JOURNAL OF EDUCATION FOR STUDENTS PLACED AT RISK, *10*(4), 407–430


# From Pipelines to Partnerships: A Synthesis of Research On How Diverse Families, Schools, and Communities Support Children's Pathways Through School

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This article maps recent progress on 5 key questions about "the academic pipeline problem" of different rates of persistence through school among ethnically diverse students across the nation. The article shows the complementary development of the Overlapping Spheres of Influence Theory and Sociocultural Theory and aligns concepts and measures across theories. Evidence from the Center for Research on Education, Diversity, and Excellence and other studies points to 5 major findings. First, tracing demographics across ethnicity, income, and geography can contribute to opening the academic pipeline. Second, families are key to students' developing and sustaining educational and career aspirations and school achievement, not only among college-educated families, but also among low-income, minority, and immigrant families. Third, it is important to recognize how early children's pathways in math and language divide as they move through school if successful pathways are to be sustained. Fourth, across age, ethnic, and income groups, the most successful students build links across their families, schools, peers, and communities, who in turn support students' pathways. Fifth, sustained educational partnerships draw on long-term data to connect measurable goals from childhood to college and careers. Finally, an agenda is outlined for advancing science, policy, and practice.

The range of students' developmental pathways can be seen as they navigate through the academic pipeline from preschool, elementary, middle school, high

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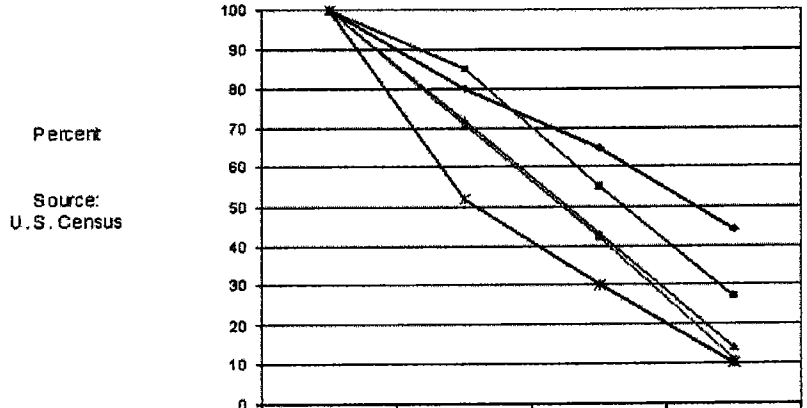
school, and postsecondary education toward adult work and family roles. Many communities hold ideals of equity in access to schooling and advancement through merit, but as students move through school, the numbers of ethnic minority, immigrant, and low-income youth in the academic pipeline shrink.

Figure 1 shows dramatically different national trends in persistence, based on cross-sectional data, within Asian American, European American, African American, Native American, and Latino groups. The graph sets the percentage of students in each group who start kindergarten at 100% to compare how many students persist to high school graduation, complete some college, and attain a bachelor's degree by age 24 (U.S. Census Bureau, 1998).

This *academic pipeline problem*, which makes college enrollments unrepresentative of the demographics of their broader communities, will intensify in the coming years as low-income, immigrant, and ethnic/racial minority youth make up a growing segment of school enrollments.

An educational system can be described with a variety of metaphors. Those interested in educational institutions and economic policies often choose the metaphor of the academic pipeline and trace its leaks in the attrition of low-income and ethnic minority students (Gándara, Larson, Mehan, & Rumberger, 1998). Designers of educational programs often describe key relationships or programs as




| | Kindergarten | High School Grad | Some College | BA or more |
|---|---|---|---|---|
| Asian American | 100 | 80 | 65 | 44 |
| European American | 100 | 85 | 55 | 27 |
| African American | 100 | 72 | 43 | 14 |
| Native American | 100 | 71 | 42 | 11 |
| Latino | 100 | 52 | 30 | 10 |

FIGURE 1 The academic pipeline problem: Persistence through school within five ethnic–racial groups. BA = Bachelor of Arts degree.



*bridges* (or *puentes* in Spanish) through the educational system (Gándara & Moreno, 2002). Those interested in the lives of individual students over time often use metaphors of *pathways*, *trajectories*, or *routes* through school to adult work and family life (Jones, Yonezawa, Ballesteros, & Mehan, 2002).

For some, the pipeline metaphor is especially problematic: "The pipeline invokes the image of students poured into one end of a seamless conduit and flowing out the other end, thereby implying that college preparation and admissions processes are smooth and highly predictable" (Jones et al., 2002, p. 3). Still, interdisciplinary work often juxtaposes metaphors to capture economic, institutional, relational, and individual levels of analysis over time. Whatever metaphor one chooses, equal access to education is a core value of democratic societies. Education is not the only definition of success, but education is clearly linked to opportunities and choices for each generation.

