



# WCER RESEARCH highlights

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## Pathways for Latino Youth

The challenges facing Latino students on their pathway to college are enormous at best, impossible at worst. At almost every educational level, Latino youth face uphill struggles. The cumulative result is that educational opportunity is lost for these youth, who must try harder just to keep up with other students.

Comprehensive and radical reform of the education of youth from low-income populations is necessary throughout the K-16 system to realize genuine change, according to a recent study conducted by UW–Madison education professor Alberto Cabrera and colleagues Watson Scott Swail and Chul Lee for the Educational Policy Institute (<http://www.educationalpolicy.org/>).

The United States is now more racially and ethnically diverse than at any other time in its history, and the near future promises a continuation of this trend. By 2050, Latinos will be the majority ethnic group in America. For that reason and others, Cabrera says it's imperative that public policy be directed at increasing academic opportunities for Latino youth. Moreover, addressing this issue has the potential to increase opportunity for all children.

Almost all U.S. high school students expect to go to college. Aspirations generally turn into action and opportunity for students whose parents went to college and who come from moderate to high-income families and two-parent homes. For students at the other end of the spectrum—those whose parents didn't finish high school, who are from low-income backgrounds, and who are being raised by a single parent—the opportunities are reduced, and aspirations often vaporize within a few short years.

For Latino students, the road to success has more bumps, barriers, and detours than for most other students, but the road still exists. The pathway to success for Latino youth requires a motivation to succeed, a plan of action, a willingness to act on their intentions, and perhaps most important, a support system of family, friends, teachers, and community.

### NELS findings

Cabrera, Swail, and Lee analyzed data from the National Education Longitudinal Study (NELS), a study begun in 1988 with eighth-grade students and followed up several times, with the last follow-up survey conducted in 2000, 8 years after the students' scheduled high school graduation. Some of the findings of Cabrera and his colleagues:

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**Adam Gamoran**

This issue of *WCER Research Highlights* focuses on improving the academic achievement of students from diverse populations.

Latino students are clearly at a disadvantage in their aspirations and preparation for, access to, and completion of postsecondary education. Alberto Cabrera and colleagues studied Latino students' experiences in high school and their family lives. Cabrera says that genuine improvement in Latino students' achievement will require a comprehensive and radical reform of the education of youth from low-income populations along the entire K-16 system.

Jeffrey Lewis and colleagues observed improvement in the achievement of African American students when their school participated in a program called Learning Through Teaching in an After-School Laboratory. The program addresses the underachievement of African American students and the preparation of teachers to work successfully with these students. Children participating at one site scored significantly better on district-administered standardized tests of reading and math than a district matched sample.

Ken Zeichner examined the strengths and weaknesses of three major approaches to teacher education reform in the U.S.: the professionalization agenda, the deregulation agenda, and the social justice agenda. All three of these approaches have contributed to improving teacher education in such a way as to lessen the achievement gap in U.S. public schools, yet they are best viewed as only one aspect of a more comprehensive plan for the equalization of outcomes in society.

What 'travels'—and can be sustained—in mathematics education reform are patterns of reasoning and what teachers do with them, not the enactment of specific instructional activities. This finding comes from WCER's National Center for Improving Student Learning and Achievement in Mathematics and Science, and is developed in this fourth and final part of a series.

*Adam Gamoran*  
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**Aspirations:** Seventy-three percent of the Latino students aspired to postsecondary education, but only 55%—a full 20% lower than the national average—aspired to a BA degree. The aspirations of Latino students in the U.S. were the lowest of any group in this analysis. Generally speaking, students who do not aspire to postsecondary education self-select out of the educational pipeline. Thus, 27% of the NELS Latino students—over one quarter—have made decisions leading them to a non-college trajectory by the eighth grade.

