## **REMEDIATION IN HIGHER**

## **EDUCATION: A REVIEW OF THE**

### **LITERATURE**



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By

Sherrill Martinez and Lue Ann Snider, Planning and Research, Kansas State
Department of Education
Emer Day, University of Kansas Doctoral Candidate

### **Purpose of the Paper**

This literature search was undertaken to gain a better understanding of remedial education through a review of prior studies on the topic. A summary of the policies and initiatives in all of the states was developed from the literature and is shown in Appendix A. It is hoped that the paper will help in designing a remedial education study model for Kansas that can provide meaningful data to policy makers and practitioners. The paper is organized under six questions related to the policy issues:

- 1. Why are there large numbers of students enrolled in remedial courses?
- 2. How can the number of students who need remediation be reduced?
- 3. Where should remediation take place?
- 4. Who should be financially responsible for the cost of remediation?
- 5. What factors make remediation most effective?
- 6. What research is suggested by the literature?

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#### Introduction

Remedial or developmental courses are those courses provided by a postsecondary institution for students who lack the academic skills needed to be successful at the institution. Offering remedial courses to students is not a new practice. Such courses, and discussions about whether or not they should be offered, have been around since the beginning of the nation's higher education system. In addition, inclusion of remedial courses is not limited to any area of the nation or to a particular type of institution. According to the U.S. Department of Education, about 78 percent of higher education institutions offer remedial courses. This is down from a high of nearly 90 percent in the 1970s. Enrollments in remedial programs have fluctuated throughout the years, but increased the most in the late 1920s, with the establishment of 2-year colleges; after Sputnik in the 1950s; after World War II, when many service men took advantage of the GI Bill; and in the 1960s, when receiving a postsecondary education became available to a more diverse population (Maryland Higher Education Commission, 1996; Christian Science Monitor, 2002). In other words, the need for remedial courses has always been greatest when a postsecondary education has become an option for more of the population.

Since students are placed in remedial courses if they lack the skills necessary to successfully complete the coursework required at a particular institution, what constitutes a remedial student may differ from one institution to another. For example, coursework is often less demanding at public 2-year institutions than at public 4-year institutions. Thus, a student might be required to take a remedial course at the 4-year institution, but not at the 2-year institution. It is important to remember that there isn't a single standard for determining if a student has a skill deficiency, even within an individual state's system, when interpreting remedial course data. With that said, in 1995, 29 percent of all first-time freshmen (41 percent at public 2-year institutions) enrolled in one or more remedial courses. Twenty-four percent took at least one course in mathematics, 17 percent took at least one course in writing, and 13 percent took at least one course in reading (Lewis and Farris, 1996).

Once again, policy makers across the country are asking if it is appropriate for institutions of higher education to offer remedial courses to students who lack the academic skills needed to succeed in college-level courses. On one hand, remedial courses allow more students the opportunity to be successful in college. On the other hand, it is costing the nation a great deal of money (estimates as high as \$2 billion per year) to offer precollege courses to students who have already graduated from high school. There are strong advocates on both sides of the remedial education debate. Those who advocate for remedial education think that education of the remedial student is the most important educational problem in America today. Advocates believe that offering remedial programs to underprepared students can do more to alleviate serious social and economic problems (e.g., unemployment, crime, welfare, health care, racial tensions, the maldistribution of wealth, and citizen disengagement from the political process) than almost any other action. They argue that a system that dispenses

advantages on the basis of standardized test scores disadvantages racial minority groups and is an unfair system. Also among their arguments are --

- There is no standard for expected level of preparation. What is defined as inadequate preparation differs from one institution to the next.
- Even students who receive low scores can learn and be successful in college.
- Allowing colleges to use selective admissions programs to accept only those students who already know most of what colleges are suppose to teach them in order to increase success rates is like allowing hospitals to admit only those patients who are slightly sick in order to increase their success rates.
- Remedial education means more than improving academic skills. It should include a range of services such as counseling, advising, tutoring, workshops, individualized instruction, courses to enhance study skills and strategies, and remedial courses. Even gifted students can benefit from these services.
- The nation cannot sustain economic development unless all of its youth are well educated (Astin, 1998; Boylan, 2001).

Those who oppose remedial education do so for the following reasons:

- Students should have mastered the skills needed for college work while they were in high school. Taxpayers are paying for a student's education twice, when he/she is given remedial courses.
- Students who take remedial courses are more likely to drop out of college before graduation because of the additional, noncredit coursework they are expected to take. These courses extend the time needed to earn a college degree. Data from the High School and Beyond Study show that by the time they are 30 years old, 44 percent of the students who take no remedial courses, 13 percent of the students who take three or four remedial courses, and 8 percent of the students who take more than four remedial courses earn a degree (Adelman, 1996).
- It is difficult to maintain high academic standards when there are no admittance criteria. Including students at all preparation levels leads to mediocre programs.

Discussions about remedial education have led to a number of policy and legislative initiatives in recent years. Most of the initiatives fall into how to best accomplish the following:

- Pay for remediation,
- Reduce the need for remediation.
- Provide equal access to postsecondary opportunities while maintaining high academic standards,
- Increase postsecondary student retention and graduation rates, and
- Prepare more individuals to be productive in an information-based economy (Maryland Higher Education Commission, 1996).

In this paper, the initiatives are subsumed under six guiding questions and summarized, by state, in Appendix A.

# Question 1: Why are there large numbers of students enrolled in remedial courses?

It is difficult to determine the exact number of remedial students in the nation's colleges and universities or the degree of remediation needed by the students. Some institutions count English as a Second Language (ESL) classes and study skills classes as remedial, while other institutions only count classes in math, reading, and writing. In order to keep numbers low, some institutions contract out remedial services and report that they offer no such services. Since the skill level considered to be proficient is defined by the institution, a student can be considered to have a skill deficiency at one institution and not at another. With these restraints in mind, several researchers have attempted to determine the percent of postsecondary students who enroll in remedial courses. The National Center for Education Statistics (October 1996) estimated that 29 percent of first-time freshmen enrolled in at least one remedial reading, writing, or math course in the fall of 1995. In some states, the percent of new freshman needing remedial courses is estimated to be over 50 percent (Crowe, 1998). Early childhood research has found that young children are often educationally disadvantaged if they are from a racial/ethnic minority group, are limited-English proficient, and/or are poor. College studies indicate that the factors defining educational risk in kindergarten are among the factors that define educational risk and need for remediation in college. There are at least three major barriers to higher education for minority, ESL, and poor students: lack of awareness of postsecondary opportunities and what it takes to successfully prepare/take advantage of them; inability to secure the appropriate preparation; and inability to pay college costs (Coles, 1999). Possible ways to overcome these barriers will be discussed in the next section.

It is true that the remediation rate is higher among student members of minority groups and that the proportion of minority students in colleges is increasing. However, the rate of remediation is also high for nonminority students. In one Florida study, it was found that over 60 percent of the students in *all* the races that were examined needed remediation, with 84 percent of African American, 74 percent of Hispanic, 70 percent of Native American, 68 percent of Asian American, and 64 percent of Caucasian students needing remediation (Florida State House of Representatives, 1996). Although a large proportion of all racial/ethnic groups need remedial courses, there are differences among the groups in the type of classes needed. Hispanic and Asian/Pacific Islander students seem to need more remedial reading and writing courses, while African-American and white students tend to need more math courses (Ignash, 1997).

As mentioned previously, there is some debate about whether or not college level English as a Second Language (ESL) courses are remedial. On some campuses, ESL courses are considered to be similar to foreign language courses, while on other campuses the work

required in the courses is not considered to be college-level work. Regardless of the view, the need for ESL courses on college campuses is increasing due to immigration and higher birth rates among minority populations (Ignash, 1997). When the courses are counted as remedial, the remedial education rates will go up.

Research has consistently revealed differences between successful and unsuccessful postsecondary students related to the socioeconomic status (SES) of the student's family (Hossler & Stage, 1999). College enrollment data indicate that the number of college students from low-income families is increasing. An increase in the number of students enrolling in college from lower income families could help explain what appears to be a decrease in the preparedness of postsecondary students for college academic success. Nationally, the rate at which students enrolled in postsecondary institutions immediately after high school grew by about 17 percent between the years 1972 to 1998, with 49 percent enrolling in 1972 and 66 percent enrolling in 1998. When these enrollment trends were broken down according to family income, it was found that the greatest increase (20) percent) occurred among students from low-income families, defined as the bottom 20 percent of all family incomes. The percent of students who enrolled in college who were from low-income families jumped from 26 percent in 1972 to 46 percent in 1998. Students from low-income families were less likely to persist in college than students who were not from low-income families. While 71 percent of the students from middleand upper-income families obtained their college degree or certificate, only 59 percent of the students from low-income families completed their postsecondary education (The Institute for Higher Education Policy, 2001). Although the effects of SES on a student's decision to attend college and on the student's success in college have been found to be significant, the effects are usually indirect. Therefore, it is important to look at the variables associated with SES separately when developing programs to reduce the need for remediation (Hossler & Stage, 1999). One of the most important of these variables is having parents who did not attend college.