Scientific progress on the pipeline problem has emerged from economics, sociology, anthropology, psychology, and educational policy, and increasingly from collaborations across disciplines. In such work, aligning theories sparks productive debate, comparative analysis, and further investigation. Just as physicists consider light as both a separate particle and a continuous wave, this review shows the complementary nature of theories and research methods, quantitative and qualitative, that address the pipeline problem (Cooper & Denner, 1998).

## TWO VIEWS OF THE ACADEMIC PIPELINE PROBLEM

This synthesis starts by looking at two influential theories for addressing the academic pipeline problem: the Theory of Overlapping Spheres of Influence developed by Epstein and her colleagues at the National Network of Partnership Schools and the approach to Sociocultural Theory developed by Tharp and his colleagues at the Center for Research on Education, Diversity, and Excellence (CREDE). Epstein's theory serves as the cornerstone of national conversations on family–school relationships and as the basis of the standards for parent involvement in the National Parent Teacher Association (National PTA, 1997). In sites across the nation, Sociocultural Theory at CREDE has focused on mapping community practices reflecting ethnic, linguistic, and geographic diversity to school success. As each theory has evolved, it has enriched science, practice, and policy.

Epstein's (1990, 2001) Theory of Overlapping Spheres of Influence traces how the spheres of home, school, and communities interact in their interests, responsibilities, and investments in children's learning. Epstein proposed a typology of six types of involvement that fall in the intersection of the spheres (Epstein, Sanders, Simon, Salinas, Jansorn, & Van Voorhis, 2002). These types include (1) *Parenting*: Assisting families with parenting, child-rearing skills, and home conditions for learning; (2) *Communicating* with families about school programs and student

progress; (3) *Volunteering* at school; (4) *Learning at home* with homework and other activities; (5) *Decision making* in school governance and advocacy; and (6) *Collaborating* with community businesses and agencies to strengthen school programs, family practices, and student learning (Hidalgo, Siu, & Epstein, 2003).

On average, as children move from elementary school into middle and high school, the spheres of home, school, and community may move further apart, reflecting decreasing mutual involvement. When Epstein and Dauber (1991) surveyed teachers of primarily African American and European American students in urban schools in Maryland, teachers in elementary schools, compared to those in middle schools, were more likely to report using the six family involvement types and saw parents of their students as more involved with their children.

Although all types are seen as important, Learning at Home (Type 4) appears to play a more direct role in students' achievement. In a study of European American and African American students in a suburban Maryland middle school, those given weekly science activities with guidelines for doing them with families reported more family involvement in science and made better science grades than students with the same homework but no guidelines (Van Voorhis, 2003). Learning at Home also appears to change in middle and high school. In a study of the National Educational Longitudinal Study (NELS:88), a nationally representative cohort of students, Catsambis (2001) found that during middle and high school, across social class and ethnic groups, parents holding high expectations and providing consistent encouragement (what would be considered Learning at Home), as well as enhancing learning opportunities beyond the home, predicted students' enrolling and their grades in college-prep high school classes. Similarly, a meta-analysis of research (Fan & Chen, 2001) found parents' aspirations and expectations for children's education to be the strongest predictors of their achievement.

Sociocultural Theory complements Epstein's theory by focusing on community-specific practices to enrich science, practice, and policy on diversity and education. It builds on Vygotsky's (1978) proposition that families in all cultural communities develop goals, values, and skills that allow them to adapt to their environments and establish meaningful lives (e.g., Harkness, Super, & Keever, 1992; Rogoff, 2003; Tharp & Gallimore, 1988; Weisner, 2002). Children learn by participating with more expert members of their cultural communities in *activity settings* such as household chores, classroom lessons, homework, sports, or religious activities (Gallimore, Goldenberg, & Weisner, 1993; Reese, Balzano, Gallimore, & Goldenberg, 1995). In each activity setting, researchers map the *personnel* (who participates), *goals and values* held in that setting (why the activity happens), the *scripts* (regular patterns of communicating), and the *participant structure* (social organization for the activity, such as whether children do homework alone or in groups).

Sociocultural researchers describe how cultural discontinuities or "mismatches" can arise when conflicts or gaps between families' and schools' goals



and values, activities, and styles of communicating impede students' development (Cazden, 1988). Studies documenting home–school discontinuities have been conducted with low-income European American children in Kentucky and California (Azmitia, Cooper, Garcia, & Dunbar, 1996; Heath, 1983; McIntyre, Kyle, Hovda, & Stone, 1999); African American youth from upper income families in Ohio and lower income families in California and Washington, DC (Ogbu, 2003); Native American youth in New Mexico and Native Hawaiian children and families (Weisner, Gallimore, & Jordan, 1988; Yamauchi & Tharp, 1995); Asian American youth in California and Rhode Island (Chang, 1995, 2004; Collignon, Men, & Tan, 2001); and Latino youth in Texas and California (Matute-Bianchi, 1991; Romo & Falbo, 1995).

