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# Teacher Effectiveness:

# A Review of the International Literature and Its Relevance for Improving Education in Latin America

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# Contents

# 1. Introduction

## 1.1 Organization

This working paper contains a review of recent international literature on themes related to teacher effectiveness. The first section presents a working definition of the term as used in this review. Section 2 covers general educational needs, the state of the teaching profession, and the status of teacher training in Latin America.[1] Section 3 presents several different approaches to defining and measuring teacher effectiveness. Section 4 reviews findings from the literature on how to improve teacher effectiveness, and section 5 applies this information to the Latin American context. The paper concludes with a proposed definition of teacher effectiveness.

## 1.2 A Working Definition of Teacher Effectiveness

This paper aims to develop a definition of teacher effectiveness that is appropriate and workable in the Latin American context. A review of the literature on this theme provides various approaches to crafting this definition:

- Medley and Shannon (1994) recommended that all evaluations of teachers be based on information about teacher effectiveness but noted that "because direct information about teacher effectiveness is not available, many teacher evaluations are based on information about teacher competence or teacher performance" (p. 616).
- Anderson (1991) stated that "…an effective teacher is one who quite consistently achieves goals which either directly or indirectly focus on the learning of their students" (p. 18).
- Dunkin (1997) considered that teacher effectiveness is a matter of the degree to which a teacher achieves the desired effects upon students. He defined teacher competence as the extent to which the teacher possesses the requisite knowledge and skills, and teacher performance as the way a teacher behaves in the process of teaching.
- In many studies reviewed here, especially in the "value-added" research, "effectiveness" is defined either implicitly or explicitly by the gains made by teachers' students on achievement tests.

Throughout this review, the term "teacher effectiveness" is used broadly, to mean the collection of characteristics, competencies, and behaviors of teachers at all educational levels that enable students to reach desired outcomes, which may include the attainment of specific learning objectives as well as broader goals such as being able to solve problems, think critically, work collaboratively, and become effective citizens.

# 2. Background: Educational Needs in Latin America

## 2.1 Levels of Student Achievement

A recent World Bank publication (Vegas and Petrow 2008) pointed out that in Latin American countries, educational performance "is not only weak; it is also declining relative to other countries with similar income levels. In 1960, 7 percent of adults in Latin America and 11 percent of adults in East Asia had completed upper-secondary school. Forty years later, this figure had quadrupled to 44 percent in East Asia and risen to just 18 percent in Latin America and the Caribbean."

Vegas and Petrow presented data from international assessments such as the Programme for International Student Assessment (PISA), the Trends in International Mathematics and Science Study (TIMSS), and

[1] As used here, "Latin America" refers to countries in South and Central America as well as the Dominican Republic and, in some instances, Cuba.

the Progress in International Reading Literacy Study (PIRLS) showing that the few participating Latin American countries consistently scored last or near last in comparison to other countries in the broad international samples.[2] Also, the results for some Latin American countries tended to indicate a high degree of inequality between urban and rural samples. However, even white students of high socioeconomic status in Latin America scored lower on these tests than did their counterparts in Organisation for Economic Co-operation and Development (OECD) countries, "dispelling the myth that the region's most privileged students receive a good education" (Vegas and Petrow 2008, p. xxi).

## 2.2 The Teachers

In 1996, there were approximately 6 million teachers in Latin America and the Caribbean; these comprised about 10 percent of the teachers in the world (Villegas-Reimers and Reimers 1996). Following are some summary observations about the Latin American teaching force:

- The percentage of women in the teaching force ranges from about 63 percent in Honduras to 85 percent in Paraguay.
- The teachers are quite young, from an average age of 26 in Venezuela to about 42 in Uruguay.
- In public schools, teachers increasingly come from poorer sectors of the population and are poorly educated; some have limited basic skills. Public school teachers receive poor education in teacher education institutions and are poorly paid (Arregui, Díaz, and Hunt 1996; Vaillant 2004b).
- In most public schools in urban areas, teachers have relatively limited time with their students, because these schools must run double sessions.
- The status of the teaching profession is low in most Latin American countries, and too much emphasis is placed on "the old face-to-face teaching models originally learnt by the teachers" (Vaillant 2004a, p. 5).
- The salary scale for teachers prioritizes years of experience; with some exceptions, the only way to earn more is by leaving the classroom and becoming a principal or supervisor (Vaillant 2004a).
- It is common practice in most countries that the newest, least qualified (or, in many instances, completely unqualified) teachers are posted to remote areas, where housing and general living situations are most often inadequate and teachers have little or no contact with peers. As soon as they have enough experience, these teachers usually transfer to more desirable schools in more highly populated areas, thereby ensuring a steady stream of inexperienced teachers to serve the neediest students (Montero et al. 2001).
- Teachers in much of Latin America receive almost no supervision. The principal is not commonly expected to be an instructional leader, and the local and district supervisors rarely visit classes. When they do, the visits are more likely to deal with administrative than with pedagogical issues (Culver, Hunt, and Linan-Thompson 2006).

## 2.3 Preservice Teacher Education

Teachers in the region receive their preservice education at a variety of institutions and levels; these include normal schools, which provide teacher education at the secondary level, and universities. There is a tendency in Latin America to move preservice

[2]The PISA tests 15-year-olds on a number of competencies, including reading; the TIMSS tests fourth and eighth graders in math and science, and the PIRLS tests fourth graders in reading.

education from the secondary to higher levels of education (Vaillant 2004b).

Only Guatemala, Honduras, and Panama still prepare primary teachers at the lower secondary level;[3] the remaining Latin American countries prepare their teachers at the upper secondary level. However, the number of years required to complete the programs varies. For example, in Brazil, preparation for preschool and primary teachers for grades one through four is two years of upper secondary. Entrance exams are required at most levels in all but five countries (Vegas and Petrow 2008, table 6.1).

In Peru, an ethnographic study by Patricia Oliart of students in preservice education programs found that for many of them teaching was not their first choice; rather, they chose teaching because it was the cheapest and easiest career in which to gain admission (Arregui, Díaz, and Hunt 1996). Professors of education in Latin America have very low status and usually no special preparation for their role (Vaillant 2004b). Some actually lack classroom experience because they moved into their professorships directly upon completion of their programs in the same institution. Many professors still teach in the manner in which they were instructed: relying on dictation and lecture, using few books, and providing future teachers with little practical experience of effective teaching methods.

Although there have been many efforts to provide in-service professional development for teachers, too often such courses have been brief lectures or workshops, providing teachers with little opportunity or support for the application of new methodologies in their classrooms (Hunt 2004).

[3]Vaillant and Rossel (2006) noted that Honduras now requires a university-level education for primary teachers.

In recent years, Peru has undertaken two enterprising assessments to learn how much practicing teachers actually know. In 2004, about 94 percent of teachers volunteered to take the same national test that was given to their students. The Ministry of Education reported that, on the reading assessment, the majority of the teachers could answer literal questions or those requiring minimal inferences but could not answer questions requiring evaluation or more global inferences. In mathematics, most teachers could solve simple, clearly defined algorithms but had difficulty solving problems of two or three steps that required extracting information from multiple sources. The ministry further reported that there was "a clear association" between the performance of the teachers and the performance of their students on the same items (Ministerio de Educación 2004).

Although comparable data are not presented here, results are likely similar in other Latin American countries.

## 3. Studies of Teacher Effectiveness and Its Evaluation

### 3.1 Variables That Contribute to Teacher Effectiveness

Vegas and Petrow (2008) categorized the variables that influence teacher effectiveness as follows:

- **Student characteristics and behaviors.** These include health and nutrition, preschool experience, age of entry into school, support from parents and siblings, socioeconomic status, and home language.
- **School and teacher characteristics and behaviors.** School characteristics include infrastructure,

materials and textbooks, class size, peer group and school climate, and the amount of time in the school day and year. Teacher characteristics include motivation, knowledge/education, pedagogy, time in the profession/experience, rotation and turnover, and sense of professional calling.

- **Organizational factors.** These factors include teacher salaries and special incentives; level of decision-making authority; technical assistance and financing; curriculum and standards; national assessment; and involvement of teachers' unions, parents, and community. In some countries, voucher and school-choice programs are also variables to consider.

Each of the studies presented in the following section has its own underlying assumptions about the variables that may affect teaching effectiveness. In evaluating this body of research, it was essential to consider which variables may be intertwined and whether those associated variables have been appropriately handled in any given study.

## 3.2 Validity of Assessments of Teacher Effectiveness

Many of the concerns surrounding the effort to measure teacher effectiveness focus on the validity of the measurements. Medley and Shannon (1994) stated "…there is no question that the validity of an evaluation depends on the accuracy and relevance of the information upon which it is based" (p. 6016). Dunkin (1997) and Medley and Shannon (1994) expressed concerns about the validity of trying to evaluate teacher performance by using an instrument intended to test student learning; Medley and Shannon pointed out, "The fact that the achievement test used to measure student achievement…is valid is no guarantee that measures of teacher effectiveness based on that test will also be valid" (p. 6019).

## 3.3 Controversy over Teacher Effectiveness

Although many experts feel they can easily identify excellent teachers, it has proven extraordinarily difficult to determine exactly which teacher characteristics contribute to desired student outcomes (Medley and Shannon 1994). Imig and Imig (2006) clarified some of the controversy that surrounds this area of research, especially in the United States. They identified two movements in U.S. education: the "essentialists" and "the progressives." Essentialists, they said, focus on content and on student learning. "Teachers are responsible for leading whole classes of students and for the setting of high expectations and directing student learning toward measurable ends" (p. 168). In contrast, the progressives advocate child-centered curricula, constructivist approaches, and the consensus of experts to define high-quality education.