**High school math credits:** Mathematics course requirements serve as a primary gatekeeper limiting admission into postsecondary education. Students who stay at the rudimentary levels of mathematics are far less likely to reach the postsecondary level. Latinos tend to complete their public education with lower level math courses than other students. In fact, over 58% of the Latino students in the NELS sample finished with standard geometry and proceeded no further along the mathematics track. In comparison, only 44% of all students and 41% of White students discontinued their mathematics studies at this level. As the progression toward more challenging mathematics courses continued, the percentage of Latinos trailed off considerably. The percentage differences at each level aren't huge, Cabrera points out, but ultimately they make a real difference in the number of students ready for higher-level learning. For instance, Latinos completed calculus at half the rate of all students.

Lower mathematics achievement suggests a reduced likelihood of completing high school, limited admission to most state universities and top-tier institutions, and limited access to high-tech industrial careers that pay more than a living wage.

**High school completion:** On average, 92.3% of the NELS eighth-grade cohort received a high school diploma, GED, or equivalent credential by 2000. In comparison, only 86.4% of the NELS Latinos received their high school credential, the lowest percentage of the groups observed.

**Postsecondary experience:** Latinos are much more likely to enroll in two-year institutions than other students. In the NELS cohort, 61% of the Latino students who continued to postsecondary education enrolled in such institutions, as compared with 46.6% of the African American students and a cohort average of 44.4%.

**Continuous enrollment:** Latino students are more likely to attend postsecondary education on a part-time basis. Of the total NELS cohort that went on to postsecondary education, 38.6% of students attended part-time. However, over half (52%) of Latino students who enrolled in postsecondary education attended part-time.

## Conclusions

In sum, the evidence is strong and unambiguous: Latino students are clearly at a disadvantage in their aspirations and preparation for, access to, and completion of postsecondary education. Cabrera's analysis found that during the high school years, Latino students were most likely to

- be held back in school,
- change high schools more than twice,
- earn a C or less,

## Risk, Resilience, and Attitudes Toward Learning

Some believe that African American children develop oppositional culture against schooling. But there is now a growing research literature documenting urban students' positive orientation toward achievement.

Better knowledge of elementary age students' perceptions and beliefs has implications for improving the effectiveness of their teachers. Research by UW–Madison education professor Jeffrey Lewis shows that African American children possess qualities and insights that can serve as a solid foundation for their learning. Anti-school attitudes do exist among some African American students, Lewis says, as they do for many middle-class White students, yet they tend to be exaggerated.

Children from low-income, urban environments are often said to be “at risk.” But most children in presumably high-risk situations do not exhibit significant problems or antisocial behaviors, and many are reasonably successful within the limited opportunity structures afforded them. Lewis studies the resilience that enables some students to survive and even thrive under adverse conditions.

As part of a research program called Learning Through Teaching in an After-School Laboratory (L-TAPL), Lewis and colleagues observed two academically low-performing, urban K-5 schools in Oakland and Los Angeles. The cultures in both schools exhibited low expectations: Adults tended to view children in terms of deficits. Their associated teaching and disciplinary practices were historically constituted, broadly shared, and reproduced through patterns of practices and interactions.

L-TAPL addresses the underachievement of African American students and the preparation of teachers to work successfully with these students. Lewis and colleagues Michele Foster and Laura Onafowora interviewed students attending the local public elementary schools and participating in an after-school enrichment program called Learning Through Teaching. Offered 3 days a week at two sites, the 2-hour after-school program provided language arts, math, and science activities. The master teachers at each site were responsible for the content and the pedagogical strategies employed in the after-school program. Lewis interviewed 72 students at the two after-school sites over 2 years.

Lewis studied two aspects of students' perspectives and experiences:

1. Their perceptions of and beliefs about schooling, including their beliefs about what roles teachers and students should play, what constitutes good teaching, and what it means to be a good student; and
2. Their perceptions of their academic ability and the domains of experience in which they felt capable—in and out of school.

### The importance of children's perspectives

After-school program teachers who proved effective in working with children were those who paid serious attention to what

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- take lower forms of mathematics,
- leave high school before graduation, and
- earn a GED.

