,* an orientation associated with learners who: (a) are challenged by failure, (b) develop more competence, and (c) adopt more adaptive learning patterns (McGrew et al., 2004).

According to ability conception theory, the ITI adopted by teachers may influence their goals, expectations, and behaviors toward students (Lee, 1996). Entity-based educators who "conceive of one's intelligence as fixed tend to document that entity as a performance goal; they regard tests or other measurement opportunities as ways to assess intelligence and, consequently, to judge students' competence in these achievement situations. In contrast, incremental teachers conceive intelligence as a malleable quality and that development of ability is a learning goal; they consider achievement situations as opportunities for students to improve their competence, acquire new skills, and increase their ability" (Lee, 1996, p. 1).

Using the *Teachers' Implicit Theories of Intelligence Questionnaire* as the measure of teacher ITI, Lee (1996) analyzed the behaviors (estimated expectations for target students' performance on a task) of 100 "incremental" and 100 "entity" teachers. Lee (1996) reported that entity and incremental teachers responded differentially towards students. Entity teachers were more influenced by their perceptions and expectations than incremental teachers. More specific differences observed between entity and incremental teachers were (Lee, 1996):

- Entity teachers evaluated ability based on scores, gave more direct answers, commented

more frequently on non-intellectual aspects of performance (e.g., neatness of writing), or provided less student feedback. In contrast, incremental teachers placed greater emphasis on the efforts of students, gave indirect cues for correct answers, and provided more encouragement to students.

- Entity and incremental teachers displayed noticeable differences in how they grouped students. Entity teachers more frequently recommended homogeneous ability grouping (57.0%) when compared to incremental teachers (17.0%). In contrast, incremental teachers tended to prefer heterogeneous ability grouping (83.0%).
- Entity teachers more frequently viewed student performance as an indication of ability and provided feedback directly related to outcomes. In contrast, incremental teachers tended to view incorrect answers as something students could master through effort, and provided feedback to elicit such effort.
- Entity teachers focused more on a students' performance (52%) than incremental teachers (26%) while incremental teachers focused more on learning (74%) than entity teachers (48%).

Lee's (1996) teacher ITI results suggest that teacher's ability conceptions (entity vs. incremental) can result in differential expectations for students based on the student's ability or classroom performance. The overall pattern of results suggests that educators who view ability (intelligence) as a fixed inherent trait of students (i.e., a Sir Cyril Burt philosophy) tend to display attitudes and behaviors that are more detrimental to school learning, particularly for low achieving or low ability students. Entity educators more frequently view student failure as something difficult to overcome. Consistent with the extant self-fulfilling prophesy and expectancy effects literature reviewed previously, Lee (1996) concluded that:

> As a result of an entity view of ability, "teachers' low expectations will induce students to expect their self-efficacy to be as low as their teachers do, inhibiting their potential and motivation for future learning. In addition, this can create motivationally helpless students who cannot overcome repeated failures and instead give up too easily. As a result, vicious cycles are created and prophecies of teachers are self-fulfilled. It seems obvious that teachers' entity beliefs of intelligence are neither beneficial nor desired for any children, especially entity children. (p. 10)

## Group Stereotyping

Expectancy effects may also reflect the differential treatment of an individual based on group membership stereotypes. Group-based self-fulfilling prophecies differ from individual-based

self-fulfilling prophecies and are relevant to the educational practices of grouping, tracking, and institutionalized segregated instruction (e.g., separate special education classrooms). Classroom self-fulfilling prophecies "may be more powerful for groups because teachers spend more time addressing their classes or ability groups as a whole than addressing individual students" (Smith, Jussim, Eccles, VanNoy, Madon, & Palumbo, 1998, p. 534).

Both experimental and naturalistic investigations have demonstrated that stereotype-based teacher expectations can bias teacher perception, evaluation, and memory of student performance and behavior (Jussim et al., 1994). Researchers have reported the communication of differential expectations as a function of placement in different ability or tracked groups in classrooms. According to Cotton's (2001, ¶ 40) research synthesis, "students in low groups and tracks have been found to get less exciting instruction, less emphasis upon meaning and conceptualization, and more rote drill and practice activities than those in high reading groups and tracks … researchers also note that the instructional environment in heterogeneous groups and classes is similar to that in high groups and tracks—more demanding, more opportunities to learn, and a warmer socioemotional climate." In general, institutionally justified tracking or ability grouping "may lead to the type of rigid teacher expectations that are most likely to evoke self-fulfilling prophecies and perceptual biases. Teachers often prepare more for and are more supportive toward students in high ability groups" (Jussim et al., 1994. p. 326).