## 3.4 Literature on the Characteristics of Effective Teachers

Leu (2005) reviewed literature on quality education, finding that there is little agreement on the meaning of the term. However, "Research has shown that one important feature of quality is that it be locally defined, at the school and community level, not just at the district and national level" (Leu 2005, p. iii). Despite vast cultural differences in the world regarding what is desired from schooling and school outcomes, "Teachers and classroom process are now front and center, and they are generally agreed to be key to education quality" (p. 2). Based on her review of the literature, Leu provided a list of qualities to be found in good teachers. (See box 1.)

Nuthall (2004), seeking to find out exactly how teaching relates to learning, reviewed research on teaching effectiveness. He cited research by Hopkins and Stern

### *Box 1: Qualities of Good Teachers (Leu)*

- Sufficient knowledge of subject matter to teach with confidence
- Knowledge and skills in a range of appropriate and varied teaching methodologies
- Knowledge of the language of instruction
- Knowledge of, sensitivity to, and interest in young learners
- Ability to reflect on teaching practice and children's responses
- Ability to modify teaching/learning approaches as a result of reflection
- Ability to create and sustain an effective learning environment
- Understanding of the curriculum and its purposes, particularly when reform programs and new paradigms of teaching and learning are introduced
- General professionalism, good morale, and dedication to the goals of teaching
- Ability to communicate effectively
- Ability to communicate enthusiasm for learning to students
- Interest in students as individuals, sense of caring and responsibility for helping them learn and become good people, and a sense of compassion
- Good character, sense of ethics, and personal discipline
- Ability to work with others and to build good relationships within the school and community

SOURCE: Leu 2005, p. 23.

(1996) yielding this list of characteristics of excellent teachers:

- Passionate commitment to doing the best for students
- Love of children enacted in warm, caring relationships
- Pedagogical content knowledge
- Use of a variety of models of teaching and learning
- Collaborative working style with colleagues
- Reflective practice

However, Nuthall pointed out that such lists are not sufficient to tell us exactly which teacher behaviors lead to student learning in any given situation. He added that teachers are not always able to tell when students are learning, citing research showing that teachers are not as concerned with student learning as they are with student behavior and motivation, managing activities and resources, and completing activities within the time available.

Another characteristic of effective teachers is their provision of opportunity to learn (OTL). Anderson (1991, p. 27) defined OTL "as the extent to which students are given instruction on the knowledge and skills which are (1) related to the primary curricular goals and objectives, or (2) important enough to be included on outcome measures of student learning." OTL is closely related to use of time, though other variables are included in the concept. Students are not likely to learn something unless it is taught, and learning depends not only on the quality of the teaching but also on the time devoted to a subject in the school day, as well as the availability of necessary texts and supplies. OTL is a factor that obviously will influence not only a child's learning, but also his or her achievement on a standardized test.

There has been a variety of efforts in Latin America to define effective teaching. "Teacher profiles," or lists of desired characteristics and abilities of teachers, have been developed in several countries (Arregui, Díaz, and Hunt 1996; Vaillant and Rossel 2006). Chile has developed uniform standards for preservice teacher education that address aspects such as how teachers conduct their classes and the way in which students are evaluated (Vaillant 2004b). Vaillant and Rossel (2006), reviewing curriculum proposals in case studies from seven Latin American countries, summed these up as follows: "In general, five areas are mentioned: specific intellectual abilities, mastery of content to be taught, teaching competencies, professional identity and ethics, and the capacity to perceive and respond to the needs of the students and the climate of the school."

Cochran-Smith (2001) maintained that the key question of the current era in U.S. teacher education is "the outcomes question" and that the current emphasis on measuring outcomes threatens the work done by organizations devoted to improving teacher professionalism. "I suggest that the outcomes question in teacher education is being conceptualized and constructed in quite different ways depending on the policy, research, and practice contexts in which the question is posed as well as on the political and professional motives of the posers" (p. 2).

With regard to teacher testing as a condition for certification or employment, Cochran-Smith stated, "There is little evidence that large-scale implementation of statewide teacher testing programs is affecting the actual classroom performance of teachers…although there is some evidence that testing has an impact on the 'quality' of those entering and remaining in teaching where 'quality' is defined as other test scores, grade point averages, and similar measures" (p. 20). She suggested that outcome measures currently used respond to market forces rather than democratic ones, and stated that teachers are needed who will think critically and question the system. "In short, what I am suggesting here is that we need outcomes measures that—ironically—make teaching harder and more complicated for teacher candidates (rather than easier and more straight-forward)…Linear models of teaching will not suffice here, nor will constructions of outcomes that push only for clarity and certainty" (p. 36).

In the United States, educational decisions about curriculum, budget, and teacher hiring have always been made at the local level, although states are in control of establishing criteria for teacher education and certification. For this reason, it was particularly notable when the National Board of Professional Teaching Standards (NBPTS) was formed in 1987. The NBPTS established a process in which practicing teachers from any state may apply to become a National Board Certified Teacher (NBCT).[4] The performance-based assessment process takes a year; it includes evaluation of portfolios submitted by the candidates and a series of assessments. The portfolios include videotapes of a candidate's teaching, evidence of student learning, and samples of student work. The assessments include written responses to questions specific to the applicant's area of teaching. Approximately 40 percent of the candidates who apply complete the process to become NBCTs in the first year, while 65 percent do so by the end of three years. The process currently costs $2,500. Some states have begun to assist with the cost, and many now provide an increase in salary or a one-time bonus to NBCTs. For example, NBCTs in North Carolina receive a 12 percent increase in their base pay; in California, NBCTs who teach in "high-priority" schools for four years may receive a $20,000

[4]Applicants must have a bachelor's degree, hold a state teaching license, and have taught for three years prior to submitting their application.

merit award. According to Goldhaber and Anthony (2005, p. 2), "In both its scope and expense, NBPTS is arguably the most significant national development in teacher policy in the last two decades." Although the NBPTS certified fewer than 200 teachers in 1993–94, more than 55,000 teachers obtained board certification by June 2008 (NBPTS 2008).

NBPTS assessments are based on a set of standards called "What Teachers Should Know and Be Able to Do" (NBPTS 1989). According to Cavaluzzo (2004, p. 6), "The standards themselves are widely accepted in the education community and, since their introduction, have led to a realignment of standards by other accrediting agencies." The standards are as follows:

- Teachers are committed to students and their learning.
- Teachers know the subjects they teach and how to teach those subjects to students.
- Teachers are responsible for managing and monitoring student learning.
- Teachers think systematically about their practice and learn from experience.
- Teachers are members of learning communities.

There is relatively little in the current literature about students' views of teacher effectiveness. Although student input is often considered at the college level, Burnett and Meacham (2002) argued that younger students should not be forgotten and suggested the creation of an instrument to be used with elementary students that would include the dimensions of warmth, fairness, flexibility, and clarity.

Darling-Hammond and Sykes (2003) made several suggestions about how to provide quality teachers in the face of growing teacher shortages. Because distributional problems, as well as shortages of qualified teachers in certain fields, are the main difficulties, lowering standards is not the way to meet the problem. Alternative certification programs vary, but some quality programs have actually strengthened licensure requirements. Innovative approaches for motivating teachers to move away from home to work in undesirable situations are needed; these might include scholarships, salary incentives, and better working conditions. Attrition is also a major problem; support for teachers in service, especially new teachers, is essential.

## 3.5 Research on the Effectiveness of Teachers

Studies in this section are divided into three general groups: those using traditional methods of research; those using value-added approaches; and those using observations, interviews, or ethnographic approaches. Note that these loose categories frequently overlap somewhat.

### *3.5.1 Studies Using Traditional Statistical Methodologies*

In a classic study, Avalos and Haddad (1981) summarized reviews of teacher effectiveness research in seven regions of the world, noting, "There is little or no agreement about what to expect from teachers, even within any one setting. Quality has meant different things at different times and expectations range over a wide spectrum" (p. 7). In the study, teacher effectiveness "was loosely defined in terms of the changes which take place in the knowledge, attitudes, and behaviors of individuals and communities as a result of teacher involvement" (p. 14).

Avalos and Haddad divided the reviews according to factors relating to the teaching situation: teacher factors such as age, ability, knowledge, and experience; and school system characteristics, such as location,

management, resources, syllabus, and salary. They reported that most research related teacher variables to the teaching situation and that "All studies assumed relationships to be unidirectional, from teacher to pupils, as well as linear" (p. 32). A few of their key findings are summarized below:

- Training and certification were found to have an effect on student achievement, and "training was also found to be important in producing teacher behavioral changes assumed or empirically attested to be positively related to achievement" (p. 2).
- The effect of higher qualifications (university graduates versus teachers with fewer years of study) was not clear, with well-designed studies finding a positive effect in some countries and not in others.
- Some methods of teacher training—including microteaching,[5] simulation, role playing, and the use of case studies—were consistently reported to be effective in promoting changes in teaching techniques.
- Female teachers were generally reported to be "better-adjusted and more job-satisfied" (p. 34).
- Among teacher attitudes, the impact of negative teacher expectations was noted.
- The "discovery-inquiry" method proved in many cases to be superior for promoting higher levels of cognitive skills.
- In some countries, the "indirect" mode of teaching was related to achievement, and in others not. In this respect, the authors mentioned the desirability of studying the interaction between different cultural variables and teaching methods.

