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Closing the Academic Achievement Gap **Successful Strategies for Educators, Schools, and Communities**

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A major and pressing problem facing educators, particularly in the context of the current national reform agenda of achieving schooling success for each student, is the consistent finding of differential correlation among low, mid-range, and high academic achievement in different groups of ethnic minority students. The research base shows a striking achievement gap between Asian American and European American students on the one hand, and, on the other, African American, Latino, and Native American students. The latter groups tend to score lower on tests that measure scholastic aptitude and intelligence, as well as on those that test vocabulary, reading, and mathematics abilities.

This gap, which appears early in life and persists into adulthood, cannot simply be attributed to race, however. The research base indicates differences in achievement potential between African American and Latino males and females; between Caribbean- and Continental-born Blacks; and between middle- and lower-class minority students. Most troubling is the find-

ing of increasing differences even for those students who are economically advantaged. Some school districts known for their tradition of academic excellence are now faced with the challenge of serving an increasingly diverse student population, including minority students from relatively affluent families who are showing major gaps in their patterns of academic achievement.

Traditional explanations for the gap, such as social-environmental and genetic-hereditary causes, have not gone far in understanding and closing the achievement gap. The articles included in this issue of the *CEIC Review* summarize the state of our knowledge about the factors that influence the achievement of ethnic minority children, including some relatively new explanations. The synopses are of papers that were commissioned for a National Invitational Conference on Closing the Achievement Gap: Success Strategies. This conference was sponsored by the Laboratory for Student Success, the Mid-Atlantic Regional Educational Laboratory, at Temple University Center for Research in Human Development

and Education; the Johnson Foundation; and the National Task Force on Minority High Achievement of the College Board. It was held on May 31–June 2, 2000, at Wingspread, the Johnson Foundation's conference center in Racine, WI. The papers discuss implications for policy, programs, and practices in light of research findings.

Several of the papers concern the nature of the immigrant experience as it relates to achievement in schools and access to higher education. Two papers look specifically at nurturing successful minority collegians, both with broader implications for improving academic performance among secondary schools. Another paper suggests better ways to identify and support gifted students among minority populations, while another deals with a notable gender issue: the underrepresentation of female students in the sciences and in mathematics. The initial two papers call for a fundamental reorientation of, in the first instance, how we regard the economically disadvantaged and the undereducated and, in the



The National Center on Education in the Inner Cities is a unit in the Temple University Center for Research in Human Development and Education, an interdisciplinary center devoted to fostering healthy developmental and educational success of children and families in this nation's urban communities. Inquiries about the work of the Center should be sent to Information Services, CRHDE, Temple University, 1301 Cecil B. Moore Avenue, Philadelphia, PA 19122-6091. Copyright © 2001

second, how we regard the nonanalytical intelligences.

Conference organizers brought together education leaders and scholars known for their differing views. Also represented were teachers, principals, superintendents, and state and federal officials. The overall goals were (a) to develop an integrative synthesis of what is known about effective and promising policies and practices associated with high academic achievement among students from minority backgrounds and (b) to develop an action plan for the implementation of effective intervention programs that reduce the achievement gap among minority students.

What Is the Current State of Knowledge on the Underachievement of Ethnic Minority Children?

- For research to be useful, it must accurately reflect the complexity of the problems that students and teachers face. For example, the demographic makeup of many parts of the country has become highly diverse. Leaders need current, accurate demographic information to effectively plan responses to the challenges practitioners face because of this diversification.
- Information on the history and experiences of children and families is critical to implementing and sustaining change. Because populations of school districts are likely to be diverse, each school district will be unique and its problems and their solutions will differ.
- Promising practices must be translated more widely; schools need to be aware of what research says about the most promising practices.
- For large urban school systems that serve many poor children, the task is difficult. They need to be monitored closely for success.

- More information is needed on how to document outcomes.

What Are the Key Characteristics of Effective Programs Associated with the High Achievement of Ethnic Minority Youngsters?

- Effective programs target children for special instruction before they can be mainstreamed.
- Educational systems and practices must change to reflect the belief that all children are capable of learning. Educators must make certain that all children are equally well served.
- Successful programs provide counseling for linguistically and economically challenged students.
- The roles of principal, school board, and superintendent in the implementation of change need to be clarified.
- Ongoing opportunities need to be provided for practitioners and researchers to meet and discuss the range of issues concerning students' achievement.

What Implications Do Program Development and Modification and Expansion of the Knowledge of Effective Programs Have for Wide-scale Dissemination and Implementation?

- Schools and communities need to work together, and they need information on how to do this successfully.
- Leadership, especially in urban districts, must be stabilized.
- Partnerships that focus on closing the achievement gap must be created between school districts and foundations.
- Teachers must have a thorough understanding of the different forms of intelligence.
- Data should be used to reduce the mismatch of professional development and the actual needs of students and staff.

- Student talent needs to be used in designing instruction and school programs.
- The perception of schools as a hostile environment must be reduced for both students and teachers.
- Clear and high expectations need to be established.
- More teams of teachers who can reflect and collaborate on critical challenges and design strategies for implementation must be created. Researchers should play a critical advisory role.
- Family and community partnerships must be increased by pairing teachers and students.
- District support of schools needs to increase.
- Students are a valuable resource that should be maximized. ❧

The Laboratory for Student Success (LSS) is one of the nation's ten regional educational laboratories that is funded by the U.S. Department of Education to revitalize and reform educational practices in the service of educational success of this nation's children and youth.

The primary mission of LSS is to bring about lasting improvements in the learning of the mid-Atlantic region's increasingly diverse student population. LSS seeks to establish a system of research, development, and dissemination that connects schools, parents, community agencies, professional groups, and higher education institutions and transforms low-performing schools into high-performing learning communities.

Affirmative Development of Academic Abilities

Developing Human Capital in the Twenty-First Century

Edmund W. Gordon, Yale University

In the summer of 1958, in a talk at a public hall on 125th Street and Lenox Avenue in Harlem, W.E.B. DuBois contemplated his 1903 claim that the “problem of the twentieth century is the problem of the color line.” In 1958, he was beginning to consider the possibility that the line between the haves and the have-nots, greatly confounded by color, could emerge as the more critical problem. DuBois was correct both in 1903 and in 1958. The twentieth century was marked by considerable turmoil associated with racist values and DuBois’ color line, but it was also marked by monumental declines in the significance of the color line and the increased significance of the inequalities in the distribution of income and wealth.

Skin color and other sources of cultural identity continue to be the basis for troublesome social divisions in the United States as well as in other places throughout the world. The unequal distribution of resources or the perceived threat of loss of “my share” also provides fertile ground for cultural, gender, racial, and religious biases to surface and flourish. Racism was not eliminated with the civil rights revolution, but enormous strides were made in moving this nation and other parts of the world away from the worst expressions of racial discrimination. During that period, when masses of people not only saw their prospects improve, but also witnessed an increased opportunity for their children to have lives better than their own, most people in this country were more willing to share broadening opportunities. When the perception that things were getting better for our children and ourselves began to decline, however, we saw increasing antagonism toward organized labor; toward equality for women; and toward Blacks, Spanish-speaking persons, and others who seemed divergent from what was passing for “standard American.” It is not surprising, then, that tax

revolts and the rescindment of affirmative action ensued in the 1990s. These are the reactions of a desperate populace who have been frightened by the export of production jobs, by the necessity of two or more family members working in order to support a family of four, by the downsizing of the work force while profits and the economy soar, and by realistic estimates that the next generations will not live as well as the current. DuBois was right: The line between the haves and the have-nots is indeed challenging the color line as one of the key problems of the twenty-first century.

To understand the magnitude of this problem, it is necessary to look more closely at what it means to “have” and to “have not.” In many of the available analyses, income distribution has been the variable of focus. For individuals, inequality in the distribution of and inadequacy of access to income is a critical factor. For groups, however, the problem of inequality in the distribution of wealth is even more critical. This assertion holds true because, while income may provide limited access to available resources, it is wealth that provides access to power, control, and essential human resource development capital. Some people are beginning to believe that it is impossible to achieve meaningful participation in an advanced technological society without the capital to invest in human resource development. What exactly is the nature of that capital that so badly needs to be invested?

