

**ACADEMIC PATHWAYS TO COLLEGE:
POLICIES AND PRACTICES OF THE FIFTY STATES TO REACH
UNDERSERVED STUDENTS**

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Promoting college as the road to success is widely accepted in the United States, so it is no surprise that nearly every youth aspires to attend (National Center for Educational Statistics, 2004). Students and parents believe college is the ticket to high wage professional careers and fulfilling personal lives. In truth, the aspiration to attend college is not equally realized by all youth. With relatively few exceptions, White middle- and upper-class students are secure in their ability to attend college, while other student groups, particularly minority, low income, and first-generation students, struggle to enter and succeed in college. Minority students in particular are less likely than their White counterparts to realize their college dreams (Cabrera & La Nasa, 2001; NCES, 2001). A synthesis of recent studies on college access in the *A Shared Agenda* report (Pathways to College Network, 2004) confirms that African American, Latino and low-income students are underrepresented among first-time, full-time four-year college students, while White middle- and high-income students are overrepresented. Many factors contribute to differences in college attendance among diverse student groups, with one of the most important being K-12 academic preparation. For various reasons, many underrepresented youths do not participate in college prep studies and therefore are unable to succeed in the transition from high school to college, creating an unequal playing field that has serious consequences for society as a whole.

This study took an initial step to understand college access for underserved students by conducting an “inventory” of existing and emerging academic pathways other than the traditional college preparatory track through which high school students transition to college in the 50 states and District of Columbia. Based on multiple methods of the study, the researchers sought to identify and describe existing and emerging academic pathways and consider how they contribute college transition for underserved student populations, particularly racial and ethnic

minority, first generation and low income students. As such, the study sought to address the following research questions:

- What academic pathways are implemented in each of the fifty states?
- What academic pathways are used by the states to reach underserved student groups?
- What academic pathways are supported by public policy, particularly state-level legislation and funding?

This paper summarizes an array of academic pathways that state-level officials of the 50 states and District of Columbia and other experts described, highlighting nine selected academic pathways that were discussed with all states and other pathway models across the states.

Implications of this study speak to P-16 policy and practice to enhance access to and success in college for underserved students.

Related Literature

The current emphasis on raised academic standards by No Child Left Behind (NCLB) would seem to suggest a high proportion of high school students would be participating in college preparatory curriculum. This is not the case. Haycock and Huang (2001) of the Education Trust report only about half of high school students take college prep course work, and they claim the continuing gap in college prep participation leads to lagging college enrollment by low-income and minority students. Of all factors, income is a particularly strong predictor of college prep enrollment, but race/ethnicity is important too. According to Adelman (1999, 2005), participation in a rigorous academic curriculum is critically important for all students, with successful completion of Algebra II being a “make or break” course when it comes to persistence. Academic pathways that provide youth with the curricular experiences to enter and

succeed in college are needed if the nation is to respond affirmatively to growing economic and social needs (Lee, Smith, & Croninger, 1995).

Previous research on college access falls into four categories: (a) student trait indicators for college aspiration, attendance, and persistence; (b) school reform efforts for at-risk students; (c) college intervention and outreach programs; and (d) curriculum alignment of the P-16 system (Camblin, Gullatt, & Klopott, 2003). Our search for academic pathways that bridge the secondary and postsecondary levels is inclusive of all of these categories in that we cast our net broadly in search of curricular and organizational models that pay attention to students' aspirations, school reform, college intervention and outreach, and curriculum alignment of the P-16 system. Cabrera, La Nasa, and Burkum (2001) indicate the strongest predictors of college access are parental involvement, expectations, and support; academic achievement; financial aid; socioeconomic status (SES); participation in college preparatory classes; academic aspirations; peer and school expectations; and access to guidance counseling. This list of predictors includes student characteristics but also strategies that contribute to students' accessing to and succeeding in college.

Many strategies are designed to facilitate the transition from secondary to postsecondary education. However, gaps in knowledge exist concerning the implementation of models and approaches that systematically encourage access to college; these models and approaches are what we refer to as *academic pathways*. Academic pathways can be thought of as models and means of strengthening relationships between secondary schools and colleges (Kazis, Vargas, & Hoffman, 2004), providing a first access point and a continuous progression to and through higher education. Currently, details of implementation of academic pathways – who is targeted, what implementation looks like, what role public policy plays – is largely unknown. For

example, models emphasizing dual credit where high school and college credits are earned simultaneously have grown dramatically in the last decade (Vargas, 2003); but little is known about the policies and practices associated with these programs. Allen, Goldberg, and Steinberg (2004) suggest dual credit has existed for many years and that it is used primarily to accelerate the progression of high-achieving college-bound youth who are primed for college-level work already. If true, how are underserved students engaged, if at all? Others such as Hoffman (2003) envisions dual credit as a lever for assisting a much larger group of students to access college, including traditionally underserved students. She points out that a growing number of practitioners, researchers and policy makers are seeking to use dual credit and dual enrollment to facilitate college access for middle or even lower performing students. Martinez and Donis-Keller (2003) suggest comprehensive, multifaceted approaches that integrate dual credit with other accelerated college opportunities can be efficacious in preparing more high school students for college. Given its growth, much more information needs to be gathered about this approach as well as other emerging high school-to-college transition mechanisms.