Among the authors who emphasized teachers' professionalism, Rizvi and Elliott (2005) identified four dimensions: teacher efficacy, teacher practice, teacher leadership, and teacher collaboration. Cheung's research reported on the measurement of teacher efficacy in Hong Kong and defined it as the extent to which teachers believe they will be successful in influencing how well students learn. "Efficacious teachers are more likely to stay in teaching, put more time into teaching and show greater effort in classroom planning and organization and greater enthusiasm for teaching" (Cheung 2006, p. 436). Cheung found that female teachers were significantly more efficacious than male teachers, that years of experience were weakly but significantly related to levels of efficacy, and that educational level did not have a significant effect on the efficacy level of this group of teachers.

### 3.5.2 Research Using Value-Added Models

Value-added methodologies are designed to assist in learning what part of a student's performance on a standardized test can be attributed to the effect of the teacher.[6] This kind of methodology has two key characteristics:

- **The use of gain scores rather than absolute scores.** It has always been difficult to interpret test scores for individual students or groups of students because they do not give information about characteristics of the students' backgrounds, socioeconomic status, family interactions, etc. In addition, it cannot be discerned from a single score whether

[5]Microteaching is a method of evaluation by which a teacher prepares a short lesson that is videotaped and then analyzed in detail by the teacher and colleagues. The term is used to indicate that it provides an "under the microscope" view of the teaching.

[6]The definition of value-added used in this paper is provided by Harris and Sass (2007a, p. 4, footnote 3): "the teacher's marginal product with respect to student achievement."

a given student has shown any growth since the previous year. Value-added approaches commonly compare the score obtained by the student the previous year to the score obtained in the present year to produce a gain score. Use of the gain score assists in controlling for many of the student and school variables that may influence achievement, as well as in indicating the growth the student has made between the two test administrations. Thus, this approach makes it possible to separate the impact of a teacher in a given grade on student test performance from the influence of teachers in previous grades.

- **The use of complex statistical procedures to assist in isolating the effect of the teacher.** Value-added methodologies use the gain score concept, but in most instances also add complex statistical methodologies to control for as many of the variables that are influencing the student's gain score as possible.

Braun (2005) explained value-added models in non-statistical language in a small handbook for the Educational Testing Service. The handbook includes many cautions for the lay reader.

### The Effect of Teachers on Student Learning

One of the key questions addressed in value-added models is whether teachers and schools can be shown to have any influence at all on student learning. Although parents and those who have worked in schools have never doubted this, it has been an open question among researchers in the United States since the Coleman report in the 1960s pointed out the strong effects of socioeconomic background and the home environment of the child (Coleman et al. 1966). Since the Coleman report found relatively small effects of differences in the measured attributes of schools on student achievement, this finding has frequently been interpreted as meaning that schools, and therefore teachers, do not make a difference. Studies such as the one by Rivkin, Hanushek, and Kain (2005) have begun to provide data that lay this concept to rest. Rivkin and his colleagues used data on more than half a million students in grades three to seven in over 3,000 Texas schools to obtain estimates of teacher and school effects on student learning. "The results reveal large differences among teachers in their impacts on achievement and show that high quality instruction throughout primary school could substantially offset disadvantages associated with low socioeconomic background" (Rivkin, Hanushek, and Kain 2005, p. 419). Goldhaber and Anthony (2005, p. 4), citing an earlier study, pointed out that, "Hanushek [1992], for instance finds that, all else equal, a student with a very high-quality teacher will achieve a learning gain of 1.5 grade level equivalents, while a student with a low-quality teacher achieves a gain of only .5 grade level equivalents. Thus, the quality of a teacher can make the difference of a full year's learning growth."

### The Impact of Teacher Education on Student Learning

The impact of teacher education on student performance in standardized achievement has perhaps generated the most controversy, as findings have been contradictory.

Goldhaber and Brewer (1997) used data for 5,149 10th-graders in public schools from the 1988 National Educational Longitudinal Study (NELS) to estimate the impact of school characteristics on student learning as measured by a 10th grade mathematics test. Commenting on earlier production function studies done by economists,[7] they noted that the variables

[7] A production function study is one that relates inputs to outputs. The process intervening between the inputs and outputs is referred to as a production function.

were typically "very crude. Degree level alone does not distinguish between colleges of differing quality, nor when the degree was granted, nor does it convey any information about college major, certification requirement fulfilled, or subsequent professional development. Teacher motivation, enthusiasm, and skill at presenting class materials are likely to influence students' achievement, but are difficult traits to accurately measure and are thus omitted from standard regression analyses" (p. 5). Further, "The conventional view that observable school inputs, and teachers in particular, do not positively impact student achievement rests on somewhat shaky empirical grounds. The main problem is likely to be omitted variable bias arising from inadequate data and extremely crude proxies for teacher skill found in most educational production functions" (p. 5).

Goldhaber and Brewer found that students of teachers with a certification, bachelor's degree, or master's degree in mathematics were more likely to obtain higher test scores. They pointed out that the impact of teacher degree level was statistically insignificant when the subject of that degree or certification was not taken into account—a finding in line with the previous literature. However, when degree subject was considered, the model showed that students clearly scored higher on mathematics tests when their teachers had mathematics degrees. Some aspects of teacher behavior also were found to influence student achievement. For example, using data from the NELS surveys completed by the teachers, Goldhaber and Brewer found that teachers who reported having little or no control over their teaching technique were linked to significantly lower test scores.

Wenglinsky (2002, p. 2) noted that "A possible reason for the lack of large school effects in quantitative research is the failure of such research to capitalize on an insight from qualitative research: the central importance of the classroom practices of teachers." He investigated how math and science achievement levels of more than 7,000 eighth graders on the 1996 National Assessment of Educational Progress (NAEP) were related to measures of teaching quality, teacher characteristics, and student social class background.[8] With regard to teacher characteristics, he found that student achievement was influenced by both teacher content background (such as a degree in math or math education) and professional development coursework. Professional development in how to work with diverse student populations (including students with limited English proficiency and students with special needs) had especially significant effects. Teacher classroom practices had the strongest impact on achievement, showing that students performed better when the teacher provided hands-on learning opportunities and focused on higher order thinking skills. The total impact of the teacher variables was greater than that of the students' socioeconomic status.

The Abell Foundation (2001) reviewed many studies on the impact of teacher certification. It concluded that there was little evidence to support the certification process, although "there is credible evidence pointing to a link between teachers' verbal skills and academic success." It suggested dropping licensing requirements in favor of requiring prospective teachers to take a vocabulary test. Darling-Hammond, noting that the Abell Foundation "has an ideological agenda rather than a research agenda," defended the certification process as "the one lever we have to say that teachers will know certain things before they go into the classroom" (Archer 2001).

In 2005, Darling-Hammond et al. studied the effects of teacher certification status for 4,400 teachers on

[8]The NAEP is administered every year or two in various subjects to a sample of U.S. students in grades 4, 8, and 12.

achievement gains of 132,000 fourth and fifth graders from 1995 to 2002 in the Houston, Texas, public schools. They found a positive correlation between student characteristics and achievement to teachers' certification status, experience, and degree levels.

The study included alternative certification pathways such as Teach for America (TFA), a program that attracts many non-education graduates from high-quality colleges. Selected applicants participate in a summer training program and commit to teach in high-needs public schools for at least two years.

Overall, the study found that "teachers with standard certification were found to be significantly more effective in raising student test scores than teachers without certification or with substandard certification" (Darling-Hammond et al. 2005, p. 21). Regarding TFA, the researchers found "There is no instance where uncertified Teach for America teachers perform as well as standard certified teachers" (p. 25).[9] However, students of the small group of TFA teachers with standard certification performed about as well as those of other certified teachers and achieved significantly better results in mathematics on the Texas Assessment of Basic Skills.

The authors commented that "Certification is, of course, only a proxy for the real variables of interest that pertain to teachers' knowledge and skills. These include knowledge of the subject matter content to be taught and knowledge of how to teach that content to a wide range of learners, as well as the ability to manage a classroom, design and implement instruction and work skillfully with students, parents, and other professionals" (Darling-Hammond et al. 2005, p. 24).

[9]Wendy Kopp of Teach for America responded to this study with a critique on its website (Trei 2005).

Two studies in New York City also studied the effects of different pathways to teaching. Kane, Rockoff, and Staiger (2006) used data from the city's Department of Education covering the 1998–99 to 2004–05 school years, in grades four through eight. The study sample included about 10,000 teachers classified as certified, uncertified, TFA, New York City Teaching Fellow (an alternative certification program), or international hire (certified teacher from another country). In reading, students of certified teachers did better than those of teaching fellows. In contrast, no difference was found between certified teachers and teaching fellows or uncertified teachers in their impact on math achievement. Students of international hires scored lower in math than those assigned to certified teachers, while students of TFA teachers achieved higher scores in math.

Teaching effectiveness was found to improve during the first few years of experience. Teaching fellows and traditionally certified teachers left teaching at similar rates; in contrast, TFA teachers usually left after completing their two-year commitment. Kane, Rockoff, and Staiger estimated that the relatively higher gains of TFA students, at least in math, compensate for the cost of higher TFA turnover. A key finding is the extremely large variation within groups, as compared with the relatively small differences between them. The authors concluded by recommending that greater attention be given to attracting and keeping high-quality teachers, and to evaluating them carefully in their first few years in order to remove ineffective teachers from the teaching force before they are given tenure.

Boyd et al. (2006) undertook a similar study in New York City. They pointed out that "the distinction between alternative and traditional routes can be quite blurry" (p. 182), noting some interesting differences between entrance qualifications of the groups on var-

ious pathways. For example, in the 2003–04 school year, none of the new TFA candidates and less than 2 percent of the teaching fellows had failed the general knowledge certification exam the first time they took it, compared with 16 percent of certified teachers and 23 percent of temporary license teachers. Similarly, 44 percent of teaching fellows and 70 percent of TFAs had graduated from highly competitive colleges, as compared with 11 percent of college-recommended teachers.[10]

The study yielded results for English/language arts similar to those of the Kane, Rockoff, and Staiger study, with students of teaching fellows and TFA teachers showing lower gains. However, whereas students of TFA teachers had scored higher in math in the Kane, Rockoff, and Staiger study, Boyd et al. found that their math test scores were similar to those of college-recommended teachers; students of teaching fellows and the other groups showed the smallest gains. As in other studies cited, student test scores improved with teacher experience in the first few years regardless of teacher certification, and the differences within groups of teachers were much greater than the differences between them.

