Narrowing the Gaps, Broadening the Opportunities: A Framework for P-20 Education in West Virginia

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Foreword

For too long, education in West Virginia has operated as a series of discrete silos: early childhood programs, elementary schools, middle grades, high schools, vocational and technical programs, two-year community and technical colleges, workforce training, four-year colleges and universities, and graduate education. As students move from one silo to the next in their academic careers, too many fall through the numerous cracks created by a disjointed system. A third grader who cannot read at grade level enters the fourth grade with little hope of catching up academically to his peers. A middle school student who does not receive appropriate academic counseling enters high school with little hope of taking the courses necessary to prepare her for postsecondary success. A community college student who is unable to transfer course credits enters a four-year degree program with little hope of finishing his degree on time, or at all. An undergraduate student who must take remedial courses has little hope of pursuing a graduate degree. While some students do manage to navigate the system and move through one silo to the next, it is much less common than it should be: for example, of every 100 West Virginia 9th graders, only 15 will receive a college degree within six years of their graduation from high school.

For West Virginia, the P-20 approach to educational policy means that these silos must be turned on their side and welded together to create a pipeline through which *all* students, whatever their career and educational goals, can travel smoothly—from preschool (the "P") to graduate education (the "20," or 20th year of formal education). The structure of the system should not impede a student's progress or limit a student's dreams; the system should provide students with the appropriate academic preparation and career counseling so they can make informed decisions about their futures and do well enough in their coursework to follow through on those decisions. Although the P-20 concept did not exist when the West Virginia Constitution first mandated a "thorough and efficient" system of education, it is clear that the P-20 approach is completely consistent with this mandate.

"P-20" is many things: an approach, a concept, a framework, a mechanism for reform, a paradigm. Perhaps more than anything else, however, "P-20" is an attitude. It is an attitude that students are more important than the system, that student test scores are more important than boxes on an organizational chart, that students' goals and aspirations are more important than turf battles and political power. Thanks to the hard work of Professor Nicholson and Ms. Brooks in preparing this report, West Virginia has an excellent resource on which to rely as we adjust our attitude and design a genuinely seamless system of education that serves the needs and interests of West Virginia's students, their families, and our communities.

Jay Cole, Deputy Secretary
West Virginia Department of Education and the Arts
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Executive Summary

A number of state-level interventions designed to enhance enrollment in postsecondary education have been initiated over the past decade, many of them catalyzed by professional associations and policy organizations advocating P-16/P-20 frameworks. Among them are the State Higher Education Executive Officers, the Education Trust, the Education Commission of the States, the Pathways to College Network, the Educational Testing Service, the Institute for Educational Leadership, the National Governors Association, and the National Conference of State Legislatures.

Most of these organizations concern themselves, as do the state initiatives, with increasing college attendance as opposed to increasing postsecondary enrollments in general, and they demonstrate a common concern for underrepresented populations. The participation of low-income and minority students is especially important, as it is related to raising the enrollment numbers of West Virginia's postsecondary population, particularly if the state aspires to reach the Higher Education Policy Commission's proposed goal of an overall postsecondary participation rate of 70%. A number of initiatives are emerging as promising strategies for increasing the numbers of low-income and minority students who not only enroll, but also succeed, in college. As the State Higher Education Executive Officers (SHEEO, 2003) point out, however, no state yet has a fully developed, well-integrated system extending from birth through postsecondary education (p. 1). When graduate education is added to the continuum, the status of fully implemented strategies is reduced even further.

What follows in this report is an explication of common themes or patterns that emerge from the current research on P-16/P-20 initiatives. This information, which should be useful in the identification of priorities for West Virginia, is arranged, by chapter, into five primary categories: early care and education, outreach programs, curriculum and assessment, financial aid, and quality teaching. We have added a sixth chapter—exploration of increasing enrollments in graduate education—though the matter of enhancing participation in graduate education is not commonly discussed in the literature on postsecondary participation. Each chapter distills the emerging consensus on the subject under discussion and includes recommendations that may be feasible for West Virginia's P-20 initiative.