- **Health capital**—physical developmental integrity, health and nutritional condition, and so forth.
- **Financial capital**—income and wealth; family, community, and societal economic resources available for human resource development and education
- **Human capital**—social competence, tacit knowledge, and other education-derived abilities

- **Social capital**—social network relationships, social norms, cultural styles and values
- **Polity capital**—societal membership, social concern, public commitment, participation in the political/economic process
- **Personal capital**—dispositions, attitudes, aspirations, efficacy, sense of power
- **Institutional capital**—access to political, educating, and socializing institutions
- **Pedagogical capital**—supports for appropriate educational experiences in the home, school, and community

Obviously, wealth is more than money. It is the accumulated accessibility and control of resources. Schools and other social institutions seem to work best when the people they serve provide a variety of these capitals that enable and support human development. If the availability of financial capital invested in human development is, in part, responsible for the effectiveness of schools and other human resource development institutions, then there is a lead for political and social development.

Until recently, society has accepted the assignment of preferential treatment to designated categories of persons as special rewards for service to the nation, to compensate for unusual prior disadvantage, or simply as the entitlement associated with one’s status. These various forms of affirmative action are currently under increased attack, in part, because of their public and colloquial association with minority group membership. Admittedly, they are also under attack because of abuses in practice. Instead of an effort to ensure that qualified persons are not disqualified because of ethnicity or gender, affirmative action is often perceived as a program to privilege “unqualified” persons over those

who are “qualified.” The preoccupation with race may be a part of the problem. In a racist society, all social arrangements are likely to be designed to reflect the existing racist values. To try explicitly to subvert those values is bound to be met with open resistance. Thus, affirmative action that is directed at gender differences has been more successful.

Several adjustments should be made to the current thinking about affirmative action. Rather than targeting ethnic or gender groups for affirmative action, a much larger and more diverse group should be targeted—those groups that are low on wealth and wealth-derived capital resources. Education and employment opportunities could be regarded as instruments of human resource development rather than agencies for the credentialing and rewarding of the “most able.” Rather than merely protecting the opportunity to enter, let us ensure the opportunity to develop and qualify. In addition to a program of affirmative action, a program of affirmative development of academic abilities should be utilized.

An important affirmative action effort in the history of the United States was the *Veterans Preference Program*. The components of that program ensured that veterans had ample opportunities to improve their educational and health status. They were a protected group with respect to vocational skill development and employment. They

were assisted in the acquisition of wealth as represented by assisted home ownership, and the social ethos even gave them privileged positions in the political arena where they were enabled to access political capital through the jingoistic and patriotic bias of the populists. This national effort may have begun as a reward for service in the nation’s defense, but in reality it was a massive human development endeavor that positioned the nation’s labor force for the economic and technological expansions of the latter half of the twentieth century. The affirmative development of the nation’s underutilized human resources is in the best interest of the entire United States.

The affirmative development of academic ability should include components like the following:

- Generic interventions, such as excellent pedagogy, adequate and equitable opportunities to learn, and ubiquitous support for academic development;
- Customized diagnostic and targeted remediation;
- Academic acceleration and enhancement;
- Personalization;
- Expectations and rewards;
- Early exposure to rigorous instruction;
- High-performance learning communities; and
- Explicit socialization of intellect to multiple cultural contexts.

Income and wealth have greatly reduced the significance of the color line in our society. Race continues to be important, but economic, political, and social planning may be more appropriately directed at reducing the growing disparities between the haves and the have-nots. Thus, the twenty-first century requires a quantum leap in the development and utilization of all people. It will require the affirmative development of large numbers of persons who would not necessarily be selected because of their developed abilities, but because, in the maldistribution of human resource development capital, they have undeveloped abilities that the nation needs to have developed. Rather than specifically addressing racial disparities, such an effort would favor the lower and under classes in our society.

Unfortunately, classism may be a more recalcitrant illness than racism. While it is, at times, acceptable to talk of racial justice, the same is not true of economic justice. However, the pursuit of universal economic justice may be critical for the survival of our democratic nation. ❀

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Developing Successful Intelligence in All Children Adding Creative and Practical Abilities to Analytic Thinking

Robert J. Sternberg, Yale University

Successful intelligence is defined as the ability to achieve success in life in terms of one’s personal standards, within one’s sociocultural context. The field of intelligence has, at times, put “the cart before the horse,” defining the construct conceptually on the basis of how it is measured rather than vice versa. This practice has resulted in tests that stress the academic aspect of intelligence, but the construct of intelli-

gence needs to serve a broader purpose that accounts for the bases of success in all of one’s life.

The use of societal criteria of success (e.g., school grades, personal income) can obscure the fact that these measures often do not capture people’s personal notions of success. Although scientific examination requires analysis of group data, success is defined on an individual basis. In the theory of suc-

cessful intelligence, however, the conceptualization of intelligence is always within a sociocultural context. Although the processes of intelligence may be common across such contexts, what constitutes success is not. For example, being a successful member of the clergy of a particular religion may be highly rewarded in one society and viewed as a worthless pursuit in another culture.

Dealing With Strengths and Weaknesses

Theories of intelligence typically specify some relatively fixed set of abilities. Such a fixed specification is useful in establishing a common set of skills to be tested. But people achieve success, even within a given occupation, in many different ways. For example, successful teachers and researchers achieve success through many different blendings of skills rather than through any single formula that works for all of them. In short, the ability to achieve success depends on capitalizing on strengths and compensating for weaknesses.

Balancing Abilities

Analytical abilities are the abilities that are primarily measured by traditional ability tests. However, success in life requires not only the ability to analyze one's own ideas, but also to generate ideas and to persuade other people of the value of these ideas. This necessity occurs in the workplace, as when a subordinate tries to convince a superior of the value of his or her plan; in personal relationships, as when a child attempts to convince a parent to do what he or she wants or when a spouse tries to convince the other spouse to do things his or her preferred way; and in school, as when a student writes an essay arguing for a point of view. Success, then, is attained through a balance of analytical, creative, and practical abilities—a balance which enables one to adapt to, shape, and select environments.

Negotiating the Environment

Definitions of intelligence traditionally have emphasized the role of adaptation to the environment. But intelligence involves not only modifying oneself to suit the environment (adaptation), but also modifying the environment to suit oneself (shaping), and, sometimes, finding a new environment that is a better match to one's skills, values, or desires (selection).

Not all people have equal opportunities to adapt to, shape, and select

environments. In general, people of higher socioeconomic standing tend to have more opportunities than people of lower socioeconomic standing. The economy and political situation of the society can also be factors. Other variables that may affect such opportunities are education and literacy, political party, race, religion, and so forth. For example, someone with a college education typically has many more possible career options than does someone who has dropped out of high school in order to support a family. Thus, how and how well an individual adapts to, shapes, and selects environments must always be viewed in terms of the opportunities that the individual has. Children from challenging environments may acquire important adaptive and other skills, yet not those skills most schools currently value and reward.

Teaching and Assessing for Successful Intelligence

In order to help remedy this situation, work has been done at Yale University to try to restructure the processes of ability testing, instruction, and assessment of achievement. A group-administered research version of a test, the Sternberg Triarchic Abilities Test (STAT), was developed. There are two levels currently available for research purposes: one for children at the high-school level (ages 15–18) and one for children at the intermediate, fourth-grade level (ages 9–10). A variety of abilities, including conventional, is measured.

One third of the test measures the kinds of memory and analytical abilities evaluated by conventional tests of intelligence and scholastic abilities. Another third of the test measures abilities more germane to creative thinking and coping with novelty—the ability to think in novel ways. And the last third of the test measures practical abilities of the kind needed to adapt to everyday life.

When high-school students were selected for a summer program on the basis of this test, some interesting things happened. Students all around

the country took the test. They were classified into five groups: high analytical, high creative, high practical, high in all three abilities, low in all three abilities. The first finding was unexpected: the high-analytical group looked pretty much like a standard high-ability group: mostly White, middle class, and attending strong schools. But the high-creative and high-practical groups were much more diverse in terms of ethnic, socioeconomic, and educational background. In other words, more minority students were selected not through any program of affirmative action, but through a program of recognizing and valuing abilities that schools typically neglect, both in their instruction and in their assessments.

The test was also found to be reliable and predictively valid. In a study of a summer program at Yale, the analytical, creative, and practical sections all predicted achievement in a high-school psychology course. This course had been taught in different ways to value analytical, creative, or practical abilities. So, for example, an analytical task might involve analyzing the strengths and weaknesses of a scientific theory or experiment; a creative task might involve generating a new theory or experiment; and a practical task might involve applying a theory or experiment to one's own life. In the study, the best predictor of performance was analytical abilities; the poorest was practical. However, all three test components—analytical, creative, and practical—predicted achievement.

It was also found that students who were placed in an instructional program that matched their pattern of abilities outperformed those who were mismatched. In other words, if students are taught in a way that at least partially values their strengths, they perform better than if they are taught in standard ways that always value the same abilities—namely, the memory and abstract-analytical abilities. Ultimately, the goal is to help students recognize and capitalize on their strengths and to correct or compensate for their weaknesses.