Gordon, Kane, and Staiger (2006), writing for the Brookings Institution's Hamilton Project, presented data from another value-added study with similar findings: the students of noncertified teachers perform as well as those of certified teachers, but teacher quality varies widely within each group. The researchers cited five thought-provoking recommendations:

1. Reduce barriers to entry into teaching for those without traditional certification (not only because of the study findings, but also because an enormous teacher shortage is looming in the United States).
2. Make it harder to promote the least effective teachers to tenured positions. Teachers with the lowest 25 percent of student test scores (using value-added models) should not be eligible to receive tenure, although principals could receive permission to override this provision.
3. Provide bonuses to highly effective teachers who are willing to teach in schools with a high proportion of low-income students.
4. Evaluate individual teachers using various measures of teacher performance on the job.
5. Provide federal grants to help states that link student performance with the effectiveness of individual teachers over time.

The authors recommended keeping the current certification system and provided an interesting discussion of some problems and pitfalls inherent in their recommendations. For example, they noted that testing is not typically mandated in every grade, and standardized tests are rarely administered in kindergarten and grade 1, so value-added methodology is not possible in those grades. They also asked if the value-added statistics should control for race and socioeconomic status, which would implicitly lower expectations, and if teachers should be compared only within schools or within districts.

### The Influence on Student Learning of Performance on Teacher Tests

Goldhaber (2007) addressed a more specific aspect of teacher certification: the relationship between teachers' scores on tests required for certification and their students' achievement scores. Using data from North Carolina, he found positive relationships between

[10]College-recommended teachers are those who, by virtue of having completed a state-approved teacher training program, are automatically qualified for certification in that state.

some teacher licensure tests and student achievement. The findings indicate that states face a tradeoff in setting cutoff scores on tests: if the cutoffs are set low, ineffective teachers can enter the labor force; if they are set too high, some people who would have been excellent teachers may be lost to the system. "The research presented here suggests that licensure test performance is clearly not a 'silver bullet' credential that can be used to predict teacher effectiveness. If anything, the findings speak to the need for districts to be selective when hiring teachers" (p. 31).

Harris and Sass (2007a) used nine years of data from Florida, linking students' achievement scores to their classroom teachers and studying the effects of teachers' college coursework, precollege entrance exam scores, and in-service training. They found "no evidence that teachers with higher college entrance exam scores or who receive undergraduate degrees in the subject they teach are more effective than other teachers" (p. 28).

### The Effect of NBPTS Certification on Student Learning

Ballou (1998) and Podgursky (2001), among others, have criticized the NBPTS. Ballou questioned whether the NBPTS was able to identify superior teachers, and Podgursky asked whether the states should be subsidizing national certification, saying, "We have no evidence that this costly and time-consuming process is actually any better at identifying superior teachers than assessments from supervisors, principals or parents" (p. 1). Several studies have subsequently been undertaken using value-added models to learn whether teachers with board certification are associated with better student test scores.

Vandevoort, Amrein-Beardsley, and Berliner (2004) compared the academic performance of teachers with and without NBPTS certification in 15 Arizona school districts, using four years of results from the Stanford Achievement Tests (SATs) in reading, mathematics and language arts, in grades three through six. They found that students of NBCTs scored higher than students of non-NBCTs (teachers in the same school districts). The effect across grades and subject areas was the equivalent of 1.2 months' achievement, and was greater in math and reading than in language arts, possibly because the SAT is not as closely related to the Arizona curriculum in language arts (Arizona language standards place an emphasis on production of writing samples, whereas the SAT uses a multiple-choice format).

The Vandevoort, Amrein-Beardsley, and Berliner study included online surveys of teachers and principals. Principals rated 85.4 percent of their NBCTs as "one of the best teachers" they had known, although one principal stated that his NBCT was one of the worst teachers he had known. The authors stated that "false positives" and "false negatives" in the NBCT pool are likely.[11] In the NBCTs' response to a question about the ways in which certification had made them better teachers, nearly two-thirds cited the process of reflection inherent in many of the certification requirements. About one-fourth thought that participation in the certification process had resulted in improved student achievement, while another 14 percent reported that they had become more analytical in their approach to teaching.

Cavaluzzo (2004) examined the association between student gains in math in grades 9 and 10 and NBPTS certification, using 108,000 student records from Miami-Dade County for the 1999–2000 and 2002–03 school years. Controlling for a number of indicators

[11] A false positive would be a teacher who passed the NBPTS certification but is not actually a good teacher; a false negative would be an excellent teacher who did not pass.

of student motivation and performance, she reported that each of the teacher quality indicators made a positive, significant contribution to student outcomes with the exception of undergraduate school quality. The gains were smaller if the teacher failed or withdrew from the NBPTS certification process.

Goldhaber and Anthony (2005) matched 771,537 students in grades three through five with their teachers using data from 1996–97 to 1998–99. They found consistent evidence that NBPTS identifies more effective teacher applicants and that NBCTs are more effective than those who never applied; they also found the effects of NBCTs to be stronger in the early grades and with lower socioeconomic status students. Students taught by future NBCTs scored higher the year before their teachers started the application process, and scored lower during the year their teachers participated in the application process. Participation in the process itself was not found to increase future effectiveness. Furthermore, the test scores of students taught by NBCTs did not return to the levels recorded before the application process in following years. The authors suggested that this finding merits further research.

In a more recent study, Harris and Sass (2007b) used information about teachers in elementary, middle, and high schools in Florida over a four-year span to link students and teachers to specific classrooms and to estimate models of student achievement gains over three years. Their study yielded mixed results. NBCTs were more effective than other teachers before starting the certification process, and the effect was higher for black students and students receiving free or reduced price lunches. However, they found no evidence that the certification process itself improved teacher effectiveness and, like Goldhaber and Anthony, noted that NBCT-related student test scores dropped during the year of application and did not return to previous highs after that year. Overall, the effects produced by NBCTs varied by subject and grade level, and according to the test used.

The NBPTS itself put out a small booklet compiling research on the effects of board certification, including both positive and negative findings. The booklet cited several studies of NBCTs, suggesting that their students have "deeper understanding" of materials learned, and mentioned survey data that show that the average NBCT is involved in almost 10 leadership activities. More than 80 percent of NBCTs say they mentor struggling teachers, while 90 percent report that they mentor candidates for board certification (NBPTS 2007, p. 12).

### The Effect of Merit Pay on Student Learning

Dee and Keys (2004) used a value-added methodology to study the effects of a merit pay system in Tennessee on student performance. By using a sample created for a large class size study in which teachers and pupils had been randomly assigned, they avoided one of the major validity problems inherent in this research. Tennessee's merit pay system used observations and evaluation protocols to assess teachers on several different areas of competence, enabling those who applied to move progressively up a career ladder. Test score data from the class size study were linked with teachers at different levels of the career ladder, with mixed results. Students assigned to teachers at lower rungs of the ladder showed significant gains in math scores. However, student gains in reading achievement were only significant for those whose teachers were at the top of the ladder.

### Teacher Characteristics Associated with Student Learning

The studies discussed thus far in this section all worked around "black boxes" obscuring not only what is really happening inside classrooms, but also

the actual teacher education, student teaching, and professional development experiences teachers have had. Furthermore, they have little to tell us about teacher effectiveness during students' highly important first grades of schooling. The consistent findings of large variations within given categories of teachers mean that it is essential to know more about what is in those black boxes in order to understand what makes teachers effective.

The two following studies, both from the United Kingdom, combined a value-added approach with other data to help provide some of the missing information about classrooms and teachers.

Hay McBer (2000) identified three main factors within teachers' control that significantly influence pupil progress, noting that these factors will predict over 30 percent of variance:

- **Professional characteristics:** the underlying dispositions and patterns of behavior that drive what teachers do—these are related to fundamental values, commitments, and attitudes
- **Teaching skills:** the "micro-behaviors" or the specific skills of teaching—these can be identified and learned
- **Classroom climate:** an "output measure" of students' collective perceptions about working in a particular teacher's classroom—this relates very strongly to students' motivation to learn and work to the best of their ability

Hay McBer found that information about teachers' age, qualifications, experience, etc., did not allow the researchers to predict teaching effectiveness. "Whilst the data that existed on the achievement gains of pupils was not ideal, it proved possible and practicable to reach broad judgments about teachers' effectiveness…The project also concluded that work is required to improve the capacity of schools to make judgments about pupil progress" (p. 69).[12] Table 1 presents a summary of Hay McBer's list of the professional characteristics of teacher effectiveness.

From 2001 to 2005, Day et al. (2007) studied 300 teachers in grades two, six, and nine in 100 schools representing a cross section of types and levels in England. The researchers conducted interviews and focus groups with teachers, school leaders, and students, and linked those findings with value-added results on student achievement tests. They found that variations among teachers in grades six and nine accounted for between 15 and 30 percent of the variance in student progress. Six professional life phases of teachers were identified. No systematic links between effectiveness and age, life phase, or gender were noted; negative links were found for schools with a high incidence of students qualifying for free lunch[13] and groups of students exhibiting unusually difficult behavior problems, and primary teachers were more likely to sustain their commitment through a career than were secondary teachers. Commitment and resilience were found to be characteristics of effective teachers, while the quality of school leadership, professional development that addressed the needs and concerns of teachers, and opportunities for collaboration with peers were key to retaining positive attitudes through the professional life phases.