Stereotype-based low expectations for "different" students (e.g., students with disabilities, students of different races/ethnic groups, etc.) is a form of *stereotype threat* (Aronson, Quinn, & Spencer, 1998; Steele & Aronson, 1995) that can beset anyone who belongs to a group with a specific reputation. When the stereotype or reputation is pejorative (e.g., implies a negative quality such as slow learning ability and lower expectations), the effects can be significantly disruptive to individual development (Aronson, 2002). Stereotypes have two salient characteristics: (1) they polarize perceptions and sharpen differences, and (2) they are rigidly held, readily fixated and resistant to change. Thus, the development of stereotypically-based differential student academic expectations (based on group membership or label) can serve to fixate and exaggerate existing differences (Babad, 1993).

The moderating influence on self-fulfilling prophesies (SFP) vis-à-vis *group membership* status has proven to be significant (Smith et al., 1998, p. 532). For example, in a large-scale study of 1,701 students and 97 teachers in 108 six-grade math classes, Smith et al. found SFP were strongest when students were grouped within classes. It was hypothesized that teachers may hold relatively fixed perceptions of students in different groups (e.g., high, average, low achievement/ability) because the grouping labels explicitly emphasize differences between the groups. Consistent with prior research, this large-scale study found that teachers interacted more frequently, and provided more opportunities for demonstrating their knowledge and skills, when working with students in high ability groups (in contrast to low ability groups).

Group-based stereotypical thinking has also been reported to influence the type of instruction students receive. Zohar, Degani and Vaaknin (2001) reported that nearly half (45%) of 40 Israeli teachers in their study believed that instruction emphasizing higher-order thinking was less appropriate for low-achieving students. Although it might be argued that the Zohar et al. (2001) study reflects a culture-specific instructional practice, the findings mirror prior research studies in the U.S. (Raudenbush, Rowan, & Cheong, 1993). Collectively these research findings suggest that teachers may implicitly endorse a hierarchical general theory of learning and instruction, where learning needs to progress from an emphasis on simple lower-order cognitive skills to more complex higher-order skills. By extension, low-achieving students (or students with disabilities) are perceived as likely to experience more difficulty, confusion, and frustration with the more cognitively demanding "thinking-based" learning. According to Zohar et al. (2001), "low-achieving students may chronically experience lower order instructional emphasis because educators see these students as 'stuck' in the early phases of the learning process" (p.470).

Probably one of the more potentially insidious forms of stereotype-based expectation formation is that which results from the attachment of diagnostic labels (e.g., learning disabled, mentally retarded, emotionally disturbed, etc.) to students. Although all forms of social stereotypes (e.g., gender, social class, race, ethnicity, etc.) can produce harmful effects, diagnostic educational or medical disability labels almost always have the authoritative stamp of approval by a credible expert (e.g., psychologist, doctor) (Jussim et al., 1994). This major source of lowered teacher expectations has been repeatedly demonstrated in the special education research literature (e.g., see Rist & Harrell, 1982; Thurlow et al, 1983; Ysseldyke & Foster, 1978). Based on the previously summarized *Education Week* national survey of teachers (Olson, 2004), lowered expectations for all students with disabilities continues to be a latent force in many of America's classrooms, and may be exacerbated by the current wave of high stakes educational accountability.

## Beware of Silent, Shifting Standards

Research during the past decade has revealed that group-based stereotypes can be conceptualized as functioning as "standards against which individual members of stereotype groups are judged" (Biernat, 2003; p, 1019). Briefly, *stereotyping effects* occur when individual group members are evaluated in a direction consistent with group-based expectations or stereotypes. "For example, a man is judged a better leader than a woman; a physician is judged more intelligent than a hairdresser…these types of effects certainly indicate that stereotypes have been used to judge individuals and that the outcome is *assimilation*." The self-fulfilling prophesies previously described are examples of the commonly recognized assimilative stereotype effect.

Research on the "shifting standards model" suggests that assimilative effects alone fail to capture the complexity and extent to which stereotyped-based expectations operate in group settings: "Less well recognized is the fact that stereotyping can also be manifested in other ways, most

notably in counter-stereotypical or contrast effects" (Biernat, 2003, p. 1019).

*Within-category* standards are typically used when a person evaluates or judges an individual (e.g., student with mental retardation) of a stereotyped group (e.g., mentally retarded, slow learners, students with cognitive disabilities) on stereotyped dimensions (Biernat, 2003). For example, given the stereotype that students with mental retardation are "slower learners" than students of normal intelligence, one is likely to judge the learning capability of a particular student with mental retardation relative to (lower) standards for students with mental retardation and, the learning ability of a particular non-retarded student relative to (higher) standards of competence for non-retarded students. These within-category academic competence evaluations of students with and without mental retardation "may not be directly comparable, as their meaning is tied to different referents" (Biernat, 2003, p. 1019). "Good" does not mean the same thing for the student with mental retardation and the student of normal intelligence. Implicit in this example (as well as many other examples: men vs. woman, white vs. non-white, etc.) is that standards may *shift* due to the subjectivity of language. Or, as summarized by Biernat (2003), "such adjectival evaluations have no fixed ties to reality, a point Humpty Dumpty makes in Lewis Carroll's *Through the Looking Glass*: 'When I use a word, it means just what I choose it to mean'"(p. 1019).