Research has documented the importance of parents' expectations and the powerful influence they have on their students' future plans. Clearly, parents play a vital role in assisting and guiding their students. However, the type and amount of support that parents can offer can be severely limited if they themselves have not gone to college. First-generation college students are those students whose parents and grandparents did not go to school beyond high school. These students face many barriers and challenges to obtaining a postsecondary education that are not usually experienced by students whose parents have a bachelor's or advanced degree. Parents cannot share their experiences with their children and often find it more difficult to speak to their children about the benefits of a postsecondary education, explain the preparation and steps necessary to prepare for college enrollment, and help them navigate the admissions and financial aid systems, if the parents have not attended a postsecondary institution (Volle & Federico, 1999).

About 45 percent of all undergraduate students in the 1995-96 academic year were first-generation students. These students were more likely to attend two-year colleges than

students whose parents had a bachelor's degree (53 percent and 40 percent, respectively). Additionally, they were less likely to be enrolled full-time, were less likely to live oncampus, and were less likely to be enrolled on a continuous basis. Among the students followed for five years in the Volle and Federico study, 44 percent of first-generation students obtained their degrees, with 15 percent obtaining a bachelor's degree and 29 percent obtaining an associate's degree or certificate. However, among students whose parents had a bachelor's degree, 56 percent obtained their degrees, with 36 percent obtaining a bachelor's degree and 20 percent obtaining an associate's degree or certificate.

Based upon her research that compares at-risk high school students with not at-risk students, Laura Horn has identified five pipeline steps that all students should take in order to make a successful transition from high school to college: have a bachelor's degree goal, be at least minimally prepared academically to attend college, take entrance exams, apply to college, and enroll in college (Horn & Chen, 1999). In the Volle and Federico study, first-generation students did not complete as many of the five "pipeline" steps as students whose parents had a bachelor's degree (Table 1). Of those students who completed all of the pipeline steps, 56 percent were students whose parents had a bachelor's degree while only 14 percent were first-generation students. In contrast, of those students who did not complete *any* of the five steps, 40 percent were first-generation students while 7 percent were students whose parents had a bachelor's degree (Volle & Federico, 1999).

Table 1: Horn's Five Pipeline Steps to a College Degree and Results of Volle & Federico's Longitudinal Analysis

Step	Findings
1. Having a bachelor's degree goal.	Thirty-six percent of first-generation students expected
	to earn a bachelor's or advanced degree compared to 78
	percent of students whose parents had a BA/BS.
2. Being at least minimally prepared academically.	First-generation students were less likely to finish high school with a regular diploma (78 percent of first-
actuemetary.	generation students compared to 97 percent of high school students whose parents had a bachelor's degree).
	First-generation students also had lower cumulative high
	school GPAs, with only 35 percent having a GPA of
	2.55 or higher (on a 4.0 scale) compared to 66 percent of
	high school students whose parents had a bachelor's
	degree.
3. Taking college entrance exams.	First-generation students were less likely to take the
	SAT or ACT college exams than students whose parents
	had a bachelor's degree (45 percent and 82 percent,
	respectively).
4. Applying to four-year college.	Only 25 percent of first-generation students applied to a
	four-year college, compared to 76 percent of the students
	whose parents had a bachelor's degree.
5. Enrolling in college immediately	First-generation students were more likely to delay their
after high school.	enrollment in college (29 percent of first-generation
	students enrolling immediately after high school
	compared to 73 percent of students with parents with a
	BA/BS).

One of the five pipeline steps is enrolling in college immediately after high school graduation. In 1992, most college students (62 percent) enrolled in college immediately following high school graduation. The other 38 percent enrolled later in life. During the 1992-93 school year, a little over 30 percent of the students enrolled in remedial courses were students who enrolled in college immediately after high school graduation, while nearly 70 percent were older, first-time freshmen. Since 1970, the number of adults who are at least forty-years-old who are enrolling in college has steadily increased. As can be seen from the 1992 data, these older students are much more likely than younger students to need remedial courses (Ignash, 1997). In 1998, when the community colleges in New York City were under attack, Christopher Kimmich, City University of New York's interim chancellor, stated that "55 percent of community-college freshmen were not recent high-school graduates and that more than 56 percent of them did not speak English as their first language" (Breneman & Haarlow, 1998). The chancellor's remarks were meant to show that different student demographics affect the functions and results of institutions.

In the last 20 years, as the nation has moved into an age of information and technology management, the level of academic proficiency needed to be successful in college and in the workplace has increased. Topics once included in college curricula are now covered in high school curricula to enable college courses to be more rigorous (Adelman, 1996). Add to the increased expectations of the high school curricula estimates that as many as 50 percent of the occupations in the United States will require skills and knowledge gained with at least some postsecondary education and one begins to understand the demands of the information and technology age. Unfortunately, at the same time that demands for persons with postsecondary education is increasing, a growing percentage of the U.S. population is not being provided with the opportunity, experiences, and support needed to enhance their chances of success in college (McElroy and Armesto, 1998). Allowing students to take non-rigorous coursework during high school can result in lower college admissions test scores. Also, the type of high school courses completed has been found to greatly influence how prepared students are for college (Grimes & David, 1999; Kezar, 1999). One study compared students from a single Florida school district who needed postsecondary remediation to students who did not require remediation. An examination of their high school records revealed that a majority of the non-remedial students had taken and passed Algebra I, Algebra II, and geometry. Among the remedial students, only 47 percent had taken and passed Algebra I, 5 percent had taken and passed Algebra II, and 16 percent had taken and passed geometry. Similarly, non-remedial students were found to have taken more and higher level science courses during high school than the remedial students (Southhard & Collier, 1997). A study conducted by the Ohio Board of Regents showed that high school graduates who did not take a college preparatory curriculum were more than twice as likely to end up in remedial courses (The Beacon Journal, July 2002).

Briefly, research is indicating that success or failure in postsecondary education is a function of the student's aptitude and prior achievement; English language proficiency; family background; high school experiences, including course taking patterns; and

financial and social resources. Success also depends on the demands of the postsecondary institutions and on trends in the workplace. Many of the characteristics that place students at risk for failure in college are increasing at the same time that the need for highly skilled workers is increasing. These trends can lead to larger numbers in remedial courses.

# Question 2: How can the number of students who need remediation be reduced?

High school students often aspire to go on to college, but fail to take the necessary high school courses and other steps that will prepare them for college (Coles, 1999; Mayer, 1999). Data from the National Education Longitudinal Study of 1988 were used to track high school mathematics and science course taking and college achievement. Completing additional coursework improves achievement about equally for all students, regardless of their sex, race/ethnicity, and SES (Florida State House of Representatives, 1996; Mortenson, 1999). Students who complete alternate high school credentials, such as the General Educational Development (GED) credential, are not as successful in college as those who obtain a regular high school diploma. Therefore, the National Commission on Excellence in Education recommends that all high school students complete the following core curriculum in order to receive a high school diploma and to prepare academically for college: four years of English, three years of mathematics, three years of science, three years of social studies, and one-half year of computer science. For students planning to continue on to college, two years of foreign language are also recommended (Mortenson, 1999).

There is a concern that high school standards and requirements for graduation are not consistent with what is needed to be successful in college. Most high schools offer the academic core (college preparatory) curriculum, but few require students to complete the curriculum in order to receive a diploma. In addition, there are only a few states—California, Indiana, Texas, Massachusetts, Kentucky, and Nevada—in which K-12 educators and postsecondary educators are moving toward developing K-16 standards and common expectations. It is estimated that 40 percent of the colleges that provide remedial courses do not take any actions that may reduce the need for remediation, 46 percent do not communicate with high schools about the skills that students will need in order to do college work, and only 19 percent participate in, or organize, workshops for high school faculty (Florida State House of Representatives, 1996). Changes in graduation requirements and improved high school/college collaboration and communication, it is believed, could reduce the number of students who need remedial courses.

