College Remediation

What It Is

What It Costs

What's at Stake

THE INSTITUTE
For Higher Education Policy

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EXECUTIVE SUMMARY

Offering course work below college-level in higher education institutions has been put under the spotlight by both the general public and policymakers across the country. Several states have addressed the challenges posed by remedial education by implementing policies that limit or reduce remediation or which shift remediation to community colleges. The debate over remediation has been galvanized on a national level because of the high profile case of the City University of New York (CUNY). In June 1998, the trustees of CUNY voted to phase out most remedial education in the system's 11 four-year institutions, beginning in September of 1999.

What is remediation? How does it work? What does it cost? Who is responsible for meeting the remedial needs of students? These are important questions that have not received sufficient attention in the contentious political and policy discussions. Unfortunately, too little information is available to provide definitive answers to many of these questions. As a result, conjecture and criticism have filled the void created by this lack of basic information. The most vocal critics of remedial education at the college level have made several arguments that have become presumptions in state and national policy debates. Among these are the observations that remediation is too expensive, that it is an inappropriate function of colleges, and that it amounts to "double billing" from a societal standpoint, since the skills that are being developed should have been learned earlier in the educational process.

This report from The Institute for Higher Education Policy addresses these presumptions about remediation and the basic questions regarding what it is, what it costs, and what's at stake. The goal of the report is to provide policymakers, the public, and higher education leaders with an accessible, straightforward review of what is known—and not known—about college remediation.

The report includes: an analysis of the functions and purposes of remediation; a discussion of the types of remediation, who participates in remedial education, and how well it serves them; an examination of the financial costs of remediation; an appraisal of the economic and social consequences of not providing remedial education; and a proposed set of strategies designed to reduce the need for remediation in higher education while also enhancing its effectiveness.

Major Findings

Remediation is a core function of higher education. There has never been a golden age in American educational history when all students who enrolled in college were adequately prepared, all courses offered at a higher education institution were "college-level," and the transition for students between high school and college was smooth. Remedial education has been part of higher education since the early colonial days. Beginning with Harvard College in the 17th century, where tutors in Greek and Latin were provided for underprepared students, and continuing into the middle of the 20th century with the establishment of the G.I. Bill, remediation for inadequately prepared students has been an integral part of American higher education.

The 1990s are no different than any other era. A 1995 survey by the National Center for Education

Statistics (NCES) found that 78 percent of higher education institutions that enrolled freshmen offered at least one remedial reading, writing, or mathematics course. One hundred percent of public two-year institutions and 94 percent of institutions with high minority enrollments offered remedial courses. Twenty-nine percent of first-time freshmen enrolled in at least one of these courses in the fall of 1995. Freshmen were more likely to enroll in a remedial mathematics course than in a remedial reading or writing course, irrespective of the institution they attended.

The need to help underprepared students has been embedded in the very fabric of the nation's higher education system for well over three centuries. What we now call remedial education has not been caused by current admissions standards, the availability of federal financial aid, or any of a number of other concerns that have been raised in the recent policy discussions. As higher education continues to educate an ever-growing proportion of the population, there is every reason to conclude that remediation will continue to be a core function of colleges and universities.

There are no consistent standards about what constitutes "college-level" work.

Discussions of remedial education often evoke the image of courses in reading, writing, and mathematics whose content is below "college-level." This suggests that standards exist to define what college-level means, and that the academic community has identified specific knowledge and skills that are required to be successful in a college or university. This perception is far from accurate.

Rather than being based on some immutable set of standards, remedial education needs are often determined by the admissions requirements of a particular institution. Most students who are classified as remedial students are simply those who have the lowest scores on an assessment exam, and the line that separates those who need remediation from those who do not is fairly arbitrary. In fact, there is ample evidence indicating that the standards for remediation vary considerably within a set of institutions with similar missions.

In institutions that do not have open door admissions policies, students who take remediation have already met the institution's regular admissions requirements. These students are not exceptions or special cases to the institution's standards of college-level study.

Because it is stigmatized as not being college-level, the amount of remediation taking place in colleges is probably understated.

Approximately one in five institutions in the 1995 NCES survey indicated that they did not offer any remedial education courses. In reality, the percentage of institutions offering remedial courses is probably much higher—as is the percentage of students requiring remediation. Many institutions do not find it in their interest to acknowledge that they enroll students who require remediation because, from the institutional perspective, their reputation will be hurt, which in turn may affect their ability to acquire resources. As Alexander Astin has recently written, "the underprepared student is a kind of pariah in American higher education," and acknowledging that these students are enrolled would pose a threat to perceptions of excellence.

College remediation incorporates a wide array of students and activities.

Remediation is not just for underprepared recent high school graduates. One national study found that 27 percent of entering freshmen in remedial courses were over the age of 30. Irrespective of age, freshmen are not the only students who take

remediation. NCES data indicate that while 56 percent of students enrolled in remedial courses were freshmen, 24 percent of remedial course-takers were sophomores, 9 percent were juniors, and 9 percent were seniors.

Remedial education can include a variety of activities, including assessment and placement, curriculum design and delivery, support services, and evaluation. This diverse array of activities is similar to what takes place in a regular academic program, and goes well beyond the narrow impression that remediation encompasses only basic academic tutoring or skills development.

There is no evidence that remediation is expanding in size or scope.

Despite the fact that college and university enrollments grew by approximately half a million students between 1989 and 1995—or about 6 percent overall—there was little change in the percentage of students enrolling in remedial courses. Thirty percent of first-time freshmen enrolled in remedial reading, writing, or mathematics in the fall of 1989, compared to 29 percent in the fall of 1995. Thirteen percent of first-time freshmen enrolled in remedial reading for both years. Remedial writing courses were taken by 16 percent of the first-time freshman in 1989 compared to 17 percent in 1995, while 21 percent and 24 percent, respectively, took remedial math.

The financial costs of remediation are modest and generally comparable to or lower than the costs of other academic programs.

National data regarding the costs of remediation are limited. The most recent analysis of remediation costs suggests that remediation absorbs approximately $1 billion annually in a public higher education budget of $115 billion—less than 1 percent of expenditures. The ratio of remediation expenditures to the total budget varies considerably among states and higher education segments, but is usually modest even in high-profile states like California and Illinois.

Official estimates of the extent and cost of remediation are often understated for a variety of reasons—not the least of which is the "stigmatizing" factor mentioned earlier. Our estimate is that the figure could be twice as high as previously reported, or closer to $2 billion. However, if $2 billion *is* the actual cost of remediation, or 2 percent of total higher education expenditures, that is a relatively modest amount to be spent. Even if remedial education were terminated at every college and university in the country, it is unlikely that the money would be put to better use.

Comparing the unit cost of remediation to the unit cost of other programs illustrates this point. A case study of Arkansas—which has statewide standards that mandate remediation for low performance on standardized tests—suggests that remediation is comparable to or lower than many other academic programs. In 1995-96, the total cost of remediation in Arkansas colleges and universities was approximately 3 percent of the total budget. Comparing the cost per full-time equivalent (FTE) student for remediation with the cost per FTE student for academic programs at both four-year institutions and community colleges reveals that the costs for remediation were generally lower than the costs for core academic programs, such as English, mathematics, and business.

The financial or academic merits of "outsourcing" remediation to private vendors are not readily apparent.

There appears to be growing interest in outsourcing remedial services on the part of some policymakers. However, the concept of outsourcing to the private sector means many

things to many people. Outsourcing can include: contracting out remedial services to off-campus private providers; contracting with private providers to offer remedial services on-campus; using existing faculty to provide remedial courses developed by the vendor; and several other options. This has led to confusion and misunderstanding in the debates about outsourcing.

As a management strategy, outsourcing to the private sector is not inherently good or bad. In fact, many colleges already outsource services such as bookstores, food service, maintenance, and other activities. Some colleges and universities are attracted to the notion of outsourcing to private vendors because they promise to save money and speed up the remedial process. However, determining the cost of using private vendors is complicated and subject to a variety of factors. These factors include who provides the instruction (institutional faculty or faculty supplied by the vendor), requirements for student-faculty ratio, who provides assessment and diagnostic services, the competency level required to pass remedial courses, and the expectations of the institution with regard to the percentage of students who will succeed. No clear evidence exists about whether this kind of outsourcing actually saves resources or improves learning.

Remediation is a good investment for society, and for colleges and universities.

Remedial education at the college level is a more cost-effective investment when compared to the alternatives. The alternatives can range from unemployment and low-wage jobs to welfare participation and incarceration—or any of a number of other options in between that are far more expensive for society. The modest financial costs combined with the high payoff associated with collegiate success make the investment readily apparent.

Good remedial education also can benefit institutions. Students who are admitted to a college and who successfully complete their remediation become regular attendees who pay tuition, participate in the collegiate experience, and contribute to the campus culture. Thus, a successful remediation program can actually help to partially offset the costs of providing remediation.

The social and economic consequences of not providing remedial education are high.