Perhaps it is not always feasible to match instruction to students' patterns of abilities. In anticipation of this problem, a study was designed that taught either third-grade social studies or eighth-grade science in one of three ways: in the traditional way, with an analytical (critical-thinking) emphasis, or with a three-pronged emphasis on creative, practical, and analytical abilities. The achievement of all students was assessed via analytical, creative, and practical performance assessments, but also via standard multiple-choice assessments that emphasized the kinds of memory-learning that are emphasized in most standardized achievement tests and statewide mastery tests. It was

found that the three-pronged instruction not only resulted in better scores on the performance assessments, but also on the multiple-choice memory-based assessments. In other words, by allowing students to learn the material in three different ways, and thereby make the most of their patterns of abilities, students learned better, even when achievement was measured in conventional ways.

To effect change in education, not only the ability tests but also the instruction and the achievement tests need to be changed. When all three kinds of abilities—analytical, creative, and practical—are emphasized, it will become apparent that many of the stu-

dents who now seem rather inept actually have abilities that, under traditional systems of testing and instruction, remain hidden and ultimately go to waste.

Since teachers already know how to teach analytically, creatively, and practically, the change can be made with relatively little effort. Nevertheless, teachers are often afraid to make the change lest their students not do well on mastery or other conventional tests. However, students will actually perform better on all tests—standardized and otherwise—when given a chance to learn in a way that best allows them to bring their strengths to bear on their classroom learning. ❀

Children of Immigrants and Their Achievement

Relating Family and School to Engagement, Aspirations, and Achievement

Rubén G. Rumbaut, Michigan State University

Intergenerational relations in immigrant families are managed and shaped within divergent contexts of reception and incorporation and with differing sets of resources and vulnerabilities. Still, even after taking into account the objective circumstances within which children of immigrants are coming of age, there is substantial and unexpected variance in the children's interpersonal and intrapersonal responses. This paper explores these dimensions of their adaptation process which can mold motivation and achievement: the ways immigrant children perceive their relationships with parents and families, their school experiences, their school engagement, and the way they imagine their educational and occupational adult futures. It also probes some patterns and predictors of their educational achievement.

The CILS Study and Sample Characteristics

The Children of Immigrants Longitudinal Study (CILS) has followed the progress of a large sample of teenagers representing 77 nationalities in two main areas of immigrant settlement in the United States: Southern California

(San Diego) and South Florida (Miami and Fort Lauderdale). The initial survey, conducted in 1992 ("T1"), interviewed 5,262 students enrolled in the eighth and ninth grades in public schools in these two regions, as well as in private bilingual schools in the Miami area. The principal nationalities represented in the San Diego CILS sample are Mexican, Filipino, Vietnamese, Laotian, and Cambodian, with smaller groups of other Asians (mostly Chinese, Japanese, Korean, and Indian) and Latin Americans. In the South Florida sample, the principal national-origin groups were Cubans, Haitians, Jamaicans, Nicaraguans, Colombians, Dominicans, and others from Latin America and the Caribbean.

The sample was drawn in the junior-high grades, a level at which dropout rates are still relatively low. Students were eligible to participate in the study if they were American-born but had at least one immigrant (foreign-born) parent, or if they themselves were foreign-born and had come to the United States before age ten.

Several years later, in 1995–96 ("T2"), a second survey of the same group was conducted—supplemented

by separate in-depth interviews with their parents. The purpose of the follow-up, which succeeded in reinterviewing 82% of the baseline sample, was to ascertain changes over time in their family situation, school achievement, educational and occupational aspirations, language use and preferences, ethnic identities, experiences of discrimination, and psychosocial adjustment.

Family Cohesion, Conflict, and Change

In immigrant families there are systematic differences that range from situations in which parental authority is fully preserved to those in which it is undermined by generational gaps in acculturation—in English knowledge and the degree of children's retention of their parents' language. These patterns should be reflected in the degree of intergenerational cohesion or conflict between immigrant parents and their children, the extent to which these youths report being embarrassed by their parents, and the degree of attachment to them by filial duty.

The CILS found significant differences in family structure by national origin and socioeconomic status (SES).

The higher the parental SES, the more likely it is that families remain intact and experience fewer stressful life events over time. Asian-origin families are more likely to remain intact and to experience fewer family change events (except the Hmong and Cambodian refugees), followed by the European/Canadian and Latin American groups, who occupy a middle position in these indicators of family stability. Among the Latin Americans, upper-middle-class Cubans whose children attend private Miami schools are most advantaged, while the Dominicans are the only Latin nationality to exhibit the pattern of high family structural instability seen among the Haitians and West Indians.

Without exception, the Latin American nationalities exhibit the most cohesive families as well as the lowest levels of parent-child conflict. Most of the Latin groups also exhibit lower proportions of youths who report being embarrassed by their parents, with the lowest (14%) found among Mexicans and Dominicans. By contrast, all of the Asian, European/Canadian, and Black Caribbean groups were below the average (34%) in their percentage of high-cohesion families and nearly all of the Asian and Black Caribbean groups scored above the average (40%) for high-conflict families. The lowest family cohesion scores were found among the Haitians and Cambodians, and the highest parent-child conflict scores were found among the Hmong, Haitians, and Cambodians. Those same groups—along with the Chinese and other Asians—also showed the highest percentage of students who reported feeling embarrassed by their parents.

Language dominance was measured by the students' varying levels of proficiency in both English and the parental language. The data show that as the youth's level of acculturation increases, the level of parent-child conflict and of embarrassment over parents' ways increases, while that of family cohesion and of familistic attitudes decreases. Students who are fluent in English but not in the parental language exhibit much higher parental conflict

and embarrassment profiles, and much lower family cohesion than youths who are fluent in the language of their parents.

School Environments and Peer Groups

Until they complete their formal schooling, children and adolescents spend more time in schools than in any other setting outside their homes. Therefore, schools play a critical role in their development, shaping what they learn as well as their motivation and aspiration to learn. American public schools serve as quintessential agencies of acculturation for children of immigrants, making a school's environment particularly significant.

Nearly 30% of students reported a high degree of unsafe and disruptive conditions at their schools. In particular, 39% perceived that there were many gangs at their schools, and 42% noted frequent fights between racial-ethnic groups. San Diego participants experienced the most unsafe conditions, with the Hmong, Laotian, and Cambodian students reporting the highest prevalence of gang activity and violence in their schools, followed by the Vietnamese and the Filipinos. At the other extreme, Cuban students in Miami private schools reported the safest learning environment, as well as the highest quality of teaching. This is, in large part, a function of parental socioeconomic resources. Thus, the lower the family SES, the less safe the school environment and the greater the incidence of gangs and violence.

However, a very different pattern is seen in exposure to the drug scene. Twenty-six percent of the CILS sample reported at least one or more incidents with drug sellers. Colombians reported the most frequent involvement (43%), followed by Europeans and Canadians (35%), and Cubans in public schools (34%)—all of these students were from the Miami area. Well below the average in reporting such drug-related incidents (hovering between 10 and 15%) were Haitians, Jamaicans, and all of the Asian-origin groups except one. In this instance, parental socioeconomic sta-

tus again plays a significant role, but, ironically, in a negative sense. The higher the family SES, the more likely it is that students have the disposable income to buy illegal drugs and to become connected with the drug trade. Thus, while SES is linked to safer and better suburban schools, it is also linked to drugs. Moreover, the data make clear that such involvement with drugs is significantly related to associations with peer groups that disparage academic achievement. That is, the greater the level of connection with the drug scene, the more a respondent's close friends were likely to have dropped out of school—regardless of their families' socioeconomic advantage.

School Engagement and Effort

School success and failure are influenced by complex factors, but among the most fundamental are those which involve the students' motivation to learn and their willingness to engage in schoolwork with the effort needed to achieve educational goals. In this sample, the children of immigrants almost universally value the importance of a good education. In fact, 90% in the second survey ranked a good education as "very important," and 85% deemed becoming an expert in one's field "very important," while only 41% equally valued "having lots of money."

Fifty-six percent of the respondents in both CILS surveys scored high on school engagement (defined as the percent of students for whom grades were "very important" in both surveys); 26% regularly engaged by putting a high level of effort into their schoolwork. Yet, 24% spent excessive time each day in front of the television. There are significant differences by nationality on all three indicators. On school engagement, the Haitians and the Latin Americans had the lowest percentages, and the West Indians and all of the Asian groups had the highest. On sustained schoolwork discipline, the intergroup differences become much wider, with all of the Asian groups putting in at least twice the amount of

time on homework as the Latin Americans, the Europeans/Canadians, and the Haitians. Forty-eight percent of the Hmong reported spending over two hours a day on homework—as did about 40% of all of the other Asian-origin groups. In contrast, only about one sixth of the Cubans, Colombians, Dominicans, and Mexicans devoted two or more hours a day to homework.