These trends relate to other background characteristics of Latino students. For instance, the NELS Latino students were most likely to

- come from a low-income family,
- have a sibling who dropped out of school,
- have limited English proficiency,
- have a parent who did not graduate from high school,
- have children of their own during high school, and
- have a parent without postsecondary schooling.

Cabrera says that advocating for piecemeal changes in current education policy and programs will result in limited incremental reforms, which will yield little if any progress in attainment for at-risk youth. To realize genuine change, a comprehensive and radical reform of the education of youth from low-income populations along the entire K-16 system will be required.

This research was funded by a grant from the Pew Hispanic Center (<http://www.pewhispanic.org/index.jsp>). For the full report, see

<http://www.pewhispanic.org/site/docs/pdf/swail%20study-06-23-04.pdf>.



children thought and said. They consulted with children and built their success on students' knowledge and perspectives.

Students' feelings about school and about their teachers were more complex than Lewis had expected. They often reflected a cluster of concerns, including teachers' treatment of children, teachers' teaching competency, and teachers' character.

Elementary and middle grade students said they wanted teachers who were caring, who helped them to learn, and who focused in a serious manner on the task of teaching. A number of students were concerned with the kind of person the teacher was, including the teacher's fairness, integrity, and effort. In fact, some children responded to the question about what makes a "good teacher" by identifying only personal character traits.

### Historical patterns

Lewis sees schools as local cultures in which children develop dispositions toward learning. Schools maintain historical patterns of shared perceptions and values, behavioral expectations, and patterns of meaning. These patterns and perceptions are communicated through school structure and bureaucracy, pedagogical and disciplinary practices, and affective and hierarchical relationships. As developmental niches, schools shape children's individual and social identities as learners, as well as their attitudes toward and behaviors at school.

The problem of underachievement, particularly for children in the elementary grades, does not primarily lie in the children's attitudes or in their peer group norms, Lewis says. The problem lies in the structure and culture of the schools where students develop their academic identities, attitudes, and dispositions

toward learning. Lewis sees the enthusiasm, positive attitudes, and insights of the elementary age African American children in his study as products of the students' social and cultural experiences outside school.



Jeffrey Lewis

### Culture of low expectations

In the schools he studied, Lewis found the general orientation toward students was punitive, despite positive school slogans and themes. Children received the message that little was expected of them.

Teachers attempted to control children's behavior with threats and other forms of coercion, both in disciplinary practices and in teacher discourse about students. But given the opportunity to work with an effective master teacher who operated under a different set of assumptions, strategies, and values, these teachers began to see, and to articulate, the negative way in which children were being defined and treated.

The culture of low expectations was also evident when teachers allowed mediocre student work to pass as exceptional. For example, teachers praised one child for his writing ability, largely because the story that he had written was lengthy. A master teacher intervened and pointed out to the child (and indirectly to the teachers) that the story, although long, lacked quality and that the child was capable of producing better work. She asked the child to rewrite the story. After resisting, the student complied and produced a better story. In survey responses, children consistently expressed a desire to really learn, not just pass.

### Conclusions

Lewis found that the underachievement of children in his study was the result not of adversarial attitudes, but of something that went wrong for the children in the classroom. The children had ideas about what the problems were and how their schools might be improved. They suggested that the problems lay in the quality of teacher-student relationships, the quality of teaching, and the character of their teachers. These problems appeared either to result from, or to be amplified by, accountability pressures associated with standardized testing.

Low-income urban children do want to learn, regardless of their actual demonstrated achievement, and they are resilient in this respect. Lacking an adequate comparison sample, Lewis does not say whether his data are an effect of the after-school program, but he can say that children's academic and social behaviors changed markedly over the course of the program. If the general school population shares the behaviors observed in Lewis's study, the data speak volumes about what Black children really want and value—even against overwhelming odds. Moreover, to the degree that the data do reflect the program's impact, they show that a minimal intervention (6 hours a week for 20 weeks) can produce positive and productive attitudes and beliefs, even when these are not supported by the children's general school experience.