In California in the mid-1980s, a plan was developed for reducing remediation by 1990. The following were included in the plan:

• Raise the number of courses students would be required to take in high school as prerequisites for entry into the CSU;

- Carry out diagnostic testing in the high school to alert students to their deficiencies;
- Improve preservice teacher education;
- Institute discussion between high school and university faculty regarding competencies required for admission to CSU; and
- Set up cooperative "arrangements" with the community colleges to teach remedial courses on their campuses.

Budgetary problems prevented the full implementation of the plan and, in 1994, there was little improvement in remediation rates. Instead of the more comprehensive plan, in the late 1990s EO665 was passed, requiring the implementation of such things as standards, assessments, and early intervention, once students are in college. First time freshmen are now required to take the English Placement Test and to begin remediation, if suggested by the test, in their first semester. Students must complete remediation within one calendar year in order to continue their enrollment. Many California educators feel that EO665 ignores the fact that colleges have a new student population-different from the past in race/ethnicity, gender, age, SES, and work experience--and an old system for educating them; and that implementation of the more comprehensive (original) plan is still needed in order to reduce the need for remediation (Crouch & McNenny, 2000).

As shown in the previous section, the five pipeline steps that all students should take in order to make a successful transition from high school to college are as follows: have a bachelor's degree goal, be at least minimally prepared academically to attend college, take entrance exams, apply to college, and enroll in college (Horn & Chen, 1999). In many states, the availability of high school counselors to assist students through these steps has decreased. Duties of the remaining high school counselors have often shifted away from college planning and advising activities to efforts to reduce dropout, teenage pregnancy, drug abuse, and teenage suicide rates. In one survey, 60 percent of college freshmen stated that the advice of their high school counselor was not very helpful to them in planning for college. In response to the decreased availability of high school counselors, an entire industry has emerged in which private counselors can be hired to provide college preparation and college choice advice. Of course, most students who hire independent educational consultants tend to come from economically advantaged families. Lower SES students, whose parents often lack the background to assist their students, find it difficult to navigate through the pipeline steps and need free or low cost assistance (McDonough, Korn, & Yamaski, 1999).

Students from lower SES families often attend poorer districts than students from middle to upper SES families. Poorer districts are less able to offer the type of support to their students that more affluent districts can offer to theirs. If lower income families are concentrated geographically in the same district or high school, then students are less likely to have peers who are planning to attend college. This is important, since peer attitudes toward education and plans to attend college can be very influential on a student's decision to prepare for and pursue a postsecondary education (Horn and Chen,

1999). Inner-city schools often have high concentrations of lower SES families. In addition to facing the problems associated with poverty, students from inner-city schools are less likely to have highly qualified teachers, less likely to have access to college recruiters, less likely to visit college campuses, and less likely to have access to information needed for making college choices. When high schools have few resources, are not adequately staffed, and lack teachers with appropriate certifications, especially in the areas of math and science, their students are less likely to be prepared for college work. In such cases, postsecondary remediation may not be, as some have argued, a duplication of services; but rather compensation for an inadequate high school education (Freeman, 1999). Reducing inequities in the quality of high school education provided to students could reduce remediation rates; but, while there are inequities in high school education, remedial programs are essential to providing equitable opportunities for students to be successful in the postsecondary system (Day & McCabe, 1997).

Student engagement in high school, parent engagement with student learning, friends' engagement with learning, and college preparation activities during high school affect the college enrollment and graduation rates of at-risk students (Horn & Chen, 1999; Hossler & Stage, 1999). The degree of influence of each variable is summarized in Table 2.

**Table 2: Influences on Postsecondary Enrollments** 

Table 2: Influences on Postsecondary Enrollments							
Factor Influencing Postsecondary Enrollment	Increased Rate of Postsecondary Institution						
Among Students Who Are More At-Risk	Enrollment						
Student reports that all or most of his or her friends	6 times greater chance that student will attend 4-						
are planning to attend a 4-year college.	year college.						
Student reports that all or most of his or her friends	2.8 times greater chance that student will attend any						
are planning to attend a postsecondary institution.	postsecondary institution.						
Student participates in two or more extracurricular	2.1 times greater chance that student will attend 4-						
high school activities.	year college.						
Student talks with even one person about financial	1.9 times greater chance that student will attend any						
aid.	postsecondary institution.						
Student talks with at least three different people	2.8 times greater chance that student will attend any						
about financial aid.	postsecondary institution.						
Student receives help with his or her college	1.9 times greater chance that student will attend 4-						
applications.	year college.						
Student receives help preparing for college entrance	2.3 times greater chance that student will attend 4-						
exams, such as a special course in high school,	year college.						
tutoring, study of test related booklets, videotapes,							
or computer programs related to test.							
Parents have some discussion with student about	1.6 times greater chance that student will attend any						
enrolling in a postsecondary institution.	postsecondary institution.						
Parents have much discussion with student about	2.4 times greater chance that student will attend any						
enrolling in a postsecondary institution.	postsecondary institution.						
Parents expect their student to take at least some	3 times greater chance that student will attend any						
college courses.	postsecondary institutions.						

Knowing what influences student choices about postsecondary education can assist with planning remediation prevention programs. Currently, there are several categories of remediation prevention programs. They include—

- Early outreach to provide motivational and learning opportunities to high-risk students. These are thought to be one of the most promising types of programs. Federal programs, such as TRIO, have had much success in improving the preparation of high school students.
- Precollege communication with high school students (e.g., letters, college fairs). This category is most popular, with ¾ of the states using it because it is a simple and inexpensive method of making contact with potential students. However, most states don't think it is very effective.
- Counseling programs for college-bound students. Because low-income and
  minority students are less aware of how to prepare for and pay for college,
  programs to promote access to postsecondary education for these students are
  most effective when they include such things as resource centers to disseminate
  materials; college application assistance; activities to make students more aware
  of postsecondary opportunities; guaranteed tuition, scholarships, and financial
  advising assistance; and academic preparation counseling.
- Summer bridge programs. Summer institutes or bridge programs for high school seniors are meant to ease student transition to college and have been implemented in New York and Georgia. New York has also begun holding summer institutes for at-risk middle school students.
- High school students taking college courses for credit (dual enrollment). Dual enrollment is a fast-growing practice of granting both high school and college credit to high school students who take college-level courses. These courses can be taught by college faculty, but are often taught by high school teachers in high school settings. Dual enrollment was instituted to increase motivation among students who were bored with school, offer challenging work to the brightest students, encourage less successful students to consider college, offer courses at reduced rates to lower income students, and increase collaboration between high school and postsecondary staff.
- High school feedback systems that let high schools know how many of their students required remedial courses in college. California, Georgia, and Washington have passed legislation to encourage collaboration between K-12 educators and institutions of higher education in order to reduce the need for remediation. In order to make high schools more accountable for the postsecondary success of their students, Florida requires high schools to report, on their annual school reports, test performance of their students on college entry-level placement examinations. In addition, the Commissioner of Education is required to report to the State Board, Legislature, and school districts on the performance of each first-time-in-postsecondary-education student from each public high school in the state. The report includes the number of students from each district referred for remediation in reading, math, or writing.

- Articulation between high school and college faculty. These programs can promote systemic change. They include development of a K-16 curriculum, changes in teacher training programs, and formal partnerships between public schools and postsecondary institutions that address the needs of at-risk students.
- Professional development for K-12 personnel. There is evidence, gathered through value-added analyses in Tennessee and Texas, that student learning depends more on what a teacher knows and can do than on class size or on the ethnicity or socioeconomic status of the student population. The National Commission on Teaching and America's Future report states that "no other intervention can make the difference that a knowledgeable, skillful teacher can make in the learning process." States are investing in efforts to increase teacher quality in a number of different ways and are beginning to evaluate the impact of those efforts on student achievement.
- Resource sharing among high schools and colleges. Resource sharing is the least common of the prevention programs, although one of most promising. The programs can include distance learning.

(The above descriptions were drawn from Boylan, Saxon, & Boylan, 2002; Florida House of Representatives, 1996; Coles, 1999; National Commission of the High School Senior Year, January 2001; Catron, 1998; Darling-Hammond, December 1999; National Commission on Teaching and America's Future, November 1997).

Remediation prevention programs are designed to enable students to view postsecondary education as a viable goal. Originally designed to target tenth and eleventh grade students, it was soon found that greater success was achieved when the intervention programs occurred during middle school grades and involved both the students and the parents. Successful early education awareness programs make middle school students and their parents aware of what must be done to prepare academically and financially for a postsecondary education. These programs are important to the development of what Coles (1999) refers to as postsecondary consciousness: "...enabling students to incorporate into their beliefs about themselves the idea that education beyond high school is a realistic option, something that they want to do, think will benefit them, and believe they can undertake successfully." Program activities may include practicing SAT tests, test preparation workshops, college fairs, and workshops on college admission and financial aid processes. One such program, Upward Bound, targets youth between 13 and 19 years old who have experienced low academic success. The goal is to increase the number of such students who enroll in and complete a postsecondary education. Academic, counseling, and tutoring services are provided for multiple years, along with a college experience at a postsecondary institution during one summer. Work experiences are often provided, since one of the main reasons for leaving the program is to take a job (McElroy and Armesto, 1998).