The Concept of Access

College access and affordability remain central issues for higher education and much attention has been paid to these concerns in recent years (see, for example, St. John, Musoba, Simmons, Chung, Schmit, & Peng, 2004). Recognizing the multiple ways to conceive of access, Eaton (1994) proposes four tenets: geographic, academic, financial, and personal. In this study, we adopt the multiple perspectives toward access, as proposed by Eaton, as a starting point, conceiving of access as ultimately contributing to “the greater availability of the higher education to potential students” (p. 39). Drawing upon the conceptual frameworks proposed by Eaton, St. John and associates, and others, we recognize and value the multiple dimensions of

access in terms of its academic, financial, personal, cultural, and political facets. For us, academic access is of paramount importance, and we link academic access to college to students' high school preparation for college level work. Financial access is concerned with students' economic circumstances, focusing on whether or not students have adequate means to attend college due to familial income and access to financial aid. Personal access includes individual, familial and peer group influence and self-motivation. Cultural access refers to ethnic/racial origin, religion, language and other social influences within schools, neighborhoods, and communities that influence commitment to higher education. Finally, political access refers to the effects of federal, state, and local government and board's legislation, administrative rules and mandates, and funding on college going.

The Concept of Academic Pathways

In this study, the concept of academic pathways emphasizes boundary-spanning curricula and supporting organizational structures, policies, and practices linking and aligning K-12 education with 2- and 4-year colleges to facilitate student transition from high school to college. Academic pathways encompass curricula that extend from secondary to postsecondary education facilitated by organizational structures that enhance college access for traditionally underrepresented students.

The Concept of Underserved Students

Who are the underserved students not enrolled in the U.S. higher education system? This is a complicated question, but a proper definition includes those who are unable to obtain educational opportunity or have limited access to the educational system for a variety of reasons (Howe, 1988; Parnell, 1985). Typically, underserved students are financially disadvantaged, racial/minorities, and first-generation individuals who are not represented in colleges and

universities in proportion to their representation in the K-12 educational system or in society at large. Further, underserved students are youth who are at risk of unequal educational opportunity due to historical discrimination against them because of their gender, racial/ethnic origin, nationality, and social class; their physical and/or emotionally disablement; or their involvement in criminal activity (DeJesus, 2000). Many underserved populations are limited English proficiency or illiterate, with immigrants being an increasingly important segment of this population. These students can reside in any part of the country, though remote rural locations and economically depressed urban areas tend to have higher concentrations.

The Purpose of the Study

Derived from these broad definitions of access, academic pathways, and underserved students, the Academic Pathways to Access and Student Success (APASS) initiative strove to document and describe the purpose, goals, and features of models and programmatic approaches that emphasize college access and success in some way, including identifying public policies that support existing and emerging academic pathways. Our aim was to document academic pathways as they exist currently or as they are emerging and consider how these pathways facilitate linkages between secondary and postsecondary institutions to promote college access and success, referring primarily to retention and credentialing, for underserved students. Our assumption is that all students have unique needs (e.g., academic, personal, financial, cultural) and therefore academic pathways are not “one size fits all”. Issues surrounding college access cannot be solved by one perfect model (McNeil, 2003). Instead, a portfolio of academic pathways may need to be adopted by states and localities, supported by public policy, to provide underserved students with the opportunity to transition to college and successfully complete.

When conducting this study, we were curious about long-standing as well as emerging models associated with college preparation and high school-to-college transition. In particular, nine academic pathways were the primary focus of our research that was carried out using multiple methods, predominantly document review and in-depth telephone interviews. The nine academic pathways that we consistently inquired about were Advanced Placement (AP); bridge programs; College-Level Examination Program (CLEP); virtual schools and distance learning; dual credit, dual enrollment or concurrent enrollment; early or middle college high schools; General Educational Development (GED) bridging to college settings, International Baccalaureate (IB), and Tech Prep or College Tech Prep. In addition, state officials were asked to comment on whether other models and approaches were implemented in their states with the explicit goal of assisting high school students to access college. Thus, information about school reforms, charter schools, career academies, GEAR UP, and other models was collected.

A critical aspect of our investigation was not only whether these academic pathways existed within states but whether they were being designated as avenues to college for underserved students. To understand this dimension of academic pathways, our study explored the policy context associated with implementation of academic pathways. Specifically, state officials were asked to identify legislation, funding and other formal mandates, rules, regulations and guidelines associated with academic pathway implementation. They were asked to comment on the roles and responsibilities of their agencies with respect to implementation of policies related to P-16 reforms, specifically geared to enhancing student transition from high school to college. State officials were also asked to mention federal legislation and funding that influences the implementation of academic pathway, directly or indirectly. By identifying the policy

context, we sought to understand the legislative intent to reach underserved students and gauge commitment and capacity to sustain these pathways.

Method

The study began with the extensive collection and review of documents and materials pertaining to each academic pathway, including web sites and electronic materials during the winter and spring of 2004. Beginning in summer and proceeding through fall of 2004 we asked officials in all 50 states and the District of Columbia to identify the implementation of academic pathways by local entities anywhere within their states. We sought to identify implementation that was orchestrated by the state as well as that which was occurring within only a few local communities, operating entirely independent of state influence. For the purpose of this study, state support was defined broadly to include state regulation, legislation or administrative rules and regulations that guide, direct, or control programs as well as state funding.

Once the preliminary review of literature and documentation was completed, staff contacted experts across the United States who had expertise related to the various pathways. We also established an advisory committee made up of recognized experts in high school-to-college transition, including educational experts, researchers, policy analysts, and leaders of national educational reform initiatives. Information shared by this group, in addition to the literature and documentation, was useful in the selection of the nine academic pathways. Once identified, we developed a protocol for in-depth telephone interviews to collect information from state agency officials. As a result of pilot testing, the initial protocol was refined to measure three aspects of academic pathways: a) the presence of pathways in the state; b) whether the state identified each pathway as a means of enhancing access for underserved students, by student group type; and c) whether and how the state supported the pathway. The protocol also provided open-ended

questions to allow respondents to identify academic pathways other than the selected nine, allowing for the identification of additional models and the nomination of local programs thought to demonstrate promising or exemplary practice.

