

How Do Precollegiate Academic Outreach Programs Impact College-Going among Underrepresented Students?

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In a recent attempt to make available information for educators about the ever-increasing array of precollegiate academic development programs available for educationally and economically disadvantaged students, the College Board conducted a National Survey of Outreach Programs (Perna & Swail, 2001). The survey, which collected information about program participant characteristics as well as program goals, services, instructional methods, costs, and operational strategies, illuminates the strengths and weaknesses of these programs. In doing so it provides the impetus for this paper, which is one of three commissioned by the Building School Capacity committee of the Pathways to College Network (PCN). PCN, an alliance of foundations, nonprofit organizations, educational institutions, and the U.S. Department of Education, works to disseminate research-based information on improving college access and success for underserved youth.

In order to identify the ways in which college access and enrichment programs prepare students for college and the gaps in programs and school reforms that promote college preparation for all students, this paper opens with a look at the history and evolution of precollegiate outreach programs through an examination of two seminal programs. After identifying the principles of practice present in effective programs, the authors discuss four programs that employ these practices and that have undergone some level of quantitative evaluation. The paper concludes with an examination of the implications for precollegiate academic development programs and school reform efforts.

The authors of the National Survey of Outreach Programs concluded that precollegiate academic development programs significantly help disadvantaged students achieve the same success level as their more privileged counterparts. At the same time, the survey reveals that a lack of internal, rigorous evaluation limits the extent to which these programs can serve more students effectively, make authentic and lasting links with the schools their participants attend, and more significantly impact federal, state, and local policy. The findings are supported by other attempts to assess the success of programs in increasing the postsecondary opportunities of disadvantaged students (Hayward, Brandes, Kirst, & Mazzeo, 1997; Nozaki & Shireman, 2001; Perna, 2002). Very little is known, for example, about the impact of precollegiate academic development programs on the number of students entering college. Even less is known about which specific program components effectively assist students to enter college.

Despite weaknesses in the evaluation and study of precollegiate academic development programs, they do appear to be an important catalyst for school transformation within a context that promotes and achieves equitable postsecondary access for all students. Outreach efforts that increase students' aspirations, expose them to the rigors of college at an early age, and provide interventions to improve academic performance have been instrumental in revealing the barriers to equitable opportunity for higher education (Fenske, Geranios, Keller, & Moore, 1997; Gandara, Larson, Rumberger, & Mehan, 1998; Perna, 2002). These programs, while often supplemental to the curriculum and teacher development that characterize school reform, have nevertheless informed these efforts, which increasingly focus on developing a college-going culture in the schools. As Monica Martinez and Shayna Klopott (2002) note, school reform efforts that explicitly address the predictors of college-going behavior are best

suited to helping students achieve successful college enrollment and completion. Furthermore, precollegiate academic development programs currently offer the most consistent means of providing learning opportunities for educationally disadvantaged students and countering the “hidden curriculum” of public schools, which sends a message that “those students who ‘conform’ will be nurtured and helped to succeed while those who look or act differently will be tolerated, ignored, or even discarded” (George & Aronson, 2003, p. 3).

DEFINITIONS AND SCOPE

For the purposes of this paper, college access and enrichment programs are defined as student-centered—those programs operated by universities and colleges, federal or state agencies, or nonprofit organizations that target primarily individual students rather than classrooms or whole schools. The college access and enrichment programs described in this paper provide supplemental academic assistance and/or enrichment activities primarily to middle and high school students. While these services may take place within a school setting or during the school day, their function is not to impact a school’s existing curriculum or teaching practices, but rather to supplement and extend students’ weekday curricular and extracurricular experiences. These services include, but are not limited to:

- College-admissions information and assistance for students and families.
- Motivational activities, including mentoring, college visits, and advocacy.
- Academic enrichment and support, including tutoring, study groups, instruction in college preparation subject matter, and college entrance exam preparation.
- Counseling and advising.