### *3.5.3 Studies Using Classroom Observations, Ethnographic Approaches*

The value-added studies discussed above sometimes compared alternative certification programs but gave

[12]The appendixes of this study, detailing the analysis, were not available for use in this review.

[13]Both in England and the United States, the percentage of students in a school receiving government-subsidized free lunches is used as an indicator of the poverty level of the population served by that school.

*Table 1: Professional Characteristics of Effective Teachers (Hay McBer)*

| | |
|---|---|
| Professionalism | ▪ **Challenge and support:** a commitment to do everything possible for each student and enable all students to be successful<br>▪ **Confidence:** the belief in one's ability to be effective and to take on challenges<br>▪ **Creating trust:** being consistent and fair; keeping one's word<br>▪ **Respect for others:** the underlying belief that individuals matter and deserve respect |
| Thinking | ▪ **Analytical thinking:** the ability to think logically, break things down, and recognize cause and effect<br>▪ **Conceptual thinking:** the ability to see patterns and links, even when there is a lot of detail |
| Planning and setting expectations | ▪ **Drive for improvement:** relentless energy for setting and meeting challenging targets, for students and the school<br>▪ **Information seeking:** a drive to find out more and get to the heart to things; intellectual curiosity<br>▪ **Initiative:** the drive to act now to anticipate and preempt events |
| Leading | ▪ **Flexibility:** the ability and willingness to adapt to the needs of a situation and change tactics<br>▪ **Holding people accountable:** the drive and ability to set clear expectations and parameters and to hold others accountable for performance<br>▪ **Managing students:** the drive and ability to provide clear direction to students and to enthuse and motivate them<br>▪ **Passion for learning:** the drive and ability to support students in their learning and to help them become confident and independent learners |
| Relating to others | ▪ **Impact and influence:** the drive and ability to produce positive outcomes by impressing and influencing others<br>▪ **Team working:** the ability to work with others to achieve shared goals<br>▪ **Understanding others:** the drive and ability to understand others and why they behave as they do |

Source: Hay McBer 2000.

little information about their characteristics. Humphrey and Wechsler (2007) did case studies of seven alternative certification programs in the United States, finding that they varied considerably in length and type of coursework required, student teaching requirements, quality of mentoring and supervision, and characteristics and previous experience of participants. In contrast to planners' hopes that such programs would attract more men as well as experts in math and science, three-quarters of the participants were women, and very few had math or science expertise. Many of the participants had previous classroom experience as aides or substitutes. Humphrey and Wechsler found important connections between the characteristics and background of the participants and the program and school setting into which they were placed.

Two cases illustrate the danger of drawing sweeping generalizations about the role of alternative certification programs: one case involves a woman with a limited educational background who was placed into the school where she had previously worked as an aide. She already had classroom management skills and an understanding of how to teach reading and math. Provided with a supportive network in the school, she was able to become an effective teacher. In contrast, a much more highly educated woman from the business world was placed in the same urban school but was never assigned a mentor. Not knowing how to teach her subject or how to manage a classroom, she struggled with her problems in isolation and felt too exhausted to benefit from her evening credentialing classes.

Allington and Johnston (2000) observed and interviewed fourth grade teachers in the United States who had been identified as excellent teachers, noting substantial convergence between their findings and several lists of characteristics of highly effective teachers. Their results highlighted the importance of the nature of classroom talk, which was "personalized and personal"; these teachers "found what was productive about a response or behavior, supported the partially correct, turned attention to the process and encouraged further thinking or reflection, even about a 'correct' answer" (p. 14). These excellent teachers used a variety of materials at different levels, including relevant and meaningful resources beyond textbooks—such as historical fiction, items from the Internet, or materials developed in projects such as planning a class trip. Instruction was well organized, but teachers took advantage of "teachable moments," prioritizing learner engagement, and "strategically arranged for students to have choices" (p. 16). Evaluation tended to be based on improvement, progress, and effort.

Avalos and her colleagues did a classic ethnographic study of primary grade classrooms in Bolivia, Chile, Colombia, and Venezuela in order to better understand the causes of school failure. They found that teachers' relationships with students were characterized by irony and "intermittent deafness"—the practice of selectively ignoring responses from some children. Teachers also labeled children publicly and did not stimulate reflection about errors made. Students' educational experience included dictation, memorization of meaningless items, "teaching as a guessing game," and a general emphasis on form rather than content (e.g., valuing only beautiful handwriting in children's copying of text). Teachers tended to blame poverty, students' personal deficiencies, or uncooperative parents for children's failure and did not see themselves as having a role in it. The researchers commented that, although the definition of school failure is usually repeating a grade, the educational system in some of these classrooms was failing even those children who were supposedly succeeding. They concluded that "in this atmosphere, some children would never comprehend what they read, use their imagination to write a story, or understand why textbooks have information that is so different from their own experience" (Avalos 1986, p. 138).

Carnoy (2007) visited classrooms in Brazil, Chile, and Cuba to try to learn why Cuba's performance on the tests given by UNESCO's Laboratorio Latinoamericano de Evaluación de la Calidad de Educación (LLECE) in 1997–98 so far surpassed those of all other Latin American countries.[14] LLECE tests of language and mathematics were given to third and fourth graders in 13 Latin American countries. The test scores of Cuban students were more than 1 standard deviation higher in language and about 1.5 standard deviations higher in math than the scores of students in the other countries in the sample. In contrast to the other countries, in Cuba there was little difference between rural and urban scores or among different socioeconomic groups. Carnoy developed the concept that Cuba has "social capital" making a strong contribution to the educational process. Cubans have an overall climate supporting children's health and education which has produced literate parents and teachers who are well educated, have reasonable status, and receive pay comparable to that of doctors.

The researchers videotaped third grade math classrooms in the three countries; reviewed textbooks; and interviewed education officials, principals, teachers,

[14]Also see Hunt (2003) for a brief account of a visit to Cuban schools, and PREAL (2008) for a report on the results of UNESCO's Second Regional Comparative and Explanatory Study (SERCE) and "the notable results of the Cuban educational system."

children, and parents. They found that principals in Cuba provided support and regular supervision to teachers, and that both teachers and principals felt responsible for the learning of their students. The interviews with children and teachers found a lower incidence of school fights in Cuba than in Brazil and Chile, and the researchers found that virtually no students were working in Cuba. In Cuban classrooms, they found a higher incidence of time on task. Classrooms were quite teacher directed, contrasting strongly with the "group work" in Brazil, in which children were seated in groups but were not really working. The review of texts showed that Cuba focused on fewer objectives, but taught them all with consistently high expectations for student learning. In Brazil, in contrast, there was a wide range of difficulty in the textbooks; while some teachers covered the more difficult topics, other teachers taught fewer topics.

Arregui, Díaz, and Hunt (1996) undertook a teacher training study in Peru as part of preparation for a proposed reform of the system. An ethnographic study in two teacher training institutions found that the professors gave little attention to their teaching. They were absent from class in 30 of the 98 hours observed. When they were present, they were only actually teaching for 28 hours. The other hours were spent with the professor doing his or her own work or sitting in the back correcting papers while students gave presentations that were generally poorly planned and received no feedback. The students developed a comfortable culture of their own, selling items to each other and focusing on social interactions. Although it is sometimes said that teachers in Latin America are taught theory and not practice, in these classrooms aspiring teachers were taught neither. Students presented homework consisting of brief passages copied directly from books, and assignments were returned with no comments. "We could confirm that the material that these professors offer is poor, scarce, and very simplified, which causes the exams to be very easy, since they cover so little. Also, their classes are very short and in general they are willing to grant hours of class time for extra-curricular activities" (Arregui, Díaz, and Hunt 1996, p. 23). The students read little, and many had difficulty expressing themselves in writing.

One purpose of the study was to learn why the students thought they were there and what they hoped to get out of the experience. Many revealed that they hoped to rescue poor children by giving them love. The goals implied or expressed did not include student learning. Unfortunately, the models proffered in practice teaching did not give aspiring teachers the means of achieving their goal of being able to reach the children.

## 4. How to Improve Teacher Effectiveness

### 4.1 School Climate, Leadership, and Supervision

Teachers do not work in a vacuum, and an individual teacher working alone cannot change school culture. However, there is a vast literature on effective schools showing that even in very difficult environments, teachers can become effective and their students can learn if the schools provide a clear mission, high expectations for success, instructional leadership, frequent monitoring of student progress, opportunity to learn and student time on task, a safe and orderly environment, and home-school relationships that provide understanding and support from parents (Association for Effective Schools 1986). This is consistent with Carnoy's findings in Cuba.

Much literature also mentions the importance of reflection and collaboration. For example, Barth (1990)

wrote of the need to build a "community of learners" in which principal and teachers together engage in ongoing learning work in a collaborative culture with the goal of improving student learning. Gordon (2004) noted that trust among teachers, between teachers and principals, and between teachers and parents is an essential ingredient in developing a collaborative culture.

School autonomy over personnel management and process decisions appears to be correlated with improved student performance, according to Vegas and Petrow (2008). However, they also mentioned that decentralization alone does not automatically provide local schools and principals with the support and resources needed to develop more effective learning climates.