In general, family cohesion significantly correlates with each of these indicators. The greater the level of family cohesion, the greater the level of high-school engagement and schoolwork discipline, and the lower the proportion of youth who spend an excessive amount of time watching television. Paradoxically, however, Latin Americans, who show the greatest family cohesion, had among the lowest rates of school engagement and effort; while the Asian groups, who show less family cohesion, had among the highest rates of school engagement and effort.

These differentials are still more pronounced by the types of close friends with whom the students associate. Those with friends who plan to attend a 4-year college engaged in school more and watched TV less. And parents' educational aspirations for their children make a difference. The more ambitious the children perceive their parents' aspirations, the greater the children's level of school engagement and effort.

Imagining the Future: Aspirations and Expectations

Aspirations and expectations are not the same thing. Aspirations refer to desired levels of future performance (what people want to happen); expectations are beliefs about a probable future state of affairs (what people think might happen). Aspirations are less realistic than expectations, since desires tend to exceed rational expectations. In this study, the percentage of students aspiring to an advanced degree (67%) is much higher than the percentage who realistically expected to attain it (44%), although both figures reflect a very high overall commitment to the pursuit

of ambitious educational goals by second-generation youth. Interestingly, the study showed remarkable stability and resilience of students' aspirations and expectations, which remained virtually identical for the sample as a whole over the span of several years from the end of junior high to the end of high school.

Clearly, there are significant differences by national origin in both the level of educational ambition and in the direction of change of these students over time. The most ambitious groups were the Cubans in bilingual private schools and the Chinese and "other Asians" (Japanese, Koreans, and Indians), followed by the Europeans/Canadians and the West Indians. In the middle were the Vietnamese, Filipinos, and the remaining Latin American groups; and at the bottom were the Dominicans, Mexicans, Laotians, and Cambodians. The Hmong, who come from the poorest immigrant families in the country, are perhaps the most poignant example of the gulf that can open up between educational desires and probable realities. While 54% of Hmong youth aspired to an advanced degree (reflecting a robust increase of 14% since the initial survey), a miniscule 6% realistically expected that they would be able to attain it (reflecting a decrease of 6% since 1992). As this ethnic ranking suggests, parental socioeconomic status plays a major role in explaining these differentials, with the gaps between lower- and higher-SES groups becoming wider in the students' expectations of what they will achieve.

Much more so than family structure, the quality of family relationships was strongly associated with the youths' ambitions. Educational expectations significantly increase as the level of family cohesion increases and the level of parent-child conflict decreases. By language abilities, fluent bilinguals exhibit the highest aspirations and expectations, followed by English-dominant students. Strong associations are also evident by the measure of sustained schoolwork discipline: the greater the number of daily homework

hours averaged by the students, the higher their aspirations and expectations. Conversely, the greater the number of daily television hours averaged by the students, the lower their aspirations and expectations.

Results show that school environments and peer groups influence the manner in which these youths imagine their educational futures. Educational aspirations and expectations are lowered in school environments that are perceived to be unsafe and in which learning is regularly disrupted. The same goes for involvement with drugs, with the added observation that aspirations and expectations increased over time for students with no involvement with drug dealers, whereas they decreased for those reporting any level of involvement. Finally, 85% of youths who perceived that their parents wanted them to obtain an advanced degree aspired to do so, and 58% realistically expected to be able to achieve that goal. Among youths who perceived that their parents did not expect them to graduate from college, only 29% aspired to an advanced degree and a mere 15% realistically expected to be able to earn that degree.

Patterns of Achievement

A significant question raised by this study was how the immigrants' children compared to the children of non-immigrants. On one issue of public concern—school dropouts—a major finding is that, in both the south Florida and the southern California school districts, a significantly greater proportion of students from non-immigrant families drop out of school than do the youth from immigrant families. The multi-year dropout rate for grades 9–12 in the Miami-Dade schools was 17.6%, about double the rate of 8.9% for the entire sample of children of immigrants there. On the other coast, the dropout rate in the San Diego schools was 16.2%, nearly triple the rate of 5.7% for the CILS sample there. Lower dropout rates for children of immigrants were seen for both males and females and for every racial-ethnic category.

Although children of immigrants generally also outperformed their native peers in GPAs, there are clearly very large differences in educational outcomes by national origin—results which portend a significant ethnic segmentation of the socioeconomic trajectories of these youths as they go on (or not) to post-secondary education and make their transitions into the adult labor force. Chinese students on both coasts finished high school with by far the highest GPA (3.65) and the lowest dropout rate in the study. They were followed by other Asian-origin immigrant groups—the Indians, Japanese and Koreans, then the Vietnamese and Filipinos, Laotians and Cambodians. Jamaicans and other West Indians had lower GPAs, and the Haitians much lower still, but their dropout

rates clustered around the CILS average. Overall, the poorest performance was registered by Latin American youth, with the lowest GPAs in the sample found among the Dominicans, and, unexpectedly, the highest dropout rates among Cuban youth in Miami public schools (10.1%), followed by Nicaraguans in Miami (8.9%) and Mexican-origin youth in San Diego (8.8%).

CILS results illuminate the challenges confronting children of immigrants. They differ in their social, cultural, and economic origins; face complex circumstances that add to the developmental stressors of adolescence; and display wide variations in achievement among national origin groups. Nonetheless, despite these added challenges, and despite the paradoxes of acculturation observed,

the overall picture that emerges from this study is one of noteworthy achievement. Whether that level of achievement can be sustained as these increasingly acculturated young adults make their way into the world of work and form new families of their own remains an open empirical question. A follow-up survey of all the CILS respondents, who are now reaching their mid-twenties, was begun in early 2001 to address this question. ❀

In upcoming issues of the
CEIC REVIEW:

**Can Unlike Students Learn
Together?*

**Social-Emotional Learning and
School Success*

Family and Neighborhood Environment and the Adjustment and Achievement of African American Adolescents

Ronald D. Taylor, Temple University

This paper reviews and discusses research linking African American adolescents' social environments with their social adjustment and achievement. Associations between important aspects of the home and family and adolescents' behavior and well-being are the primary focus. For example, it is known that the economic resources of the home are linked to children's and adolescents' social behavior and that parenting style and practices in the home are linked to African American adolescents' behavior and adjustment.

Families with few economic resources are more likely to have adolescents who have behavioral problems, who are psychologically distressed, and who do less well in school. Parental behavior and psychological well-being in less adequately resourced homes partially explain adolescents' poorer

functioning. Parents in economically deprived homes are more distressed, inconsistent, and harsh in their parenting, and are less likely to create an organized and structured home environment. All of these can lead adolescents to display psychological distress.

In linking home environment and parenting to adolescents' behavior, empirical work has not kept pace with conceptual formulations of the factors that may shape parenting practices. Arguments have been made claiming that parenting behavior is shaped by parents' assessment of the qualities adolescents will need in the family's social environment. Findings addressing this theory are in short supply. But research has shown that parents' emotional support, control, supervision, and home organization are positively linked to adolescents' psychological well-being and func-

tioning. Also, African American parents who have higher academic expectations for their adolescents and who prepare them for the experience of racism and discrimination tend to have adolescents who perform better in school.

Findings on the effects of neighborhoods suggest that factors reflecting the economic status of the neighborhood (median income, percentage of professional workers, percentage of abandoned houses) are associated with adolescents' psychological functioning and their likelihood of engaging in problem behavior. Processes mediating these relations are less clear but suggest that lower emotional support may explain some of the problematic behavior.

The prevention of some of the problems of poor adolescents and their families calls for the investment of social and financial capital

in disadvantaged communities. Many of the problems of poor, inner-city families may be rooted in the absence of both jobs and people working for pay at regular hours. It is argued that the lack of employment means that individuals do not have regular, legitimate forms of income; models of persons using their skills to lawfully maintain a living; or activities that structure the flow of events in the community.

The investment of capital may also include the introduction of resources into communities (markets, stores, banks, schools) that will enhance the quality of life of its residents. The presence of greater capital would likely lead to a reduction in the stressful conditions of inner-city communities (e.g., lower crime, greater availability of resources) and families. Consequently, parents—less psychologically distressed than before—would engage in better parenting that would result in fewer adjustment problems for adolescents.