The increasingly knowledge-based economy, particularly in a global marketplace, compels the nation to increase the number of people who have skills for job requirements that were not needed, or even thought of, a couple of decades ago. Eighty percent of sustainable jobs today require some education beyond high school and 65 percent of the workforce need skills that include advanced reading, writing, mathematical, critical thinking, and interpersonal group skills. According to Bureau of Labor Statistics data, the growth rate in jobs between 1994 and 2005 will be greatest for those categories that require at least an associate's degree.

Research indicates that there are both public and private benefits associated with going to college. While much of the recent public policy focus has been on the private benefits, the reality is that the public benefits of going to college are extensive. Since going to college results in greater benefits to the public as a whole—increased tax revenues, greater productivity, reduced crime rates, increased quality of civic life, etc.—then students who benefit from remedial instruction provided by higher education also must be contributing to the public good.

Given these benefits, the nation has little choice with regard to providing remediation in higher education. Abandoning remedial efforts in higher education and

therefore reducing the number of people gaining the skills and knowledge associated with postsecondary education would be unwise public policy.

Strategies for the Future

It is important to recognize that not all remediation is delivered effectively or efficiently. Like any educational process, remediation should be continuously scrutinized and revised to meet prevailing conditions and needs. Therefore, good public policy in this area must focus on two mutually reinforcing goals: (1) implementing multiple strategies that help to reduce the need for remediation in higher education, and (2) improving the effectiveness of remedial education in higher education.

It is clear that a piecemeal approach to addressing the problem of remediation in higher education has not worked. Only a systemic design at the state level comprised of a set of interrelated strategies will succeed.

The importance of collaboration cannot be understated. Paraphrasing the realtor's mantra—location, location, location—reducing the need for remediation in higher education will require collaboration, collaboration, collaboration between and among: colleges and universities and high schools; states and their colleges and universities; and business/philanthropy and all levels of educational institutions. A lack of true, bona fide collaboration will thwart efforts to address the issue of remediation.

Strategies to ***reduce the need for remediation*** in higher education include: (1) aligning high school requirements with college content and competency expectations; (2) early intervention and financial aid programs targeted at students at the K-12 level that link mentoring, tutoring, and academic guidance with a guarantee of college financial aid; (3) student follow-up and high school feedback systems; (4) improved teacher preparation; and (5) K-12 school reform. Many of these strategies have been incorporated into the K-16 educational movement that is underway in many states.

Strategies to ***improve the effectiveness of remediation*** include: (1) creating interinstitutional collaboration among colleges and universities in a state or system, allowing best practices and ideas to be shared and replicated; (2) making remediation a comprehensive program that encompasses more than just tutoring and skills development; and (3) utilizing technology to enhance the teaching-learning process.

Finally, additional research needs to be conducted to address the gaps in knowledge about remedial education. Case studies of several key states would help to determine how the strategies outlined above have been utilized to meet state goals.

Conclusion

The need for remediation and its core function in higher education will not be eliminated by controversy and criticism. Unfortunately, much of the recent discussion of remediation has tended to shed more heat than light on this important issue. Public policy efforts would be more productively focused on determining what works in remedial education, for whom, and at what cost. This would move the nation's higher education institutions closer to the dual goals of reducing the need for remediation while ensuring its continued effectiveness.

Introduction

"It is the whole issue of whether or not our high schools are readying students. The colleges are saying we are spending a large amount of money doing work that we should be doing in high school; and high schools are saying higher education doesn't give us the teachers we need. I listen to that every day. That's clearly the battle we fight"

(Anonymous state senator from a southern state, as quoted in Ruppert, 1996, pp. 14-15).

Offering course work below college-level in higher education institutions has been put under the spotlight by both the general public and policymakers across the country. Variously called "remedial education," "developmental education," "college prep," and "basic skills development," questions have been raised about why many students in postsecondary institutions are taking basic reading, writing, and mathematics—subjects that should have been learned in high school, if not junior high school.[1] Over the past several years, attempts have been made to limit remedial education in states such as Arkansas, California, Louisiana, Oklahoma, Tennessee, and Virginia. More recently, in states like New York and Massachusetts, efforts are underway to reduce the amount of remedial courses offered in postsecondary education. Legislators in Texas and other states are troubled that tax dollars are being used in colleges to teach high school courses, and some states like Florida have shifted virtually all remediation efforts to the community college level. The legislatures in New Jersey, Montana, Florida, and other states have considered proposals that would force public school systems to pay for any remedial work that one of their graduates must take in college.

Remediation has come into sharper focus on a national level because of the high profile case of the City University of New York (CUNY). In June 1998, the trustees of CUNY voted to phase out most remedial education in the system's 11 four-year institutions, beginning in September of 1999. Backed by Mayor Rudolph Giuliani and Governor George Pataki, the new policy requires applicants who fail one or more university assessment tests in mathematics, reading, or writing to successfully complete a free summer program, or to pass remedial courses at a CUNY two-year college or elsewhere. This sweeping change will affect thousands of students and profoundly alter the structure of the CUNY system.

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1 It is important to note that what the general public refers to as remedial education is often defined as "developmental education" by professionals and practitioners in the academic community. It is not the purpose of this report to take sides on terminology. While acknowledging that a distinction can be made between the two terms, we choose to use remedial as a descriptor primarily because it is the more popular nomenclature with policymakers and the public. In general, this report defines remedial education as encompassing those courses and support services in basic academic skills which address the needs of a diverse population of underprepared students.

The issues surrounding remediation raise fundamental questions that go far beyond offering reading, writing, and arithmetic in college. Proponents and opponents alike point to remediation's effect upon the accountability, efficiency, and academic standards of higher education institutions. Questions regarding the roles of, and compatibility between, remediation and a liberal arts curriculum in a college or university have been debated vigorously. The effect of remedial education policies on racial diversity, educational opportunity, and enrollment also is being discussed in many quarters. Perhaps most troubling is that there is little agreement regarding what remediation is, who it serves, and how much it costs. This lack of clarity of language hampers the public policy conversation.

What is remediation? How does it work? What does it cost? Who is responsible for meeting the remedial needs of students? These are important questions that have not received sufficient attention in the contentious political and policy discussions. Unfortunately, too little information is available to provide definitive answers to many of these questions. As a result, conjecture and criticism have filled the void created by this lack of basic information. The most vocal critics of remedial education at the college level have made several arguments that have become presumptions in state and national policy debates. Among these are the observations that remediation is too expensive, that it is an inappropriate function of colleges, and that it amounts to "double billing" from a societal standpoint, since the skills that are being developed should have been learned earlier in the educational process.

This report from The Institute for Higher Education Policy addresses these presumptions by reviewing available data and information about remediation and its function in the higher education curriculum. The goal of the report is to provide policymakers, the public, and higher education leaders with an accessible, straightforward review of what is known—and not known—about college remediation. The report includes:

- An analysis of the functions and purposes of remediation;
- A discussion of the broad range of types of remediation, along with a review of who participates in remedial education and how well it serves them;
- An examination of the financial costs of remediation, including a case study of data from the state of Arkansas that compares remedial with other academic program costs;
- An appraisal of the economic and social consequences of not providing remedial education; and
- A proposed set of strategies designed to reduce the need for remediation in higher education while also enhancing its effectiveness.

Remediation: A Core Function Of Higher Education

The media attention on remedial education over the past several months suggests that efforts to provide compensatory education to underprepared students are recent trends that somehow reflect on the current condition of postsecondary education in America. Although some may argue that the quality of education has diminished over the years, the fact is that remedial education has been part of higher education since the early colonial days. In the 17th century, Harvard College provided tutors in Greek and Latin for those underprepared students who did not want to study for the ministry. The middle of the 18th century saw the establishment of land-grant colleges to teach agricultural and mechanical courses—the disciplines demanded by the growing industrial economy. These institutions established preparatory programs or departments for students weak in reading, writing, and arithmetic. The first remedial education program in reading, writing, and arithmetic was offered in 1849 at the University of Wisconsin (Breneman and Haarlow, 1998; Payne and Lyman, 1998). In 1894, more than 40 percent of college freshmen enrolled in pre-collegiate programs when only 238,000 students enrolled in all of higher education (Ignash, 1997).

As the 20th century dawned, little changed in the policies regarding underprepared students. For instance, over half of the students enrolled in Harvard, Princeton, Yale, and Columbia did not meet entrance requirements and therefore were placed in remedial courses. Later, surges in the need for remedial education were created by the vast influx of World War II veterans taking advantage of the G.I. Bill. Thousands of underprepared students enrolled in colleges and universities from the 1960s to the 1980s in response to open admissions policies and government funding following the passage of the Civil Rights Act of 1964 and the Higher Education Act of 1965 (Payne and Lyman, 1998).

For those seeking to return to a golden age when all students who enrolled in college were adequately prepared, all courses offered at a higher education institution were "college-level," and the transition for students between high school and college was smooth, the search would prove futile. This age has never really existed in the history of American education.