The extent to which such services may have a beneficial, albeit secondary, effect on school practices is worthy of further study, but is outside the scope of this paper.

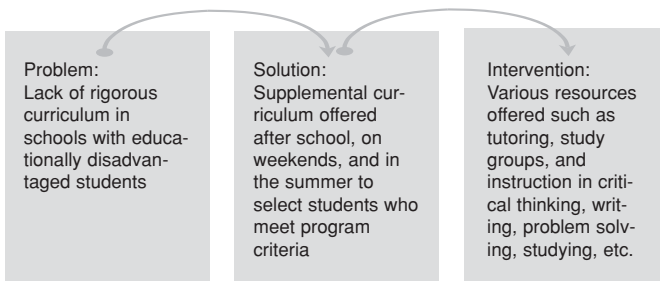
At the outset of this endeavor the authors assumed that there was a substantial pre-existing body of research on precollegiate academic development program practices that impact the college-going behaviors of educationally and economically disadvantaged youth. While there are many studies of the conceptual frameworks that guide such programs, relatively few studies examine program operating principles. Seven major reports that survey the field of college access and enrichment programs and evaluations are currently available; the consensus provided by these reports is that program evaluation data in general is unreliable and consequently provides little useful information about the impact of the programs (Bailis, Hahn, Aaron, Nahas, & Leavitt, 1995; Gandara, 2001; Hayward et al., 1997; James, Jurich, & Estes, 1997, 2001; Oesterreich, 2000; Perna & Swail, 2001). These reports serve

as the basis for the review of principles of practice contained in this paper. Given the time and resources available to complete this study, as well as the paucity of data, the synthesis of promising practices in this paper is drawn from the small group of precollegiate academic development programs for which both qualitative and quantitative data were available.

PROGRAM MODELS

In general, the services provided by precollegiate outreach programs aim to counter negative school or community influences (e.g., lack of rigorous curriculum, poorly trained teachers, lack of role models) by providing the missing elements that help students aspire to, prepare for, and obtain college enrollment. In this way, programs attempt to provide students with the social capital necessary to achieve college enrollment (Perna, 2002). For students to develop this social capital, programs generally provide a series of interventions that emphasize not only academic preparation, but the development of attitudes and beliefs about college that will result in a positive enrollment outcome. This model (see the Figure) assumes that supplemental programs will improve students’ performance in school and will enable them to apply and be admitted to a college or university. It also assumes that the academic and social support scaffolds provided by the program can adequately supplement students’ learning environments and that students will participate and spend additional time to meet program expectations.

FIGURE
Sample Program Model



The *2001 Outreach Program Handbook* lists more than 1,000 programs working with K-12 students. General consensus among researchers, policymakers, and practitioners is that this wave of programs is directly attributable to the emergence of Upward Bound as part of the *Economic Opportunity Act of 1964* and more recently, the federally funded Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP), which began awarding grants to schools and col-

leges in 1999. With a shared focus on first-generation low-income students, both programs reach large numbers of educationally and economically disadvantaged students nationwide: 1,200 colleges and universities offer Upward Bound programs to high school students, and 30 states received GEAR UP grants in 1999 (Fields, 2001). As beginning and current points in the cosmology of early intervention/precollegiate programs, it seems useful to understand the conceptual framework, practices, and challenges of precollegiate academic development programs through the development and evolution of these two programs.

Upward Bound, the first of a group of federally funded programs known collectively as TRIO, prepares participants for higher education through a subject-matter focused program that provides instruction in literature, composition, mathematics, and sciences. The term “TRIO” is not an acronym. Rather, it refers to the three programs (Talent Search, Upward Bound, and Student Support Services) originally funded by Congress under Title IV of the *Higher Education Act of 1965*. Conducted mostly on college campuses, Upward Bound comprises 772 programs. In addition, it operates more than 100 mathematics/science programs that develop the mathematics, science, study, and problem-solving skills of its participants, who are primarily high school students. Its counterparts in TRIO form a continuum of service delivery for students from middle school on through the undergraduate years. Talent Search focuses on information and college awareness for students in grades 6–12. Undergraduate programs such as Student Support Services and Ronald E. McNair Postbaccalaureate Achievement provide college retention services and prepare students for advanced graduate study.