To profile each state and establish a composite representation of all 50 states, individual interviews were conducted with 129 state agency officials representing K-12 and higher education boards, agencies, foundations, and other organizations that were somehow aligned with high school to college transition. The state-level respondents were selected on the basis of their breadth of knowledge of state-level activities pertaining to P-16 policy, especially boundary-spanning curricular and organizational models. We were particularly interested in state officials who knew about a number of academic pathways, not just one or two. Thus, we sought “big picture” people who had a systems-level perspective on state policies. To find these informants, we scoured websites belonging to state agencies and system offices, and we sought nominations by scholars and experts, drawing heavily on organizations such as the Education Commission of the States (ECS), Jobs for the Future (JFF), the National Center for Public Policy and Higher Education (NCPPE), and the Western Interstate Commission on Higher Education (WICHE). Once an initial contact was made within a state, we used a snowballing sampling technique to pursue additional informants. Throughout the project, we constructed a 50-state data base with the names of experts, informants, and organizations pertinent to the study.

Telephone interview data were collected over a 6-month period from June through December of 2004. Most of the interviews were conducted one-on-one though, on occasion, interviews were conducted with multiple respondents. During each interview, we asked respondents to refer us to other state officials who they knew to be particularly knowledgeable about academic pathways, and we followed up these leads with additional interviews. Each

interview took between 30 and 60 minutes and was audio-taped with the respondents' permission. The interviews verbatim were transcribed, and the survey data were coded and entered into an electronic database. During and after the data collection process, we compiled a profile of each state's academic pathways and we displayed these profiles as part of a comprehensive website to publicly disseminate the state profiles and results on the prominent academic pathways (see www.apass.uiuc.edu). To enhance the accuracy of the state profiles, we conducted member checking wherein each state's report was sent electronically to the respective informants, with a request for verification of accuracy and resolution of conflicting responses. In addition to receiving feedback from nearly all informants, we triangulated the data by comparing it to additional documentation. When necessary, we sought further clarification from state officials and other experts. In most cases, the state profiles were based on informants' responses with minor supplementary information to enhance the clarity or alleviate missing information.

Findings and Discussions

Academic Pathways across the Fifty States

Of the nine selected academic pathways studied, state officials indicated that the academic pathways of AP; dual credit, dual enrollment or concurrent enrollment; and tech prep or college tech prep were evident in all 50 states and the District of Columbia. These three pathways were followed by distance learning/virtual schools identified by officials of 49 states, CLEP recognized within 46 states, bridge programs evident in 45 states, IB identified within 45 states, and GED bridging to college in 43 states. Early or middle college high schools were identified in 22 states (see Table 1).

Table 1**Summary of Nine Selected Academic Pathways Reaching Underserved Students and Support from the 50 States and District of Columbia**

Academic Pathway	Number and Percent of 50 States Where Pathway is Implemented	Percent of 50 States Using Pathway to Reach Underserved Students	Percent of 50 States with Policy Support for the Pathway
Advanced Placement (AP)	50 (100%)	88%	92%
Tech Prep or College Tech Prep	50 (100%)	74%	96%
Dual Credit/ Dual Enrollment	50 (100%)	56%	92%
Virtual Schools/ Distance Learning	49 (98%)	68%	96%
Bridge Programs	46 (92%)	87%	40%
College-Level Exam Program (CLEP)	46 (92%)	11%	24%
International Baccalaureate (IB)	45 (90%)	42%	46%
GED Bridge to College	43 (85%)	86%	39%
Early or Middle College High School	22 (44%)	86%	28%

Of all 400 instances in which these nine pathways were reported by state officials as being present in the 50 states, 25% of the instances were associated with low-income, 14.5% with racial/ethnic minority, 13.3% with low-achieving or at-risk, and 10.8% with rural students. Of all pathways, AP was mentioned more frequently than any pathway as reaching underserved students, overwhelmingly emphasizing reaching low-income students; dual credit was identified

with the largest number of different student groups, reaching 18 unique underserved student types.

Besides the selected nine pathways, many more models and approaches were found across the 50 states. High Schools That Work (HSTW), GEAR UP, charter schools and career academies typify other models that were mentioned less frequently than the nine above, but still fairly often. These models were identified through an open-ended question asking officials to identify other approaches that were evident in their states to enhance high school-to-college transition.

Looking at results by state, findings show eight states offer 15 or more academic pathways, and these states are Arizona, Colorado, Kentucky, Massachusetts, Minnesota, Oklahoma, Pennsylvania, and Rhode Island. Many of these states implemented all nine pathways, plus GEAR UP, HSTW, and others entirely unique to their states and localities. Counting states that offered pathways that made a special effort for underserved students, Arizona had 16 such pathways, Massachusetts had 15, Texas identified 13, and Colorado and Pennsylvania mentioned 12. Arizona, Delaware, and Massachusetts indicated all their pathways made a special effort for underserved students. Eleven states (Alabama, Delaware, Hawaii, Idaho, Kansas, Nebraska, North Dakota, South Dakota, Vermont, West Virginia, and Wyoming) indicated they offered nine or fewer academic pathways with several of these states volunteering no other pathways than the ones for which we solicited information.

With respect to state support, some form of legislative and/or fiscal support was offered by 96% of states for tech prep or college tech prep, identifying this pathway closely with federal legislation and funding, and 92% for AP, again often mentioning federal support, and 92% identifying dual credit, dual enrollment or concurrent enrollment. Again, most notably the major

funding source for tech prep and AP was the federal government, with only a fraction of funding coming from states. For example, the federal AP fee reduction grant program played a major role in funding AP by targeting low-income students. By comparison, dual credit was often addressed by state legislation (requiring students be given access), but much less often the recipient of dedicated state funding.