Inner-city ethnic minority families and their children, without the introduction of increased resources, are at considerably greater risk for problems than the population as a whole. Thus, it is important to assess the socioemotional functioning of poor, ethnic minority youngsters and the circumstances that pose a threat to their well-being. Comprehensive, family-centered child development programs in urban communities could, with parental consent, regularly assess the well-being of children and adolescents. It is important that such programs be designed with an awareness of the relationships between neighborhood characteristics, family environment, parenting, social networks, and adolescent adjustment. For example, adolescents identified with behavioral problems may also have problems at home that are rooted in the risky circumstances and stressors of their neighborhood. Therefore, treatment of the adolescents'

problem behavior would need to consider the possibility of initiating changes in multiple domains.

A more concerted effort must be devoted to using empirical research to assist at-risk families. For example, research has shown that the lack of availability of vital resources in neighborhoods is associated with reduced functioning in families. This indicates the important need of neighborhood revitalization in terms of community resources for families and their members. Mothers' psychological distress has also been shown to be positively associated with the lack of availability of medical or financial resources. Thus, the introduction of these needed resources to communities would mean lower levels of distress and anxiety for caregivers. Less caregiver distress is likely to result in more positive interactions with youngsters in the home. Similarly, mothers experiencing financial problems are prone to depression because they are not hopeful about the future. As a result, mothers and adolescents may experience problems communicating, leading to adolescents' depression. So two goals of intervention should be the improvement of the economic opportunities and the development of resources for such families, including the creation of therapeutic services aimed at both mothers' sense of hopelessness and parent-adolescent communication problems.

There is a positive association between social support and the functioning of adults and children. It is important that—whether through churches, schools, social agencies, or other media—information on important family practices, such as organizing a structured family environment, be conveyed to families. Indeed, the creation of an organized and structured family environment among at-risk families helps buffer the impact of stressors they face. Family organization is

positively associated with good parenting practices and adolescent adjustment. Given this relationship, it is possible that, by creating or utilizing mechanisms in the community (schools, churches, support groups) through which families may access social support, families may function more adequately than is currently the case. Also, when they are linked to support networks, parents and adolescents may develop new community ties.

Finally, it is important to acknowledge that there are limits to the resilience of individuals and the power of social institutions to overcome poverty or race problems. As important as social support may be to families, it may not enable families to overcome all of the challenges they face. For example, individuals facing discrimination in the workplace may not be as depressed as expected because of support they receive from family. However, the fact remains that such discrimination limits the individual's capacity for job advancement and increased financial resources for the family. Indeed, there has been an overreliance on services in the United States when many problems of poor families have their roots in social and economic policies and practices that may require controversial political solutions. ❀

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Bridging Multiple Worlds

Inclusive, Selective, and Competitive Programs, Latino Youth, and Pathways to College

Catherine R. Cooper, University of California at Santa Cruz

In the United States, as each group of students moves from high school to college, the percentage of Latino and African American students shrinks, a pattern known as the “academic pipeline problem.” This pattern begins to emerge as early as the elementary school years, a critical time in the lives of students as they begin to look ahead in their own lives and look up to older siblings, peers, and adults. Some children’s pathways lead them toward college, while others lead toward school dropout and the risks of “underground” occupations. For example, by the third grade, large gaps emerge between Latino children and national norms in reading, written language, and math. Unfortunately, these gaps often widen in subsequent years. In 1995, 30% of Hispanic young people were school dropouts, compared with 9% of non-Hispanic White youth and 12% of non-Hispanic Black youth.

This paper reports findings from ongoing research partnerships with inclusive classrooms and with selective and competitive outreach programs that seek to bridge school, college, and college-based occupations for Latino and other underrepresented youth. It focuses on immigrant families from Mexico because they represent the largest group of immigrants in the United States. Findings draw on qualitative methods (interviews, field observations, and case studies) and quantitative methods (surveys, grades, test scores, and statistical analyses) involving over 700 students. This study sought to respond to the following questions:

- a. What are the immigration history/histories and parents’ education?
- b. What challenges do students’ families, peers, schools, and

communities present, and what resources do these different “worlds” provide?

- c. What are students’ pathways through the classes required for college eligibility? and
- d. How do students’ family backgrounds, resources, challenges across worlds, and school pathways predict college eligibility and enrollment?

In answering these questions, five key findings on how Latino children build pathways to college were discovered.

Finding 1: Demography Is Not Destiny, but Democracy Requires Vigilance

The demographic profiles of students participating in the competitive outreach programs revealed very different patterns for African Americans and Latinos. The African American students in the competitive program sample, all but one born in the United States, were likely to have college-educated, American-born parents. The Latino students, more than 20% of whom were born outside the country, were likely to have immigrant parents with a high-school education or less. Thus, African American youth in the sample were following their parents’ pathways to college, and Latino youth were beginning to exceed their parents’ education. However, in other research studies, differing rates of participation across social class, generation of immigration, and gender in university outreach programs have consistently been found among African American and Latino youth, who are underrepresented in the same way in four-year colleges throughout California; and there is concern as

to why more low-income African American youth and second- and third-generation Latino youth were not participating in outreach programs. One possibility is that the Saturday and summer academies of the outreach programs conflicted with students’ work schedules; another is that the information distribution and recruiting of outreach programs do not reach all families equally.

When factors predicting students’ long-term school pathways were examined, little predictive power was found in family demographic backgrounds for either Latino or African American families. Other research shows correlations between parents’ education and children’s academic success, so why were none found here? One possibility is that parents’ education generally predicts activities like getting children into programs such as those in this study. Focusing only on students in such programs may have prevented detecting the impact of parental education. But families’ actions may matter more than demographic background.

Finding 2: Ethnically Diverse Youth Start Developing Career and College Goals in Childhood from Unique Challenges and Resources Across Their Worlds

One hundred sixteen Mexican-descent sixth graders applying for the selective community college outreach program described their dreams of becoming doctors, lawyers, nurses, and teachers, as well as secretaries, police officers, firefighters, and mechanics. The challenges children saw to achieving their dreams included not having enough money to pay for school, as well as the expectations of family members (“my parents wanted me to

work in the [farm] field”) and peers (“friends who will pressure me to take drugs”). The children saw their families (parents, siblings, and cousins); their teachers, school counselors, and coaches; their friends; and themselves as their greatest resources.

Finding 3: Math Pathways to College Diverge Early but Some Get Back on Track

Math classes and grades are useful indicators of university eligibility and career opportunities. In the competitive program sample, slowly declining, rapidly declining, increasing, and “back on track” pathways (declining then increasing) were found. Youth who stayed on track or got back on track to university eligibility and enrollment found resources from families, teachers, coaches, tutors, or youth workers and reported challenges from siblings’ and parents’ modest levels of education.

Finding 4: Challenges and Resources in Students’ Lives Affect Program Participation, College Eligibility, Enrollment, and Progress

Addressing the realities of students’ lives—at home, in school, the community, and with friends—is crucial to both program improvement and cost-effectiveness.

“THE GOOD MORAL PATH”

In the inclusive classroom sample, parents considered their primary role to be their children’s moral guide and sought to protect their children from negative peer influences. To these parents, a strong moral upbringing includes supporting academic achievement. However, not all parents are aware of the academic rigors their children face. For example, Mexican immigrant parents held high aspirations that their children become doctors, lawyers, or teachers; yet many were unaware these goals required a college education.

SCHOOLS: GATEKEEPERS AND EDUCATIONAL BROKERS

Teachers and school counselors can act as institutional gatekeepers when they assess students against standardized benchmarks of achievement that determine eligibility for college-prep, vocational, or remedial classes. When elementary school teachers and counselors disproportionately place Latino students in special education classes and low-ability reading and math groups, they send these students towards remedial tracks in middle and high school. But teachers and counselors—from any ethnic background—can also act as cultural brokers who help Latino children succeed in school and achieve their dreams.

COMMUNITY ORGANIZATIONS

Students report that religious, sport, and outreach organizations and leaders influenced them to take jobs that would help their communities. For these reasons, underrepresented youth and their families often benefit from instrumental support of community organizations that bridge school, college, and college-based occupations.

Finding 5: Ingredients of Effective Bridging Programs

Beginning in elementary school, teachers can discuss the links between career dreams and going to college, define grade-point averages and scholarships, and explain practical college issues like dormitories that would be meaningful to school-aged children. Such education can excite young children about college and help them set realistic goals for getting there.

At the middle-school level, tutoring by college students, parent involvement activities, and academic advisement can help “at-risk” students stay on track to college. Continuing these programs into high school, as well as increasing minority enrollment in college preparatory classes, will also help am-

plify the number of college-bound students.