Upward Bound exemplifies the majority of the principles of practice that will be discussed later in this paper. These consist of strategically timed interventions framed by effective evaluation designs. Intervention, coupled with a long-term investment in students, can produce positive student outcomes (Balz & Esten, 1998; Coles, 1998; Council for Opportunity in Education, 2003; Mahoney, 1998). Personalized attention to students, high performance standards for both staff and students, and peer support are important factors as well. Upward Bound works with small groups of students, operates with performance-based, measurable objectives, and focuses on eliminating one of the most common barriers to postsecondary education: financial aid and the perception that it is unavailable or inaccessible. Studies show that Upward Bound program participants are four times as likely to earn an undergraduate degree than those with similar backgrounds who are not in TRIO (Fields, 2001). In addition, Upward Bound has spawned numerous programs that use many components of its program model. In response to limits on the number of students who could participate in Upward Bound programs, and with an understanding that diversifying the undergraduate

pool required broader socioeconomic and racial/ethnic criteria, many colleges and universities have developed similar interventions based in large part on the Upward Bound model.

The longevity of Upward Bound (nearly 40 years) accounts for its influence and some of its success. The program moved in the 1980s from a group of loosely affiliated programs with varying services to a closely affiliated set of programs that cohere around a common set of objectives, services, and measurements. As a result, the program has become an institution on many college campuses and has significantly impacted the direction of education policy (Council for Opportunity in Education, 2003). At the same time, the longevity of the program has enabled it to establish, for the purposes of research and evaluation, study designs and control groups that are supported by a wealth of longitudinal data (Rossi, Freeman, & Wright, 1999).

GEAR UP, launched in 1999 as a partnership between low-performing high-poverty middle schools, universities, businesses, and community-based agencies, provides secondary school systems with exposure for every child to a precollege curriculum (Fields, 2001; Perna & Swail, 2001). Designed as a cohort progression model of service delivery, GEAR UP partnership grants expect recipients to serve and track a cohort of middle school students through high school graduation. Like Upward Bound, GEAR UP addresses the financial aid barrier to college by providing scholarships to participants (Fields, 2001). As of 2002, GEAR UP had served more than 1.2 million students nationwide (U.S. Department of Education, n.d.).

With its model of school-based intervention, GEAR UP exemplifies an emerging trend in precollegiate academic development programs: the increased integration of student-centered interventions with secondary school systems. This integration benefits both programs and schools, and directly links students, families, schools, and communities. Unlike student-centered programs such as Upward Bound, which target a select group of students based on program criteria (e.g., socioeconomic status, race/ethnicity, academic performance, etc.), these “blended” school- and student-centered programs attempt to improve student performance within the environment of the school itself. GEAR UP works closely with and provides professional development opportunities for teachers, counselors, and administrators to ensure that students are enrolled in college preparatory courses in middle and high school, receive additional academic support, and are informed about the resources available at their schools and in their communities. GEAR UP focuses on younger students and provides academic interventions and teacher professional development in addition to information dissemination and college advising. Unlike Upward Bound, GEAR UP does not monitor participants’ college retention and completion.

As a relatively new program, GEAR UP has few quantifiable outcomes. Its existence in the arena of precolle-

giate academic development is nevertheless significant, because it reveals an evolution within these programs in general. This evolution has resulted, ironically enough, from the success of Upward Bound and similar programs in helping policymakers, educators, researchers, and practitioners understand more completely the barriers students face in attempting to prepare for college.