For example, Peña (2000) conducted an ethnographic study of an urban elementary school in Texas by observing school events and interviewing teachers and Latino parents. Language was the major constraint on parent participation, as when the school held Parent–Teacher Organization meetings in English without providing translation (Chavkin, 1996; Delgado-Gaitan, 1990). Challenges were also evident in teachers rarely participating in these meetings. Some families with modest education felt they could not help children with homework but did not tell teachers, who assumed parents could read and write.

To address these issues, sociocultural researchers propose that viewing culturally diverse families as having expertise rather than lacking it allows teachers to build cultural continuities between home and school that foster children's learning. Such values and practices define each person with the potential for being both expert and novice, rather than schools playing a compensatory role for families' deficits. Based on this theme of teachers connecting home, school, and community, Tharp, Estrada, Dalton, and Yamauchi (2000) proposed Five Standards for Effective Pedagogy: (a) teachers and students producing together, (b) developing language and literacy across the curriculum, (c) making meaning by connecting school to students' lives, (d) teaching complex thinking, and (e) teaching through conversation. For this review, the third standard is especially relevant because it focuses on how teachers connect teaching and curriculum to students' experiences and skills of home and community (Tharp et al., 2000). To examine these propositions empirically, Tharp and his team developed the Activity Setting Observation System and the Standards Performance Continuum for rating classroom implementation of the Standards and the effects of teaching with the Standards on student learning (Doherty, Hilberg, Epaloose, & Tharp, in press; Hilberg, Tharp, & DeGeest, 2000; Waxman, Tharp, & Hilberg, in press).

Tharp's work with Sociocultural Theory has served as the overarching framework for CREDE, a federally funded research and development program that focuses on improving the education of students challenged by language or cultural barriers, race, geographic location, or poverty. Among the 31 studies in CREDE are 9 in which researchers studied the interaction of families, schools, and commu-

nity organizations. Located in 6 states, these 9 studies led to long-term partnerships. Listed by state, the primary cultural communities and principal researchers at each site include:

- Arizona: Mexican immigrant, Native American, African American, and European American families (González, Andrade, Civil, & Moll, 2001).
- Hawaii: Native Hawaiian, Asian American, and European American families (Yamauchi, Ceppi, & Lau-Smith, 1999).
- California (four sites): Chinese, Filipino, Vietnamese, Asian Indian, and Latino families (Chang, 1995); European American and Mexican immigrant families (Azmitia & Cooper, 2001); Mexican immigrant families (Durán, Durán, Perry-Romero, & Sanchez, 2001); urban Latino, African American, Southeast Asian, and European American and rural Latino families (Gándara, Gutiérrez, & O'Hara, 2001).
- Kentucky: Rural Appalachian families (McIntyre et al., 1999).
- New Mexico: Zuni families (Tharp et al., 1999).
- Rhode Island: Hmong, Laotian, Vietnamese, and Cambodian families (Collignon et al., 2001).

These 9 projects address overlapping age spans in students' development through the preschool through graduate school pipeline, many with longitudinal designs. For example, Yamauchi studied a K–12 public school program in Hawaii that was influenced by a preschool program, with some study participants involved in both. McIntyre and her team in Kentucky followed children through the elementary grades. Collignon in Rhode Island and Azmitia and Cooper in California focused on children moving from elementary to high school. Gándara and her team followed a California sample from ninth grade into young adulthood.

In considering the scientific merits of work for this review, we drew on three sources. First, the National Research Council (NRC) Standards Committee on Scientific Principles for Education Research proposed that meritorious work provides clarity in statements of research questions that can be investigated empirically; a conceptual or theoretical basis for choice of study participants, data collection, and analysis; a design and method appropriate to questions; and coherent reasoning between conceptual framework or theory and findings (Shavelson & Towne, 2002). Second, we drew on the National Institutes of Health (NIH; 1999) guidelines for using qualitative methods in health research and NIH grant applications. These guidelines parallel those of the NRC, but also point to issues faced by qualitative researchers in sampling, measurement, reliability, and validity. Finally, this review draws on mixed methods that link variable-based and quantitative methods with case-based and other qualitative methods (Mertens, 2005).



## FIVE KEY QUESTIONS ABOUT THE ACADEMIC PIPELINE PROBLEM

This review considers five important questions about how diverse families, schools, and communities can support children's pathways through school:

1. How can we open the academic pipeline across ethnicity, income, and geography?
2. How can we sustain aspirations and expectations of students, families, and teachers?
3. How can we sustain children's math and language learning pathways through school?
4. How can we link families, schools, and communities to support children's pathways?
5. Finally, how can we sustain educational partnerships for long-term outcomes?