EFFECTIVE PROGRAMS CREATE INTERGENERATIONAL PATHWAYS

In helping Latino youth find pathways to success, programs can forge links across generations that encompass senior staff, young adults, and the families they serve. These loosely knit networks can foster new leadership with cultural skills today’s children need to succeed in an increasingly diverse world.

YOUNG ADULT FRONT-LINE STAFF LINK HOME AND COLLEGE

The young adults whom Latino children encounter in programs play key roles that help students feel confident and safe in their neighborhoods, learn alternatives to violence, gain educational experiences, and acquire bicultural skills for success in school. Young adult staff also provide children a chance to talk and write about their dreams for careers, education, families, and their communities. Young adults value students’ home communities, and many share both a common language and family history with the children. Many have learned to be bicultural and can pass on their understanding of how to retain community traditions while entering and succeeding in schools, colleges, or local government. In the selective program sample, it was found that, like Latino parents, young adult staff defined success in life both in moral terms and in terms of school success. In guiding youth, staff drew on positive and negative aspects of their past experiences. They understood the importance of grades, helped children with homework, and offered a broad view of schools, colleges, and other mainstream institutions that helped children link their family, school, and community with their personal dreams and fears for the future.

(Bridging, continued on p. 19)

Sisters in Science

Confronting Equity in Science and Mathematics Education

Penny L. Hammrich, Temple University

In the context of broadening the concept of teaching and learning for all students, Temple University's College of Education and Center for Intergenerational Learning developed the Sisters in Science (SIS) program, which is based on an Experimental Project for Women and Girls in Science, Mathematics, and Engineering, a program sponsored by the National Science Foundation (NSF). SIS is one of over 40 science education programs for women and girls sponsored by NSF.

SIS is a two-year intervention designed to address the achievement inequities in mathematics and science for females. In year one, fourth-grade female students, their teachers, and families participate in the program. In year two, the fourth graders continue to participate with their fifth-grade teachers.

The SIS program provides fourth-grade girls with cooperative interdependent science exploration. The rationale is that when girls are allowed to work in a manner that is intrinsic to their collective learning style (i.e., with the manipulation of materials), learning will occur. Additionally, the program's designers are interested in the reformation of girls' perceptions of science education and science as a career option. At the core of the design is a program of research on fostering young females' positive attitudes toward science by building connections among schools, parents, and the community.

The program also provides support for parents and professional development opportunities for inservice and preservice teachers. In this intergenerational program, women who are currently employed in or retired from careers in science, engineering, or mathematics and female university students who are pursuing careers in science and science educa-

tion serve as role models for the girls and share life and work experiences. In addition to acting as individual and small-group mentors, the role models also serve as resources for teachers on a continual basis and facilitate student and teacher understanding of how classroom experiences translate into employment experiences in urban environments.

Goals and Objectives

In year one, SIS seeks to:

- a. Improve fourth-grade females' attitudes toward, interest in, and achievement in science and mathematics;
- b. Create a more positive learning environment for fourth-grade females and their families on academic and community/social levels; and
- c. Increase the knowledge base and understanding of the influence parents and teachers have in promoting females' interest in science.

Program Components

In order to attain these goals, the SIS program has three major components: an in-school constructivist and gender-sensitive science program, an after-school enrichment program, and a "city rivers exploration" summer camp.

The components of the program work in concert to provide fourth graders with a physical environment that is psychologically, emotionally, and socially safe and accessible to all students. The activities clearly connect subject matter to real-world issues that are culturally relevant to students. Whereas in the past, "a curriculum" has often meant a set of answers to be transferred from teacher to student, the SIS curriculum is a set of questions to be posed to a class. In this way, the process of inquiry is

coconstructed by the students and teachers and fosters a true community of learners. During each component of the program, students take responsibility for generating and gathering data, posing questions and problems, formulating possible explanations, and proposing methods for evaluating the best explanations. Across all of the events, teachers, parents, volunteers, and Temple University students are providing a level of mentoring that extends the students' learning base beyond the walls of the classroom.

IN-SCHOOL PROGRAM

The in-school program was conducted for two hours a week for each classroom at six participating schools. Classroom activities focused on the urban environment and used gender-sensitive approaches to teaching science/mathematics. As part of the program's teacher-enhancement component, students in science education methods courses at Temple University facilitated the program sessions with the classroom teacher. The preservice teachers' coursework explored gender-equity issues in the classroom, the constructivist approach to learning, and the community service learning concepts presented in the program.

AFTER-SCHOOL PROGRAM

The after-school program was conducted from 3:00–4:30 p.m. one day per week in each of the six schools. The program coordinator facilitated the after-school component with assistance from graduate and undergraduate elementary education students and intergenerational volunteers. The after-school component extended the classroom activities by focusing on the concepts of systems, constancy/change, model, and scale. The students also engaged in reflection activities designed to help them

better understand their personal learning, challenge stereotypical notions about science, and develop critical thinking skills. These reflective activities included writing and interactive discussions.

SUMMER PROGRAM

The summer program was conducted for two weeks during July to reinforce learning that occurred during the academic year. Fourth-grade girls spent two weeks exploring the city rivers. Activities included taking four field trips to environmentally focused sites in the area, mapping local waterways, creating model rivers, and designing improvement plans to prevent the city rivers from becoming polluted. At the end of the summer program, the participants shared their learning with their families and other students from neighborhood elementary schools.

Program Evaluation

Conducted at six schools located in inner-city Philadelphia, the program's first year involved 577 fourth-grade girls in six elementary schools, an intergenerational corps of 10 women volunteers, 182 undergraduate elementary education students, and 19 inservice teachers.

Pre- and post-program questionnaires regarding changes in participating students' science and mathematics skills, attitudes toward science and mathematics in school, and perceptions of scientists were administered to students at the start of the first and second in-school sessions and again during the final two sessions of the SIS program. The questionnaires contained 30 items, each with a five-point Likert response scale (strongly disagree, disagree, neutral, agree, and strongly agree).

A science process skills and mathematics skills instrument was employed to measure the increase in science and mathematics achievement. These two instruments were validated in one or both of two ways. The skills instruments, developed from material

contained in the current fourth-grade curriculum documents of the School District of Philadelphia, involved skills deemed to be critical, and thus were held to have content validity. In addition, reliability figures were calculated on a test-retest correlation model and confirmed using the Kuder-Richardson (formula 22) procedure. Another measure of achievement was to review the Stanford Nine scores at the fourth-grade level.

SUMMARY OF FINDINGS

Results showed that the girls' attitudes toward science and the possibility of pursuing a career involving some aspect of science and/or mathematics were positive before program implementation. Anecdotal information regarding the girls revealed that, while they enjoyed science and perhaps someday wanted to become a doctor or have a career in science, they were not aware that taking more science classes would be necessary. Therefore, their attitudes did not match their understanding of how science courses fit into their eventual career path. However, their expressed positive attitude towards science is consistent with research that states girls at this age level tend to enjoy science. What remains to be documented is if the fourth-grade girls will continue to have positive interest in year two of the program.

Achievement was also measured using the grade four Stanford Nine science scores. All fourth graders tested at each school saw an increase in their scores over the years of SIS intervention. There was a range of growth scores for the six schools from 1.2 to 14.9, with the average gain score 7.9 overall. The rate of change was 50% higher for SIS than non-SIS fourth-grade schools in the district. While it is not possible to single out the SIS intervention as the only contributing factor to the increase in scores, principals at all schools were very generous in their praise for SIS intervention being a contributing factor for their schools' score increases.

IMPLICATIONS

The SIS program seeks to increase elementary girls' interest and achievement in science and mathematics, to create a more positive learning climate for minority school girls and their families on academic and community/social levels, and to increase the knowledge base and understanding of parents with respect to their influence in promoting girls' interest and achievement in science and mathematics. Findings to date show that the girls started the program with positive attitudes and perceptions of science and about science career possibilities. There was a significant increase in their science and mathematics skills levels after participation in the program. It could be stated that the girls' achievement scores on the skills test increased significantly because the girls' attitudes and perceptions were high before program implementation. If their attitudes and perceptions were low to begin with, perhaps their skills would not have increased significantly.

In the successive years of the program, the researchers will attempt to look at longitudinal effects on the girls' attitudes, perceptions, and achievement levels. Because the girls held positive attitudes towards science before the program implementation, a closer look at the cultural and familial factors that may have contributed to the girls' attitudes may be warranted. Researchers will also attempt to document more substantive qualitative data to generate more information on the achievement gains realized in the first year. While year one of the program has been promising, many questions still remain and new ones have developed. ❀

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Gifted Programs Promoting Academic Success in Early Childhood

Project EXCEL and Project First Step

Rosa Isela Pérez, San Diego City Schools

About half (47%) of students in San Diego City Schools (SDCS) live below the poverty level, and one in every three children who enroll in SDCS is an English-language learner (ELL). Prior to Project EXCEL and Project First Step, the ELL students had to wait until they were fluent in English before they were eligible for testing in the district's all-English Gifted and Talented Education (GATE) program.