As models of intervention, Upward Bound and GEAR UP represent two ends of the spectrum. By and large, the Upward Bound model of intervention is the conceptual framework for precollegiate academic development programs. While they may vary in how they deliver services and what service components they emphasize, these programs have in common a focus on individual students and their circumstances. The programs aspire to provide students who have high potential but limited resources with the support they need to reach individual academic goals, including college admission and enrollment. The continued existence and success of these programs suggest that they are still needed. Educationally disadvantaged students, particularly African American and Latino students of any socioeconomic status, continue to drop out of the college preparation pipeline in disproportionate numbers despite the prevalence of school reform efforts (Allen, Bonous-Hammarth, & Teranishi, 2002; Gandara, 1998; George & Aronson, 2003; Martinez & Klopott, 2002). GEAR UP, on the other hand, attempts to equalize the pre-college preparation experience for more students at an earlier age by connecting middle schools more explicitly to the college aspirations of their students and by combining academic intervention with college preparatory information.

This evolution is extremely important, not only because of its implications for policy (and thus funding), but because it marks an important attempt to uncover what is fundamental about when and why students aspire to, prepare for, apply to, and enroll in a postsecondary institution. Is college-going behavior intrinsic to the individual or can it be instilled in students through a curricular and counseling change in schools? Are college-going predictors best addressed through student-centered interventions deployed to some, or school-based interventions deployed to all? Either way, will the educational elites in the nation continue to find ways to outpace these efforts, so that if GEAR UP and programs like it begin in middle school with academic support for students, more privileged districts, schools, and families will begin even earlier (Oakes, 2000)?

PRINCIPLES OF PRACTICE

As discussed earlier, the majority of precollegiate academic development programs lack significant empirical data and program study designs that would allow for a more complete assessment of the relationship between program services and

activities and the resulting outcomes in the form of college applications, admissions, and enrollments. Because an evaluation schema for precollegiate academic development remains elusive (Tierney as cited in Perna & Swail, 2001), we examined the practices identified by researchers as key components of successful academic development programs (Gandara, 2001; Perna & Swail, 2001) in order to define how college access and enrichment programs are preparing students for college. In synthesis, these 10 principles of practice are as follows:

- Set high standards for program students and staff.
- Provide personalized attention for students.
- Provide adult role models.
- Facilitate peer support.
- Integrate the program within K-12 schools.
- Provide strategically timed interventions.
- Make long-term investments in students.
- Provide students with a bridge between school and society.
- Provide scholarship assistance.
- Design evaluations that contribute results to interventions.

A more detailed description of each principle follows.

1. *Set high standards for program students and staff.* Programs that raise academic achievement adopt “high standards for participants, programs and staff, including strategies that insure the quality of implementation, and demand high performance from youth and staff alike” (James et al., 2001, p. 20). Such programs establish and review their missions, goals, and objectives regularly. Through training opportunities, performance assessment, and regularly updated manuals of standards and practices they make explicit to staff at all levels of the organization what are unacceptable, acceptable, and superior levels of performance. For students, program expectations and criteria are clearly stated and available. The programs aim to implement structures where desired student outcomes—rather than tradition, bureaucracy, or convention—guide student learning, teaching, and other interventions.
2. *Provide personalized attention for students.* Effective programs adopt strategies that enable staff to know students as individuals with unique needs, strengths, and weaknesses (James et al., 2001). Effective programs also pay attention to students’ cultural backgrounds and attempt to incorporate them into the structure and content of the program (Gandara, 2001). Bonding and recognition rituals and ceremonies are important, as is the ongoing availability of staff to provide mentoring and other support for the social and academic parts of students’ lives (Fordham & Ogbu, 1986).