Remedial Education Today

The most comprehensive survey of college remediation in recent years was conducted by the National Center for Education Statistics (NCES). Institutions provided information for the fall of 1995. Remedial courses were defined as "courses in reading, writing, and mathematics for college students lacking those skills necessary to perform college-level work at the level required by the institution" (NCES, 1996, p. 2). Thus, what constituted remedial courses varied from institution to institution. The major findings of the study include the following:

- Three-quarters (78 percent) of higher education institutions that enrolled freshmen in fall 1995 offered at least one remedial reading, writing, or mathematics course. One hundred percent of public two-year institutions and 94 percent of institutions with high

minority enrollments offered remedial courses.[2] Four out of five (81 percent) public four-year institutions provided at least one remedial reading, writing, or mathematics course. Sixty-three percent of private four-year institutions offered at least one remedial writing, reading, or mathematics course.

- Approximately three-quarters of higher education institutions that enrolled freshmen provided remedial writing and mathematics courses while 57 percent offered remedial reading courses. Virtually all public two-year colleges—99 percent—offered remedial courses in each subject area.

- In fall 1995, 29 percent of first-time freshmen enrolled in at least one remedial reading, writing, or mathematics course. Freshmen were more likely to enroll in a remedial mathematics course than in a remedial reading or writing course, irrespective of the institution they attended. At public two-year and high minority enrollment institutions, remediation enrollments were higher and remediation pass rates were lower.

- Overall, students do not take remedial courses for long periods of time: at two-thirds of the institutions the average time a student takes remedial courses was less than one year, 28 percent indicated that the average time was one year, and 5 percent noted that the average time was more than one year. Students at public two-year colleges and high minority enrollment institutions were more likely to take remedial courses for a longer time than at other institutions.

Similar surveys were conducted by NCES for Academic Year (AY) 1983-84 and in the fall of 1989, making it possible to compare how remedial education offerings have changed over the past decade. The patterns are strikingly similar. In 1983-84, 82 percent of the institutions offered remediation in all three areas, compared to 78 percent in fall 1995. Sixty-six percent versus 57 percent offered remedial reading; 73 percent compared to 71 percent provided remedial writing courses; and 71 percent and 72 percent, respectively, offered remedial mathematics. While data for first-time freshmen enrolled in remedial courses were not available for AY 1983-84, comparisons can be made between fall 1989 and fall 1995. Thirty percent of first-time freshmen were enrolled in all three remedial courses in the fall of 1989 compared to 29 percent in fall 1995. Thirteen percent of first-time freshmen were enrolled in remedial reading in both years. Remedial writing courses were taken by 16 percent of the first-time freshman in fall 1989 compared to 17 percent in fall 1995, while 21 percent and 24 percent, respectively, took remedial math (NCES, 1996). Although there was little change regarding the percentage of students enrolling in remedial courses from fall 1989 to fall 1995, undergraduate college and university enrollment increased by approximately half a million students (NCES, 1997).

What About Institutions That Don't Offer Remedial Courses?

Twenty-two percent of the institutions indicated in the NCES survey that they did not offer any remedial education courses. Of that percentage, two-thirds noted that remediation was not needed by their students. Nearly one-quarter of the institutions indicated that their students who needed remediation took courses offered at another institution, and 27 percent responded that institutional policy did not permit the institution to offer remedial courses.

In reality, the percentage of institutions offering remedial courses is probably much higher—as is

2 Institutions with high minority enrollment were defined as those institutions where the total student enrollment, excluding nonresident aliens, is less than 50 percent white, non-Hispanic.

the percentage of students requiring remediation. This observation is based on an understanding of the nature of the higher education enterprise, supported by circumstantial and anecdotal evidence.

Many institutions do not find it in their interest to acknowledge that they enroll students who require remediation. In a recent paper, Alexander Astin posits that "the excellence" of a higher education institution is defined primarily by resources and reputation. One major resource is the enrollment of students who have the highest grade point averages, the highest test scores, and the strongest recommendations. Astin states, "It goes without saying that the underprepared student is a kind of pariah in American higher education, and some of the reasons are obvious: since most of us believe that the excellence of our departments and of our institutions depends on enrolling the very best-prepared students that we can, to admit underprepared students would pose a real threat to our excellence" (Astin, 1998, p.11).

The Institute has regularly encountered examples in its work in higher education that support Astin's argument. For example, mathematics professors at a growing four-year public university were reluctant to consider purchasing highly effective computer software for remedial mathematics courses because to do so would be an admission that their students actually need remediation. An urban doctoral university refuses to report remedial student enrollments to a state agency for similar reasons. A small, selective, private, four-year liberal arts college admits students that are clearly underprepared if they do not need financial aid so that enrollment goals can be met. These and other examples well known to higher education leaders typify this dilemma.

Laurence Steinberg, professor of psychology at Temple University, cites the National Assessment of Educational Progress and the Third International Math and Science Study to suggest that many high school students are unprepared for college-level work in some way (cited in Breneman and Haarlow, 1998). Even in high performing states, only one-third of American high school students meet or exceed levels of grade-appropriate proficiency in mathematics, science, reading, and writing. Overall, the nation's 12th graders' performance on standardized math and science tests ranks them among the lowest performing industrialized countries in the world. Professor Steinberg states, "Even if we assume that *none* of these sub-proficient students graduating from American high schools goes on to postsecondary education (surely an untenable assumption), the fact that close to 60 percent of U.S. high school graduates do attend college means that an awful lot of college-bound young people cannot do, and do not know, the things that educators agree that high school graduates ought to know and be able to do" (Breneman and Haarlow, 1998, p. 46).

The purpose of this analysis is not to point fingers either at the nation's K-12 system or its higher education institutions. Instead, it is merely to suggest that there is reason to believe that there are more remedial activities occurring at the college level than are reported. Thus, it is likely that *at least* 78 percent of higher education institutions enroll underprepared students.

"Quality" in Higher Education

The notion of "quality" in higher education is related to the debates about remediation. Earlier generations of students can remember when, during freshman orientation, a college official would ask the new students in the auditorium to look to their left and look to their right. The official would then suggest that one of those students would not be at the institution the next year—the implication being that the student would flunk out. There was

another implication, however. Often, the fact that a number of students could not make the grade was a testimony to the "quality" of the institution. Since some students could not pass the courses proved that the institution was ostensibly academically rigorous.

Times have changed. Today, one of the most accepted measures of quality is a high percentage of students who graduate—particularly those who graduate on time. Colleges and universities with low persistence and graduation rates frequently are prodded to do better. The underlying assumption is that if a college or university admits a student, the institution has an obligation to help that student succeed. Matriculation implies that the institution has confidence that the student has the necessary skills and knowledge to experience academic success. It would be morally reprehensible for an institution to admit a student knowing that he or she would have little or no chance of passing the courses without informing the student. Thus, whether it is a community college, a state flagship university, or a private liberal arts college, the institution must have policies and procedures in place to help those students who are experiencing academic difficulty.

Remediation's Continuing Core Purposes

The need to help underprepared students—what we now call remedial education—has been embedded in the very fabric of the nation's higher education system for well over three centuries. It has not been caused by current admissions standards, the availability of federal financial aid, or any of a number of other concerns that have been raised in the current policy discussions (GAO, 1997). As with other activities within the academic enterprise, remedial education is a core function of higher education, whether or not it is recognized as such. As higher education continues to educate an ever-growing proportion of the population, there is every reason to conclude that remediation will continue to be a core function of colleges and universities.

According to NCES, the number of high school graduates is beginning a steady climb toward record highs. By 2007, the number of high school graduates is projected to equal the record levels achieved in the late 1970s (NCES, 1993, 1998). A higher percentage of these graduates are planning to pursue postsecondary education programs: in 1982, 58 percent of high school graduates planned to attend college within 12 months, compared to 77 percent in 1992 (Ghazi and Irani, 1997). Data on the college-going rates of recent high school graduates indicate that students are following through on these plans: while 49 percent of high school graduates in 1980 enrolled in college by the following October, 67 percent were enrolled by 1997 (The Institute for Higher Education Policy, 1998b; The Institute for Higher Education Policy and The Resources Institute, 1998).

Remediation has been a substantial part of American higher education, even when the economic and social elite were the primary participants. Educational trends, demographics, and common sense all indicate that it will continue to be a core function of higher education for the foreseeable future.

The Many Faces of Remediation

Discussions of remedial education often evoke the image of courses in reading, writing, and mathematics whose content is below "college-level." This suggests that standards exist to define what college-level means, and that the academic community has identified specific knowledge and skills that are required to be successful in a college or university. If a student does not possess that knowledge and skills, he or she would be in need of remedial education.