Increasing graduation requirements, ensuring that all students benefit from highly qualified teachers and counselors who can help them through the pipeline steps, helping parents become more engaged in their students' education, increasing collaboration and

communication between K-12 and postsecondary staff, and initiating early outreach programs show promise for reducing remediation rates. According to Cole (1999), whatever the remediation prevention program, the most successful ones begin services to K-12 students as early as possible; provide sustained services; emphasize academic preparation; provide information about selecting, applying, and going to college; have high expectations and provide students with means to meet expectations; provide both academic and social support; and involve parents all along the way.

#### **Question 3: Where should remediation take place?**

Over three-fourths of postsecondary institutions that enroll freshmen offer at least one remedial course in reading, writing, or mathematics, according to data collected during the fall of 1995. Percentages are highest at public 2-year institutions (100 percent), institutions with high minority enrollments (94 percent), and public 4-year institutions (81 percent). Thirty percent of all English courses and 16 percent of all math courses in community colleges were remedial courses in 1991, and indications are that percentages would be similar today (Cohen and Ignash, 1993; Ignash, 1997). Table 3 lists the reasons that one-fourth of the institutions gave for not offering remedial courses (Lewis and Farris, 1996). Students with skill deficiencies who attend an institution that does not offer remedial programs often receive services from a community college or private institution, or they pay for tutoring.

Table 3: Reasons Institutions Did Not Offer Remedial Courses in Fall 1995

Reasons for Not Offering Remedial Courses	Percent of Institutions
Courses are not needed by students at this institution.	66%
Students take remedial courses offered by another institution.	22%
Institutional policy does not allow the offering of remedial	27%
courses.	
State policy or law does not allow remedial courses.	5%
Other reasons.	9%

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Remedial Education in Higher Education Institutions, 1995.

The federal government plays only a minimal role in remediation. The Higher Education Act of 1985 specifies the amount of Title IV federal financial aid that can be applied to paying for remedial courses and/or funding remedial activities, but it does not dictate where services should be provided. Over half of the states permit both universities and community colleges to offer remedial courses without restrictions, although many consider community colleges to be the primary providers (Boylan, Saxon, & Boylan, 2002). Over 30 percent of the institutions that offer remedial courses say that there are state laws or policies that relate to those courses. For nearly 60 percent of these institutions, the law or policy requires them to offer remedial education, and for another 19 percent, the law or policy encourages them to do so. It is twice as common for states to require 2-year institutions to offer remedial courses and, in many states, 4-year institutions are discouraged from offering the courses. About a fourth of the institutions that offer remedial courses have policies that limit the time students can take remedial

courses. Three-fourths of the remediation policies are set by the institution and one-fourth of the policies are set by the state (Lewis and Farris, 1996).

The State University of New York has talked about limiting remedial courses to the community colleges in its system, and the City University of New York has considered limiting admission to only those students who can complete remedial courses their freshman year. The California State University (CSU) System has no 2-year institutions, although there are community colleges in California. It hopes to phase out most remedial classes by 2007: a big undertaking since about 62 percent of California freshmen take remedial courses currently. One of the options explored by CSU was to shift 90 percent of the remedial courses to community colleges, a plan that was rejected by community colleges. The Illinois Legislature did pass a law placing the primary responsibility for postsecondary remedial programs with the community colleges (Ignash, 1997).

House Bill 2668, passed by the 1996 Kansas Legislature and amended by K.S.A. 76-717, established admission standards for freshman and transfer applicants to each of the Regents' universities. The qualified admission statute, as it is commonly called, states that students must meet one of the following requirements to qualify for admission to any of the six Kansas Regents' universities:

- Achieve an ACT composite score of 21 or above;
- Rank in the top one-third of their high school's graduating class; or
- Complete the qualified admissions curriculum with at least a 2.0 grade point average on a 4.0 scale.

High school students who fail to meet the requirements are allowed to begin their college careers at a community college. One of the objectives of the bill is to minimize or eliminate the need for remedial courses at the Regents' universities.

Dual enrollment in community college and a four-year college has been found to be acceptable for students who only require remediation in one subject area (unless the subject area is reading). For students who need to develop basic skills in one particular area, but are motivated and serious about their studies, it is often more appropriate for them to be placed in a four-year college where they can immediately take on the role and identity of a university student (Caswell, 1991). However, for students who require remediation in more than one area, dual enrollment is not recommended (McMillan, Parke, and Lanning, 1997). For students who need to develop both basic academic and personal skills, a more hands-on, one-to-one approach to remediation may be needed. For these students, community colleges and smaller universities may offer a more appropriate environment.

According to the community colleges, their other functions, such as preparing students for transfer to four-year institutions or for the workplace, are threatened by the requirement to offer a disproportionate share of remedial courses (Ignash, 1997). Representatives of these schools contend that, if all underprepared students are sent to

community colleges, community colleges will have to cut their offerings; will not be able to handle the numbers; and will need to have more of the resources now allocated to 4-year institutions. They believe that there is no civic interest served by concentrating the least well-prepared students and the least resources in community colleges (Astin, Summer, 1998).

In addition to consequences for community colleges, Boylan (2001) identifies consequences for students when all remedial courses are placed in community colleges. First, an underprepared student who is not allowed to go to a public 4-year institution and does not want to attend a community college may enroll in a private 4-year institution that has minimum expectations for entrance and for degree completion. Second, a student who is forced to begin his or her schooling at a 2-year institution is less likely to stay enrolled in college through a baccalaureate degree. Finally, older students are more likely to have jobs and families and more likely to need remedial courses. These students (a growing proportion of the college population) will find it very difficult to attend college if they are not allowed to attend near work and home, and there are not always community colleges nearby. For these reasons, Boylan encourages legislators and college administrators to direct their activities at improving developmental programs and making them more cost effective rather than eliminating them or shifting their location to community colleges.

# Question 4: Who should be financially responsible for the cost of remediation?

Breneman and Haarlow (1998) estimate that the nation spends between one to two billion dollars a year on remediation, which is approximately one percent of the annual budgets of postsecondary public institutions. In 1995, there was an average of 2.7 levels of reading courses, 2.7 levels of writing courses, and 3.6 levels of mathematics courses at public community colleges, according to NCES (Boylan, 2001). The mean number of remedial courses offered by all institutions in 1995 was 2.1 for reading, 2.0 for writing, and 2.5 for mathematics.

The state legislatures in California, New Jersey, Montana, Washington, and Florida have introduced legislation that would either eliminate state financial support of postsecondary remediation or force public school systems to pay for any remedial work a public school graduate must take in college. Wisconsin, Texas, Georgia, Arkansas, Louisiana, Oklahoma, Tennessee, and Virginia are among the states that have tried to reduce the amount of money spent by the state on remedial courses or that have tightened requirements about the length of time a student can take to complete remedial work (Florida House of Representatives, 1996; Lewis and Farris, 1996; Christian Science Monitor, 2002; Kirst, 1997).

Breneman & Haarlow (1998) advise states to reconsider strict policies that reduce spending for remedial courses since, in many cases, states are not actually paying twice for the same coursework. Although over 60 percent of high school graduates go on to

college, only about 40 percent take the full college preparatory course of study while in high school. Also, in many states, including California, about half of all remedial courses are taken by students 25 years-of-age or older who need refresher courses. Reducing or eliminating state financial support would make receiving a college education difficult or impossible for high school graduates who decide to go to college at the last minute and for adults who want to go back to school.

#### **Question 5: What factors make remediation most effective?**

Remedial education is really a continuum of interventions, ranging from individual basic remedial courses to comprehensive learning centers. Participation does extend a student's time in college by as much as a full year; but, many times, the alternative is not to go to college at all or to go for a short time and not be successful (U.S. Department of Education, 2001). Because it does extend the time needed to complete a degree, remedial education should be as effective as possible.