3. *Provide adult role models.* A close, caring relationship with a knowledgeable adult who monitors the students' progress is consistent among those programs considered effective. Often this knowledgeable adult is a program officer; as the number of students increases, this role is performed by volunteers who serve as mentors, counselors, and academic coaches (Freedman, 1993).
4. *Facilitate peer support.* Patricia Gandara (1998) notes that numerous programs believe that supportive peer groups contribute to the effectiveness of the program on student achievement. Philip Uri Treisman's 1992 study of minority undergraduate students' persistence in advanced mathematics courses indicates that social isolation is a major factor in college retention; as such, this principle is applicable to programs working with middle and high school students who face isolation because of race or socioeconomic status in college preparation courses in school.
5. *Integrate the program within K–12 schools.* In their assessment of outreach programs at the University of California, Hayward et al. (1997) note that:

As outreach programs have added components focusing more intensively on academic enrichment and support, many programs have also become much more collaborative with K–12. The quality or strength of intersegmental collaboration in all of these programs appears to be a factor in their success. Programs which operate only at the margins of a K–12 school may effect some change in individual students but are unlikely to contribute to overall increases in college preparedness of students at that school. (p. 15)

Gandara (1998) makes similar observations, but distinguishes between short-term and long-term effectiveness. She points out that failure to connect in the long term isolates a program politically and makes it a constant target for budget cutting. It is important to note here that program goals and objectives determine the extent to which schools and programs can integrate. Programs with specific, short-term goals may have little need to integrate fully with schools. University and college programs geared toward high-achieving disadvantaged students, or that focus exclusively on high school juniors or seniors, will find little incentive to integrate their pre-collegiate academic development efforts with the more general educational goals of secondary schools. And because these programs service individual colleges' interests, such integration is probably not beneficial to either institution. However, truly developmental programs, that is, those working with students over many years, may discover that the extent to which they can marry their
- interests with those of their local schools may impact their longevity.
6. *Provide strategically timed interventions.* As the evolution of TRIO programs and GEAR UP makes clear, a program that is able to intervene early in the performance gap between advantaged and disadvantaged students will be more successful in keeping the gap from widening or in eliminating it altogether. Programs that employ strategically timed interventions look carefully at state and local curriculum frameworks and standards, understand adolescent development, and place a premium on increasingly rigorous academic interventions. They ensure that students understand the content of a course as well as how to prepare for it. An example of a strategically timed intervention is college admission and entrance examination preparation beginning in early high school (Hayward et al., 1997).
7. *Make long-term investments in students.* The longer students participate in a program, the more they benefit from it (Gandara, 1998). Support services that are sustained over a period of years, and even extend into students' collegiate years, do not indicate diminished returns but rather enhanced preparation for postsecondary success (Hayward et al., 1997). Early intervention that begins before high school is increasingly recognized as raising predisposition for college (Allen et al., 2002; Perna, 2002).
8. *Provide students with a bridge between school and society.* The colleges and universities to which program participants aspire are, with few exceptions, alien places for educationally and economically disadvantaged students. Effective programs affirm and help students understand that academic success is not attained through individual achievement alone, but through a network of support (Hayward et al., 1997; Treisman, 1992).
9. *Provide scholarship assistance.* Despite the correlation between college enrollment and the availability of financial aid and scholarships, very few programs can provide significant financial support for college (Gandara, 1998; Levine & Nidiffer, 1996). Facilitating the financial aid process, however, is a means of ensuring that program participants enroll at a postsecondary institution.
10. *Design evaluations that contribute results to interventions.* Impact evaluations are scarce in these programs. Few programs are positioned to conduct objective, empirical research on program participation and outcomes; fewer still can bring perspective to that work. One reason is that long-term outcomes are difficult to measure. As students move away to colleges and universities, keeping track of their enrollment and

persistence is difficult for small programs. The creation of a strategic plan, with measurable student outcomes, program standards, activities, and services directly tied to outcomes and standards, accountability, and methods of measurement, can be a first step to developing internal, rigorous evaluation of a program. The creation of such a plan can also help data-averse organizations become data-friendly.