Elmore discussed the difficulties involved in improving school leadership. He stated that collaboration is necessary but not sufficient for improvement: "In other words, participation in collaborative work increases commitment and satisfaction among teachers, but it is unlikely to result in changes in teachers' practice, skill, or knowledge in the absence of a clear organizational focus on those issues" (Elmore 2004, p. 17). He argued that it is necessary to recognize that both teachers and principals need to view their work as being comprised of a set of competencies and skills that can be learned. He presented the need for "distributed leadership," pointing out that in learning organizations, "adults in the organization all frame their responsibilities in terms of their contribution to enhancing someone else's capacity and performance" (p. 32). He provided five principles for distributed leadership (pp. 20–21):

1. The purpose of leadership is the improvement of instructional practice and performance, regardless of role.
2. Instructional improvement requires continuous learning.
3. Learning requires modeling.
4. The roles and activities of leadership flow from the expertise required for learning and improvement, not from the formal dictates of the institution.
5. The exercise of authority requires reciprocity of accountability and capacity.

Fink and Resnick (2000) describe the process used in New York City's District Two to improve and support the leadership of principals.[15] Two concepts are integral to the process:

- Schools are considered to be "nested learning communities" and the principal is responsible for establishing a culture of learning in the school.
- Both principals' and teachers' learning is considered to be a "cognitive apprenticeship."

An apprenticeship is the type of learning people use to learn crafts, by observing masters at work. Everyone in the school system is considered to be a learner; principals meet regularly to discuss their problems, visit each other's schools to observe teachers, and analyze what they see. Meetings for principals "treat problem sharing as a positive process of professional engagement…problem sharing is treated not as evidence of poor performance but as the creation of an opportunity for figuring out improvements in practice" (Fink and Resnick 2000, p. 13). The superintendent and staff provide individualized coaching for principals in the same way that principals are expected to provide coaching for their teachers. Principals also mentor each other.

[15]District Two is now one of the highest performing urban school districts in the United States, and 60 percent of its students are low income (Elmore 2004).

Much of the literature on school leadership is summed up in "Seven Strong Claims about Successful School Leadership" (Leithwood et al. 2006).

## 4.2 Improving Teacher Education

Leu (2005) stated that "The literature makes clear that the robotic approach to teacher development produces neither the teaching skills nor the attitudes required for improving classroom approaches and student learning. It stresses that if teachers are to become reflective practitioners and users of active teaching and learning methods they must participate in professional development programs that advocate and use these same models" (p. iii). Obviously, this principle holds true for both preservice teacher education and for continuing professional development.

Vaillant (2002) highlighted an area that seems strangely overlooked in the literature. In Latin America, training is rarely provided to professors in teacher education institutions, evidently because no one thinks there is anything special they need to know. However, the dearth of possible trainers who already know how to teach with the new pedagogies being promoted has been a stumbling block in many large educational projects. Vaillant (2004b) reviewed several projects to improve teacher education in Latin America and provided a case study of one such effort, a successful project to develop four regional teacher training institutes in Uruguay (Project CERP—Centros Regionales de Professores). The project was planned and implemented in a very short time and, with hindsight, Vaillant commented that "Perhaps due to the urgency to get started and then the ongoing administrative pressures, it wasn't possible to provide adequate support to help the trainers diversify their teaching strategies" (p. 81).

As mentioned above, alternative certification programs can vary greatly in quality. Darling-Hammond (2006) provided a useful account of an effort at Stanford University to improve its Stanford Teacher Education Program (STEP) in secondary education, which had received a very critical evaluation. STEP offers a master's degree and a California teaching credential. Faculty collaborated in "redesigning courses to build on one another and add up to a coherent whole" (Darling-Hammond 2006, p. 122). Students' practice teaching assignments, which last throughout the 12-month program, were reviewed to develop strong relationships with a smaller number of schools and to make sure the cooperating teachers were experts in practices compatible with the program's vision of good teaching. Citing Cochran-Smith (2001), Darling-Hammond mentioned that outcomes of teacher testing may be thought of in three ways:

- Through evidence about the professional performance of teacher candidates
- Through evidence about teacher test scores
- Through evidence about impacts on teaching practice and student learning

Information is being gathered about all three outcomes for program graduates through performance in the classroom during student teaching, surveys and interviews of graduates, pre- and post-tests of teacher knowledge, and observations of teaching practice of novice teacher graduates. Stanford is also making collaborative plans with other teacher education institutions to link a sample of their graduates' teaching performance to students' test scores and other data collected about the graduates.

Elmore and Burney (1998) described an unusual professional development program offered for teachers in New York City's District Two. The district made a decision to devote most of its resources to professional development. To this end, it hired a group of well-qualified substitute teachers who were used as

needed to cover the classrooms of teachers being released for professional development purposes. In this way, a teacher who was deemed in need of improvement could be released for a week or two to visit the classroom of an excellent teacher. The visiting teacher would then return to the classroom to try out the new pedagogical strategies; at times, the "master" teacher would be released from the classroom to visit and assist the teachers who had visited. Supervisors or coaches were also made available to provide support to teachers trying new approaches. Principals were part of the overall learning community, as noted earlier.

Interestingly, the Escuela Nueva (New School) project in Colombia used very similar approaches to professional development when it first began (Schiefelbein 1993). Escuela Nueva was started as a special project for rural one-room schools. In the original program, teachers met in groups to discuss case studies exemplifying certain common problems and desired teaching practices, and were provided with self-paced teaching materials for the students. When new teachers entered the project, they were released from class to observe an Escuela Nueva classroom in action. As in District Two, the teachers would then return to their own classrooms and try out the new approach. The experienced teacher whom they had visited might then be released to come and assist a new teacher and discuss questions or problem areas. Students participated in student governments, and parents were encouraged to become involved. The basic idea has spread to several other countries including Guatemala, Nicaragua, and Peru.

Adekola (2007) provided recommendations for the improvement of the primary education program in Nigeria, including the following:

- The establishment of performance benchmarks for teachers, so that the teacher education program can be modularized and delivered through multiple modalities and over different time periods (see table 2 for a list of what teachers should know and be able to do)
- School-based mentoring and support systems that are incorporated into ongoing professional development programs
- Staff development for teacher educators that links their college work to practice in schools
- Study of the costs and benefits of various approaches for preparation and development of new teachers in order to provide policy makers with the information needed to make difficult choices

## 4.3 The Process of Change

Villegas-Reimers and Reimers (1996) pointed out that teachers are all too rarely included in the discourse and planning of proposed reform efforts, many of which include efforts to provide "teacher-proof" pedagogies. "That serious discussions of reform in education systems have overlooked the role and the potential of 60 million teachers is not just politically and administratively naïve (after all, who is going to implement the reforms), but it also shows poor understanding of the factors which influence educational opportunity in schools" (Villegas-Reimers and Reimers 1996, p. 470). They cited examples of teachers who did not use educational kits provided because they had received no training in their use and did not understand their importance. Many large reforms have proceeded one grade at a time—meaning, for example, that first grade teachers who start the reform in the first year are out of step with the other teachers when they return to their schools. It is difficult to create a climate of collaboration when one teacher or one grade is trying to change teaching practices alone.

Vaillant (2005) discussed the need to involve teachers' unions in planning educational reforms. In the

*Table 2: What Teachers Need to Know and Be Able to Do (OECD)*

| | |
|---|---|
| Content knowledge | ▪ Understand subject matter deeply and flexibly to help students create cognitive maps, link ideas, address misconceptions<br>▪ See how ideas connect across fields of knowledge and to life<br>▪ Make ideas accessible to others, understanding the perspective of the learner |
| Learner knowledge | ▪ Have knowledge of child and adolescent development and how to support growth in cognitive, social, physical, and emotional domains to interpret learners' statements and actions and to shape productive learning experiences<br>▪ Understand and respect differences linked to culture, family experience, forms of intelligence, approaches to learning, and the ability to teach in a way that connects with students<br>▪ Inquire sensitively, listen carefully, look thoughtfully at student work, and structure situations to allow students to express themselves |
| Motivating students | ▪ Understand what individual students believe about themselves, care about, and how to give them encouragement |
| Knowledge about learning | ▪ Decide which type of learning is most appropriate in specific circumstances, which material to use when and for which purpose<br>▪ Be able to use different strategies for teaching, evaluating students' knowledge and assessing their learning<br>▪ Have a capacity to understand the strengths of individual students<br>▪ Have a capacity to work with disabled students<br>▪ Understand how students acquire language (the gateway to learning) to build skills and create accessible learning experiences |
| Knowledge about curriculum resources and technologies to | ▪ Allow students to explore ideas, acquire and synthesize information, frame and solve problems |
| Knowledge about collaboration | ▪ Structure student interaction for more powerful shared learning<br>▪ Collaborate with other teachers<br>▪ Work with parents to learn more about their children and help shape supportive experiences at school and home |
| Capacity to reflect | ▪ Assess own practice and its impact to refine and improve instruction<br>▪ Continuously evaluate students' progress to reshape lesson plans |

SOURCE: OECD 2001.

best of cases, a union may be helpful in promoting teacher change. In some instances, Vaillant pointed out, decentralization efforts have affected teachers' unions negatively, since their administrative structures no longer match those in the newly decentralized system.

Discussing programs to provide teacher incentives or merit pay, Carnoy (2007) commented that such systems seem to be based on the notion "that teachers know how to increase student learning but are not willing to do so unless they get pay premiums. Yet there is little evidence that teachers are actually holding back on fully using their competence" (p. 102). Anderson (1991, p. 89) stated, "There is ample evidence that few teachers can engage in serious attempts to improve their teaching without the support of others." He listed several reasons why teachers often resist change, such as the lack of awareness that change is needed, lack of the knowledge and skill necessary to make changes, or the belief that change will make no difference (p. 84).