About 60 percent of the institutions place students in remedial courses on the basis of placement tests that are given to all entering freshmen. Another fourth of the institutions give placement tests to entering freshmen who have not met certain criteria, such as scoring above a cut-score on the SAT/ACT. Students who do poorly on the placement tests are encouraged or required to enroll in remedial courses (Lewis and Farris, 1996). Most institutions (over 70 percent) give students institutional credit for remedial courses, but not credit towards a degree. Institutional credit allows students to count the course for financial aid, campus housing, and full-time student status. About three-fourths of the institutions report that successful completion of remedial courses is a requirement for continued enrollment. Credit and successful completion policies are thought to encourage students to attend to the remedial courses and make academic progress.

Every student has a mixture of aptitudes, experiences, attitudes, behaviors, and financial and social resources that can either facilitate or act as a barrier to his or her success in college. Remedial policies based only on test scores fail to consider the effect that non-academic factors have on success in college. A number of studies indicate that underprepared students rate themselves significantly different on many experiential and attitudinal measures (goals, expectations, values, persistence, and perceived ability) than college-ready students; and that just addressing academic skill deficiencies probably will not make an underprepared student successful in college (Mouw & Khanna, 1993; Cubeta, Travers, & Sheekley, 1999; Larose, Robertson, Roy, and Leqault, 1998; Grimes & David, 1999; Schumacker, Sayler, & Bembry, 1995).

In their review of 39 different studies, Mouw and Khanna (1993) found that only 5 percent to 25 percent of the variance in college performance is accounted for by student scores on the more traditional college entrance measures, such as the ACT and the SAT. About the same amount of the variance is accounted for by student attitudes and behaviors. In one study, 298 regularly enrolled incoming freshmen in an urban Canadian college completed a self-report questionnaire that assessed certain emotions (test anxiety

and fear of failure), beliefs (belief in effective work methods and belief in easiness), and behaviors (examination preparation, quality of attention, assistance from peers, and giving priority to studies) predictive of college success. There were significant positive correlations between students' total GPAs at the end of three semesters and student scores on examination preparation, giving priority to college studies, belief in effective working methods, and assistance from peers. In addition, significant negative correlations were found between student scores on the fear of failure and belief in easiness subscales and the students' total GPA. The authors concluded that their assessment of the students' emotions, beliefs, and behaviors significantly improved the prediction of academic success in college above and beyond that predicted by their high school rank and their writing aptitude test scores and that 5 to 10 percent of the variance in their college GPA was uniquely explained by these factors.

In another study, 542 college students completed the Risk and Promise Profile, a self-report questionnaire designed to assess the extent to which certain personal attributes (attitudes about college, prior educational experiences, impact of attending college, help-seeking behavior, academic self-efficacy, motivation, and locus of control) and social influences (barriers and deterrents, college's tolerance of diversity, college climate, classroom climate) predicted college success. It was found that, overall, the Risk and Promise Profile explained about 20 percent of the variance in students' success when GPA, number of semesters completed, and ratio of credits earned to credits attempted were used as outcome measures. Of the eleven subscales, the two most powerful predictors of success were academic self-efficacy and help-seeking behavior (Cubeta, Travers, & Sheekley, 1999).

Being a good student also requires such things as self-discipline, concentration, time management, information processing, and reasoning as well as study, note-taking, review, and test-taking skills (Grimes & David, 1999). Deficiencies in these areas can leave a student underprepared for college and can create barriers to a student's success in college. Even academically gifted and talented students can experience problems in college, depending on their learning styles and study strategies. One study examined gifted high school sophomores who had been admitted into the Texas Academy of Mathematics and Science (TAMS) early entrance program. During a freshmen orientation session, students completed the Learning and Study Strategies Inventory (LASSI), designed to assess thoughts and behaviors associated with successful learning. Specifically, the ten LASSI subscales assess a student's attitudes, motivation, time management strategies, level of anxiety, ability to concentrate, information processing ability, ability to select main ideas, study strategies, self-testing strategies, and test strategies. At the end of their first semester at TAMS, students were identified by the researchers as either academically successful or unsuccessful, based upon their first semester GPAs. Any student with a GPA of 2.5 or higher was considered to be successful. Analyses of LASSI scale scores and freshman GPAs revealed that unsuccessful students received less positive scores than the successful students on the concentration, selecting main ideas, information processing, and anxiety subscales (Schumacker, Sayler, & Bembry, 1995).

A striking example of how nonacademic skills support can benefit first-generation student success in college can be found at the Corning Community College (CCC) in Corning, New York. Approximately 80 percent of CCC's student population is firstgeneration college students, with as many as 50 percent of the students having at least one parent who has not finished high school. The success rate among probationary students at CCC has historically been low, with about 13 percent completing their degree. This low success rate has occurred in spite of the fact that only 20 percent of the probationary students actually need remedial classes for deficiencies in reading, writing, or mathematics. Because CCC staff believe that there are nonacademic factors contributing to their students' lack of success, they designed the Promoting Academic Student Success (PASS) program to addresses some of the personal, psychological, and social deficits of their probationary students. Students in the first year of the PASS program interacted with faculty, program staff, and other PASS students during weekly and biweekly sessions. They also received training in time management, study skills, goal setting, personal and group communications, and money management. Student selfratings of internal locus of control and academic ability were assessed at the beginning and end of the program. On average, students' had a greater sense of internal locus of control and more confidence in their academic ability after completing the PASS program. Of the 27 probationary students who participated in the initial PASS program in the fall of 1993, seven, or 26 percent, went on to graduate. This graduation rate is more than twice that of a comparison group of probationary students who were eligible to participate in the fall 1993 PASS program, but who chose not to participate (Miller & Sonner, 1996).

Another example of a successful program is the College Skills Development Program, implemented at Penn State's Berks Campus for underprepared (as determined by test scores) students. Students in the program are required to regularly attend a study skills course and tutoring sessions. The program positively impacts college grades and academic behaviors of participants (Bender, 2001). These studies show the importance of remedial programs that provide more than reading, writing, and mathematics instructional assistance to students.

Table 4: Summary of Study Results Related to Nonacademic Influences on Postsecondary Outcomes

Outcome Measures	Positive Correlations	Negative Correlations
Total GPAs at the end of three	Examination preparation,	Fear of failure,
semesters	Giving priority to college studies,	Belief in easiness of work
	Effective working methods,	
	Getting assistance from peers	
GPA, number of semesters	Academic self-efficacy,	
completed, and ratio of credits earned	Ability to seek help when needed	
to credits attempted.		
First semester GPAs.	Ability to concentrate,	Higher anxiety levels
	Ability to select main ideas,	
	Ability to process information	
GPAs.	Self-discipline,	
	Ability to concentrate,	
	Time management skills,	
	Ability to process information,	
	Good reasoning, study, note-taking,	
	review, and test-taking skills	
Graduation rate.	Time management, study, goal	
	setting, personal and group	
	communications, and money	
	management skills	
	Internal locus of control	
	Confidence in academic ability	
	Frequent communication with faculty	
	and other students	
College grades & academic behavior.	Study skills	

Boylan and Saxon (2001) report that remedial programs are most effective when they are based on sound cognitive theory, when the programs are centralized (as opposed to individual academic programs all offering their own services); when programs are routinely evaluated; when there is a clearly defined philosophy and clearly specified goals and objectives; when there is tutoring, if there is a strong tutor training program; when there is computer-based instruction, if such instruction is a supplement to regular classroom activities in remedial courses; when classroom and laboratory instruction is integrated; and when there is institution-wide commitment to remedial courses, shown through public support from administrators and the provision of adequate resources. There should also be consistency between exit standards for remediation and entry standards for curriculum courses. Organizing groups of students into cohort groups that take their coursework together, with the coursework linked by a common theme (learning communities), and pairing courses tend to increase the likelihood of success, as does supplemental instruction opportunities for courses that normally have high rates of failure. Teaching students to monitor their comprehension and think strategically; giving professional development opportunities to those who work with remedial students; and providing ongoing orientation courses to remedial students, especially first-generation students, have all improved student performance.

Providing training opportunities to teachers is especially important, since less than half of the teachers working with remedial students are trained to do so. Faculty who provide remedial courses need to be committed to the program and should receive ongoing training to work with at-risk postsecondary students. Studies have shown that optimum

programs are not provided when staff have inadequate skills and/or are placed into the programs involuntarily (McMillan, Parke, & Lanning, 1997).

Boylan, Bliss, and Bonham (1997) conducted a study to identify remedial program components that have a positive impact on student success. The student success variables in the study were 1<sup>st</sup> term GPA, cumulative GPA, retention in college, and success in developmental courses. Institutions and students were randomly selected and representative of all institutions and students, so results can be generalized to all developmental programs. Centralized remedial program structure, tutorial programs, and ongoing program evaluation demonstrated the strongest relationship to student success. The 'Xs' in Table 5 show where there were significant positive correlations between variables. Tutoring had the most impact on student success when the tutors were well trained.