In contrast, *cross-category* evaluations and judgments imply the use of a *common-rule* scale that maintains its meaning across contexts. Many common-rule scales are used to make absolute cross-category evaluations in education—standardized test scales, grades, class ranks. Common-rule based evaluations typically produce assimilative stereotype effects (e.g., students with mental retardation, as a group, are expected to score lower on achievement tests than students with normal intelligence). However, because the subjectivity of language may carry within-category meaning, other (contrast) stereotype effects may be masked or hidden (although operating on individual behavior).

Probably the most pernicious masked effect of the shifting standards model is that "evidentiary standards are lower for members of the group stereotyped as deficient on an attribute" (Biernat, 2003, p. 1022). When an individual (e.g., student with mental retardation) is a member of a group that is stereotyped as deficient on a trait or attribute (i.e., intelligence), evidentiary standards or expectations are often shifted in the direction of leniency, less challenge, and minimal competencies. The shift of evidentiary standards, in turn, often produces behavior in the evaluator in the opposite direction of the stereotype. This shifting of standards "activates low (patronizing) minimizing standards that are more readily surpassed, producing a subjective sense of positivity—a 'wow' effect. That this positivity is not borne out in outcomes that matter for the target (getting a job or the key fielding position) suggests that the favorable treatment is more apparent and ephemeral than real" (Biernat, 2003, p. 1025). The essence of this phenomna is captured in the words of Alexa Pochowski, the assistant commissioner for learning services in the Kansas education department, who was recently quoted in *Education Week* as saying:

> For too long, we held these students to lower standards…I hate to say it: I think we almost felt sorry for them." (Olson, 2004, p. 13)

Support for the negative impact of the potential downshifting in evidentiary standards and expectations (and, conversely, for the positive impact of more demanding standards and expectations) was also reported by Pochowski in *Education Week* (Olson, 2004). After changing state standards and requirements so that most students in special education participated in state assessments, the state of Kansas reported that the percent of fifth graders with disabilities who were proficient in reading increased from 26% in 2000 to nearly 50% in 2003. In math, fourth graders with disabilities increased in proficiency from 36% to 58% over a four year period.

In summary, for students with cognitive disabilities, expectancy effects can be viewed as a form of **standards-based stereotyping**. This stereotyping can either produce direct (assimilative) or indirect "hidden" stereotyping effects, both of which can exert negative influences on academic performance. The silent, subjective shifting (towards lower) evidentiary academic standards (for students with disabilities) represents a subtle, yet potentially potent force operating against the goal of "leaving no child behind."

## Education Expectations: Caveats and Concerns

Teachers, like all humans, develop personal beliefs, opinions, and stereotypes. During most teacher preparation programs, educators are taught to become aware of potential expectancy effects and how to control their overt day-to-day teaching behavior to be more equitable, and to refrain from dispensing differential praise and criticism (Babad, 1993).

Given the popularity of the expectancy effects and self-fulfilling prophesies in the educational and psychological research and popular press, one could be led to believe that these negative influences are pandemic in school classrooms. This is not the case. Although some researchers have concluded that differential treatment of students is widespread, most researchers have concluded that the majority of educators (particularly experienced teachers and teachers who are very familiar with their students) form expectations based on the initial available information and "tweak" or adjust their expectations and instruction based on changes in student performance.

It is inappropriate to infer that the majority of educators are biased simply because they may hold differential expectations for some students. Often, differential treatment of students represents the appropriate implementation of individualized adaptive instruction responsive to the individual differences in a classroom. That being said, the primary concern from this body of literature is that:

> a minority of teachers do: (1) hold unjustifiably low expectations for student

> achievement on the basis of factors such as race, gender, or socioeconomic status, which have nothing to do with learning potential; or (2) form initial expectations based on appropriate data, but then hold to these expectations so rigidly that changes in student skill or motivation levels are not noted or addressed. (Cotton, 2001, ¶ 32)

It is important to note that educators who may hold inappropriately low expectations for some students "are rarely acting out of malice; indeed, they are often not even aware that their low expectations have developed based on specious reasoning" (Cotton, 2001, ¶ 33).

Nevertheless, the literature raises numerous issues that are directly relevant to today's educational context for students with disabilities in which both IDEA and NCLB are requiring improved performance. Particularly for those students with cognitive disabilities, the information on expectancy effects should cause us much concern. Is it possible that expectancy effects have been holding students back in the past? Are we under the influence of silently shifting standards—especially for students with cognitive disabilities? These and other questions are ones that states, districts, schools, administrators, and teachers need to ask themselves and others—as our nation strives to improve the performance of all of its students, including those with disabilities and specifically, those with cognitive disabilities.

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