Nine Selected Pathways in the Fifty States

Advanced Placement (AP), created in 1955, is administered by the College Board. The AP program involves a series of courses and tests whereby high school students can earn college credit by passing an exam with a sufficiently high score. In 2000, the College Board reported more than three-quarters of a million students took over one million AP exams (see <http://apcentral.collegeboard.com/>). AP is one of the three most prevalent academic pathways, recognized by all 50 states. With a long-standing history of credit-based transition programs (Bailey & Karp, 2003), AP is seen by several states as a vehicle for assisting high school students with their transition to college. Of the 50 states, 44 states report that they make special efforts to reach underserved students and, of these, 34 states attempt to reach low-income students. Racial/ethnic minorities, and those in rural areas are also mentioned as underserved student groups who are assisted by AP.

Our current study indicates that 47 states support AP using a range of policy mechanisms, varying from federal legislation, state legislation, private funding, or a combination of these. As shown in the 50-state survey, some state legislatures provide incentives to school districts and low-income students to facilitate participation in AP programs by utilizing federal grants (Martinez & Bray, 2002). In one region of the country, a partnership among nine Western states (Arizona, Colorado, Hawaii, Idaho, Montana, New Mexico, Oregon, South Dakota, and Utah) is

associated with the Western Consortium for Accelerated Learning Opportunities (WCALO) which is a cooperative effort administered by the Colorado Department of Education and the Western Interstate Commission for Higher Education (WICHE) to increase the number of low-income students who enroll in AP courses, utilizing the AP Incentive Federal Grant.

Bridge Programs, known as transition and outreach programs, are designed to provide assistance to high school juniors and seniors who demonstrate interest in attending college, or to prepare recent high school graduates and incoming college freshmen for college course work and college readiness. In general, bridge programs, sometimes known as summer bridge programs, often target racial/ethnic minority students and low income students to expose them to a college environment with the goal of helping them transition from high school to college. The concept of bridge programs is sometimes associated with outreach programs offered in conjunction with TRIO and Upward Bound.

APASS results suggest bridge programs are present in higher education institutions in 46 states. Of these, 40 states report the model is used to make special efforts to serve underserved students, particularly African American, Latino, and Native Americans. Although numerous bridge programs exist in higher education institutions across the nation, data on how many higher education institutions offer bridge programs, how these programs work and how effectively they operate are sparse. Implementation and support of the programs depend largely on local institutional commitments. According to APASS results, only 20 states indicate that they provide any sort of state legislation or funding mechanisms to support bridge programs, mentioning instead that institutions seek federal funds or designate their own state and local funding to offer these programs.

College-Level Examination Program (CLEP), administered by the College Board, is a testing program that provides students with the opportunity to demonstrate college-level achievement by taking examinations covering material taught in the first two years of the undergraduate curriculum. Although CLEP is present in 46 states, only five states report utilizing CLEP to make special efforts for underserved students to access college. Our APASS findings suggest very little information exists about CLEP within states. Little effort is made to keep track of students who take CLEP courses and exams, and minimal evaluation exists to show effectiveness. South Dakota is an exception in that it has a statewide CLEP policy governed by the Board of Regents. Apparently, institutions within Florida and Idaho have their own policies and procedures for evaluating and awarding credit for CLEP. A recent study on CLEP by the College Board suggests students who participate in CLEP can do as well in college as students who participate in AP and traditional course enrollment (Scammacca & Dodd, 2005). Other independent evaluations of CLEP are almost unknown.

Distance learning addresses the educational situation in which time and/or location separate instructors and students. Instruction is delivered via the synchronous or asynchronous methods of written correspondence, text, graphics, audio-and video, CD-ROM, online learning, or interactive television. In particular, the virtual school refers to a high school or college offering educational delivery through internet-based or online pre-college or college credit courses.

The changing demographics of students demand the need for alternative educational delivery methods. The number of students who are interested in taking advantage of distance learning option is growing dramatically (Web-based Education Commission, 2000). A recent study from the Education Commission of the States (ESC) by Long (2004) captures the number

of operating cyber-schools, primarily focusing on K-12 learning activities and programs.

According to her study, some form of cyber schools exists in 39 states.

According to our APASS study, distance learning, virtual high schools, or colleges are present in 49 states, becoming an increasingly prevalent vehicle for enhancing students' transition from high school to college. The discrepancy between APASS results and Long's study is attributable to her use of the term "cyber school" rather than the more comprehensive approach we took to identify virtual schools or colleges in addition to online learning and distance education. Of the 49 states that identify distance learning/virtual schools and colleges, we learn that 34 recognize this pathway as one that makes special efforts for underserved students. Some of the reason distance learning has emerged as an academic pathway is because dual credit and AP courses are delivered through virtual schools in several states.

This emerging pathway is one that has a high potential for enhancing curriculum linkages between high school and college. Especially, distance learning, with its potentially low costs, can be attractive because of state budget constraints. The results of our 50-state survey show that almost every state allocates financial resources for the development of online education. There are new allocations in some states, e.g. in Arizona and Indiana, whereas in other states backing comes from a redistribution of general funds, e.g., in Missouri and North Carolina. In particular, 16 states have state regulation or legislation that guides and operates this academic pathway.

We used all three terms, dual credit, dual enrollment, or concurrent enrollment, in our study because we did not want the variation of the terms among states to limit our results. For our purposes, **dual credit** means that students receive both high school and college credit for successful completion of college-level classes, while **dual enrollment and concurrent**

enrollment indicates students are enrolled in high school and college but they may or may not receive high school credit for the college level courses (Kim, Bragg, & Barnett, 2003).