In 1986, the Developing Gifted Potential Project (DGP) was established at the 10 elementary school sites with the highest percentage of minority students. ELL students posed a special problem, however, since they could not be tested in English. Projects EXCEL and First Step focused on early intervention—setting about to provide an appropriate educational experience to low-income, culturally diverse gifted students, and facilitated their successful transition into the GATE program. Project EXCEL operated officially for five years, from 1989–1994, with a focus on Hispanic ELLs. Project First Step operated from 1992–1995, and its participants included African American, Asian, Filipino, Hispanic, Indochinese, and White students. These students were either English-only speakers or English-language learners.

The projects aimed to identify and develop the academic potential of low-income, culturally diverse, primary-age students by providing a developmentally enriched curriculum. K–5 students meeting the criteria participated in EXCEL, and students in grades preK–2 took part in First Step. The intent was to have the students participate in an enriched curriculum prior to formal identification for entry into the program for the gifted.

Evaluation Study of Project EXCEL

Evaluation questions addressed over the five-year funding period of Project EXCEL were:

- a. Did students in the project talent pool demonstrate greater achievement over time in Spanish, reading, and math, as compared to the control students?
- b. Did the identification of gifted Hispanic ELLs increase at the project schools?
- c. How did the project influence teachers' professional development over time? and
- d. How did the project influence parents over time?

EVALUATION DESIGN

The study design utilized two experimental groups and one control group (referred to hereafter as the “project talent pool students,” “project non-talent pool students,” and the “control students”) to report various measures of student progress (most specifically, scores on Aprenda, a standardized achievement test in Spanish, and GATE identification). Hispanic students who were English-language learners and enrolled in project classrooms comprised the experimental groups. The one control group was comprised of Hispanic English-language learners who attended project schools but were not enrolled in project classrooms.

Achievement instruments. To measure achievement in Spanish, reading, and math, project students who demonstrated limited English-language proficiency were administered Aprenda, a standardized achievement test in Spanish. The academic achievement of project students was assessed, in part, by comparing the Aprenda reading scores of project students with

those of the control students. The students' progress in reading during the project's fourth year was measured by comparing their 1993 Aprenda scores with baseline data from 1992 when Aprenda replaced La Prueba (the former Spanish standardized achievement test formerly used by the district).

Gifted identification procedure. During each year of the project, GATE staff psychologists administered a nonverbal/spatial test instrument, the Raven Progressive Matrices, to students in project and in non-project classrooms who were recommended for testing to determine eligibility for the gifted program.

Teacher and parent surveys. Survey data from teachers were collected in order to assess their opinions about various aspects of the project, including the teacher training program, the implementation of newly acquired instructional strategies, and student performance. Similarly, data from a parent survey provided information regarding parents' attitudes and opinions about the project and its implementation, student performance, and parents' participation in the project workshops.

Evaluation Findings

Longitudinal Aprenda results from Spring 1992–Spring 1993 indicate that project talent pool and project non-talent pool students at all grade levels except grade three increased proficiency in Spanish reading. Furthermore, both groups of second-grade project students showed the greatest gains, followed by students in grades five and four. A separate analysis compared 1993 Aprenda results for all project students who were in the project for

one, two, and four years, and these data indicate that performance was highly correlated with number of years of participation in the project.

GIFTED IDENTIFICATION

By the end of the first year, 34 project talent pool students were identified for participation in GATE. In comparison, none of the ELL comparison group students were identified as gifted. In the second year, 46 additional project students were identified as gifted, and 41 of the project talent pool were GATE identified during the third year. In the fourth year, an additional 49 project talent pool students were identified as gifted, compared to only four students in the control group during this same year.

PROJECT TEACHERS

A survey of the 19 teachers was conducted in the first year of the project. These returns suggested that the typical level of use of instructional strategies by the participating teachers was “once a week,” and inservice training was modally rated by the teachers as “very useful.” An external consultant made three classroom observations per teacher. The consultant’s findings indicated that teachers continued to try out the strategies throughout the first year.

PROJECT PARENTS

Attendance at the parent workshops was generally low, and only about one fifth of the parents who participated in the training returned the evaluation questionnaire they received. Those who did, however, revealed considerable knowledge about the instructional strategies used by the program, special parenting skills for nurturing giftedness at home, a greater awareness of the phenomenon of giftedness in children, and indicated a somewhat greater understanding of whom to contact and how to help their children than they had in year one. The

returns, however, are comparable to other surveys conducted by the district. The parents who responded knew about EXCEL and liked it, had discussed the project with their child’s classroom teachers, and had grown in their understanding of giftedness and of their role as parents in supporting the development of this trait. Nevertheless, the results were disappointing, since such an unrepresentative number of parents returned the questionnaire.

Evaluation Study of Project First Step

Project First Step was one of seven projects reviewed in its second and third year of implementation. Both the data collected on students and the data collected through the questionnaires, interviews, and observations with students, parents, staff, and community were consistently supportive of the project’s intended effects.

EFFECT ON PARENTS

One of the significant impacts of this project was on parent involvement in school activities. Project First Step’s activities ranged from formal presentations to parents about the program to specific instruction in talent development to museum visits that provided parents a model for enriching experiences for their children.

Parents in First Step also reported greater participation in school conferences, helping their children with homework, taking their children to the library, buying books, encouraging achievement in school, and planning for college. The parents were even willing to make decisions about where they will live on the basis of the availability of the program and/or trained teachers.

EFFECT ON PROJECT STAFF

Staff development is an integral part of model projects that attempt to institute new programs in school

settings. The classroom practices of teachers, as assessed with teacher interviews and reviews of action plans, have become more child-centered, are more open-ended and inquiry-oriented, use more higher-order questions and group problem solving, and incorporate more independence in learning. Teachers gave students more time to explore and engage in problem-solving activities, allowed extended periods of time on a single activity, and encouraged student self-directed learning.

One other very positive effect of Project First Step was the development of teacher leadership skills. For example, teachers were given increasing responsibilities for conducting parent workshops that helped increase teachers’ own self-confidence.

STUDENT OUTCOMES—TESTING

In Project First Step, the outcomes for the first year of the project were assessed using Aprenda. The scores of students in the talent pool increased an average of 17 percentile points in comprehension (from the 67th to the 84th percentile), and an average of 14 percentile points in vocabulary (from the 71st to the 85th percentile). In the project classrooms where teachers had been using the strategies from the training with all children, students increased an average of 18 percentile points in comprehension and an average of 31 percentile points in vocabulary. In contrast, comparison groups (those not in project classrooms) gained only an average of seven percentile points in comprehension and an average of 27 points in vocabulary. It should be noted that, since the talent pool students started with higher percentile rankings, changes for them in percentile points are more difficult to attain statistically than for those closer to the mean

(Application, continued on p. 19)

Minority Academic Achievement in a Selective Public University

The Role of the Campus Environment

Melanie Domenech Rodriguez, Angela Stewart, Ana Mari Cauce, Phyllis Sanchez, University of Washington, and PALIS

Twenty years ago, the nation's goal of having college enrollment rates for all youths of color equal that of Whites was within reach, but now it is rapidly fading. The incessant threats against affirmative action in college admissions call even further attention to the relatively small numbers of underrepresented minorities that attend selective colleges or complete college—any college—with a four-year degree. While there are some programs that have proven effective in helping poor and/or minority students get into college, they do not typically raise students' academic profiles enough for them to be considered for selective colleges. States where affirmative action legislation has been introduced are investing millions of dollars to get minority students "into the pipeline," but there is little evidence that, when selectivity of college is taken into account, this works. These dual factors—the stagnation in academic achievement among underrepresented minorities and the waning of affirmative action—have combined to call the attention of both researchers and policymakers to college achievement amongst these groups.

PALIS and the University of Washington

The study reported here was conducted in order to help define those factors in the college campus environment that help or hinder the academic achievement and retention of college students, with a special focus on underrepresented minorities. The study was conducted by the Post Affirmative Action Legislation Impact Study Group (PALIS), which was established in the fall of 1998, just after the state of Washington passed Initiative-200, effectively ending affirmative action in college admissions. PALIS is comprised of a small number

of faculty members, professional staff, and graduate students at the University of Washington who were concerned about tracking the impact of Initiative-200 on the campus climate generally, but especially in terms of how changes in campus climate might affect the achievement of underrepresented minorities.