To address these questions, this review now examines core concepts associated with each of these questions and synthesizes progress with highlights from the 9 CREDE sites.

### Opening the Academic Pipeline: Demographics Across Ethnicity, Income, and Geography

Who stays in school from childhood to college? Who moves in and out of special education, gifted and talented, or advanced placement classes? How typical of their broader communities are families in a study sample or program? How do sites compare with each other and with state, national, and international data? These questions motivate researchers, schools, and programs to map demographics across local, district, state, and national samples.

In accordance with the U.S. Civil Rights Act of 1964, which forbids discrimination in access to education based on "race, color, or national origin," the Office of Education uses five ethnic–racial categories to monitor the pipeline. Researchers, practitioners, and policymakers use a wider range of demographic indicators, such as national origin, self-reported ethnicity, home languages, parents' education, and rural/urban location. These practices can be illustrated with work from CREDE, each study focusing on a distinctive cultural community.

*CREDE in New Mexico: Counting elders' voices at the Zuni Pueblo.* In New Mexico, the local CREDE partnership considered community demographics in collaborating with community members on behalf of Zuni students.

The local pipeline problem mirrored national data on Native American communities, with school dropout and expulsion rates "alarmingly high" and "no parent involvement at all" (Tharp et al., 1999, pp. 9–10). Barriers stemmed from bureaucratic and policy constraints, educators disrespecting Native Americans, teachers' resisting outside influences, conflicting goals between Native American communities and the schools, the community lacking confidence in their leaders, and students' resistance and low achievement. To address these issues, the state Board of Education created the Zuni Public School District and asked it to develop a curriculum that was appropriate to its cultural needs and state standards. Tharp et al. proposed that partners emulate Zuni leaders, who work with all stakeholders in the community and make decisions through patient consensus seeking, similar to the traditional Zuni process of *Yanse'lyona'*.

The research partnership took this approach in surveying the Zuni community about what Zuni children should learn in school (Rivera et al., 2001). The partnership collaborated with the district, school board, and tribal council to survey adults in three generational groups: ages 21–40, 41–60, and 61–105, with elders surveyed in the Zuni language. Results indicated consensus across age and gender. For example, 84% agreed or strongly agreed that "Zuni schools must teach the history, beliefs, and the values of the community," and 93% agreed that "We want our children to go beyond a high school education, but educational success also includes maintaining our cultural values and traditions for the development of future leaders." Thus, including elders' voices linked the community, families, and school as resources for youth in ways that reached beyond Census data.

*CREDE in Hawaii: Counting Native Hawaiian language speakers to renew an entire cultural community.* Papahana Kaiapuni, the Hawaiian language immersion program, developed from a grassroots movement of parents and community members seeking to revive the Hawaiian language. In their local CREDE partnership, Yamauchi et al. (1999) found that all adults in the islands were once literate in the language, but Hawaiian had become threatened with language extinction following the overthrow of the Hawaiian monarchy and the subsequent ban on the language from schools. By 1984, it was estimated that only 30 native speakers under the age of 18 remained. Compared to other state residents, Native Hawaiians as a group do not perform as well on traditional achievement measures; they are also overrepresented in special education and underrepresented in higher education (Yamauchi & Wilhelm, 2001).

As the first cohort of children in the Kaiapuni language immersion program moved through school, the program became a K–1, then a K–6, and then a full K–12 program. All instruction was conducted in Hawaiian. Many parents and families began to learn Hawaiian with their children. As parents took children to events where Hawaiian was spoken, home and school activities became more compatible. Interviews by Yamauchi et al. (1999) revealed multiple yet converging views of the program by families, teachers, students, and evaluators. Families saw teachers and the program as extended family, a strong value of many Hawaiians. Involvement among families in school was accompanied by their greater awareness of Hawaiian culture and history. Teachers saw their goal as transforming the school to be "more Hawaiian" through curriculum development and teaching "in a Hawaiian way." Some incorporated Hawaiian proverbs in their lessons by interviewing elders or *Kūpuna*. Older siblings "are encouraged to look after their younger brothers and sisters and to teach them and supervise their work" (Yamauchi & Wilhelm, 2001, p. 90). Teachers incorporated this value by organizing heterogeneous and multiage groups for activities.



Students saw the program as building positive attitudes toward the Hawaiian language and preserving Hawaiian language and culture. Older youth, however, worried about the lack of academic and extracurricular activities in the program compared to what they saw of schools conducted in English.