Dual credit and/or dual enrollment represent one of the most prevalent academic pathways, being evident in all 50 states. Twenty-nine states make special efforts to reach underserved student populations, primarily low-income, racial/ethnic minority, low-achieving, first-generation, and rural students. Forty-seven states support the pathway through some sort of policy mechanism, varying from federal and state funding to state policies without funding to attempt to guide and/or regulate program operations, with 39 reporting having state policy that includes legislation or regulation. Eighteen states report placing a “high priority” on dual credit or dual enrollment as a vehicle for promoting college transition for underserved students. Karp, Bailey, Hughes, and Fermin (2004) conducted a national study of dual enrollment, including dual credit, in the 50 states, obtaining similar results to the APASS results that show only 12 states had no policy on dual enrollment or dual credit. Due to heightened interest across the states and by the U.S. Department of Education, dual credit and dual enrollment have been relatively well-documented in recent years (see, for example, ECS, 2002; Karp et al., 2004) compared to other academic pathway models such as CLEP and bridge programs.

Early or Middle College High Schools (EMCHS) serve as alternatives to traditional high schools to help students who are at risk of dropping out of high school to meet graduation requirements and transition to college. Funded by the Bill & Melinda Gates Foundation in partnership with the Carnegie Corporation of New York, the Ford Foundation, and the W.K. Kellogg Foundation serve as intermediaries to establish Early College High Schools. EMCHS models blend the organizational structures of high school and college with a particular emphasis on offering sequential curriculum extending from high school through the first two years of

college (Jobs for the Future, n.d.). Often located on college campuses, they are a new kind of learning organization that integrate high school and college course work to accelerate access to a two-year Associate of Arts degree or the equivalent of two years of college credits for a four-year degree program.

According to a report by Jobs for the Future (2004), 19 states have early college high schools with six more states planning to add this pathway by 2005. Since their launch in 2002, early college high schools have spread nationally. Currently, seven states (California, Georgia, North Carolina, Ohio, Oregon, Texas, and Utah) have statewide early college high school initiatives. Our APASS 50-state survey results indicate that 22 states identify that this pathway model is implemented somewhere in their auspices. The difference in the early college high school count between the Jobs for the Future and our study is that the APASS study did not limit itself to local programs affiliated with the Middle College National Consortium or with the Early College High School Initiative of the Gates Foundation.

Special efforts to reach underserved students pertaining to early or middle college high schools are found in 19 states, particularly identifying low-achieving and racial/ethnic minority students. Though support is mainly through funding from foundations supplemented by public funding that supports K-12 schools, 14 states report active involvement with this pathway, and a few additional states are in a preliminary discussion stage to consider adopting the model. Of the seven states with statewide early college high school initiatives, California and Washington designate community colleges in a lead role. For example, Antioch Seattle Community College has established an Early College Consortium for serving Native American students to increase their college access and success (see <http://www.antiochsea.edu/about/earlycollege/>).

General Educational Development (GED) is a high school diploma equivalency examination. What we mean by GED programs are those programs that not only assist students to pass the GED examination but seek to bridge students to a college curriculum and give them the option to attend college. GED bridge programs are associated with the adult education divisions and adult literacy programs of state departments of education and are delivered by K-12 or postsecondary education institutions. Increasingly community colleges play a central role in delivering GED testing (personal communication with Stephen Ruffini, October 28, 2005), offering bridge programs to college for students who participate in the GED. Thus, the GED needs not be an end point only, but a conduit to postsecondary education opportunity. The APASS survey results show that GED programs are recognized by 43 states. Of these, official in 38 states indicated educational institutions in their states make special efforts to offer the GED to a wide spectrum of underserved students with an emphasis on bridging these students to college, including at-risk, ESL, dropout, incarcerated, low-achieving, low-income, racial/ethnic minority, and rural students. Officials of 37 states mentioned supporting these programs, relying on federal funding for adult education and literacy. GED programs that assist students to transition to college have the potential to continue to grow as a major academic pathway to college.

International Baccalaureate (IB), administered by the International Baccalaureate Organization (IBO), was established in 1968 as a comprehensive, two-year liberal arts course of study for students in international schools around the world. The International Baccalaureate Organization grew out of efforts by international schools to establish a common curriculum and a credential for entrance to universities. More than 25,000 American students between the ages of 16 and 19 in more than 300 high schools participate in the IB program and constitute more than half of the IB students worldwide (Southern Regional Educational Board, 2003). The IB

curriculum fulfills the requirements of various national education systems. Successful completion of a national examination allows the student to earn an IB diploma and thus receive college credit when admitted to a college or university (see <http://www.ibo.org/ibo/index.cfm>).

Because of the existence of IB program for more than three decades, this academic pathway model is well established in the United States with 45 states reporting having IB programs situated within schools in within their borders. It is worth noting, however, that IB is offered sporadically within each state. Because of the cost to implement, IB programs tend to be located in more affluent communities and not particularly targeted to underserved students. In fact, of the 45 states that mention implementation, only 19 report making special attempts to reach underserved students, with fewer states (16 total) dedicating state policy or funding to facilitate the program, typically providing subsidies for the IB examination fee for low-income students. Uniquely, Kansas and Kentucky have state policies that mandate all high schools to offer IB or dual credit or AP, with schools being required to offer at least four courses in six content areas. Interestingly, South Dakota has statewide policy that both IB and AP credits must be accepted at public postsecondary education institutions.

Tech Prep or College Tech Prep, introduced nationally in 1990 by reauthorization of the Carl D. Perkins Vocational and Technical Education Act, is a federally funded program to strengthen curricular linkages between high schools and community colleges and promote the integration of the core academics and career and technical education (CTE). Tech prep is a combined sequence of two years of high school and two years of postsecondary education. Required by federal law, tech prep programs are implemented through a local consortium that establishes cooperative agreements between high schools, community colleges and sometimes four-year colleges and universities, and business, industry, labor, and community organizations.