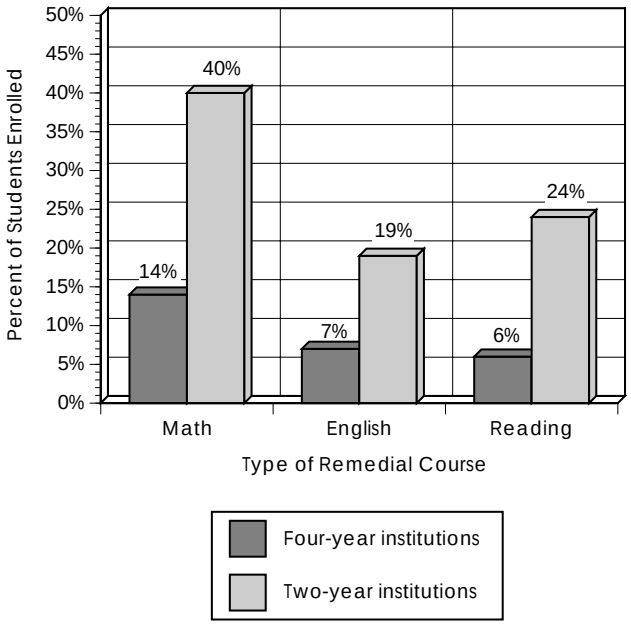
In fact, remedial education is very much in the eye of the beholder. Indeed, for some, remediation has come to include everything that is dysfunctional about the relationship between high schools and colleges. Rather than being based on some immutable set of standards, remedial education needs are often determined by the admissions requirements of a particular institution. Remediation at a community college with open admissions is not the same as remediation at a doctoral research institution. In institutions that do not have open door admissions policies, students who take remediation have already met the institution's regular admissions requirements. These students are not exceptions or special cases to the institution's standards of college-level study. As Astin points out: "Most remedial students turn out to be simply those who have the lowest scores on some sort of normative measurement—standardized tests, school grades, and the like. But where we draw the line is completely arbitrary: lowest quarter, lowest fifth, lowest 5 percent, or what? Nobody knows. Second, the 'norms' that define a 'low' score are highly variable from one setting to another" (Astin, 1998, p. 13). A case in point is the 21-campus California State University (CSU) System. Although state policy in California mandates that students entering CSU are supposed to be in the top third of their high school graduating class, 47 percent of the fall of 1997 freshman class needed remedial work in English and 54 percent needed remedial work in mathematics (National Center for Public Policy and Higher Education, 1998).

There is ample evidence that the standards for remediation are not the same within a set of institutions with similar missions. In a recent study of remediation by the Maryland Higher Education Commission, a significant finding was that the policies, instruments, and standards used by Maryland colleges and universities to identify remedial students and place them in appropriate courses vary widely, even within the community college sector (Maryland Higher Education Commission, 1996). Institutions employ different approaches for the separate subject areas of remediation, including locally developed norms, nationally developed norms, grade-level equivalences, and specific deficiencies and/or competencies. Maryland mirrors practices across the nation. According to a study conducted by the Southern Regional Education Board (SREB), nearly 125 combinations of 75 different tests (including the SAT and ACT) in the areas of reading, writing, and math are currently used to place students in remedial courses (Kirst).

Another Maryland study illuminates the relationship between high school preparation and the need for remediation in college. Conventional wisdom suggests that students who complete college preparatory courses in high school will not need remedial education, and students who have not taken a college preparatory curriculum in high school will

need remediation. The Student Outcome and Achievement Report (SOAR), produced by the Maryland Higher Education Commission (1998), is designed to measure the college success of recent high school graduates. The findings of this report indicate that students who completed college-preparatory courses in high school performed better in college than students who did not complete college-preparatory courses in high school. College-preparatory students earned higher grades in their initial math and English courses and had higher grade point averages after their first year than students who did not complete the state-mandated college-preparatory curriculum. Also, fewer college-preparatory students required assistance in math, English, and reading.

Figure One: Percentage of Maryland College Prep Students Requiring Remediation at Public Institutions, 1996-97



Source: Maryland Higher Education Commission, 1998

A further examination of these data reveals that a significant proportion of students who took college-preparatory courses in high school still needed remediation in college (see Figure One). For students who completed college-preparatory courses in high school and immediately attended a community college, 40 percent needed math remediation, one in five required English remediation, and one out of four needed remedial reading. At one community college, 73 percent of college-preparatory students needed math remediation, 79 percent needed English remediation, and 76 percent required reading remediation. At public four-year institutions, 14 percent of college-preparatory students needed math remediation, 7 percent needed English remediation, and 6 percent needed reading remediation.

One interesting question that emerges from these data is: how can the percentages of *college-preparatory* students requiring remediation at the community colleges be so much higher than the percentage of *college-preparatory* students at the public four-year institutions? If all students completed a state-mandated college-preparatory curriculum in high school, it would be reasonable to assume that the percentages would be much closer for the two sectors. Even those who contend that community colleges are less academically rigorous than four-year institutions would probably expect substantially different percentages. Since all of the students have participated in a college-preparatory curriculum, those enrolling in the community colleges would be better prepared for the "easier" curriculum compared to those enrolling in the four-year institution with the more academically rigorous curriculum.

There can be many explanations for this counterintuitive finding. It is possible that *college-*

preparatory students admitted by the four-year institutions are academically superior to the *college-preparatory* students admitted by the community colleges, and therefore need less remediation. Perhaps college preparatory students from high schools that are not academically rigorous—in spite of the college-preparatory label—choose to attend a community college because they are worried about their preparation. Another explanation could be that, because of the open door mission of community colleges, these institutions may have more structured procedures than the four-year sector for identifying students needing remedial work. Regardless of the explanation, this example helps to affirm the essential point made by Astin and others: remedial education in colleges and universities is relative and arbitrary when it comes to both course content and student abilities.

Remediation Is Not Just for Recent High School Graduates

This report's examination of remedial education thus far has emphasized compensatory programs for recent high school graduates, but that only represents part of the picture. A substantial number of adult students are enrolled in remedial courses. The exact proportion or number of older students requiring remediation, however, is somewhat more difficult to define.

One important source of national data is provided by the National Center for Developmental Education (NCDE), which shows that approximately 80 percent of remedial students were age 21 or younger (Breneman and Haarlow, 1998). These data conflict with other evidence that suggests a much higher proportion of older students are taking remediation, and that the population requiring remediation is bipolar in terms of age and time elapsed between secondary and postsecondary experiences. According to NCES, among entering freshmen who took a remedial class in 1992-93, 31 percent were 19 years old or younger, while 46 percent were over 22 years of age, the traditional age of baccalaureate degree completion. Over one-quarter (27 percent) of entering freshmen in remedial courses were 30 years of age or older (Ignash, 1997).

Data from individual states support the NCES numbers. For instance, Maryland found that more than three-fourths of remedial students in community colleges in 1994-95 were 20 years of age or older (Florestano, 1997). Similarly, in Florida, 80 percent of the students in remedial classes were not recent high school graduates but older students who need to brush up on their skills—usually mathematics—before entering the higher education mainstream (National Center for Public Policy and Higher Education, 1998).

It is also important to note that freshmen are not the only students who take remediation. According to NCES data, while 56 percent of students enrolled in remedial courses were freshmen, 24 percent of remedial course-takers were sophomores, 9 percent were juniors, and 9 percent were seniors (Ignash, 1997).

The dialogue about remediation in higher education must address both first-time freshmen who recently graduated from high school and students of all ages and levels of undergraduate progress. In fact, it appears that in the future, even more older students will attend colleges and universities and require remedial education. According to a recent report, between 1970 and 1993, participation in higher education by students ages 40 and older increased from nearly 6 percent of total enrollment in higher education to over 11 percent—the largest jump of any age cohort (The Institute for Higher Education Policy and The Education Resources Institute, 1996). Policies addressing remediation must recognize that de

mand is being fueled in part by older students who need refresher courses in mathematics or writing. Thus, even if remediation were substantially reduced for traditional-age students, large numbers of older students would still require remedial support.

What are the Components of Remediation?

What makes up a remedial program at a college or university? Although there are variations among institutions, the basic philosophy of remedial education is learner-centered, with fundamental components that include: (1) assessment and placement; (2) curriculum design and delivery; (3) support services; and (4) evaluation. The following is a brief description of each of these components. Although hardly definitive, they are presented here to provide a flavor of what constitutes remediation.[3]

Assessment and Placement

Using valid and reliable instruments, a mandatory comprehensive assessment of reading, writing, and mathematics is required of incoming students. This process also can include assessments of learning styles, study skills, and career interests. Assessment and placement policies are disseminated through a variety of media to assure that students clearly understand the purposes, content, scoring procedures, and placement implications of the assessment programs. Specific courses and skills are identified to help match student preparation with course expectations.

Curriculum Design and Delivery

The goals and objectives of the remedial program must be clearly defined and understood by all students. The curriculum enables students to work both independently and in groups. To ensure that differing learning styles and student needs are addressed, a flexible delivery of the curriculum must be available. Specific learning outcomes are spelled out to evaluate student achievement of course objectives and to assure that there is a smooth transition into college-level courses.

Support Services

Underprepared students require individualized help; often "intrusive" advising is used, which identifies and solves problems early on. Tutorial labs and supplemental instruction are provided, including the use of peer and professional tutors, collaborative learning, and learning communities. Career counseling and academic advising also is furnished to guide students to more informed and independent choices with regard to their education and occupational choice.