While the primary themes emerging from the P-16/P-20 research will be examined individually, we want to emphasize here the importance of their interrelatedness. The initiatives discussed in this document intersect and overlap in many ways, so that success in one area, or the lack thereof, will necessarily affect other areas. We envision these areas not as discrete elements on a continuum but as parts of a holistic strategy, broadly conceived, to improve postsecondary success.

We make one global recommendation—that the P-20 Council not be dissolved on December 31, 2004, as specified in Executive Order 3-01, which established the body. Enhancing postsecondary participation and success in West Virginia will require the

systematic, ongoing involvement of a body focused solely on broadening postsecondary opportunities for underserved students. Such an initiative calls for leadership from across the education spectrum in order to ensure that duplication of effort is reduced and that cooperation is maximized—two elements that are crucial in a state with limited fiscal resources.

Given the size of the state's population, we do not think it necessary to establish regional P-16/P-20 councils, as Georgia and Kentucky have done, for example. A single council, guided by several smaller advisory committees composed of representatives selected for their expertise in the areas discussed here, should prove adequate to accelerate and sustain postsecondary opportunities in West Virginia.

In each chapter, we provide an examination of existing research, implications for West Virginia's P-20 initiative, and suggestions for council advisory committees to consider in forming their recommendations. Highlights and suggestions are summarized below.

Early Care and Education

Disadvantaged children start kindergarten with significantly lower cognitive skills than their more advantaged counterparts, and these children enter school as much as 60% behind their advantaged classmates on kindergarten diagnostic tests. This problem is compounded by their likely attendance in low-resource schools in disadvantaged neighborhoods (Lee, Burkham, 2002, September).

Every child, however, deserves a good start. Extensive early childhood and preschool programs, particularly for at-risk populations, have been demonstrated to return as much as $7 for every $1 invested—and to enhance not only participants' academic success but their social mobility and economic productivity as well. Given the increasingly limited availability of financial and human resources for health and education interventions, investing in programs with demonstrated cost effectiveness is sound public policy.

We offer the following suggestions for the development of an early care and education initiative that can have a significant impact, both short- and long-term, on the state's educational and economic future:

- Reexamine the organizational structure for providing services to children and families.

- Reconsider the timeline for universal preschool.

Early College Outreach

The strongest predictor of children's likelihood to attend college is the extent of their parents' education. Children of college-educated parents are "automatically enrolled in a 'program' that, early in life, exposes them to the advantages and possibilities of higher education" (SHEEO, 2003, p. 2).

Early college outreach programs are designed to help children who lack the "automatic enrollment program" of their more affluent peers to see that a college education can be possible for them and that they too can succeed if they learn what to do and how to do it. These programs work to compensate for the shortcomings in disadvantaged students' environments by offering academic support, college visitation opportunities, assistance in navigating the labyrinthine financial aid process, and other related services in the interest of increasing the participation rate of low-income and minority students.

We recognize that some institutions have long-standing relationships with public schools, and we commend their outreach efforts. The need remains, however, to ensure that high-quality outreach services are available to all students. We encourage the consideration of the following suggestions to create a more systemic initiative for the promotion and broad distribution of outreach program opportunities:

- Develop and administer an audit of current outreach programs to identify those initiatives that have had the highest success rates in West Virginia and that may serve as models for replication.

- Establish an Office of Early College Outreach in the Higher Education Policy Commission's structure to coordinate outreach efforts on a statewide basis.

- Examine possibilities for placing outreach coordinators in county board of education offices or in each Regional Educational Service Agency to facilitate the postsecondary preparation of underserved students.

Curriculum and Assessment

Students who take rigorous and progressively more challenging coursework are far more likely to plan for, and succeed in, postsecondary education. The problem is that while more students are announcing their intent to continue education beyond high school, too few of them appear to be taking the kinds of courses that research indicates they need in order to be successful. Course-taking patterns for low-income and minority students in particular make it difficult for them to meet postsecondary academic expectations (Pathways to College Network, 2004, p. 10).