The foundations of this pathway model are articulation agreements and curricular coordination to facilitate sequential high school and college course work, integrating academic and technical instruction.

As supported at the federal level, tech prep is recognized by all 50 states. Of those states, officials of 37 states report that tech prep programs make a special effort to reach underserved students with 46 states reporting providing support, mainly through the administration of federal Perkins legislation. Thus, the program relies heavily on federal funding. Since the Perkins legislation uses the particular language of “special populations”, the officials of many states associate special populations with underserved student groups. Tech prep is seen as an academic pathway that prepares the “middle majority” of high school youth for college as well as the workforce (Parnell, 1985).

Other Pathways in the Fifty States

In addition to asking state leaders to identify pathways based on our typology, we offered them the opportunity to tell us if there were any additional models that are recognize as academic pathways to encourage student transition from high school to college. We elicited more than 200 responses to our open-ended question, which led us to understand the great diversity of other initiatives and programs designed to facilitate transition to college and increase students’ opportunities for access to higher education. Based on the goals and key components of these pathways, we developed a four-category typology for other academic pathways than the original nine we sought to learn about. These four categories are: 1) school reform, 2) career pathway models, 3) mentor and support programs, and 4) curriculum, assessment, and standards-related initiatives (Note, this categorization was guided by the conceptual framework on college access of Camblin, Gullatt, and Klopott (2003) mentioned earlier in this paper). What follows is a

description of additional academic pathways along examples found in particular states that are designed to assist students in transitioning to college.

School Reform

Charter Schools are nonsectarian public schools of choice that operate free from many of the regulations that apply to traditional public schools. Nearly all of the 19 states that indicate charter schools are present report that they make special efforts to engage at-risk students and low-achievers. Minnesota, the first state to have charter schools, has several charter schools developed specifically to meet the needs of underserved students, including racial/ethnic minority and immigrant students. Some states offer charter schools as alternative educational experiences, with curricula linked with the local community and state colleges. In Wisconsin, numerous charter schools reside on university campuses, such as the University of Wisconsin at Milwaukee.

Small Schools are present in several states across the country, representing another mechanism of school reform. Small schools are high schools that provide a personalized learning environment with typical enrollments of 300 or fewer students. Eleven states indicated they have small schools, with about half of the states indicating they make special efforts for rural, urban, low-income, or low-achieving students. Many small schools are located in urban and metropolitan areas because they involve the breakup of large schools into small, autonomous public and charter schools. For instance, New Hampshire is restructuring large, comprehensive high schools into smaller and more personalized schools. Wisconsin articulates a goal of implementing small schools to engage students in learning and give them a sense of community. The Texas High School Project provides new options for underserved students by funding the redesign of existing comprehensive high schools into smaller and focusing learning communities

in high-need areas of the state. According to state officials, many of these schools are linked with local community colleges to offer students opportunities for dual credit or dual enrollment. For example, many students participate in dual enrollment as part of Project Running Start in New Hampshire's small schools. The Center for School Change at the Hubert H. Humphrey Institute of the University of Minnesota has a grant from the Gates Foundation to support small school reform in Minnesota high schools.

High Schools That Work (HSTW) is a school-improvement initiative of the Southern Regional Education Board (SREB) for high and middle school leaders and teachers to raise student achievement. The goal of HSTW programs is to raise student achievement by integrating college prep education with career and technical education (CTE). For example, West Virginia HSTW programs blend the essential content of traditional college preparatory studies, mathematics, science, and language arts with quality vocational and technical studies. Of the 50 states, officials of 13 states address that HSTW is viewed as an academic pathway linking high school to college within their states. Of these, officials of seven states view HSTW as a pathway that makes special efforts for underserved students, including students seeking career preparation (3 states), and low-achieving and low income students (2 states). First-generation students and urban students are also identified by one state each.

Career Pathway Models

Career pathways are implemented in 18 states to provide school-to-career options for a variety of underserved students. Career pathway programs enroll students in academic and CTE courses, many of which offer college credit prior to high school graduation by awarding dual credit or deferring credit until students matriculate to the community college (Hull, 2005). Numerous implementation strategies are associated with the career pathway programs including

dual credit, secondary and postsecondary curriculum alignment and articulation strategies, college placement exams administered in grade 10 or 11 to measure students' college readiness, opportunities for students to learn industry recognized skills and knowledge, opportunities for employment and business skills, and training centered on career clusters at various levels of students' transitions, and data enhancing program decision-making, modification, and improvement.

Career pathways include partnerships with community and technical colleges linking secondary schools to community colleges through articulation agreements and CTE programs held on college campuses. For example, in Massachusetts students get training at community colleges in the last half-year of high school through the Another Route to College program. In Arkansas, 14 sites offer half-day high school CTE programs held on college campuses. In Virginia, "Education for a Lifetime" includes opportunities for high school students to earn an industry certification within one year after high school graduation. Other models focus on increasing the participation of students who are traditionally underrepresented in particular CTE fields. In New York, the Science and Technology Entry Program offers options for students in grades 7-12 to improve their participation rates in mathematics, science, technology, health related fields, and licensed professions. In New Hampshire, the Cisco Networking Academy makes special efforts to enroll females to earn networking industry certification and college credit. In Tennessee, an articulated pathway for allied health focuses on grades 9-12 and emphasizes a major in health science education to help students complete their major and continue their study in postsecondary education.