In addition, Lewis and colleagues recently found that children participating in L-TAPL in a Trenton, New Jersey site scored significantly better on district-administered standardized tests of reading and math than a district-matched sample. Lewis says this is the first clear empirical evidence that L-TAPL has positive effects on student achievement. His project is now gathering comparable data from Oakland and Los Angeles.

For more information, see Lewis's page at <http://www.wcer.wisc.edu/people/pi.asp?sid=947>.

# What 'Travels' in Mathematics Reform?

(Part 4 in a 4-part series)

Learning mathematics with understanding requires teachers to help students build on what they know and on how they think. Similarly, students' reasoning should be placed at the center of effective instructional decision making and professional development.

In 8 years of research at WCER's National Center for Improving Student Learning and Achievement in Mathematics and Science (NCISLA), UW-Madison education professor Thomas Carpenter and colleagues\* worked with teachers and schools to create and study classrooms in which compelling new visions of mathematics and science became the norm.

To support teacher change and to enable these visions to "travel" to other classrooms, Carpenter and colleagues sought to understand how these classrooms function, what it takes to construct them, and how this knowledge can be used to create similar classrooms in new settings.

Part 3 of this four-part series discussed requirements for school organization that supports teaching for understanding. This article, which concludes the series, focuses on what travels and what conditions are necessary for travel to occur.

NCISLA found that the most critical things that teachers need to learn revolve around content knowledge and the student learning trajectories specific to that knowledge. Learning specific content and learning how students learn that content are central to professional development.

NCISLA also found that professional development must emphasize student reasoning rather than teachers' scripted performance. NCISLA researchers documented regularities in what students do and how teachers respond to them. Regularities were found in student reasoning, in the types of tasks that elicited that reasoning and supported change, and in ways of interacting with students.

NCISLA developed a number of resources to support the emergence of successive levels of students' mathematical or scientific reasoning. These resources include:

- a) Fine-grained analyses of specific content domains (see <http://www.wcer.wisc.edu/ncisla/publications/index.html#briefs>);
- b) Analyses of hypothetical learning trajectories for these content domains;
- c) Specific tasks or types of tasks that provide a window into student reasoning and that support the development of more advanced reasoning;
- d) Examples of norms governing student participation and teacher-student interaction; and
- e) Strategies and activities that help teachers focus on students' reasoning.



NCISLA found that these resources can support the development of professional teaching communities in new settings. The context in which the resources are used, however, affects how they are used. The ways resources are used in a new setting can differ significantly from the ways they were used in the setting in which they initially were studied. Thus, the resources themselves cannot simply travel to a new school or district with the expectation that the teacher professional development process will replicate what occurred at other sites. To facilitate effective travel, the resources must be transformed or adapted to the constraints and opportunities of new contexts.

## New teaching communities in new contexts

Travel entails supporting the development of professional teaching communities in a new educational context, not merely transporting practices in the hope that professional community will emerge. The work in new sites must maintain fidelity to the guiding principles of the original work.

One critical feature for travel was the continuing involvement of teachers in design practices. Yet while it's important to engage teachers in design practice, there is a danger that the further the practices are removed from the initial design experiments, the less teachers are inclined to engage in such practices. A low probability of success faces attempts to employ the resources and apply the conceptions of professional teaching communities developed in one site without direct connections to the people who were involved in developing the conceptions and resources. Professional communities in new sites thus must have access to human as well as pedagogical resources.

In the current era of high-stakes testing and accountability, district and school administrators frequently respond to the prevailing pressures by attempting to monitor and regulate teachers' instructional practices. Carpenter and colleagues believe it would be better for administrators to become instructional leaders, to develop professional communities, and to improve their understanding of content, students, and instructional practices. Working to bring about change in the institutional setting must become part of the agenda of the professional teaching community.