Garet et al. (2001) identified three core features of professional development programs that were linked to successful efforts to change teaching behavior: fo-

cus on content knowledge, opportunities for active learning, and coherence with other teacher learning activities. These core features interacted with three structural items:

- **The type of activity.** Activities can include single lectures in large group settings, participatory workshops, coaching, or teaching demonstrations in a teacher's classroom. There is an obvious interaction between the type of activity and the core feature, active learning; types of activities fostering active learning are more likely to assist in producing teacher change.
- **The duration of the training.** Professional development efforts that are sustained over time have greater impact on teacher behavior.
- **Collective participation.** Collaboration with colleagues in the same grade level, subject, or school can help produce a climate that supports teachers in making the difficult changes in behavior that are sought.

Joyce and Showers (1996) noted that a coherent professional development model should include changing what is taught, how it is taught, the social climate of the school, and the tools provided to students.

An interesting project using in-class coaching as part of its professional development model is currently in progress in three regions of Latin America. The Centers for Excellence in Teacher Training (CETTs), funded by the U.S. Agency for International Development, focus on the improvement of teaching in reading in grades one through three. The CETT in each region provides ongoing professional development to a group of teacher trainers, who each run workshops and provide in-class coaching to teachers in the project. The project has been evaluated twice, in 2004 (Chesterfield et al. 2004) and 2006 (Culver, Hunt, and Linan-Thompson 2006). In 2004, the evaluators established criteria for excellence in the teaching of reading/language arts and conducted classroom observations and interviews with teachers, placing teaching behaviors observed on a scale showing four stages of growth. It was found that CETT teachers were at higher stages of growth than were teachers in control groups. In 2006, evaluators returned to some of the same classrooms and found that many project teachers had continued moving up through the stages.

The findings suggest that changing teaching behavior is a slow process and that some behaviors are more easily changed than others. For example, it is relatively easy to turn one's classroom into an environment that promotes literacy by putting up posters, charts, student writing, etc. Most teachers did that quickly and enthusiastically within a few months. It is much more difficult to provide instruction that is differentiated for students with different needs and abilities, since that requires the thorough understanding and consolidation of everything learned in the project, not to mention extra resources and considerable time and effort. Many teachers were just beginning to do that after three years in the program. It was observed that, after three years, levels of teacher enthusiasm and commitment were still high; teachers valued the coaching and the opportunities to work with their peers. Many appeared to have been stimulated by seeing that the new strategies were actually resulting in progress they had not thought possible for their students.

Another finding from the CETT experience was the importance of involving principals and supervisors, and creating a corps of knowledgeable teacher trainers. When the project started, there were few professionals in the field of reading/language arts in the countries involved. Now there is a corps of professionals, some of whom have gone on to graduate work in

the field; also, some of the universities involved have created graduate programs in reading. Teacher education institutions in most of the countries have also participated in the CETT.

McKinsey & Company (2007) studied top-performing school systems including those scoring exceptionally well on the PISA, such as Finland and South Korea, or on the TIMSS, such as Singapore. The study also examined school systems found to be making rapid improvements on local tests, such as Boston, Chicago, and New York in the United States. This valuable study yielded three main conclusions about the practices used in high-performance systems:

- It is important to attract the best people. The researchers note that selection before entry into teacher training produces better results and is more efficient than selection after graduation from teacher education programs.
- It is necessary to provide ongoing, high-quality professional development to help teachers become and remain effective.
- It is essential to develop practices to ensure that all children get the specialized attention they need.

# 5. Applicability of Findings to Latin America

This section focuses on the relevance to the Latin American context of the literature reviewed in sections 3 and 4.

## 5.1 The Importance of Effective Teachers

The literature consistently finds that teachers make a difference to student learning, with several studies reporting that up to 30 percent of the variance in student test scores in a given year may be attributed to teachers. Another consistent finding is that within any group of teachers studied, certified or not, there is more variance within the groups of teachers than there is between them. The quality of a teacher can make the difference of a full year's growth in learning for a student in a single year.[16] This finding highlights the importance of observing and evaluating new teachers before the decision is made to grant tenure.

Although several authors cautioned that definitions of educational quality differ across cultures, in fact the literature reveals considerable agreement about the competencies and skills needed for teachers to be effective. The last section of this paper proposes a definition of teacher effectiveness based on a review of these characteristics.

## 5.2 Effects of Teacher Characteristics on Student Learning

Many studies report on the relative success of different groups of teachers without delving into the internal processes leading to teacher effectiveness, leaving a number of black boxes still to be explored. These include processes within classrooms and the varieties of support and professional development provided in schools. In addition, certification and various forms of alternative certification are grouped together in many studies, where in fact there are numerous variables involved, including the background of the students preparing to become teachers, the particular mix of courses and field experiences provided, and the connection with schools and support provided during teachers' first placement.

### *5.2.1 Certification*

There were mixed findings with regard to the effects of certification on student learning in the United

[16]It is worth remembering that these effects are cumulative for students who repeatedly were assigned to more or less effective teachers.

States. Some studies found no differences among certified, alternatively certified, and uncertified teachers; while others found that students of certified teachers did significantly better on standardized tests. Several studies showed that subject specialization or certification—especially in math—had an impact on student test scores, and noted that students of TFA teachers tended in math to do as well as or better than those of certified teachers. This result is likely due to the fact that TFA teachers are graduates of selective colleges and therefore could be expected to have better math backgrounds than graduates of typical teacher education programs.

With regard to literacy, the picture is different and caveats seem in order. Some of the value-added studies found that students of certified teachers achieve better scores in reading than students of uncertified or alternatively certified teachers, including TFA teachers. A highly specialized body of knowledge is involved in teaching reading, and non-education graduates are not likely to be familiar with the research-based methodology in this field. Furthermore, because standardized tests are not routinely administered in the earliest grades, and are often not considered valid at grade one, the value-added research yields virtually no information about the effects of teachers in the first three grades on the achievement of literacy. Literacy is a problem in most of Latin America's public schools, and teaching expertise in the first few grades is key for establishing literacy, the foundation for virtually all school learning to follow.

In the Latin American setting, where there is an especially strong need to encourage the professionalization of teachers, it would seem particularly unwise to abandon efforts to certify teachers. In the United States, all groups of teachers included in the value-added literature had bachelor's degrees, and most had passed tests ensuring competency in basic skills. In Latin America—where in some countries it cannot be guaranteed that teachers have basic competencies in reading, writing, and mathematics, and where standards for teaching still need to be widely established—there is a strong case to be made for increasing expectations for teacher education, not for abandoning them.

In the United States, the NBPTS has proven useful for identifying excellent teachers. Research indicates that NBPTS-certified teachers provide deep learning experiences that encourage critical thinking and problem solving; also, in many instances, their students do better on standardized tests, as compared with students of non-NBPTS-certified teachers. It is also interesting to consider that the incentives provided by many states to NBPTS-certified teachers serve as a form of merit pay while removing the difficulties involved in managing such systems at the local or school level where they could be subject to charges of favoritism or nepotism. It might be useful to develop a high-quality, voluntary certification system for teachers in Latin America to set the standard for teaching excellence.

### *5.2.2 Alternative Certification*

The findings in the United States regarding alternative certification are complicated by the fact that many teachers in such programs are taking courses and being mentored in their first years of teaching. In addition, professional development is offered in most schools; some schools provide mentoring or other informal support networks to new teachers, as well as careful supervision from principals and supervisors. In Latin America, systems typically provide much less support to new teachers.

Given the frequent findings that teachers from alternative certification programs perform about as well as certified teachers, and considering the need to entice

good students to enter teaching in Latin America, it would seem wise for Latin American countries to explore alternative avenues to certification for graduates in fields other than education. As Darling-Hammond (2006) pointed out, such programs can be effective if they are well thought out and carefully planned. Alternative certification programs should be flexible and adapted to the various backgrounds and needs of those who enter them. Research as to their effectiveness would be extremely helpful in identifying the factors most important for ensuring the success of beginning teachers.

### 5.2.3 Teacher Tests

As with certification, findings regarding the links between teacher performance on assessment tests and student achievement are mixed, with at least some researchers reporting that students of teachers who passed such assessments did better on standardized achievement tests. Some research suggests that teachers' verbal abilities may contribute to student performance.

In the Latin American setting, the use of a quality test of basic competencies and pedagogical knowledge seems important as a screening device. Research by McKinsey & Company (2007) would suggest that such tests should be administered before students' entry into teacher education programs. In contrast, teacher tests have been used primarily at the point of entry into teaching in many Latin American countries, sometimes as the sole criterion for hiring teachers, and even for decisions about tenure. This practice is followed in an effort to avoid corruption and guarantee transparency. However, research presented in this paper clearly shows the importance of evaluating teachers carefully in their first few years and of granting tenure only to those who are teaching effectively. Teachers should be hired and evaluated on the basis of multiple measures, and tenure should not be awarded on the basis of a single teacher test without in-class observations of teacher performance.

### 5.2.4 Specific Teacher Behaviors Linked to Student Learning

Several studies have found links between certain classroom methods and student learning. These include the use of hands-on learning; a focus on higher order thinking skills; use of the discovery-inquiry method; and professional development focused on diverse student populations, especially students with limited ability in the language of instruction and special needs students. In addition, studies find that opportunity to learn is a key underlying factor in student learning; students cannot learn what they have not been taught, and many Latin American classrooms are characterized by an ineffective use of time.

Many of the most important teaching behaviors are the small interactions that take place each day between teachers and students; for example, a teacher's response when a student gives an incorrect answer to a question. Interactions among students also contribute to student learning. Further detailed research on such interactions is needed to clarify not only which teaching behaviors lead to student learning, but also under which circumstances and with which students they are most effective.