Table 5: Education Program Components that Research Has Proven Contribute to Student Success

	2-Yr. Institutions				4-Yr. Institutions			
	1 <sup>st</sup> Term GPA	Cum. GPA	Retention	Success in Rem. Courses	1 <sup>st</sup> Term GPA	Cum. GPA	Retention	Success in Rem. Courses
Centralized Program Structure			X	X	X	X		X
Mandatory Assessment								X
Mandatory Placement			X	X			X	X
Tutorial Programs	X			X	X	X	X	X
Advising/ Counseling				X	X			X
Program Evaluation			X	X	X	X	X	X

The impact of several academic support programs on student achievement and persistence in college was examined in a study in Indiana. The results were as follows:

- A student mentoring and advising program, in which students are offered an opportunity to meet with a nonstudent mentor outside of class for 1½ hours each week and agree to take nine or fewer hours of coursework during the mentoring semester, has had a positive impact on student grades.
- The Learning Communities Program links a first-year-experience course with an
  entry-level discipline course, both taught by the same professor; and supplies a
  five member instructional team for additional support to at-risk students.
   Preliminary data indicate a positive impact on student grades and persistence in
  college.
- The Horizon Workshop was developed for students with very low GPAs after one semester of enrollment. Workshop topics include time management techniques,

- ways to acquire tutoring or other assistance, and study skills techniques. So far, the program has not led to significantly higher GPAs, but it has positively impacted retention rates.
- Peer mentoring trains student mentors to guide struggling students through the learning process for particularly difficult courses. It has had a positive impact on both student grades and retention rates (Office of Information Management and Institutional Research at Purdue University, 1997).

Results from studies on remedial programs suggest that nonacademic skills support, mentoring, peer support, centralized programs based on sound cognitive theory, tutoring, highly qualified teachers, and ongoing program evaluation are needed to provide remedial students with the greatest chance for success in college.

#### **Question 6: What research is suggested by the literature?**

Information included in Appendix A indicates that many states are trying to decide (1) if remedial courses should be expanded, eliminated, restricted to community colleges, or privatized; (2) how to reduce the need for remedial programs; (3) if students or high schools should be assessed special fees when students require remedial courses; and (4) the length of time a student should be allowed to finish remedial work. These decisions are difficult to make, given the amount and quality of information about remedial programs that exist. Any model developed to study remedial education in Kansas should provide information that is helpful in making such decisions.

In Maryland, students who did not require remedial courses had the highest retention and graduation rates, followed by those who needed only one course. Although retention and graduation rates were lowest for students who needed multiple remedial courses, Maryland was not able to determine what the retention and graduation rates would have been for students who required multiple remedial courses, had the courses not been available (Maryland Higher Education Commission, 1996). Retention and graduation rates for at-risk students, by whether or not the students received remedial courses, are important data for policy makers to consider before deciding whether to eliminate, reduce, or expand remedial programs. Other important data that can help evaluate the effectiveness of remedial programs include descriptions of services provided to remedial students in addition to formal remedial courses, qualifications of faculty who teach remedial courses, criteria for determining that a student has skill deficiencies, and institutional requirements for students who show deficiencies.

There is a lack of systematically collected, accurate data on remedial course enrollments. As budgets become tighter and the pressures for accountability become stronger, institutions and policy makers will need to have accurate data about the need for remediation. Since students with different characteristics have different needs, course figures would be most helpful if they are broken down by student demographics, including the following:

- Degree or other academic goal;
- Age;
- Race/ethnicity;
- Socioeconomic status;
- Attitudes and behaviors related to postsecondary education;
- High school coursework completed;
- Extent of academic deficiency (e.g., number of remedial courses taken);
- Type of high school diploma received;
- Whether or not a first-generation college student;
- English language proficiency;
- Remedial program outcomes;
- Early awareness or intervention programs completed; and
- College outcome (e.g., dropout, associate's degree, bachelor's degree).

There are also little data collected systematically on the number and effectiveness of programs to reduce the need for remedial courses. Data in this category might include—

- Type and number of early awareness and early intervention programs being offered to middle and high school students and their parents;
- Number of guidance counselors and other advisors able to assist middle and high school students with college planning;
- Type of coursework being offered and taken at the various middle and high schools; and
- Descriptions of communication and collaboration initiatives between high schools and postsecondary institutions related to preparation expectations.

Including information about prevention activities and their effectiveness could add a great deal of value to the study.

#### **Summary**

States are struggling to make decisions about who should pay for remediation, how to reduce the need for remediation, how to increase postsecondary retention and graduation rates, and how to provide equal access to postsecondary opportunities while maintaining high academic standards. Often they are forced to make decisions on these issues without good data to assist them, even though their decisions bring about major consequences for states, schools, and students. For example, minority, lower SES, limited-English speaking, and older students tend to have the most need for remedial programs, and the proportion of students in each of these categories is increasing. Eliminating remedial programs could make receiving a college education more difficult or impossible for these students, thereby reducing the number of highly skilled workers available in the workforce and diminishing the employment options available to individuals in these groups. Delegating all remedial courses to community colleges could

stress the other functions of these institutions and reduce their retention and graduation rates.

Prior studies have shown that remedial programs can be effective when they are based on sound cognitive theory, centralized, routinely evaluated, and provided with well-trained, committed teachers and adequate resources. They are most effective when there is consistency between exit standards for remediation and entry standards for curriculum courses. Research has also shown that the need for remedial programs can be reduced when there is college planning assistance and consistency between exit standards for high school and entry standards for college. Unfortunately, many remediation prevention and remediation programs do not have these traits.

The purpose of this paper was to review what has been learned about remedial education in prior studies and to provide a basis for designing a remedial education study model for Kansas. In addition to providing information about the current status of remedial education in Kansas, the proposed study model should provide a method for periodically collecting statistics on such things as enrollments and success rates in remedial prevention and remedial programs. The primary objective of the proposed study will be to assist policy makers and practitioners make informed decisions about these programs.

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### Appendix A: Postsecondary Remedial Education Information by State

a	G	Enrollment %/		Restrictions on Provision of
State	Cost/Year	Year	State Laws & Policies/Policy Proposals	Remedial Courses
Alabama	\$15,896,383/ 1996	Teal	The Alabama Department of Postsecondary Education adopted the following policy on November 28, 1995,  (1) Each college of the two-year system shall offer college preparatory course instruction for each student who scores below the standard placement score established by the college and approved by the chancellor. A student may enroll in college level courses while enrolled in college preparatory courses so long as the discipline is different from the discipline in which the student scores below the standard placement score, except as modified herein. Student placement in college preparatory course instruction is mandatory when student performance as measured by placement examination(s) falls below the standard placement score established by the college. (2) Any student enrolled in two or more college preparatory courses shall be prohibited from enrollment in more than a total of 17 credit hours that quarter or semester hour equivalent.  (3) Any student who scores below the standard placement score and is	None, but considers community colleges to be primary provider; Institutional policies determine remedial placement
			placed into college preparatory course instruction in a given discipline(s) must remain in such instruction in those discipline(s) until academic deficiencies are remediated. (4) The college shall maintain data files on each student enrolled in college preparatory courses.  (5) For college preparatory courses, the college shall designate college preparatory courses in language arts and mathematics. Such courses shall not meet requirements for graduation or degree, certificate or diploma completion. (6) The definition of college preparatory instruction is that instruction designed to remediate prior deficiencies in the knowledge and skills judged necessary in order for a student to progress satisfactorily through a college level program or course of instruction. Credit earned for college preparatory shall not satisfy requirements for graduation or degree, certificate or diploma completion.	
Alaska			<u> </u>	None
Arizona				Prohibits universities from offering remedial courses
Arkansas		28.7% in Reading & 51.3% in Math in 1996	State legislation has capped institutional spending for developmental programs at funding levels for the 1992-93 academic year. Institutions report on yearly developmental program expenditures and the sources of revenue to fund it. They are also required by law to report data regarding entering students who need remediation.  State Board of Higher Education is developing a plan to reduce expenditures for developmental programs at four-year campuses from the 1992-93 funding level. State policy determines how all freshmen in public postsecondary institutions are assessed and placed in their first year.	None, but considers community colleges to be primary provider; Provides financial incentives for reducing amount of remedial education & has statutory cap on use of state funds for remediation; Requires assessment of incoming students & placement into remedial courses if low scores