From an evaluator's perspective, progress toward the partnership's goal was marked by rising numbers of native Hawaiian speakers, with 2,000 children learning Hawaiian compared to the 30 Hawaiian speakers under the age of 18 before the program began. By the end of kindergarten, Kaiapuni students who entered the program as English speakers were speaking Hawaiian, with younger children speaking Hawaiian more frequently than older students in settings outside of school (Yamauchi & Wilhelm, 2001). Kaiapuni students' English was comparable to peers enrolled in the English program of the public schools.

*CREDE in Rhode Island: Mapping who got out and who gets in with local demographic data and values in a Southeast Asian community.* In the CREDE partnership with community organizations and schools of Providence, Rhode Island, Collignon et al. (2001) worked to connect four Southeast Asian communities—Cambodian, Laotian, Hmong, and Vietnamese—each with distinctive languages, cultural practices, and legacies of war, to support students' school pathways. Arriving in Providence as refugees, the Cambodian, Hmong, and Laotian families had fled first to Thailand, where they were placed in refugee camps. As their children arrived at school, districts grouped them with the general "Asian/Pacific Islander" racial–ethnic category. So the partnership collected demographic data from each Southeast Asian community to help schools understand students' distinctive needs and counter "model minority" Asian stereotypes.

The partnership traced three ways that these cultural communities, with little understanding of the U.S. educational system, engaged with schools to address their issues. First, reflecting the work of Friere (1970) on community empowerment, families and communities found voices with schools when their representatives on the Southeast Asian Advisory Council met with the school superintendent and other leaders. Second, to protect students during the summer from street violence, promote their school achievement, and preserve their cultural heritage, the

Socio-Economic Development Center conducted an 8-week Summer Academy. The 65 students who came to the Academy for 2 or 3 years had higher school retention rates compared to rates in local schools. Finally, this partnership also involved building adults' pathways into teaching careers. The need for Southeast Asian teachers was evident in Providence, where in 1998, about 11% of students but only .04% of teachers were Southeast Asian. Federal funding now supports a stream of Southeast Asian classroom aides becoming teachers in Providence.

## Sustaining Aspirations and Expectations for Education and Careers

*Aspirations* reflect one's hopes, and *expectations*, more realistic options. Low-income and ethnic minority parents are often seen as having low aspirations, but studies challenge this view.

*CREDE in California: Aspirations and expectations of low-income Latino and Euro-American families.* Latino parents, primarily Mexican immigrants, have described their children as nearing the crossroads between the good moral path (*el buen camino*) and the bad path (*el mal camino*; Azmitia & Cooper, 2001; Reese et al., 1995). In Santa Cruz, California, the local CREDE partnership conducted a longitudinal study—with over 100 low-income Mexican immigrant and European American families—that began as children were moving from elementary to middle school (e.g., Azmitia et al., 1996). Latino and European-descent parents held similar moral aspirations and defined the good path as living a moral life, with academics being part of this path (Cooper et al., 1994). Similarities across ethnic groups were also seen in parents' high aspirations for their children to go to college and become doctors, lawyers, or teachers. Many parents, particularly immigrants, lacked sufficient knowledge of the U.S. schools and academic subjects to guide their children. Still, they helped indirectly by making homework a priority over chores, using their lives of hardship to encourage children to attend college, reminding them of their future, and encouraging supporting their staying in school. Students reported that their parents, especially their mothers, remained central to staying on track to college, not in spite of their modest education but because of it. Parents and children sustained their aspirations from elementary into middle school (Mena, 2002).

Although parents' aspirations and expectations have been linked to students' school performance (Fan & Chen, 2001), evidence of the power of schools in students' pathways through school is also well established. Teachers' beliefs can shape ethnic minority students' college aspirations, for better or worse (George & Aronson, 2003). From studies of "college-going culture," McDonough (2004) reported that clear expectations from teachers, counselors, administrators, and staff—displayed in school mission statements—and communication with students about their educational attainment, college preparation, and definition of goals are key factors in boosting college-going rates. Still, schools can also communicate ambivalence. Ethnographic studies may help trace the intermingled hopes and fears of schools, families, and community members.



## Summary

One of the most important findings of this review is that families are a key factor—and possibly the most important one—in students' developing and sustaining educational and career aspirations from childhood to young adulthood. Although this might be expected among college-educated parents, research shows that low-income, minority, and immigrant families often inspire and help their children set and maintain these aspirations. So the common view that ethnic minority and low-income parents have low educational goals for their children is misleading. Parents who have not attended college in the United States, however, may not know the specific steps required for their children to realize these dreams. Our task is to sustain families' high hopes, not to implant them for the first time in their minds. This review also points to how schools and community organizations can convey information about achievement tests and grades as well as "college knowledge" about applications, placement tests, and scholarships (Haight, 2002; Lopez, 2000; Tornatzky, Cutler, & Lee, 2002).