Research has found that parental education levels have a disproportionate effect on the college aspirations of children. However, even though family involvement in education is considered by many to be a critical factor in whether or not a young person aspires to college, it is not included in these principles (Hoover-Dempsey & Sandler, 1997; Perna, 2002; Vernez, Krop, & Rydell, 1999). Although evaluations of pre-collegiate academic development programs include information on activities that aim to improve communication with families or to inform families about postsecondary opportunities, most research on family involvement focuses on involvement in the primary school grades (James et al., 2001) and so is outside of the scope of this paper.

Family involvement in programs aimed at middle and high school students may furthermore be impacted by the “disappearing parent” phenomena described by Patricia McDonough (2001), in which parent participation is increasingly discouraged as a student progresses through school. Feeling uninvited by the schools, parents may in turn feel unequipped to participate in a supplemental academic development program. Additionally, despite research findings on the value of family involvement, an increasing amount of funding is tied to tangible student outcomes; the ability for programs to focus upon and quantify family involvement may be elusive. So while program models contain family involvement interventions, these interventions do not comprise the dominant focus of the programs we looked at.

PROMISING PRACTICES: FOUR ACADEMIC OUTREACH PROGRAMS

While thousands of excellent precollegiate academic development programs exist, the four included here exemplify most or all of the principles of practice that connect research-based student-focused interventions with evaluation designs that make it possible to determine program effectiveness (see the Table). The exception is K–12 integration; none of the programs below integrate K–12 school reform with their academic development efforts. Instead, they represent three common types of precollegiate academic development programming: informational outreach, career-based outreach, and academic enrichment.

Informational Outreach. Primarily information dissemination and advising; little or no academic intervention in the way of actual instruction (Baltimore College Bound).

Career-Based Outreach. Academic, motivational, and informational interventions designed around students’ career aspirations and intended to link those aspirations with college majors (Career Beginnings).

Academic Enrichment. Instructional services designed to increase student performance in college preparation classes or to improve students’ opportunities to enroll in such classes (Sponsor-a-Scholar and Upward Bound).

TABLE
Program Alignment With Principles of Practice

Principles	Baltimore College Bound	Career Beginnings	Sponsor-a-Scholar	Upward Bound
High standards	•	•	•	•
Personal attention	•	•	•	•
Adult role models	•	•	•	•
Peer support	•	•		•
K-12 integration				
Timed interventions	•	•	•	•
Long-term investment	•	•	•	•
School/society bridge	•	•	•	•
Scholarship assistance	•		•	•
Evaluation	•	•	•	•

Although these programs vary in their approaches, each one focuses on academic achievement. Each program includes, in addition to its primary function, other practices that scaffold students and facilitate their advancement into postsecondary institutions. For each program, we provide an overview and its target population; a description of the program design, components, and outcomes; and a brief assessment of the relationship between the program components, evaluation design and outcomes, and the principles of practice.

Baltimore College Bound

Baltimore College Bound assists low-income minorities by providing students with the monetary difference between the financial aid they obtain and the full amount of their college tuition. The program also provides college information assistance and advising. These interventions are timed to address early college awareness, college preparation, college entrance exams, test preparation, and financial aid. Services include in-class presentations to 9th and 10th graders to help them think about college. Juniors in high school receive individualized assistance in filling out college applications, applying for financial aid, taking the SAT or other college entrance examinations, and applying to several different colleges.

Researchers gathered qualitative data about the program via a literature review, focus groups with participants and families, and interviews with school personnel and program staff. Using participant data, they analyzed college application and enrollment patterns for the program participants and for a control group of comparable Baltimore students. They concluded that students in the Baltimore College Bound program who received counseling were considerably more likely to attend college and complete their freshman year than nonparticipants. At the University of Maryland, which has more rigorous admissions criteria than most other local colleges, Baltimore College Bound students had a lower dropout rate than comparable students. For students who enrolled at Morgan State University in Baltimore, a historically black college, none of the program participants who enrolled subsequent to 1989 dropped out in their first three years. In contrast, between 15% and 30% of Baltimore City High School graduates attending college in that time period dropped out in the first three years (Bailis et al., 1995). The program's focus on strategically timed interventions and personalized assistance when it can be most effective, coupled with the prospect of the scholarship, affected student behavior in enrollment and retention in postsecondary education.