State	Cost/Year	Enrollment %/ Year	State Laws & Policies/Policy Proposals	Restrictions on Provision of Remedial Courses
California	\$300 million/1994 In 1996, gave 9.3 million as amount spent by California State University System	43% in English & 53% in Math in 1996	California State University Board of Trustees is considering changes in CSUs 22 campus policy that would phase out the need for developmental courses by requiring college-level skills in English and mathematics as a condition of admission for recent high-school graduates. The goal of the policy is to reduce the number of students needing remediation to 10 percent of the total by 2007. A small number of developmental courses would be available for returning students who have been out of education for some time, if these students can complete their developmental courses within the first year. Institutions are required by law to report data regarding entering students who need remediation.  The California Education RoundTable has proposed that raising the number of required high school courses for graduation will reduce the number of students needing developmental education courses at the college level.  Leaders of this group are developing performance standards for college-bound courses. The RoundTable is composed of leaders from the State Superintendent of Public Education, California Community College System, University of California, California State University, Association of Independent California Colleges and Universities, and the California Postsecondary Education Commission.  Another proposal is to offer tenth graders the opportunity two times each year to take the math and English placement tests so that they have an opportunity to seek remediation before they enter college.	Limits remedial enrollment; Requires assessment of incoming students; Plans to spend \$9 million a year to send professors and college students into high schools that graduate most remedial students in or to tutor the high school students
Colorado			By state statute, four-year institutions are prohibited from offering developmental courses. Students needing developmental work are referred to state community colleges.  In 1994 the Governors Office developed "Goals 2000," a long-range plan for education in the state. There was an initial belief that if secondary school education was improved, there would no longer be a need for college level developmental education. A recent study of community college students revealed that the majority of students enrolled in developmental courses either had not graduated from high school or were adults returning to college after a long period of absence from formal education. State law requires entering freshmen to take a placement exam. Institutions are required by law to report data regarding entering students who need remediation.	Prohibits use of state funding for remedial courses at most universities; Requires students to take basic skills remedial coursework no later than the end of their freshman year and only from specified schools
Connecticut			Institutions are required by law to report data regarding entering students who need remediation.	No remediation officially provided at universities; Considers community colleges to be primary providers
Delaware				None; Institutional policies determine remedial placement

		Enrollment %/		Restrictions on Provision of
State	Cost/Year	Year	State Laws & Policies/Policy Proposals	Remedial Courses
Florida	\$57.5 million /1996		Since 1985, community colleges have been charged with all developmental education courses in Florida postsecondary institutions. Public institutions, except for Florida A & M, contract with local community colleges to provide developmental courses for university students who score below college-level on the state-required placement test. Universities still maintain learning centers to provide academic support for students who are eligible for college-level work. College-prep students have three attempts to pass each developmental education course. Students pay regular tuition for the first two attempts but they pay full instruction costs, a higher fee, for the third attempt. Developmental education students may concurrently enroll in college-level courses for which they qualify. However, they are limited to 12 college credits before completing developmental course work, unless they meet specific criteria. State legislators are strongly encouraging college/high school collaboration to enhance college readiness for recent high school graduates.  State law requires entering freshmen to take a Florida developed placement exam. Community colleges are required to work with high schools to provide 10th grade students the opportunity to take the Florida College Entry Level Placement Test in the early part of the 10th grade for advisement. Institutions are required by law to report data regarding entering students who need remediation.	Prohibits universities from using state money for remedial courses; Provides financial incentives for reducing the amount of remedial education; Requires assessment of incoming students and placement into remedial courses for students with low scores; Has developed placement tests; Considering forcing public school systems to pay for any remedial work that one of their graduates must take
Georgia	\$20 million	39%/1995	Democratic Gov. Zell Miller proposed restricting the state's \$86-million aid program to college students who do not need developmental education. The Governor's plan would limit full scholarships to high-school graduates who earn a 3.0 grade-point average in core-curriculum classes. Students must now have a 3.0 average based on all high-school grades.  The Board of Regents recently adopted a policy that: (1) raises admissions standards; (2) sets limits on the number of students who can be admitted at each school without meeting all entrance requirements; (3) reduces the number of students in developmental classes at four-year schools by 5 percent each year until the institutions reach their cap on exceptions; (4) limits increases in the percent of students in developmental courses at two-year schools to what they are today; (5) reviews the quality of high school courses intended to prepare students for college; and (6) creates a massive program to tutor and to encourage students academically beginning as early as the 4th grade. State policy also determines how all freshmen in public postsecondary institutions who have not completed core courses are assessed and placed in their first year.	Prohibits universities from offering remedial courses; Requires assessment of incoming students and placement into remedial courses for students with low scores
Hawaii	Abandoned remedial education due to state budget crunch.		and placed in their first year.	Abandoned remedial education

State	Cost/Year	Enrollment %/ Year	State Laws & Policies/Policy Proposals	Restrictions on Provision of Remedial Courses
Idaho	Cost/Tear	Tear	State Laws & Folicies/Folicy Froposais	Not given
Illinois	\$26,867,516/ 1996		State policy requires postsecondary institutions to conduct assessments and determine placement into courses based on assessments.	None, but considers community colleges to be primary provider; Requires assessment of incoming students and placement into remedial courses for students with low scores
Indiana				None
Iowa			University of Northern Iowa (UNI) does not offer developmental courses through the math department. Instead, some students either enroll for a developmental math course through UNI continuing education or they enroll in a similar course at a nearby community college and then transfer the credit back to UNI. On the Iowa State University campus, basic algebra courses are taught by instructors hired by Des Moines Area Community College to teach 700 ISU students last year.	None
Kansas			Public two-year colleges receive state reimbursements for up to 18 credit hours of developmental instruction for each individual student during their entire time at the institution.  Institutions set their own assessment/placement policies.	None; Only state that does not allow students to use financial aid to pay for remedial courses
Kentucky	\$1.4 million/ 1995	47.5%/1995	Institutions are required by law to report data regarding entering students who need remediation.	None; Institutional policies determine remedial placement
Louisiana		49%/1996	Institutions are required by law to report data regarding entering students who need remediation.	None; Provides financial incentives for reducing the amount of remedial education; Institutional policies determine remedial placement
Maine				None
Maryland	\$17,616,200/ 1995	60% of all new high school graduates who enter a two-year institution	Howard County Community College (HCCC) in Columbia, MD, is experimenting with replacing traditional developmental courses with the forprofit Sylvan Learning Systems Company. Students are offered an option to either take the developmental course from the HCCC developmental education department or to pay an additional \$150 to take the course from a Sylvan staff member. The HCCC courses have one instructor for each 24 students; Sylvan provides one instructor for each 6 students. Some groups propose elimination of four-year college developmental education courses.	None; But considers community colleges to be primary provider; Institutional policies determine remedial placement
Massachusetts  Michigan			The Massachusetts Higher Education Coordinating Council, frustrated with the poor preparation and shaky academic records of many public-college students, has ordered state institutions to use tougher admissions standards starting in 1997. Recent data suggested that 12 to 25 percent of public-college freshmen in 1994 would not have been admitted under the new policy.	Limits number of remedial students  None

State	Cost/Year	Enrollment %/ Year	State Laws & Policies/Policy Proposals	Restrictions on Provision of Remedial Courses
Minnesota			Beginning with the 1995-96 year, postsecondary institutions are required to collect academic assessment and developmental course placement information and send it to the high schools of first-time students who are recommended for placement into developmental course work. At the University of Minnesota a plan was defeated to phase out the General College which teaches underprepared students until they are ready to transfer to the university. The closure would have funneled many students into community colleges and saved the university about \$4.6 million. More than 34 percent of the college's students are from minority groups.	None
Mississippi				Limits number of courses allowed at universities; Requires assessment of incoming students and placement into remedial courses for students with low scores
Missouri			The Coordinating Board of Higher Education (CBHE) has banned developmental courses at the University of Missouri four-campus system. CBHE may extend the ban on developmental courses to the regional state universities as well. The CBHE has developed a new supplemental funding program for postsecondary institutions called Funding for Results (FFR). FFR provides additional funds to individual institutions after they can document the results of new programs. Institutions are required by law to report data regarding entering students who need remediation.	Limits remediation to less selective institutions
Montana			State legislature is considering a proposal to force a high school district to pay for developmental course work a student must take in college.  Institutions set their own assessment/placement policies.	Prohibits universities from offering remedial courses
Nebraska			Institutions set their own assessment/placement policies. State law restricts how students may satisfy remedial education requirements.	None
Nevada			Discussions continue about moving all developmental courses out of four-year institutions and having all instruction conducted at the community college level.  State policy determines how all freshmen in public postsecondary institutions are assessed (ACT or SAT) and placed in their first year.  Institutions are required by law to report data regarding entering students who need remediation.	None
New Hampshire				None on provision of services; Requires assessment, using state specified assessments, of incoming students and placement into remedial courses for students with low scores (at community colleges only)