## Sustaining Children's Math and English Learning Pathways Through School

Academic achievement is tracked most frequently with cross-sectional trends over time on measures such as the National Assessment of Educational Progress (NAEP); standardized state achievement tests; local high school exit exams; school retention and dropout rates; and rates of students in special education, remedial, and college-preparatory tracks. Setting international, national, and state standards is an ongoing debate. For example, trends can be seen in persisting ethnic/racial group gaps in math on the NAEP, given to students at ages 9, 13, and 17 (U.S. Department of Education, 2000). In contrast to trends, researchers and policymakers increasingly use longitudinal data to trace how pathways of children's skills lead to adult careers and lifetime earnings.

*CREDE in California: Building students' social networks along math and English pathways to college.* In Santa Cruz, California, the local CREDE partnership has involved a community college bridging program that awards scholarships to children from low-income families and offers activities that help youth build pathways to college (Azmitia & Cooper, 2001). In one cohort followed from ages 12 to 18, parents' formal education, usually in rural Mexico, was typically less than secondary school and, for many, only reached the primary level. They

worked in lettuce and strawberry fields, in factories, or cleaning houses and hotels. Students' applications described dreams of college-based careers—as doctors, lawyers, nurses, and teachers—as well as secretaries, police officers, firefighters, and mechanics. As youth continued in the program, they increasingly reported that their parents helped them think about the future and stay on track to college and that peers helped them with schoolwork and math. The partnership traced five prototypical patterns of math and English pathways: high, declining, "back on track" (declining then increasing), increasing, and low. By age 15, more than half had passed Algebra I, some moved back on track, and others increased from remedial classes to Algebra, often while learning English. Students went on to trade school, community college, 4-year universities, and military service. Passing Algebra by ninth grade, typical of the high pathway students, was a leading indicator at age 15 of students' enrolling at age 18 in a 4-year college or university.

*CREDE in California: Immigrant families building language pathways at school.* In the CREDE partnership in San Jose, California, Chang (2004) conducted a longitudinal study of literacy and language pathways of Asian American English learners in a middle school as they moved through remedial and special education classes. In a study that challenges stereotypes of Asian American students as model minority students, Chang found that over a 3-year period, the lowest performing incoming sixth graders were of Asian descent. Their home languages included Mandarin, Cantonese, Vietnamese, Tagalog, Korean, and Punjabi.

From her observations and interviews, Chang proposed that students' attendance and classroom conduct may have mattered as much as English skills in moving out of special education. For these immigrant students and their families, Family Literacy Nights provided reading comprehension and language learning activities that parents, siblings, and students could also do at home. Teachers were impressed with how immigrant parents engaged with their children. Parents saw that the ways that their children were learning at school differed from the memorization style of learning that parents had experienced in their home countries. In turn, students valued having their parents see what they were learning and enjoyed teaching their parents or older siblings reading comprehension strategies. The team concluded that the activities of Family Literacy Nights were more effective with parents, particularly new immigrants, than traditional parent involvement events.

## Connecting Families, Schools, and Communities to Support Children's Pathways Through School

Whether students' social contexts are called *spheres of influence* or *activity settings*, research is moving beyond models that view families, schools, or families only as matching or competing. Such models are evident when researchers ask questions such as, "Who helps you more, your parents or your friends?" New work considers how all students move—or attempt to move—across many social and institutional contexts of families, schools, peers, and communities (Phelan, Davidson, & Yu, 1998). Researchers map links across worlds, such as what parents know about their children's friends, what teachers know about home learning activities, or how sports or religious programs support students' schoolwork and college goals. Recent studies also probe specific resources and challenges, such as with emotional support, help with homework, planning the future, and staying on track to college.



### *Family Connections*

Parents can build connections across school, community agencies, and other families to promote their children's school achievement and to protect them from drugs, violence, and early pregnancy (Reese et al., 1995). Although students build more of their own connections in adolescence, many children of immigrants serve as cultural and language brokers for their families (Buriel, Perez, De Ment, Chavez, & Moran, 1998). In research, policy, and practice, the term *families* often refers only to parents. But research shows that families (including extended family members) are a key factor in students' developing and sustaining college goals and readiness for many immigrants and ethnic minorities (Caplan, Hall, Lubin, & Fleming, 1997). Although this would be predicted among college-educated parents, research shows low-income, ethnic minority, and immigrant families often inspire and help their children set and maintain college aspirations (Grolnick & Slowiaczak, 1994; Shartrand, Weiss, Kreider, & Lopez, 1997).