Career Academies exist in several states to provide opportunities for students to prepare for college and work. Career academies are high school-level programs that prepare students for

both college and careers by providing a small learning community coupled with a college preparatory curriculum in partnership with employers, community, and local college (Kemple & Snipes, 2000). Twenty-three states indicated they offer career academies, emphasizing access most frequently for low achieving, racial/ethnic minority, and low-income students. Many career academies link with local colleges such as those in California, Wisconsin, Minnesota, Kentucky, Nevada, and Iowa. For example, many of the career academies in California link the high school curriculum to community colleges. In Wisconsin, the career academies link and articulate with technical colleges.

Looking at specific examples, Maryland's Academy Signature Schools have a combined career and academic curriculum articulated with postsecondary institutions. Some career academies are oriented towards specific CTE areas. For example, the Saint Paul Public Schools District organizes career academies around specific career themes based on the needs of its students. In Missouri's first career academy at Clyde C. Miller High School, students enroll in one career pathway and earn credits to continue their education and training at a community college. In Connecticut, career academies focus on finance, business/medical, sports/medical, entrepreneurship, and information technology. Philadelphia Academies, Inc. has some of the most well developed career academies in the country, offering its first academy in 1969 and expanding to its current enrollment of over 8,000 students (see <http://www.academiesinc.org/history.htm>)

Mentor and Support Models

Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) is a discretionary grant program of the U.S. Department of Education designed to increase the number of low-income students who are prepared to enter and succeed in postsecondary

education. GEAR UP programs encourage youth in middle and high schools to have high expectations and take challenging courses that enable them to have the choice to attend college. A central goal of GEAR UP is to elevate the academic performance and aspirations of students. While many local programs are connected with colleges in their home states, programs provide early college preparation and awareness activities to participating students through comprehensive mentoring, counseling, outreach, and other supportive services. Seventeen states indicate they view GEAR UP as an academic pathway to enhance access to college, with many of these states using GEAR UP to make special efforts to reach racial/ethnic minority students and first-generation students, in addition to students from low-income families. In Oklahoma, public engagement and marketing through television and radio are used to promote awareness of college options. In Kentucky, a cohort approach is used to reach out to low-income, at-risk, and racial/ethnic minority students, which also includes dual credit opportunities. New York emphasizes enhancing the aspirations of youth through the GEAR UP partnerships and “College for Me” grants. Indiana’s 21st Century Scholars program provides opportunities to receive full-tuition awards to Indiana’s public colleges or universities or comparable awards to private in-state institutions for up to eight semesters for students who affirm a pledge of remaining alcohol, drug, and crime free, who graduate from high school with a 2.0 GPA on a 4.0 scale, and who apply on time for state and federal financial aid and within two years of graduating from high school (St. John et al., 2004).

Other student support programs exist in several states separate from GEAR UP programs to assist low-income and racial/ethnic minority students. TRIO programs are educational opportunity outreach programs designed to motivate and support students from disadvantaged backgrounds. One such program, Upward Bound, serves high school students

from low-income families or from families in which neither parent holds a bachelor's degree, as well as low-income, first-generation military veterans preparing to enter postsecondary education.

Other state-based programs offer financial and academic support to students. Arizona's QUEST programs provide financial and academic assistance to low-income students aspiring to attend college. The Rhode Island Educational Talent Search (RIETS) provides free assistance for middle and high school students who desire to attend college. In Kentucky, the Governor's Scholars and Governor's School for the Arts enable high school students to visit college campuses, take courses, and receive a formal orientation to the college environment. The Ohio College Access Network involves community-based organizations that serve as advocates for education, offer scholarships, counseling, and extra support within the state. The Oklahoma Higher Learning Access Program (OHLAP) enrolls low-income students who commit to taking 17 units of challenging course work. Those graduating with a 2.5 GPA or better receive full tuition scholarships to public or private colleges for up to five years. For over 30 years, the ACT 101 (Higher Education Equal Opportunity Program) provides support through counseling, tutoring, and summer programs to students in Pennsylvania. Particularly in California but proliferating nationally, the Advancement Via Individual Determination encourages low-achieving and low-income students to advance in rigorous curricula, enter mainstream activities in school, and increase their opportunities to enroll in four-year colleges.

Curriculum, Assessment, and Standards-related Initiatives

Results of the APASS study indicate that curriculum, assessment, and standards-related initiatives are evident in at least 18 states. Of these states, officials of six states indicate the initiatives make special efforts for underserved students, particularly low-achieving, low-income,

rural, and urban students. Many curriculum and standards-related initiatives involve articulation with local colleges. For example, Indiana's high school agriculture education programs offer three new, standards-based advanced science courses. Students use these courses to achieve advanced standing at Purdue University. New Hampshire's Project Lead the Way is a pre-engineering curriculum offered in high schools in which students follow a prescribed sequence for completing five courses. In South Dakota, multi-district high schools offer CTE courses for area high schools. Some classes articulate with the local technical schools to help students transition to college. Utah focuses on alignment of math and composition curriculum with college entrance standards. In South Carolina, institutions have endorsed statewide standards for entering freshmen in six core discipline areas, thus improving the alignment between high school graduation standards and university admissions standards. Many initiatives intend to close the gaps between high school standards and college entrance requirements, expressing goals aligned with state P-16 initiatives. P-16 or P-20 councils formed at the state level often involve representatives from local educational organizations and K-12 and higher education agencies to improve teacher quality and college preparation.

Conclusions and Implications

Promoting access to college is a widely accepted goal in the United States. Consistent with this objective, results of the APASS initiative and related research studies indicate academic pathways are proliferating, both in terms of the number of educational organizations involved and the number of students enrolled. Across the various academic pathways, a number of common features emerge. First, while recognized as a distinct academic pathway for the APASS, dual credit and dual enrollment is integrated into many of the other academic pathway models, such as virtual schools, tech prep, middle or early college high schools, and various school

reforms and career pathway models, therefore acting as both a distinctive pathway and a cross-cutting strategy. Because of this, dual credit and dual enrollment take on a particularly important role in the emergence of new academic pathways. Indeed, articulation agreements specifying dual credit courses and/or curriculum form the bedrock of numerous academic pathways, making it critically important that these agreements are credible and substantive.