This research found that what travels—and can be sustained—are patterns of reasoning and what teachers do with them, not the enactment of specific instructional activities.

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## Adequacies and Inadequacies of Current Strategies to Recruit Teachers

Is the U.S. producing enough teachers to fill all openings? Yes and no. The number of new teachers is sufficient to meet demand, but the graduates are not necessarily in the subject areas where they are needed, and many do not want to go to the schools where they are most needed.

The effects of the shortages of fully qualified teachers are disproportionately borne by students in low-achieving schools, schools with high numbers of students of color, and schools with high numbers of students who qualify for free and reduced-price lunch. In addition, students who attend high-poverty schools, low-performing schools, or schools with high concentrations of African American or Latino students have less-qualified teachers than students who attend other schools.

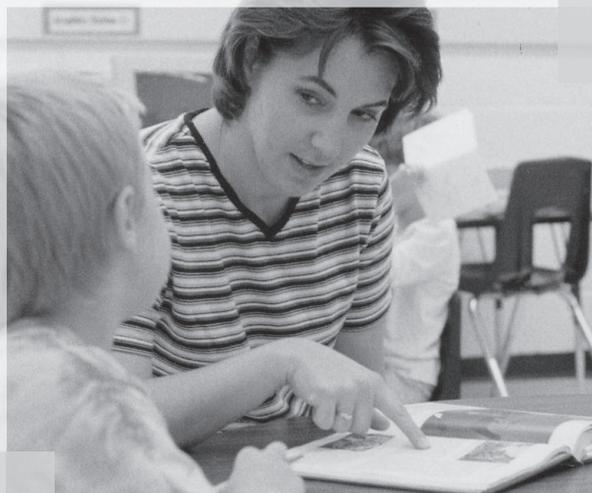
Three approaches to school reform—the professionalization agenda, the deregulation agenda, and the social justice agenda—offer very different visions of how to remedy current inequality and injustice in public education. In a recent article\* UW–Madison education professor Ken Zeichner examined each of these approaches and identified their strengths and weaknesses. He also went beyond these three approaches to raise additional issues that he believes must be addressed if we are to see things change for the better.

### The professionalization agenda

Those supporting the professionalization agenda argue that the inequities and injustices that exist in public education can be remedied by raising standards for teaching and teacher education and making a greater investment in teaching and public schooling. The main assertions of this agenda have been translated into policy mandates that have been incorporated in the program approval or accreditation process in most states.

Positive results have occurred from the implementation of pieces of this agenda in recent years. For example, advocates of this position give center stage to problems of inequality and injustice in public education and the relative lack of appreciation for teacher education in higher education. But despite many positive contributions, a number of problems plague the implementation of this agenda and threaten to undermine the goal of equalizing educational outcomes—for example:

1. The teaching standards that have come to be commonly used as the basis for performance assessment in teacher education programs, such as the INTASC (Interstate New Teacher Assessment and Support Consortium) standards, do not adequately incorporate what we know about culturally responsive teaching.



2. Given the uneven playing field of public education, raising standards has reduced the diversity of the pool of teacher education students. Admissions criteria that emphasize academic performance to the exclusion of other attributes and skills keep some promising prospective teachers out of teacher education programs.

### The deregulation agenda

Advocates of the deregulation agenda seek to break what they see as the monopoly of colleges and universities on teacher education programs. This agenda stresses establishing alternative certification programs and dismantling state teacher certification. Advocates argue that

1. Teachers' subject matter knowledge and verbal ability are the main determinants of teaching success; and
2. Much of what is offered in professional education methods and foundations courses can be learned on the job through an apprenticeship.

While it's fair to draw attention to problems with the quality of teacher education and to the possibilities offered by alternative routes to certification, some points in deregulation advocates' arguments conflict with their expressed concern for academic standards:

Simply majoring in a subject or passing a subject matter test is no guarantee that teachers understand the central concepts in their disciplines and have the pedagogical content knowledge needed to transform content to promote understanding by diverse learners. Also, this agenda uncritically advocates alternative routes to certification without attention to the conditions needed in these alternative programs for their educative potential to be realized.