		Enrollment %/		Restrictions on Provision of
State	Cost/Year	Year	State Laws & Policies/Policy Proposals	Remedial Courses
New Jersey	\$50 million		State legislature is considering a proposal to force a high school district to pay for developmental course work a student must take in college.	None on provision of services; Requires assessment of incoming students and placement into remedial courses for students with low scores; Has developed own assessments
New Mexico				Limits remediation to less selective institutions; Does not provide state funding for remedial courses at doctoral institutions
New York	\$90.7 million/ 1996	36.4%/1995	A proposal has been offered that is designed to limit developmental courses to the first year of college for students at four-year institutions. Students who, according to scores on entrance exams, seem to need more than one year of remediation will be channeled into a community college within the CUNY system. The students would need to complete their associate degree at the two-year institution before they could be considered for admission to one of the CUNY four-year institutions. Proponents of this proposal claim that it is a response to the enrollment of new immigrants who have extensive needs for developmental course work. The proposal states that if students could complete their developmental course within the first year of college, they would be considered for admission to one of the CUNY four-year institutions. Many colleges within the CUNY system are taking away all college credit from the developmental education courses. This has a negative impact for financial aid recipients since they cannot count their developmental courses towards fulfilling the minimum academic load to receive their financial aid. The Mayor of New York is requiring all CUNY students who are also welfare recipients to work 20+ hours a week and the college campus cannot be used as a worksite to meet this work requirement. State policy determines how all freshmen in public postsecondary institutions are assessed and placed in their first year. Institutions are required by law to report data regarding entering students who need remediation.	Limits number of courses allowed at universities; Requires assessment of incoming students, with state specified assessments, and placement into remedial courses for students with low scores
North Carolina			Institutions are required by law to report data regarding entering students who need remediation.	None in provision of services; Requires assessment of incoming students, with state specified assessments, and placement into remedial courses for students with low scores (at community colleges only)
North Dakota			Institutions set their own assessment/placement policies.	Not given

State	Cost/Year	Enrollment %/ Year	State Laws & Policies/Policy Proposals	Restrictions on Provision of Remedial Courses
Ohio	\$32 million/ 1995	27% of traditional age freshman	Ohio State Legislative Office of Education Oversight Committee recommends that students complete developmental course work at a community college or a regional campus before admission to a four-year university. The Inter University Council (IUC) Provosts Committee protests this recommendation for several reasons: (1) it would greatly redistribute enrollments to community colleges; (2) it would limit access to universities; (3) lower socioeconomic groups would be most affected; (4) developmental education remains a part of the mission of several universities that serve urban areas; (5) most students who require additional developmental education course work only need it in one area.  Institutions are required by law to report data regarding entering students who need remediation.	None None
Oklahoma		40% of first time freshmen/1995	Several four-year institutions do not offer developmental education. However, they permit area community colleges to teach such classes on campus for their four-year students. Most institutions require: mandatory testing with the ACT if they are under 21 and with ACT ASSET if they are over 21 or are entering college for the second time; mandatory placement in developmental education courses; and, if placed in developmental education courses, a final course grade of A, B, or C before student is allowed to enroll in entry level course. Developmental education courses at most two- and four-year institutions carry a surcharge of between \$10 and \$20 per credit hour. Oklahoma State University has an alternative admissions program for up to 8 percent of new admits. Current guidelines allow enrollment to students who have a reasonable chance for academic success; have unusual talent or ability in art, drama, music, or sports; or are educationally or economically disadvantaged and "show a promise of success" in college. Research suggests that these alternative admits have performed as well as students admitted through the traditional program of requiring an ACT score or 22, or be in the upper one-third of their graduating class with a grade point average of 3.0. A current proposal would allow the 8 percent level to be extended to 20 percent at OSU. State policy determines how all freshmen in public postsecondary institutions are assessed and placed in their first year.	None in provision of services; Requires assessment of incoming students, with state specified assessments, and placement into remedial courses for students with low scores
Oregon				None, but considers community colleges to be primary provider
Pennsylvania			Community colleges offer a wider variety of developmental courses and are funded at higher levels for these courses via state grants.	None
Rhode Island		2.5% of course registrations/ 1996		

St. 4	C 457	Enrollment %/		Restrictions on Provision of
State South Carolina	Cost/Year	Year	State Laws & Policies/Policy Proposals  The Commission on Higher Education is phasing out developmental education at four-year colleges and shifting them to two-year institutions. The CHE says the move will save taxpayers \$1.7 million annually. CHE Commissioner Fred Sheheen said that the new system will "uplift the quality of instruction" at four-year schools since all new students will be ready for degree work. Some four-year institutions are dealing with the mandate concerning phase-out of developmental courses by renumbering and renaming the courses so that they count towards graduation credit. Institutions are required by law to report data regarding entering students who need remediation.	Remedial Courses  Prohibits state funding for remediation at doctoral institutions; Has policy related to determining remedial placement
South Dakota		6.3% of previous year high school graduates/1996	State policy determines how all freshmen in public postsecondary institutions are assessed and placed in their first year.	None
Tennessee			State's higher education commission has suggested banning the use of state money for any remediation, even at community colleges.	None; But considers community colleges to be primary provider; Requires assessment of incoming students and placement into remedial courses for students with low scores; Has developed own assessments
Texas	\$172 million/1999		Texas has a five-part system for delivering developmental course work and learning assistance called the Texas Academic Skills Program (TASP). The five parts include: Testing, Advising, Placement, Remediation, and Evaluation. By law, the TASP placement test is administered to all non-exempt students attending Texas public postsecondary institutions. Test results are used to advise students, and to place them in appropriate developmental course work, if needed. Students have to pass the test prior to accumulating 60 semester credit hours, or be restricted from graduating from a two-year college or taking upper division classes at a four-year school.  TASP test scores of entering college freshman are grouped by their high school and made available to public high schools. The districts are under no obligation to publish these results. Postsecondary institutions are required by law to report data regarding entering students who need remediation.  A movement is underway in the state to alter or even eliminate the TASP. A report by the Higher Education Coalition of Texas argues that \$750 million is needed to improve graduation and retention rates of students. The coalition argues that economic development for the state is dependent upon developing its "human capital," especially that of the state's historically disadvantaged groups African Americans, Latinos, and Hispanics which also are the fastest growing populations.	Limits number of courses allowed at universities; Requires assessment of incoming students, with state developed assessments, and placement into remedial courses for students with low scores

State	Cost/Year	Enrollment %/ Year	State Laws & Policies/Policy Proposals	Restrictions on Provision of Remedial Courses
Utah	\$3 million		Legislators are considering whether to ask students to pay all costs for remedial courses.	Does not provide state funding for remedial courses at 4-year institutions
Vermont				None
Virginia	\$24-26 million	24%	State policy requires postsecondary institutions to conduct assessments and determine placement into courses based on assessments. Institutions are required by law to report data regarding entering students who need remediation.	Prohibits universities from offering remedial courses; Requires institutions to assess incoming students and place into remedial courses, according to institution policy
Washington	\$30 million/ 1996	16%	State legislature considering a requirement for K-12 public school districts to reimburse colleges for the expense of providing developmental education for college students within three years of high school graduation. State funds would be prohibited from being used to pay for any developmental education course work.  Postsecondary institutions now inform K-12 public school districts concerning the number of their high school students who need developmental education.  Postsecondary institutions and K-12 school districts are developing a definition of what constitutes developmental course work.	Requires assessment of incoming students, with state specified assessments, and placement into remedial courses for students with low scores
West Virginia		53% of first- time, full-time freshmen/1995	State law requires entering freshmen to take a placement exam. State policy determines how all freshmen in public postsecondary institutions are placed in their first year. A bill in the recent state legislature proposed to charge high schools if their graduates needed developmental courses at the collegelevel. Institutions are required by law to report data regarding entering students who need remediation.	None on provision of services; Requires assessment of incoming students, with state specified assessments, and placement into remedial courses for students with low scores
Wisconsin		6.8% in English & 12.7% in Math in 1995	Students must pay the "full cost" of developmental courses. Credits do not count toward graduation.  Institutions submit an annual report concerning effectiveness of developmental education.	Does not provide state funding for remedial courses
Wyoming	\$7,425,925/ 1996		Casper College requests that high schools pay for developmental education courses that their incoming first-year students need.	Not given

Breneman and Haarlow, 1998; Arendale, 1998; National Conference of State Legislatures, 2001; Boylan, Saxon, and Boylan, 2002