Evaluation

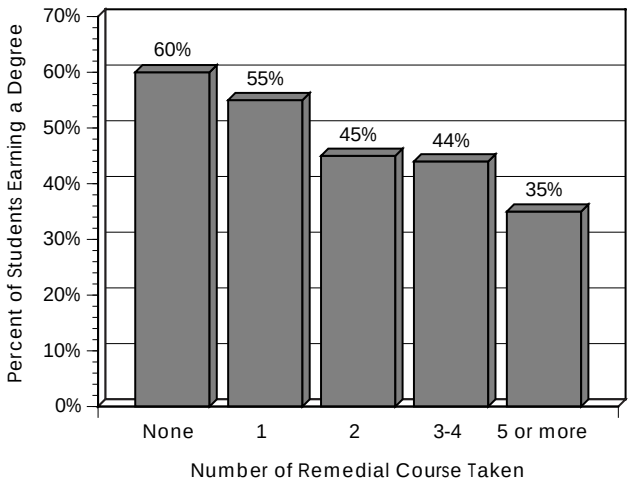
To assess the effectiveness of a remedial education program, the following questions must be addressed: (1) Do students successfully complete remedial education courses? (2) Do students move from remedial education to college-level courses? (3) Are students who took remedial education courses eventually completing college-level courses? (4) Are remedial education students persisting and reaching their academic goals? The extent to which a college or university employs systematic efforts to answer these questions determines the quality of its evaluation process.

How Successful is Remediation?

Research regarding the effectiveness of remedial education programs has been sporadic, typically underfunded, and often inconclusive. Although there are a variety of institutions that address the evaluation questions outlined above, the fact remains that there is a dearth of information regarding how well remedial education students perform. For instance, a study of 116 two- and four-year colleges and universities found "that only a small percentage conducted any systematic evaluation of their remedial education programs" (Weissman,

3 This framework is taken from a recent study that The Institute participated in with the Massachusetts community college system (MCCDEC, 1998).

Figure Two: Degree Completion of 1982 High School Graduates by Number of Remedial Courses Taken



Note: Students acheived either an associate's or bachelor's degree by age 30.
Source: Adelman, 1998

Bulakowski, and Jumisko, 1997 p. 74). The Southern Regional Education Board has raised the issue about the effectiveness of remedial programs by observing that few states have exit standards for remedial courses. It is unclear if many states know whether their programs work (Crowe, 1998).

Clifford Adelman, senior analyst at the U.S. Department of Education, offers insight into the success of remedial education programs by examining college transcripts from the national high school class of 1982 (Adelman, 1998). Adelman's study shows an inverse relationship between the extent of a student's need for remedial courses and his or her eventual completion of a degree. Of the high school graduates from 1982 who earned more than 10 credits at a two- or four-year college, 60 percent of those who took no remedial courses, and 55 percent of those who took only one remedial course had either earned a bachelor's or associate's degree by age 30 (see Figure Two). In contrast, 35 percent of the students who participated in five or more remedial courses attained either a bachelor's or associate's degree.

While it is clear that the need to take remedial education courses reduces the probability of achieving a degree, it is instructive to look at the ratio of students who did not need remediation and those that did. Students who did not take remedial education courses had a graduation rate of 60 percent. But even the least academically prepared students—those that took five or more remedial education courses—had a 35 percent graduation rate. This means that remediation allowed the weakest students to perform almost three-fifths as well as the students who did not need any remediation. Further, remediation allowed students who needed two remedial courses to do almost three-quarters as well as the strongest students. These data seem to indicate that remediation is, in fact, quite effective at improving the chances of collegiate success for underprepared students.

Focusing upon specific types of remediation also is revealing. For example, of those students who were required to take remedial reading, 66 percent were in three or more other remedial courses, and only 12 percent of this group earned bachelor's degrees. Among those students who were required to take more than one course in remedial reading, nearly 80 percent were in two or more other remedial courses, and less than 9 percent had earned bachelor's degree. It appears that when reading is at the core of the problem, the probability of success in college is lower (Adelman, 1998). This has implications that should be addressed in efforts to reform remedial education.

What Are the Financial Costs of Remediation?

One consistent fact recurs in discussions of remediation: there is little hard evidence of the costs of remediation nationwide. Part of the problem is the inconsistency and inadequacy of the information available. Nevertheless, efforts have been made to estimate costs. The most recent analysis of remediation costs suggests that remediation absorbs approximately $1 billion annually in a public higher education budget of $115 billion—less than 1 percent of expenditures (Breneman and Haarlow, 1998). This estimate was derived by conducting a survey of all 50 states, along with individual site visits to five states. This figure includes the costs associated with remediation for both traditional age freshmen and returning adult students.

The ratio of remediation expenditures to the total budget varies considerably among states and between higher education segments. In Illinois, 1 percent of the university direct faculty salary budget was dedicated to remediation in FY1996, while nearly 7 percent of the direct faculty salary budget of the community colleges was used for remediation. In FY1995, the percentage of expenditures for remediation in Maryland was 1 percent of the total expenditures for the public campuses. In Washington, 7 percent of total expenditures was dedicated to remedial education in 1995-96. Even in high profile states like California, the amount spent on remedial education is a small fraction of the total expenditures for higher education. The California State University (CSU) System estimates that remedial education is less than one percent of the total system budget (Breneman and Haarlow, 1998).

It is important to note what the total national cost estimate of $1 billion does not include. First, the costs of remediation incurred by private colleges and universities are not calculated. Second, those costs borne by students through foregone earnings—income they would have earned had they not enrolled in college—and diminished labor productivity are missing. Third, there was no effort to include the costs to society as a whole through a failure to develop fully the nation's human capital. These limitations notwithstanding, the Breneman and Haarlow paper provides an excellent picture of the costs of remediation and compiles the most comprehensive information to date.

There are several impediments to collecting reliable data about the costs of remediation. These include:

- A definition of what constitutes remedial education is not universally accepted by the academic community. For instance, should English as a Second Language (ESL) courses be included as remediation? What portion, if any, of advising, support services, and testing is part of remedial education activities? Is career counseling considered remedial? Are those remedial activities that are incorporated into regular college-level courses identified as remedial education?
- There is no consensus definition of who is a remedial student within higher education. Standards for requiring students to take remedial courses vary from institution to institution, and from state to state.

- How "costs" are distributed among the several activities within a college or university can, and do, vary widely. Reported figures usually do not separate remedial costs associated with traditional college-age freshmen and returning adult students—an important distinction with regard to public policy. Costs can include—or exclude—activities such as routine maintenance and administration, which would take place regardless of whether remedial education was conducted. Some figures include only direct faculty salary costs of remedial courses, while others calculate the cost per FTE student.
- Even if it is understood what functions are to be included in determining the cost of remediation, higher education institutions have difficulty supplying precise breakdowns of remediation costs. For instance, it is sometimes difficult to determine the apportionment of salary for faculty who teach remedial and nonremedial courses, the weight of fringe benefits for full-time remedial staff, the percentage of remedial activities within the standard operating budget, and the extent to which college-wide skill labs and learning centers serve remedial students. Furthermore, remediation often is distributed among various departmental budgets and costs are not readily available.
- It is not always clear whether reported cost figures include expenditures or appropriations. As Breneman and Haarlow point out: "When total expenditure data are reported regardless of revenue source, then the state share is being overestimated to the extent of the tuition charged to students in remedial courses; when appropriations data are cited, then the out-of-pocket costs of students and families are not being counted. These are two different measures of cost, and ideally, one would want all the figures on both bases, but what one gets is a mix of the two" (1998, pp. 12-13).
- Timeliness of data is often significant, as states do not compute remediation education costs on a regular basis. Available financial data can be several years old.

Perhaps the most intractable barrier to collecting valid and reliable data on remediation is the one noted by commentators like Astin and Steinberg: official estimates of the extent and cost of remediation are often understated for a variety of reasons, not the least of which is the stigmatizing factor described earlier. Unfortunately, there are many incentives for agencies and institutions to underreport remediation. Thus, we have to conclude that the costs of remediation are higher than reported. Our estimate is that the figure could be twice as high as previously reported, or closer to $2 billion. However, if $2 billion *is* the actual cost of remediation, or 2 percent of higher education expenditures, that is a relatively modest amount to be spent on an activity of such importance to the nation. Even if remedial education were terminated at every college and university in the country, it is unlikely that the money would be put to better use.

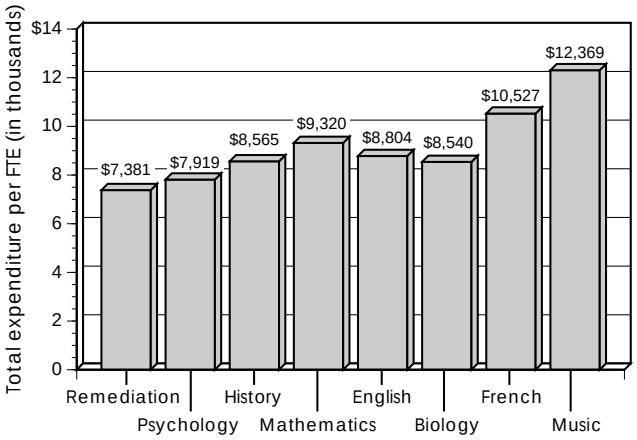
Case Study: Arkansas

The Arkansas Department of Higher Education has conducted a comprehensive study for the past three years that compares direct and indirect instructional costs of academic programs for the state's public colleges and universities. Arkansas is an excellent case study because it has statewide standards that mandate remediation for low performance on standardized tests. This allows for broad tracking of costs for students and institutions at all levels.