According to Zeichner, it would be more useful to focus on gaining a better understanding of the components of good teacher education, regardless of the structural model for the program. In his view, educators need to continue developing multiple pathways into teaching and focus on making sure that the components of high-quality teacher education are present in all of these various structural models.

## The social justice agenda

Advocates of the social justice agenda see schooling and teacher education as crucial elements in the making of a more just society. Educators do know a great deal about the teacher attributes and instructional strategies associated with successful teaching in culturally and linguistically diverse schools, and about teacher education strategies that effectively prepare teachers to become culturally responsive teachers. For example, factors effective in developing greater intercultural sensitivity and competence in prospective teachers include such things as

1. Admission criteria that screen applicants on the basis of their commitment to teach all students;
2. Carefully monitored and analyzed field experiences in culturally diverse schools and communities, including cultural immersion experiences; and
3. Use of uncertified adults in communities as teacher educators teaching prospective teachers cultural and linguistic knowledge.

But several problems with this reform agenda have weakened its impact. First, much of what has been done by advocates of the social justice agenda has occurred at the level of the teacher education classroom. However, any solution to the problems of inequality and injustice in public education will need to address the larger contexts in which teaching and teacher education exist. The focus must consider program approval and accreditation, requirements for initial licensure, the induction of new teachers, and the structure of teaching careers.

A second limitation of the social justice agenda is the lack of an ethnically diverse group of teacher educators. Currently, faculty of color constitute only about 14% of the faculty in higher education generally and about 15% of the faculty in education units. Zeichner maintains that a diverse learning community in teacher education programs is critical to our ability to prepare teachers for diverse schools.

## Underlying societal conditions

The discourse on teacher education is largely silent about the need to aggressively advocate for the societal conditions needed to achieve equality in the educational arena. Such conditions include access to quality food, housing, affordable health care, and a job that pays a living wage. In the U.S., 11.5 million children under age 18 currently live in poverty, and almost 11 million children under age 19 lack health insurance. Unless we address these broader social conditions that affect students in our public school classrooms and their families, Zeichner says, the slogan now attached to our new education act, No Child Left Behind, will be empty and meaningless and will not help us move toward a world where what we all want for our own children and grandchildren is available to everyone's children.

Zeichner's recent research has been funded by the U.S. Office of Educational Research and Improvement, the National Science Foundation, and the Spencer Foundation.

\* Some of this material originally appeared in different form in *Teachers College Record* Vol. 105, No. 3, April 2003, pp. 490–519.

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Funding for this research was provided by the U.S. Department of Education's Office of Educational Research and Improvement.

\* Carpenter's colleagues included Maria Blanton (University of Massachusetts–Dartmouth), Paul Cobb (Peabody College, Vanderbilt University), Megan Loef Franke (University of California, Los Angeles), Adam Gamoran (University of Wisconsin–Madison), James Kaput (University of Massachusetts–Dartmouth), and Kay McLain (Peabody College, Vanderbilt University).

For more information:

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*WCER Research Highlights* is published by the Wisconsin Center for Education Research, School of Education, University of Wisconsin–Madison. WCER is funded through a variety of federal, state, and private sources, including the U.S. Department of Education, the National Science Foundation, and UW–Madison. The opinions expressed in this publication do not necessarily reflect the position, policy, or endorsement of the funding agencies. Fourth-class, bulk-rate postage is paid at UW–Madison, Madison, WI. Send changes of address to WCER, 1025 West Johnson Street, Madison, WI 53706 or call (608) 263-4200. Include the address label from this issue.

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*WCER Research Highlights* is available on the Web at <http://www.wcer.wisc.edu>.

ISSN 1073-1822  
 Vol. 16, No. 4  
 WINTER 2004–2005

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