Beginning in childhood, families of higher achieving students build links to school and community organizations. Gutman and McLoyd (2000) interviewed low-income African American parents of fifth and sixth graders in Michigan, comparing parents of 17 high and 17 low achievers from a larger study. Although parents in both groups encouraged educational activities at home and helped with homework, parents of high achievers used more specific strategies to help their children with homework and encourage academic success, whereas parents of low achievers focused on their children's behavior. More parents of high achievers reported being involved at school and initiating contact with teachers to ensure their children's school success, whereas parents of low achievers responded to requests from the school about children's poor work or misbehavior. Although parents of both groups involved children in sports, parents of high achievers connected their children to more art and music classes, religious activities such as choir and bible study, and academic enrichment programs (see also Jarrett, 1995).

Finally, the benefits of community programs like Big Brothers/Big Sisters appear to operate by boosting parents' impact (Rhodes, Grossman, & Resch, 2000).

### *Peer Connections*

Beyond friendships, peers can constitute distinctive networks of emotional and instrumental support. The names of groups—jocks, nerds, burnouts, slackers, and

independents—point to future pathways. For youth and adults, peers are salient and controversial. Peers may offer emotional and practical resources for doing homework, staying in school, and going to college. Horn and Chen (2002) found with NELS:88 data that high school youth for whom most friends had plans for college, independent of other factors, were six times more likely to go to college than those without such networks. Peers may also help students move across ethnic lines, especially when school and families do as well (Hamm, 1994). Youth may find it difficult to keep friends who do not have college dreams.

*CREDE in California: Comparing peers as challenges and resources for urban and rural youth.* In Davis, California, the local CREDE partnership traced peer influences for Latino, African American, European American, and Asian American youth from ninth grade to graduation from high schools (Gándara, Gutierrez, & O'Hara, 2001; Gándara, O'Hara, & Gutierrez, 2004).

The sample began with more than 500 students in two schools, one urban and one rural. Although peer pressure to engage in risky behaviors is thought to peak early in high school and then wane, this longitudinal study showed the percentage of Latino youth reporting peer pressure for risky behavior was higher to begin with and declined much less for males (from 35% to 20%) than females (from 22% to 5%) and all other students. Even so, isolation from supportive peers was a challenge for Latinas. For example, many urban Latina females wanted to be known as good students, but they felt that their friends did not support their academic aspirations and that they did not belong in their schools. Not surprisingly, these young women seldom discussed school or future plans with friends. Latino males, especially rural youth, reported continuing pressure toward risky behavior. Many did not care how well they did in school and were unsure of plans after high school. These findings add up to a troubling picture of isolation for too many Latino youth, compared to findings from national studies that successful students build networks of peers who can provide resources for school achievement and pathways to college (Horn & Chen, 2002).

### School Connections

Teachers and counselors—from any ethnic background—can act as cultural and institutional brokers when they help students succeed in school and achieve their dreams (McDonough, 2004). Teachers and counselors can also act as institutional gatekeepers when they (a) assess students against standardized benchmarks that determine eligibility for vocational and remedial classes and college-prep programs; (b) discourage them from taking classes for university admission; or (c) enroll them in vocational tracks solely on the basis of their ethnicity, race, or social class (Erickson & Shultz, 1982).



*CREDE in Arizona: Bridging from school to families' funds of knowledge.* In Tucson, Arizona, the local CREDE partnership involves teachers connecting families' knowledge and expertise in mathematics to school math, thus building teachers' professional development and student learning. In this "funds of knowledge" approach, Gonzáles and her team worked in district-wide study groups (González & Moll, 2002) with teachers of Latino, Native American, African American, and European American students in elementary and middle schools. Teachers went on home visits to learn from families, build mutual respect and trust, and uncover "mathematics in everyday life settings." Teachers asked how families came to be in Tucson, thus eliciting their family histories, labor activities, and goals and values. School activities reflected what they learned. In a dinner activity for family math night, teachers used recipes to develop multistep problems. Home visits also led to class units on gardening and architecture, such as a "build your dream house" unit (Ayers, Foseca, Andrade, & Civil, 2001).

*CREDE in Kentucky: Teachers learning from families in Appalachia.* In Kentucky, the CREDE partnership also built on the funds of knowledge approach with elementary schools serving African American and White urban and rural children (McIntyre et al., 1999). Similar barriers as those experienced in the Arizona partnership (González & Moll, 2002) were present in Kentucky, where educators assumed schools' middle-class values and skills should be delivered as "information" in one-way communications from schools to families. In contrast, predicting that respectful teacher–family connections would boost children's attendance, motivation, test scores, and achievement, McIntyre and her team listened to families, implemented what they learned in classrooms, and measured the impact of these new practices on children's math and language pathways.

The researchers followed a sample of children through the primary grades with family interviews, classroom observations, and teacher interviews, as well as standardized tests in reading and math. In the fall, teams made home visits to build trust and respect and interview parents about their beliefs, practices, and goals. They asked questions about parents' goals for their children's academic progress and parents' knowledge of their children's interests, abilities, and academic weaknesses (McIntyre & Kyle, 2001).