Arkansas collects both expenditure data by academic department and degree program, and com

putes the state appropriation subsidy. Because of the comprehensiveness of the data and rigorous methodology, remediation costs can be examined from several different perspectives. In addition to determining the percentage of remedial costs relative to the total budget, comparisons can be made regarding the costs per FTE student for remediation relative to costs per FTE student for selected academic programs. Moreover, because the figures include both total expenditures and state appropriations, two basic research questions can be asked: (1) What is the total cost of providing remediation, irrespective of revenue source? and (2) What is the state subsidy for remediation?

Figure Three: Comparing Costs per FTE Student at Arkansas Four-Year Institutions, 1996-97



Note: Programs are bachelor's degrees only. Education programs were excluded for English and Music.
Source: Arkansas Department of Higher Education, 1998.

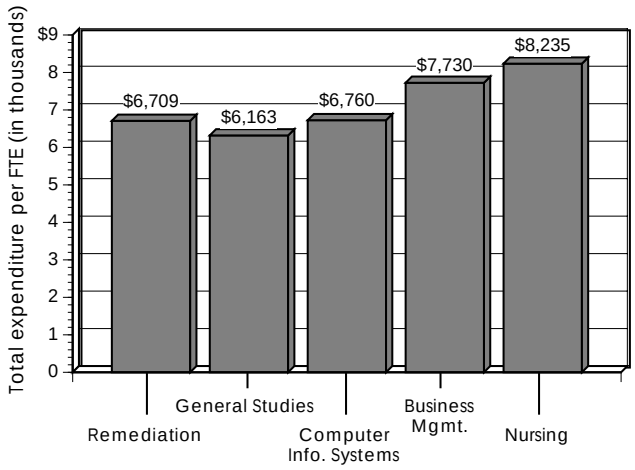
One important caveat should be noted. Since the data include both direct and indirect costs, a portion of the costs would be present whether or not any remedial instruction was offered—such as registration, plant maintenance, library, etc. Thus, these data should not be used for determining the absolute savings that would result from eliminating remediation. That question is better answered by focusing on direct costs only.

In 1996-97, the total cost of remediation in Arkansas colleges and universities was $27 million, approximately 3 percent of total expenditures, excluding the medical teaching hospital. At community colleges, 9 percent of the total expenditures were for remedial education, compared to 2 percent at four-year institutions. The total state subsidy for remedial education was nearly $14 million. The state subsidy for remedial education at community colleges was 59 percent of the total expenditures, compared to 40 percent at four-year institutions. These data show that, although remediation is provided at both four-year and two-year institutions, community colleges commit substantially more resources toward remedial education. This is not surprising given the mission of community colleges, particularly their open admissions policies.

Comparing the cost per FTE student for remediation with the cost for academic programs at both the four-year institutions and the community colleges is revealing. The Arkansas study shows that the cost per FTE student for remediation at the four-year institutions was $7,381. As illustrated in Figure Three, the average cost per FTE student at the four-year institutions ranged from $7,919 for psychology, to $9,320 for mathematics, to $12,369 in music. As shown in Figure Four, the cost per FTE student for remediation at the community colleges was $6,709. The average cost per FTE student at the community colleges ranged from $6,163 for general studies, to $7,730 for business, to $8,235 in nursing.

From these data, a basic conclusion can be drawn that remediation costs per FTE student are gener-

Figure Four: Comparing Costs per FTE Student at Arkansas Four-Year Institutions, 1996-7



Note: These are Associate's degree programs.
Source: Arkansas Department of Higher Education, 1998.

ally lower than the costs per FTE student for core academic programs—English, mathematics, business, etc.—that lead to an associate or bachelor's degree. There are several important reasons for this difference in cost. First, class size and faculty compensation are the two primary determinants of cost per FTE student. For instance, a class with few students taught by a full professor will be much more expensive than a class with many students taught by an adjunct professor. Second, the faculty teaching load can make a dramatic difference in cost per FTE student. The direct instructional cost for one course for a faculty member whose compensation for teaching is $40,000 and who teaches eight courses a year is $5,000. If a faculty member with the same compensation teaches only four courses a year, the direct instructional cost is $10,000. Finally, equipment costs can play an important role in determining cost per FTE student. Therefore, higher education institutions can exercise considerable discretion in controlling costs per FTE student.

Knowing the cost per FTE student for remediation *vis-a-vis* the cost per FTE student for academic programs provides another perspective in the remediation debate. One issue that most institutions grapple with is resource reallocation: how can the institution use limited resources to the greatest benefit? With respect to remediation, what is the cost/benefit of providing remediation? Many institutions are targeting for elimination what is called "low-demand programs"—programs with few graduates. How do the costs of low-demand programs compare to remedial education costs, and can resources be better utilized elsewhere? How is the cost per FTE student in academic programs affected by remedial students who are successful and participate in college-level courses? These and other questions can frame the public policy debate regarding the cost of remediation.

Does Outsourcing Save Resources?

There appears to be a growing interest in contracting out remedial services to the private sector on the part of some policymakers. The concept of outsourcing to the private sector means many things to many people. Outsourcing can include: contracting out remedial services to off-campus private providers; contracting with private providers to offer remedial services on-campus; using existing faculty to provide remedial courses developed by the vendor; and several other options. This has led to confusion and misunderstanding in the debates about outsourcing.

Although outsourcing remediation is a fairly recent phenomenon, Kaplan Educational Centers and Sylvan Learning Systems have emerged as major providers and are working with some colleges to offer remedial courses to their students. Their appeal to colleges and universities is that they promise to save institutions money and speed up the

remedial process. According to the *Chronicle of Higher Education*, dozens of colleges in Connecticut, Ohio, South Carolina, and other states are considering hiring Kaplan or Sylvan (Gose, 1997).

As a management strategy, outsourcing to the private sector is not inherently good or bad. In fact, many colleges and universities already outsource services such as bookstores, residence halls, food service, maintenance, and, in some cases, admissions. Some have argued that the hiring of adjunct faculty is a form of outsourcing. The decision to outsource is presumably based on both efficiency and effectiveness. Can the institution provide the same quality service at a lower price or provide better quality for the same price? Or, is the institution willing to pay more for a dramatic increase in quality, e.g., a large increase in the percentage of remedial students persisting in college?

In 1997, the Maryland Higher Education Commission conducted a study on the effectiveness of "privatizing" remedial services by examining a three-semester partnership between Howard Community College and Sylvan Learning Systems to provide math remediation (Maryland Higher Education Commission, 1997). The following are the major conclusions of the study:

- Although the students in Sylvan's math remediation were pleased with the instruction they received, there was no conclusive evidence that the students in the smaller, more personalized Sylvan sections performed better or were more successful in future college work than those who enrolled in a traditional remedial class.
- "Joint ventures between higher education institutions and private companies to offer remedial services will be successful to the extent that strong, collaborative relationships are established between the parties. Each must view the other as partners, not competitors"(p. 9).
- "Private companies considering the higher education market in remediation should examine carefully Sylvan's experience, particularly as it relates to the short-term profitability of a venture." Companies interested in offering remedial education services should not expect to earn a quick profit from their enterprises. "They need to have a long-term perspective which envisions earning a respectable amount on their investment if their product proves attractive to students" (p. 9).

Howard Community College's own study on "privatizing" math remedial education concluded:

> *More research needs to be conducted to determine the efficacy of this privatized alternative for delivering developmental mathematics courses. ...preliminary results indicate that the Sylvan model produces results that are at least equal to the very high success rates that Howard Community College instructional methods are able to produce. The question of financial feasibility needs further study after the results of the new Sylvan/HCC model of instructional delivery are analyzed (Copenhaver, Irvin, and Novak, 1996, p. 8).*

The efficacy of farming out remedial services to outside sources is still undetermined. However, the expertise and experience some private vendors bring to the remediation effort is extensive. Sylvan Learning Systems, for instance, offers years of experience in supplementary reading and math instruction in urban K-16 education. Although it is too early to produce outcomes from longitudinal data, Sylvan points to recent positive results at Bowie State University, Towson University, Columbia College-Chicago, and ITT/Educational Services. The fact that Sylvan adapts one or more instructional methods to meet the needs of the individual learners and the

specifications of each institution is a significant component of their success. The experiences of these outsourcing arrangements will bear watching.

Determining the cost of a private vendor to provide remedial education services is complicated and subject to a variety of factors. These factors include who provides the instruction (institutional faculty or faculty supplied by the vendor), requirements for student-faculty ratio, who provides assessment and diagnostic services, the level of competency of incoming students and the level of competency required to pass remedial courses, and the expectations of the institution with regard to the percentage of students who will succeed. Indeed, it is possible that an institution would be willing to pay more out-of-pocket expenses in exchange for an expected higher percentage of remedial students continuing their college work.