The APASS study is unique in the extent to which it attempted to determine whether underserved student populations are being encouraged to participate in academic pathways, as indicated by our researchers asking whether the states were making “special efforts” to include a wide range of student groups. Of the various academic pathway approaches, early or middle college high schools typify a model that is targeting underserved student groups by specifying its inclusion of low-achieving, at-risk youth and racial/ethnic minority students. Of the 22 states actively implementing this model, 19 identified these student groups, with about half of these states also identifying low income students. In contrast, some academic pathway models such as AP and IB tended to be reserved for the most academically prepared students, often targeting high achieving racial/ethnic minority, low-income, rural or urban students. Similarly, dual credit and dual enrollment courses were dedicated to high academic achieving students, according to several states’ officials. Slightly over half of the states indicated dual credit and dual enrollment programs emphasized opportunities for underserved student populations, with low income and racial/ethnic minority students being the most likely to be associated with this model. Thus, results of the APASS and related research raises questions about access to dual credit and dual enrollment courses, particularly since these accelerated learning opportunities are being integrated into so many other academic pathway models.

Even though the many states report progress toward the implementation of academic pathways that assist underserved students to transition to college, our investigation suggests more work is ahead. Some state officials are barely aware that various academic pathways are present in their states. While some pathways are unique to a state, some are drawing increased attention throughout the nation. We observed, for example, that the high school reform movement that is sweeping the nation is places an increasingly high priority on student transition to college (see, for example, Education Commission of the States and the State Higher Education Executive Officers (1996), the Kellogg Commission on the Future of State and Land-Grant Universities (1999), and Education Trust (1999)). Responding to widespread criticism of the under-preparedness of high school graduates, many state officials concur that the impetus for high school reform comes from increasing demand for skilled employees in the rapidly changing global economy. As a result, policy makers, educators, and leaders increasingly articulate the need to prepare high school graduates to be ready for college-level work simultaneously with acquiring skills for the modern workplace. According to Allen, Almeida, and Steinberg (2004), today's diverse students require a "far richer diversity of learning environments" (p. 3) because they need access to educational programming at different levels of intensity, available in a variety of locations, and delivered through different institutional arrangements and "blends" of supports and opportunities. Through the APASS initiative, we observed that many states are identifying the need for multifaceted curricular and instructional approaches, relying on a wide range of policy mechanisms. With state funding increasingly limited for education, reliance on federal funds has been particularly important for several academic pathways as has been the dedication of local funding.

Through the examination of academic pathways in the 50 states, it became clear that a multifaceted approach does not come without its challenges. A lack of state-level coordination of the myriad academic pathways was evident in many states. Particularly in states that emphasize local control, many states seem to approach the implementation of academic pathways in a piecemeal fashion, sometimes shifting responsibility to the local level altogether. An important but disconcerting perspective of our researchers who were conducting interviews was that few state officials seemed to have a clear or comprehensive understanding of the academic pathways implemented by high schools, colleges and universities within their states. Many had very limited understanding of public policies associated with them. This finding is corroborated by previous literature on transition programs that has called on state leaders to gain a more comprehensive understanding of possibilities, improve coordination, and adopt a P-16 systems perspective (see, for example, Bailey & Karp, 2003; Camblin, Gullatt, & Klopott, 2003).

With most academic pathways being implemented initially at the high school level, thus far more interest and activity has been generated at the secondary than the collegiate level. However, each of the nine selected pathways and many more that emerged as part of the 50-state interview process has documented involvement by postsecondary institutions, particularly community colleges, through the formation of collaborative partnerships. If various academic pathways are to continue to grow, workable partnerships need involve secondary schools and all types of postsecondary institutions, two-year and four-year colleges and universities alike, including involving faculty who can integrate the ideas into curriculum and instruction academic programs. Colleges that have established high school liaisons to facilitate on-going dialogue between secondary and postsecondary faculty and student support personnel represent the kind

of concerted action that is needed to build a systemic bridge between high schools and postsecondary institutions.

Finally, results showing the influence of these models on student outcomes reveal limited and sketchy evidence. As these and other pathways develop and evolve, it is necessary for rigorous data be collected to better understand how these models impact student preparation, transition, and retention on both the secondary and postsecondary levels. Uninterrupted matriculation through a sequential curriculum, from grade nine or eleven to grade fourteen or sixteen, is a laudable goal, but numerous studies show many college students do not conform to this prescription (see, for example, Bueschel, 2004). More needs to be known about who is gaining access to and benefiting from the educational opportunities created by academic pathways. To get to this point, careful attention needs to be given to designing and conducting evaluation studies that are particularly sensitive to students' backgrounds, needs, goals, and abilities and to the educational programs that are being offered to them. More needs to be known about access from students' personal, academic, financial, and cultural perspectives. Further, national studies are needed to understand the scope and scale of implementation of new academic pathway approaches, but these studies should not overshadow small-scale qualitative studies that reveal the unique day-to-day, intensely intimate experiences of the underserved students who participate in these initiatives. Only through additional research, quantitative and qualitative can we begin to understand the complex issues surrounding access, opportunity and success for all students, underserved student groups who are being touted as beneficiaries but who are marginalized by the educational system.

We recognize that academic pathways can take different forms to reach different underserved student groups, with some pathways emphasizing access for low-income students, others serving racial/ethnic minority students, and still others reaching low-academic achievers.

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