Career Beginnings

Career Beginnings is run by School & Main, a Boston-based organization that works to improve education for youth that also has offices in Austin, Texas, and Denver, Colorado. It targets high school juniors with average grades who are from economically or educationally disadvantaged families and works with them until they graduate from high school. Career Beginnings offers four types of support: (1) educational enrichment, (2) mentoring, (3) career exploration and action plan development, and (4) employment.

In evaluating the program, researchers selected a treatment group of high school juniors who ranked in the middle of their class academically and demonstrated personal motiva-

tion beyond school activities (for example, by working part-time or participating in school or community activities). A total of 1,574 students were randomly assigned, in equal numbers, to the experimental and control groups. Systematic differences did not exist between the two groups at the outset. The results of the evaluation are based on responses provided by 1,233 of the youth during two follow-up interviews two years later. Evaluation outcomes indicate that program participants started college "on schedule" more often and worked less while in college. However, first-year college retention rates were similar for students in the control group and program participants (James et al., 1997).

Using random assignment to create the treatment and control groups enabled researchers to design measurable outcomes for the program. The only information missing is the number of students from each group who participated in the interviews. This information is useful to determine whether the conclusions drawn from the interviews are generalizable for each group.

Sponsor-a-Scholar

Sponsor-a-Scholar is funded and operated by the nonprofit organization Philadelphia Futures, the education affiliate of the Greater Philadelphia Urban Affairs Coalition. It serves more than 500 low-income students with average grades (B-C range) from Philadelphia public high schools. The program targets students who exhibit evidence of motivation through participation in extracurricular activities, good attendance, completion of program forms clearly and on time, and an expressed interest in participating in the program and working toward the goal of college attendance. The program exemplifies the principles of long-term investment, peer group support, adult role models, strategically timed interventions, and financial aid and scholarships.

Sponsor-a-Scholar matches at-risk youth with mentors who stay with them for five years, from 9th grade through freshman year in college. The mentoring relationship is a formal one that stresses academic goals and is buttressed by other supports such as tutoring, college visits, and assistance with college application or financial aid processes. Adult mentors are volunteers from the greater Philadelphia area who have been matched with students by gender and areas of interest (but not by race/ethnicity). The program operates on the idea that a relationship with a caring adult can spur disadvantaged youth to achieve in high school and to continue to postsecondary education.

To support students academically, the program offers services such as tutoring, SAT preparation classes, workshops on study skills, and summer opportunities. Additionally, students are offered workshops on obtaining financial aid, selecting a college, learning about the application process, and other

related topics. The program also provides financial assistance to students who attend college.

In evaluating Sponsor-a-Scholar, Mathematica Policy Research created a control group matching each program participant with two nonparticipants from the same school on the basis of race, gender, and grade point average (GPA). Outcomes show that program participants had slightly higher GPAs than the comparison group (78.8 vs. 77.0 for 10th graders; 78.1 vs. 76.2 for 11th graders; no difference for 12th graders). Participants also had significantly higher rates of college attendance in each of the first two years after high school (85% vs. 64%, and 73% vs. 56%, respectively). Students with lower academic achievement going into the program appear to benefit more than higher achievers.

The researchers concluded that mentoring efforts, such as frequent communication and getting to know students' families, significantly affect student performance. For example, students whose mentors contacted them most often (at least once a week) did significantly better in terms of their 10th and 11th grade GPAs, first year of college attendance, and college retention (Johnson, 1999).