### 5.2.5 Improvement with Experience and Teacher Attrition

One of the consistent findings across all studies is that teachers improve with experience, regardless of their initial route into teaching. However, another finding is that many teachers leave teaching after a few years, especially in areas of high poverty where students are in particular need of effective teachers. Since new teachers are often placed in the least desirable schools, this means that the neediest students

are subjected to a procession of teachers who are struggling to learn on the job.

Growth through experience is often mentioned as though it happens automatically, whereas the process may include considerable anguish for many struggling new teachers, especially for those who eventually give up and leave the profession. Beginning teachers have various types of experience; some have already worked in schools as aides or substitutes, and many have had some sort of student practicum or practice teaching experience. They also receive a range of support, from none at all to helpful mentoring from supportive principals and colleagues. More research is needed to determine what in this mix of factors is most helpful to beginning teachers. It is certain that for many teachers there is not a sufficient connection between the training they receive and the realities of the classroom. In Latin America, it would clearly be desirable to develop support systems that will help more teachers succeed and stay on the job.

## 5.3 Teacher Education

The literature makes it clear that teacher education in Latin America needs strengthening; both preservice teacher education and ongoing professional development are considered in this section.

### 5.3.1 Preservice Teacher Education

There are models of good practice in Latin America, but in general two deficiencies stand out: the professors need continued professional development themselves, and they need to work collaboratively in establishing links with schools and programs to mentor novice teachers as they enter the profession.

Teachers tend to teach in the style in which they were instructed. In Latin America, this too often has meant a teacher-centered approach requiring copying and memorization. Diagnosing students' needs and planning instruction to meet those needs is not common practice in Latin America, although the McKinsey & Company study (2007) found this to be one of the three most important features of high-performing school systems. Institutions providing preservice teacher education must provide models of exemplary practice in order to demonstrate for their students what such practice looks like. Education students need to experience teaching that is more student centered, uses active learning methods, encourages them to think, and uses formative evaluation in order to provide differentiated instruction and prevent student failure. To meet this challenge, professors in these institutions must receive continuing professional development and opportunities for graduate work in their specialties.

Activities that bring students as close as possible to classroom realities—for example, microteaching, simulation, role playing, and the use of case studies—were consistently reported to be effective in promoting changes in teaching techniques; professors must be trained in their use.

It is also essential that links with schools be strengthened and that teachers who receive student teachers in their classrooms be carefully selected to ensure that they are models of good teaching. In addition, programs to monitor and provide mentoring for beginning teachers should be created. The very creation of such programs should prove a valuable learning experience for professors who may be out of touch with the current realities and needs of the schools near them.

### 5.3.2 Ongoing Professional Development

The literature emphasizes the importance of lifelong learning for both teachers and administrators. This is true in any country, but it is especially important

in Latin America, where many teachers need assistance in moving away from traditional methods that are causing many students to fail. It is a mistake to assume that teachers would do better if they were only provided higher pay or more incentives. Most teachers know which of their students are not learning well, and most would do a better job if they knew how.

The research suggests that student learning is improved when teachers are given professional development in the content they are teaching and in working with students with special needs and those whose native language is not the language of instruction. Findings also indicate that student learning is improved when teachers provide active learning opportunities and focus on higher order thinking skills. Teachers need ongoing professional development that is centered in their schools, tailored to their needs at different career phases, and provides effective mentoring and in-class coaching. They need opportunities to collaborate with their peers and effective supervision and support as they endeavor to change their practices.

The literature suggests that teachers with a strong sense of efficacy and commitment are more likely to remain in the profession. These are not inborn traits; there are many instances of successful projects in Latin America showing that teachers' sense of efficacy and level of commitment are increased when they receive professional development that enables them to improve not only their relationships with their students, but also their students' learning.

## 5.4 Incentives and Merit Pay

Two widespread problems in Latin America are the need to attract better students into teaching and the need to provide better teachers in the most difficult teaching situations, including high-poverty areas in and around many cities and extremely remote rural areas. Some countries now provide a pay increment to teachers who teach in remote one-room schools, but these are not usually sufficient to entice effective, experienced teachers away from their homes. Monetary incentives may be helpful, but the working and living conditions in the hard-to-staff areas pose a problem.

The experience of TFA is interesting, and such an approach might prove fruitful in some Latin American countries. Like the Peace Corps, TFA draws bright young people from high-quality colleges into teaching. Although the program is criticized because the teachers make only a two-year commitment, it appears that many of them maintain their interest and commitment to improving education, and some go on to related work in education. Since many Latin American countries have considerable difficulty in attracting the better students into teaching, such a program might be combined with scholarship aid to lure students into difficult-to-staff areas as a service to their country.

Another productive route might be the creation of special programs for young people who live in the difficult areas. For example, a special program in rural education might encourage bright young people to teach near their homes and families.

## 5.5 Value-Added Methodologies: Useful in Latin America?

Value-added approaches have undoubtedly made useful contributions in disaggregating the mix of variables that contribute to student learning. For example, the use of the gain score makes it possible to distinguish the effect of the current year's teacher on student test scores as opposed to the impact of teachers in all previous years. Such research is statistically sophisticated, but it can still be difficult to control for the multiple variables involved in administration of tests to students.

Vegas and Petrow (2008) provided data on two points relevant for considering whether this type of research would be productive in Latin America. First, most Latin American countries only administer national assessments to a sample of the student population. Only a few countries administer censal tests; even there, different grades are often tested in different years. Such testing systems would make it difficult to establish gain scores for students from one year to the next. Second, only a few countries in Latin America currently have the technical capacity to undertake large-scale value-added studies. Thus, it would seem that the time is not ripe for the region to embark on wide-scale efforts to use this methodology.

Of course, it is probable that some countries or some researchers will find it advantageous to experiment with value-added models. Research using such methodologies could make valuable contributions to the Latin American setting because of its emphasis on connecting teacher input with student learning. The danger is that too much importance may be given to scores on a standardized test and not enough to other aspects of a student's learning, such as problem solving, critical thinking, and learning to work with others. Measuring teacher effectiveness by student test scores should always be supplemented with effective observations of teacher performance and behavior in the classroom, school, and community as well as other observations of student learning, such as work samples or portfolios.

## 5.6 Leadership and Supervision

Effective teaching is facilitated by collaborative work with peers in a school environment that focuses on student learning. In many Latin American schools, the role of the principal is framed in purely administrative and management terms, and the principal is not expected to provide educational leadership. Because most schools do have a principal, and many areas lack qualified inspectors and supervisors altogether, while others often do not have funds to pay for their visits to schools, the leadership that principals could provide in improving teaching represents an enormous potential resource that is now being wasted.

The literature is clear and consistent on the need for strong, supportive evaluation of teachers in their first years so that only effective teachers will be given tenure. Yet in most Latin American countries, principals receive no special training or certification and are not taught how to provide effective supervision. They need to know what to look for in classrooms and how to support teachers who are trying to change their practices.

Effective school leadership, like effective teaching, is not an ineffable, inborn trait; rather, it involves a set of skills and competencies that can be learned. Programs should be developed so principals can gain the skills and competencies to enable them to provide effective supervision and support for school improvement. Such programs would logically fit in teacher education institutions. Those institutions that do not already do so should consider offering graduate work for those who wish to become principals.

The supervision and evaluation of principals is also generally given little attention in Latin America. The literature shows that principals need supervision and support as much as teachers do. In decentralized programs, it is not realistic to imagine that parents will provide knowledgeable supervision of principals. Systems need to be developed to clarify how principals are supervised and evaluated, and by whom. In addition, principals benefit from networks permitting them to make visits to each other's schools, observe teachers together, share problems, and discuss possible solutions.

## 6. A Proposed Definition of Teacher Effectiveness

Effective teachers consistently achieve goals that focus on desired outcomes for their students. Teacher effectiveness is encompassed in knowledge, attitudes, and performance.

### Knowledge

- Teachers have excellent verbal and written communication skills.
- Teachers have thorough knowledge of the subjects they teach and pedagogical methods for teaching those subjects to students.
- Teachers know a variety of pedagogical strategies, and when and with which students these are appropriate and likely to be effective.
- Teachers have a thorough understanding of the linguistic and cultural backgrounds of their students, and how best to maximize learning for students with diverse needs and characteristics.
- Teachers know how to organize and manage classrooms, using time effectively.
- Teachers know how to assess student learning, both formally and informally, and how to vary instruction for students based on these assessments.
- Teachers know how to select and make resources that are appropriate for student learning activities.
- Teachers understand language development and children's developmental stages at the level they teach.

### Attitudes

- Teachers respect their students regardless of their background, language, or ethnicity.
- Teachers have high expectations for the learning of all students.
- Teachers view student errors as a window to their thinking that can be used to improve student learning.
- Teachers are reflective about their practice.
- Teachers believe in collaboration with others toward common goals for student learning.
- Teachers are receptive to involvement of parents and community members in their classrooms.
- Teachers are eager to continue to learn and to improve their practice.
- Teachers are committed to their profession.

### Performance

- Teachers' classrooms are well organized, providing an environment that fosters an interest in learning.
- Teachers develop classroom rules with students and maintain safe and orderly classrooms in which all students are treated fairly and equitably.
- Teachers make effective use of time, both of overall classroom time and the time of individual students.
- Teachers use effective teaching techniques: planning lessons, presenting new material clearly, helping students connect new learning with previous learning, and providing guided and independent practice for new material taught.
- Teachers provide opportunities for students to be actively involved in their own learning.
- Teachers respond to student errors in positive ways that help students understand and learn the concepts involved.

- Teachers use formative evaluation to adjust instruction and diversify it for the needs of individual or groups of students.
- Teachers create warm and caring relationships with their students.
- Teachers maintain collaborative relationships with their peers and with parents and community members.

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