Investment in Remediation Is Good for Society, and for Colleges and Universities

Remedial education at the college level is a more cost-effective investment when compared to the alternatives. The alternatives can range from unemployment and low-wage jobs to welfare participation and incarceration—or any of a number of other options in between that are far more expensive for society. The modest financial costs combined with the high payoff associated with collegiate success make the value of this investment readily apparent.

In addition to examining the financial costs of providing remedial education in higher education, it is also helpful to look at the financial benefits of a successful remedial education program for a specific institution. Students who are admitted to a college who successfully complete their remediation become regular attendees who pay tuition, participate in the collegiate experience, and contribute to the campus culture. Thus, a successful remediation program can actually help to partially offset the costs of providing remediation. The following scenario demonstrates this point:

> *A college with annual tuition of $2,000 enrolls a freshman class of 1,000 students, 70 percent of whom continue to the sophomore level. If a successful remediation program enables an additional 5 percent of the freshmen to achieve the sophomore level—or 50 more students—all other things being equal, the college will realize additional revenues of $100,000. Presuming that those 50 students continue on to bachelor's degrees two years later, the college gains an additional $300,000.*

We realize that more sophisticated financial analysis would include marginal costs and other expenditures. However, this simple example makes it apparent that focusing only on the cost of remediation paints an incomplete picture. The public policy debate must address both sides of the ledger.

The Social and Economic Consequences of Not Providing Remedial Education

While there is little evidence to suggest that remedial education will not continue to be an integral part of the nation's higher education enterprise, a fair question to ask is: what do we get for the $1 to $2 billion in remedial education expenditures? To answer this question, the costs and benefits associated with providing access to underprepared students and helping them succeed in higher education must be measured. There is considerable evidence that the nation cannot afford to disenfranchise even a small portion of the population who have the potential of succeeding in college from at least participating in some form of postsecondary education. The increasingly knowledge-based economy, particularly in a global marketplace, compels the nation to increase the number of people who have skills for job requirements that were not needed, or even thought of, a couple of decades ago (McCabe and Day, 1998).

David Ponitz points out that 80 percent of sustainable jobs today require some education beyond high school. Currently, 65 percent of the workforce need the skills of a generalist/technician, including advanced reading, writing, mathematical, critical thinking, and interpersonal group skills. Twenty years ago, that figure was only 15 percent (Breneman and Haarlow, 1998).

According to a Lehman Brothers report (citing Bureau of Labor Statistics data), the growth rate in jobs between 1994 and 2005 will be greatest for those categories that require at least an associate's degree. Jobs requiring a master's degree will grow the fastest (at a rate of 28 percent), followed closely by those requiring a bachelor's degree (at 27 percent), and an associate's degree (at 24 percent). "[A]ll jobs requiring postsecondary education and training of an associate's degree or better are projected to grow significantly higher than the average, and all those with lesser levels of training are expected to grow below the average. In our opinion, this is a clear indication that the transformation to a knowledge-based economy will require a more highly skilled, more adept, and more knowledgeable work force" (Ghazi and Irani, 1997 p. 71).

In March 1998, The Institute produced a report that summarizes the public and private benefits of going to college (The Institute for Higher Education Policy, 1998a). The report describes four types of benefits derived from going to college:

- private economic benefits;
- private social benefits;
- public economic benefits; and
- public social benefits.

While much of the recent public policy focus has been on the private benefits, the reality is that public benefits of going to college are extensive. Since going to college results in greater benefits to the public as a whole—increased tax revenues, greater productivity, reduced crime rates, increased quality of civic life, etc.—then students who benefit from the remedial instruction provided by higher education also must be contributing to the public good.

The evidence is clear that, given these benefits, there is little choice with regard to providing remediation in higher education. Abandoning re-

PUBLIC BENEFITS OF GOING TO COLLEGE

Public Economic Benefits

- ***Increased tax revenues.*** Individuals with higher levels of education generally contribute more to the tax base as a result of their higher earnings.
- ***Greater productivity.*** Though U.S. productivity has increased only modestly in the last two decades, nearly all of that growth has been attributed to the overall increased education level of the workforce.
- ***Increased consumption.*** The overall growth in consumption in the last four decades is associated with the increasing education levels of society, even after controlling for income.
- ***Decreased reliance on government financial support.*** Those who have attended college participate in government assistance programs at substantially lower rates than high school graduates or those who have not graduated from high school.
- ***Increased workforce flexibility.*** Higher education contributes to the increased workforce flexibility by educating individuals in generalizable skills—critical thinking, writing, interpersonal communication—that are essential to the nation's ability to maintain its competitive edge.

Public Social Benefits

- ***Reduced crime rates.*** Incarceration rates in state prisons in 1993 indicate there were 1,829 prisoners with one to three years of high school per 100,000 population, compared to 290 per 100,000 for those who graduated from high school, and 122 per 100,000 for those with at least some college.
- ***Increased charitable giving/community service.*** A 1991 study found that 66 percent of those with some college, and 77 percent of those with at least a bachelor's degree, perform volunteer work. This compared to 45 percent of high school graduates, and 22 percent of those with less than a high school degree.
- ***Increased quality of civic life.*** Seventy-nine percent of persons age 25 to 44 with a bachelor's degree or more voted in the 1992 Presidential election, compared to 67 percent of those with some college, 50 percent of high school graduates, and 27 percent of those with less than a high school degree.
- ***Social cohesion/appreciation of diversity.*** Individuals with a college education have "a massive effect on social connectedness" and appreciation for a diverse society. Those with more than a high school education have significantly more trust in social institutions and participate in civic and community groups at much higher rates than others.
- ***Improved ability to adapt to and use technology.*** College-educated individuals contribute more to the research and development of products and services that enhance the quality of others' lives, and promote the diffusion of technology to benefit others.

Source: The Institute for Higher Education Policy, 1998a.

medial efforts in higher education and therefore reducing the number of people gaining the skills and knowledge associated with postsecondary education would be unwise public policy. It is appropriate to confront the causes of underpreparation and try to reduce the necessity for remediation as much as possible. Indeed, policies should be explored to improve the effectiveness of remediation programs, and cost efficiencies should be implemented wherever needed. These issues will be addressed later in this report. But it seems quite apparent that society needs more, not less, educated people and should do all that is possible to make this a reality.

Reducing The Need For Remediation While Enhancing Its Effectiveness

The evidence is compelling that remediation in colleges and universities is not an appendage that has little connection to the mission of institutions, but represents a core function that has been a silent but persistent part of higher education for hundreds of years. Although the financial data are not as comprehensive as some would like, there is good reason to assume that the cost, in proportion to the total higher education budget, is minimal. Furthermore, the case has been made that attempts to eliminate remediation completely from higher education are both unrealistic and unwise public policy. Knowing this, where do we go from here?

It is important to recognize that not all remediation is delivered effectively or efficiently. Like any educational process, remediation should be continuously scrutinized and revised to meet prevailing conditions and needs. Therefore, good public policy in this area must focus upon two mutually reinforcing goals: (1) implementing multiple strategies that help to reduce the need for remediation in higher education, and (2) improving the effectiveness of remedial education in higher education. It is clear that a piecemeal approach to addressing the problem of remediation in higher education has not worked. Intermittent schemes to "correct" remedial education are stop-gap solutions at best. Only a systemic design at the state level comprised of a set of interrelated strategies will succeed.

The discussion below presents a set of strategies that states can use to achieve the public policy goals outlined here. We emphasize that there is a positive relationship between the number of implemented strategies and the probability of meeting the public policy goals. Implementing one or two of the strategies may be helpful, but fundamentally addressing the issue requires using the entire arsenal of weapons.

Collaboration, Collaboration, Collaboration

The importance of collaboration cannot be understated. Paraphrasing the realtor's mantra—location, location, location—reducing the need for remediation in higher education will require collaboration, collaboration, collaboration between and among: colleges and universities and high schools; states and their colleges and universities; and business/philanthropy and all levels of educational institutions. We have no illusions that the various players in the educational enterprise will voluntarily welcome cooperation and abandon turf. But a lack of true, bona fide collaboration will thwart efforts to address the issue of remediation.

Reducing the Need for Remediation in Higher Education

Strategies to reduce the need for college remediation include: (1) aligning high school requirements and course content with college content and competency expectations; (2) early intervention and financial aid programs targeted to students at the K-

12 level that link mentoring, tutoring, and academic guidance with a guarantee of college financial aid; (3) student follow-up and high school feedback systems; (4) improved teacher preparation; and (5) K-12 reform. Many of these approaches have been incorporated into the K-16 educational movement underway in many states.