Upward Bound

Upward Bound is funded by the federal government under the *Higher Education Act*. The program targets students who have completed the 8th grade, whose family incomes are below 150% of the poverty line, and/or who are potentially the first in their families to go to college. Students enter the program in the 9th or 10th grade and may continue to participate through the summer after their high school graduation. At least two-thirds of participants at each site must be both low-income and potential first-generation college students. During the school year, Upward Bound staff provide weekly academic support for program participants through high school visits, tutoring, and mentoring relationships. During the summer, Upward Bound offers a six-week academic program.

In the world of student-centered outreach, Upward Bound is the seminal program, and its longevity has allowed for extensive data collection. This allows researchers to determine the impact of the program not just on first and second year college retention, but through graduation. The availability of longitudinal data allows researchers to study the impact of a number of variables. Mathematica Policy Research examined longitudinal survey data from a group of program applicants who were randomly assigned to participate in either the program or control group. The almost 3,000 youth in the study came from a sample of 67 Upward Bound sites, also randomly selected. In comparison to the control group, Upward Bound participants:

- Earned more non-remedial high school credits in math;
- Were more likely to remain in school (35% vs. 28%);

- Were more likely to receive financial aid to attend college (33% vs. 30%); and
- Earned more non-remedial credits at postsecondary institutions (6.8 vs. 5.7).

Both program participants and the control group had similar cumulative GPAs and enrollment in postsecondary institutions. Given the academic and social circumstances that participants face, this should not be surprising. Disaggregating participant data by race and ethnicity revealed that Latino participants completed 10% more high school credits than Latino nonparticipants. They were also less likely to drop out of school and more likely to earn non-remedial credits in four-year colleges. Similarly, African American participants earned 16% more advanced placement credits than their peers in the control group, and they earned fewer credits in remedial courses while attending two-year colleges.

Research on aspirations also reveals that Upward Bound interventions are directly tied to the program's desired outcomes. When compared to a similar control group, Upward Bound students who entered the program with low expectations about attending college earned approximately three more high school credits (mostly in sciences and social studies), were more likely to graduate from high school (65% vs. 52%), were 12% more likely to attend a four-year college, and earned about seven more credits in four-year colleges. Finally, male participants in the program were less likely to drop out of school and more likely to attend a highly selective four-year institution (Myers & Schirm, 1999). Though the Mathematica evaluation identified program attrition as an issue, TRIO administrators and staff are addressing the question.

The ability of Upward Bound to provide a set of services comparable to the college preparation programs enjoyed by more advantaged students has significantly impacted the program's success. Exposure to college-level work on college campuses gives disadvantaged students a vision of themselves undertaking and succeeding in postsecondary education.

Despite the somewhat rigorous study designs employed by these programs in an effort to understand what principles of practice exist in their program practices and are most effective, none can determine yet which program components have the biggest impact on the students. Are all the components making a difference? Or are only a few of the components carrying the students into college? This is a fundamental question that remains unanswered in the evaluation of precollegiate academic development programs and limits greater understanding of the potential links that can be made with school reform efforts.

SYNTHESIS AND CONCLUSIONS

It is crucial that students obtain early information about preparing for college, engage in constructive learning activities, and enroll in courses that prepare them to succeed in post-secondary institutions. However, in attempting to develop these skills and gain this exposure, educationally and economically disadvantaged students face a complicated set of challenges in their homes, communities, and schools that can limit their opportunity to engage in curriculum that builds their intellectual capacity. Unfortunately, too little is known about how best to promote student capacity through precollegiate academic development programs to effectively gauge the appropriate links between these programs and the school reform efforts that engage schools in transforming themselves into sites of intellectual and creative engagement.

What is the role, for example, of families in these precollegiate academic development programs, and what can we learn about how parents are engaged by these programs that can help schools address the “disappearing parent” of the middle and high school years? Equally important, what can be learned about curricular approaches in these programs and how they might align with standards-based reform efforts in schools? What costs are associated with these interventions, and what are the implications? In order to not leave more questions than answers, we provide the principles of practice and exemplary programs outlined in this paper as a means of developing a framework for the case studies and fieldwork that can help address such questions.

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