Parents' primary goals were for their children to be able to stay in the community, be happy, and stay close to home; there was only a modest focus on financial success. Teachers brought families into classrooms to share their knowledge, such as in agriculture. In addition, teachers were rated on each of the five CREDE standards. In one study of 56 children, McIntyre and her team traced math and language pathways from fall to spring in children's standardized test scores. The teachers' goal was for children to gain more than one grade level for each year in school. Overall, 86% did so in math. Four patterns emerged: *Maintainers'* scores began and remained high, *Leapers'* scores began in the low to average range but in-

creased more rapidly than "a year for a year," *Stuck kids'* scores remained low, and *Regressors'* scores declined. In math, but not in literacy, teachers of Leapers scored highest on implementing CREDE standards. These findings point to the need for more longitudinal studies of culturally compatible teaching and learning.

*CREDE in California: A community program weaving family traditions to children's futures through computers.* In a Santa Barbara, California, after-school program, the local CREDE partnership (Durán et al., 2001) focused on developing computer-based literacy and empowerment among low-income Latino parents and their children. Rather than only receiving services, parents also attained influence in program decision making and activities. A sample of 18 parents made significant gains in knowledge of computers. Parents and children developed expertise in desktop publishing, making Web pages, and transforming memories reflecting family and cultural values into written products that were available electronically. The project developed into an ongoing community organization. As university students worked with families and community members, children saw their parents valued by program staff. Ongoing challenges lay in tracing the program's impact on children's school language and literacy and extending its benefits to more families. Still, this partnership became part of the nationwide Engaging Latino Communities for Education network of Hispanic-serving university partnerships.

### Sustaining Educational Partnerships for Long-Term Outcomes

*Connecting measurable goals from childhood to college and careers.* A consensus that neither schools nor families nor programs can solve the pipeline problem alone has led state and federal agencies, community organizations, and the private sector to partner with families, schools and universities (Cohn, Dowell, Kim, Lindahl, Maldonado, & Seal, 2004). Researchers, education leaders, and policymakers define common goals and measurable outcomes as part of accountability in educational partnerships. Research is scattered, but common indicators include *sustainability* (how long and at what level a partnership has been funded), mutual trust, cultural respect, and attaining shared goals and long-term outcomes (Rodríguez, McCollum, & Villarreal, 2002). Although agreement in defining and measuring long-term outcomes is still emerging, despite their costs in time and commitment, data-driven partnerships are shifting from a focus on what parents, teachers, administrators, and students each think to mapping features and results of effective partnerships for schools, districts, and states (Sanders & Epstein, 2000).

One partnership that builds college-bound communities to improve student learning and college-going rates among low-income and traditionally



noncollege-going students draws on Sociocultural Theory to guide work with teams of teachers, counselors, families, outreach staff, and students (Moran, Goza, Jones, Yonezawa, Mehan, & Cooper, 2003). The partnership seeks two long-term outcomes: inclusive goals, shown by all students graduating from high school with academic skills such as Algebra; and competitive goals, shown in increasing numbers of students attending 4-year universities. The partnership uses long-term data to align state standards in math and literacy, assessment, curriculum, and staff development across grade levels. A goal to double the numbers of underrepresented students—African American, Latino, and Native American—eligible for the University of California and California State Universities from partnership high schools was attained as growing numbers of all students and of underrepresented students applied to, were admitted to, and enrolled at the University of California from 1997 to 2002.

## AN AGENDA FOR SCIENCE, PRACTICE, AND POLICY

Bridging disciplines with multiple theoretical lenses has improved rigor in research by linking "macro" to "micro" levels—from demographic and structural factors to how individual youth navigate across their worlds. New research is needed to compare multilevel models of partnerships across institutions, relationships, students, and cultural communities with local, state, and federal partners. Such work will advance through aligning measures of families, peers, schools, community organizations, and partnerships. Bridging disciplines can also build common language for science, policy, and practice. This review has drawn across sociology, anthropology, psychology, and educational policy, each with distinctive theories and methods. This range strengthens understanding of the interplay of institutions, relationships, individuals, and cultural communities in school success. It has engaged local, state, and federal partners working on unifying educational systems.

What research issues are yet to be tested? Theories that address the pipeline problem have evolved. The Theory of Overlapping Spheres has shifted from focusing on families, schools, and communities as separate spheres to building synergies from partnerships among them. New research with Sociocultural theory supplements ethnographic work with experimental designs to compare classrooms using the Five Standards with traditional teaching methods. Mehan (1998) challenged Sociocultural researchers to address educational policies and practices—whether national, state, or local—with their power to constrain as well as create opportunities.

Aligning these concepts across theories and studies of families, schools, and communities builds a common language for addressing the five questions of this review. This is especially relevant given the interdisciplinary nature of this body of