The University of Washington represents an ideal place in which to address today's most urgent and compelling questions about what helps or hinders the academic achievement of underrepresented minorities. As a selective, public university, it is exactly the kind of higher educational institution that will be most affected by anti-affirmative action legislation.

The focus on campus climate in this study was chosen both because it has been found to be an important predictor of African American student achievement and retention in other studies and because it is an aspect of college campuses that will change as fewer students of color attend selective colleges as a result of bans on affirmative action. In view of this prospective change, it is worth noting that a secondary purpose of this study was to collect baseline information on campus climate and other potential correlates of college student achievement before Initiative-200 took effect.

Data was collected from about 10,000 college students chosen to represent a cross section of the University of Washington student body. Underrepresented minorities were overrepresented in the sampling in an effort to track the correlates of achievement and retention.

SELECTIVITY

Like the Los Angeles and Berkeley campuses of the University of California, the University of Washing-

ton is the state's most selective university.

PUBLIC VS. PRIVATE

Only public universities are at the mercy of voter initiatives and court rulings where affirmative action is concerned. Private universities, including selective private universities like Harvard, Yale, and Stanford, may continue to practice affirmative action. However, unlike private universities, which largely offer opportunities to the economic or academic elite, selective public universities serve as a conduit for high-achieving, middle-, working-, and lower-class underrepresented minorities into the professional ranks. For example, about 50% of African American students at the University of Washington came from homes with earnings of less than \$40,000 a year, compared to 26% of White students. While going to Harvard or Stanford may be out of reach, and will continue to be out of reach for many of these students, there is now good evidence that going to a selective institution increases the earning prospects and college completion rates of underrepresented minorities.

CAMPUS CLIMATE

While many factors, ranging from past educational background to family income, have been found to affect educational achievement, the focus of this study was the campus social climate. The social climate of college campuses, especially with regard to discrimination and racism, is often cited as a factor that stands in the way of minority student achievement and retention. Indeed, even when minority students make it into college, they are much less likely to leave with a college degree. Admission test scores and college grades explain very little of the variance in retention.

Thus, other factors, such as the experiences of such students on campus, are likely candidates for examination, and there is some evidence to suggest that this is a fruitful avenue for exploration.

Numerous studies have found that campus climate affects the educational experiences of African American students at predominantly White campuses. More specifically, institutional support and affiliation and perceived discrimination from administrators, faculty, and peers have been found to affect the achievement of African American students at these campuses. However, we know relatively little about the link between campus climate and achievement for other students of color. For example, most of the research on the effects of campus climate has focused exclusively on African American students. Indeed, much of this work has been conducted to expand the knowledge base on why African American students do so much better at historically Black colleges than at predominantly White colleges. Research on the correlates of college achievement for Latino students is only just beginning, and it is still virtually absent when Native Americans are the primary focus.

Moreover, while there is a great deal of research trying to understand better the factors behind the high achievement levels of Asian American students, relatively few investigations have included a specific focus on Asian Pacific American students whose achievement levels are not particularly high. For example, Filipino Americans comprise one of the largest Asian Pacific American groups in several West Coast cities, but we know little about the correlates of their academic attainment.

Findings

Analysis of Variance (ANOVA) was used to examine the group differences between ethnic groups on their perceptions of racial climate. Differences between groups were found to

be significant. African Americans perceived a more negative racial climate on campus than all other groups. Other ethnic minority groups—Latinos, Native Americans, Asian Americans, and Filipinos—perceived a significantly less negative racial climate than the ratings of African American students. White students had the least negative climate perceptions.

In order to further examine whether ethnic group differences in perceptions of campus climate varied by more specific aspects of the campus atmosphere, an item-by-item analysis was conducted. Results suggest that, with regards to most negative aspects of campus climate, whether perceiving racial conflict and tension, being exposed to overt racial discrimination, or believing that there are different expectations based on ethnicity/race, students of color perceived more negativity or discrimination than White students. Moreover, African American students generally perceived a more negative climate than did Latinos, Native Americans, Asian Americans, or Filipino Americans.

Do the differences observed in ethnic group perceptions of campus climate affect their academic achievement or retention? Institutional commitment was examined because previous studies have found it to be highly related to student retention. That is, students who report higher levels of institutional commitment are more likely to graduate, and more likely to graduate from the same university they are attending.

Results indicate that campus climate is significantly related to academic achievement, as represented by GPA, for African American students, accounting for about 11% of the variance. However, campus climate was not related to GPA for any other ethnic group. In contrast, campus climate was related to institutional commitment amongst all ethnic groups, accounting for between 13% and 20% of the variance in this measure.

Conclusions and Implications

The widening gap between the college achievement of White students and that of underrepresented students of color combined with a number of increased threats to affirmative action make it imperative that we focus our energies on improving the achievement and retention of those students of color who do make it to college. This imperative is particularly strong for selective public institutions, which have traditionally served as a conduit into the professions and other positions of influence for working- and middle-class students. The present study was conducted to shed light on the role that campus climate might play in helping or hindering achievement and retention, especially among underrepresented students of color. This is one of the first studies to look at this question using an ethnically diverse sample of students attending a selective, public institution, the type of institution most impacted by anti-affirmative action legislation.

Our results suggest that campus climate plays a significant role in the achievement of African American students. For these students, campus climate predicted 10% of the variance in their college grade-point averages. While this is a modest level of prediction, it is a stronger prediction than we get from SAT scores (e.g., 9.5% of the variance) or high-school GPA (5% of the variance). Furthermore, campus climate significantly predicted the commitment of all students to the institution, accounting for up to 20% of the variance. Institutional commitment has been found, in other studies, to be a strong predictor of retention and graduation.

It is important to note that most students, including students of color, reported low levels of negative racial climate and high levels of a positive educational climate at the University of Washington. But the ethnic group differences in these scales suggest

(**Minority**, continued on p. 19)

(Bridging, continued from p. 12)

Conclusion

Our common goal is to enhance access to higher education for children of diverse ethnic, racial, and economic communities. The capacity of the United States to be a nation “where diversity works” rests on customizing outreach programs for communities while attending to common goals and collaborating among many diverse stakeholders—students, families, schools, community organizations, legislators, the business sector, and media. These goals will be achieved by building clear conceptual models of change, testing them with evidence, and strengthening communication among stakeholders.

Students’ progress through the academic pipeline from kindergarten to college and careers is often portrayed like a ball rolling straight through a sturdy pipe. On the contrary, unlike the ball, which remains unchanged as it moves through the pipe, students change as they progress through elementary, junior high, and high school towards college and adulthood. Indeed, students’ developmental pathways look more like those of explorers navigating through unmapped territories, here the worlds of families, peers, schools, and communities; as students pursue their school, career, and other personal goals, they encounter barriers that may divert or stop their progress. Finally, unlike the sturdy pipe, the programs that offer bridges across the gaps or barriers in students’ pathways are themselves changing in response to funding resources, pressures, and losses, as well as shifting political sands. ❀

(Application, continued from p. 16)

(non-talent pool and comparison group students).

Conclusions and Recommendations

Projects EXCEL and First Step were part of a major change in the San Diego City Schools Gifted and Talented program demanded by the community. Identification procedures were modified throughout the district. Overall, the number of GATE-identified Hispanic ELLs at the six project schools increased by a factor of nine over the project’s five-year history. This significant increase was due in no small part to a change from traditional testing instruments, including such tests as the Henman-Nelson, DCAT, WISC-R, and Stanford-Binet (LM), to tests like the Raven Progressive Matrices that measure fluid intelligence without relying on English proficiency alone. These changes also reflect the influence of the projects on the district’s GATE program. Today there is an effective program in place in the ten project schools to educate young gifted children. Projects EXCEL and First Step brought attention to the promising practices of programming for identification and academic competence.

The long-term effects of these projects have extended to teachers and parents. Primary grade and bilingual teachers of the gifted not only have access to the GATE program, they now play a dual leadership role as trainers in the long-standing GATE teacher certification program. Also, the parents of low-income, culturally and linguistically diverse students have acquired the knowledge base to demand appropriate programs for their children.

School districts eager to serve the culturally and linguistically diverse gifted learners must make a long-term commitment. This kind of ongoing commitment will require a collaborative effort among categorical programs to ensure that the educational principles of each program—state preschool, bilingual, regular education, and gifted—are honored. Finally, school boards

must hold gifted programs accountable for the inclusion and participation of minority students. ❀

(Minority, continued from p. 18)

that there is still room for improvement in these areas for students of color. Improvement of these aspects of the campus climate for students of color, especially African American students, represents a promising avenue for supporting and improving their academic achievement and retention in American higher education.



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