Aligning High School Requirements with College Content and Competency Expectations

Several state initiatives are underway to define what a first-year college student needs to know and be able to do, with specific attention to the ability to read at a minimum level and perform broad math skills. These initiatives are often identified in terms of content and competency levels rather than Carnegie units or high school class rank. In Colorado, entry-level content standards and competencies apply across the curriculum to all freshmen who are recent high school graduates and are not directed to students enrolling in a specific course or a specific major. The competency categories parallel general education categories and are aligned with the content standards being adopted in Colorado school districts. College faculty are now working with classroom teachers, developing assessments that measure the competencies. In 1996 the General Assembly modified the state statute that defined the higher education admission criteria from "high school grade point average and standardized test scores" to "high school performance measures and national test scores" (Colorado Commission on Higher Education, 1998).

Early Intervention and Financial Aid Programs

Some states have developed, or are considering developing, early intervention strategies in the high schools that are designed to correct student academic deficiencies before the students reach college. Ohio has committed to the goal of a 15 percent reduction in remedial enrollments by 2001 and continued reductions thereafter (Ohio Board of Regents, 1997). One of the state's strategies is to promote college readiness early in the educational process. This strategy will build upon the Ohio Proficiency Tests, the Early Mathematics Placement Test (EMPT), and the Early English Composition Assessment Program (EECAP). These programs are currently used by schools on a voluntary basis to identify deficiencies in mathematics and writing, and to initiate interventions before students' graduate from high school. Beginning in the ninth grade and continuing through the summer after high school graduation, the state has proposed a series of periodic pre-college assessment activities.

It is well-known that high school course-taking behavior is a crucial ingredient for a successful college experience, Thus, a number of states have established early intervention financial aid programs modeled after the "Taylor Plan" in Louisiana, which—in addition to enhancing college access—contain provisions to increase the ability of students to succeed in college. Although details vary from state to state, the programs guarantee low-income K-12 students admission to college if they meet certain criteria, including completion of a college-preparatory curriculum, achieving a minimum grade point average, and participating in a counseling program. The federal government has recently enacted the Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) for low-income students. Complementing other existing federal and local efforts like the TRIO programs, GEAR UP encourages states and university-school partnerships to provide support services to students who are at risk of dropping out of school. The program is designed to offer information, encouragement, and the means to pursue postsecondary study. One major component of GEAR UP is that a college will have to guarantee to

provide mentors, tutoring, and support to a class of students in seventh grade and continue offering the services until the class finishes high school.

Student Follow-up and High School Feedback Systems

An effective tool for enhancing the collaboration between high schools and colleges and identifying areas of mutual concern is to provide feedback to high schools regarding the success of their students in college. As noted earlier, the Maryland Student Outcome and Achievement Report (SOAR) is one example of this approach. The purpose of SOAR is to provide information about recent high school graduates to high schools and school district personnel in order to enhance a smooth and successful transition for college-bound students. SOAR contains information about: student admission exemptions; remedial course work in mathematics, English, and reading; performance in the first college-level courses in English and mathematics; cumulative grade point averages; and persistence (Wallhaus, 1998). Recently, SOAR has linked these collegiate-level performance data with high school data supplied by Educational Testing Service and American College Testing, which includes course patterns taken, high school grade point average, test scores, and grades in core courses. SOAR is tailored for each high school and the data are also aggregated for each college and university.

Improved Teacher Preparation

Reform of teacher education is now more prominent on the national agenda, as evidenced by the 1998 reauthorization of the Higher Education Act of 1965. The legislation replaces several small teacher education programs—which were not funded in the past—with a three-part grant: 45 percent of the funding will go to states to improve the quality of its teachers; 45 percent will go to partnerships between colleges and secondary schools; and 10 percent will go to recruiting more students to teach in low-income school districts (Burd, 1998). Initiatives in several states include: (1) reexaminining teacher certification and licensure requirements based on specific standards of what teachers should know and be able to do; (2) emphasizing academic disciplines in the teacher education curricula; and (3) establishing performance-based career advancement opportunities for veteran teachers. Many states have become partners with the National Commission on Teaching and America's Future (NCTAF) and have developed statewide policy audits on the status of teaching, including policies and practices regarding teacher recruitment, preparation, selection, induction, evaluation, and professional development.

One example of the importance of quality teachers is found in a study conducted in the Dallas Independent School District. "The average reading scores of a group of Dallas fourth graders who were assigned to three highly effective teachers in a row rose from the 59th percentile in the fourth grade to the 76th percentile by the conclusion of the sixth grade. A fairly similar (but slightly higher achieving) group of students was assigned three consecutive ineffective teachers and fell from the 60th percentile in the fourth grade to the 42nd percentile by the end of the sixth grade. A gap of this magnitude—more than 35 percentile points—for students who started off roughly the same is hugely significant" (Haycock, 1998, p. 4).

K-12 School Reform

Improving the performance of the K-12 sector is another important means to reduce the need for remediation in higher education. One example is in Maryland, which established the Maryland School Performance Assessment Program (MSPAP) in 1989. MSPAP is a battery of tests given to all third, fifth, and eighth grade students and

provides an index of school performance, not individual student performance. The Maryland School Performance Report, which includes MSPAP, measures each school's high school completion rates, student attendance, drop-out rates, and postsecondary decisions. If an individual school's scores are low and falling, it can be eligible for "reconstitution," which means that the state can require a complete organizational restructuring. Complementing this initiative is the recent development of the High School Improvement Program (HSIP), which is a series of tests designed to measure individual student knowledge and skills in core learning areas. It has not yet been determined whether the tests will be used as a graduation requirement for high school students.

Improving the Effectiveness of Remediation in Higher Education

What can be done to improve the effectiveness of remediation in higher education? We have identified three core strategies: (1) creating interinstitutional collaborations; (2) making remediation a comprehensive program; and (3) utilizing technology.

Interinstitutional Collaboration

Astin makes a strong case for interinstitutional collaboration between institutions of higher education in a region or state. By noting that there are literally hundreds of remedial programs of all types and perhaps hundreds of individual courses, the opportunities for collaborative research are remarkable. He points out that research on programs for underprepared students and preparation of faculty to teach such students should be a collaborative effort among colleges and universities in a system or state. Although admitting that such collaboration would be difficult to achieve because of threats to institutional "reputation," interinstitutional conversations would hopefully be successful in leading the participants to agree on the following:

- "Developing effective programs for lower-performing students at *all levels of education* (emphasis added) is of vital importance not only to our education system, but also to the state and the society at large."
- "Finding and implementing more effective programs for underprepared students is a 'systems' challenge that must be accepted and shared by all institutions at all levels of education" (Astin, 1998, pp. 29-30).

Making Remediation a Comprehensive Program

Substantial research has been conducted which serves to identify essential components of an effective remedial education program. These components—which encompass more than just tutoring and skills development—were discussed earlier in this report and include:

- a mandatory assessment and placement program that uses valid and reliable instruments;
- a curriculum design and delivery system with clearly defined goals;
- support services that rely on multiple intervention strategies; and
- a systematic evaluation system.

Utilizing Technology

Over the past decade, the use of technology and specifically computers has been used to enhance the teaching-learning process, particularly in remedial courses that are hierarchical, linear, and stable in their structure and content. Many private companies have developed, or are developing, remedial software. One such company, Academic Systems Corporation, has developed computer-assisted remedial courses in mathematics and writing, which are being used in hundreds of colleges and universities

across the nation. Several controlled studies in colleges and universities have indicated that this type of pedagogy has great potential for remedial education. Called mediated learning, the model requires the integration of four specific technologies:

(1) technologically sophisticated and comprehensive interactive multimedia software, including text, hypertext, graphics, animation, simulations, video, and audio;

(2) a competency-based assessment system, designed to support learner-centered instruction by providing learners with diagnostic pre-test and post-test capabilities, plus real-time feedback;

(3) an instructional management system which provides both learners and instructors analyses of the learning activities and accomplishments of each individual learner; and

(4) a print-based textbook to support the autonomous learning activities (Academic Systems, 1997).

The applied nature of the courses and the fact that the software is geared to adults are especially appropriate for students in remedial courses. Although the student can work at his or her own pace, mediated learning allows the instructor to intervene at any time when the student is having difficulty.

Next Steps

The previous strategies promote the two public policy goals of reducing the need for remediation in higher education and improving the effectiveness of remediation. In effect, this provides a checklist of initiatives that have a positive effect on the two policy objectives. If our thesis is correct, the degree to which a state or region implements these strategies will determine the extent to which the policy goals are met.

One way to test this premise would be to conduct a set of case studies in key states. The strategies in the checklist can be used as criteria for making objective judgments regarding a state's commitment to reducing and improving remediation. Correlating a state's "score"—the extent of active strategies—with its success in attaining the dual public policy objectives would be illuminating and contribute to the national dialogue on remediation. The case study method could help to continue the dialogue about what works in remedial education and address the need for more accurate and timely data.

Case studies also would be illuminating in addressing the relative costs of outsourcing, the specific direct and indirect costs associated with remediation in a wide array of states, and a host of other important questions.

The need for remediation and its core function in higher education will not be eliminated by controversy and criticism. Unfortunately, much of the recent discussion of remediation has tended to shed more heat than light on this important issue. Public policy efforts would be more productively focused on determining what works in remedial education, for whom, and at what cost. This would move the nation's higher education institutions closer to the dual goals of reducing the need for remediation while ensuring its continued effectiveness.

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