The development of recommendations for curricular issues, however, must take into account assessment requirements imposed by the federal government through the No Child Left Behind legislation. Any examination of course content or alignment with postsecondary or workplace expectations cannot be undertaken without calculating the potential impact on the state's compliance with federal law or on the test itself. State content standards and assessments should, however, bear some relationship to students' postsecondary plans. To that end, we offer the following suggestions:

- Examine the relationship between student scores on the WESTEST and academic performance in the freshman year of college.

- Explore complementary alternative assessment measures that shed more light on students' academic abilities and are more compatible with college/university expectations.

- Consider the feasibility of aligning high school exit requirements with college admissions requirements or establishing the college preparatory curriculum as the default for all high school students.

- Establish the college preparatory curriculum as a condition of eligibility for all financial assistance provided by the state in order to better prepare all students for success.

- Explore the appropriateness of strengthening the intensity of mathematics and English/language arts classes for middle school students.

Financial Aid

Comprehensive early education, increased outreach opportunities, and better aligned curricula with more informative assessments enhance the likelihood that students who enroll in college will be better prepared to succeed. But access to sufficient financial resources plays a crucial role in enabling them to pursue that success.

Attention must be given to two distinct but interrelated elements of financial resources. One is the fiscal demand itself, the dollars-and-cents part of the equation. The other is the need to provide clear information about college costs to students and families in order to demystify the financial aid process.

Affordability and comprehensible information about affordability must be central elements in any effective P-20 strategy for enhancing broader participation in postsecondary education. We encourage consideration of the following suggestions to ensure that low-income and minority students and their parents are aware of the possibilities:

- Consider a partnership model to maximize existing funding by coordinating awards between and among federal, state, higher education, and private sectors.

- Examine the feasibility of making grants the primary form of financial aid for low-income students and limiting (or eliminating) loan burdens for students.

- Explore possibilities for the development of financial aid programs that commit grant aid to students in middle school or early high school.

- Investigate the efficacy of tuition freezes.

- Examine the allocation priorities for student financial aid, considering the exemption of need-based aid from reductions in state appropriations and the imposition of an income cap on the PROMISE scholarship.

- Explore the possibility of making the first year of college free for all students who meet admissions requirements.

High-Quality Teaching

The No Child Left Behind requirement that all schools have "highly qualified teachers" in each classroom by the end of the 2005-06 school year has had an obvious influence on states' interest in and focus on high-quality teaching. Contributing to the concern, at both the state and national levels, are perceptions of an impending shortage resulting from attrition and high turnover rates, difficulties in filling positions in high-demand subject areas (i.e., math, science, special education, and bilingual education), anticipated growth in the K-12 population in several states, and efforts to reduce class sizes.

While the precise characteristics that constitute "highly qualified" are contested (e.g., measurable constructs such as academic degrees, scores on licensure exams, and years of teaching experience vs. less quantifiable characteristics such as a deep commitment to student learning, ability to create a positive learning environment, or engaging in a reflective practice), it is clear that good teaching matters.

As former North Carolina governor James Hunt (2004) points out, "Teaching is the profession which makes all other professions possible." We offer the following suggestions to enhance the opportunities for every child to have a highly qualified teacher in every classroom:

- Establish an office that is charged with overseeing partnerships between higher education institutions and K-12 schools to coordinate services, mitigate the duplication of initiatives, and reduce expenses.

- Collect and evaluate data relevant to high-quality teaching from both the West Virginia Department of Education and the Higher Education Policy Commission, including data on teacher supply and demand, in the aggregate and by subject areas and grade levels; attrition rates of new teachers; the extent of out-of-field teaching; the number of teachers with temporary permits; and so forth.

- Explore the potential for development of regional relationships related to teacher supply and demand (e.g., establishment of a shared databank of vacancies, interstate agreements on matters related to licensure and certification reciprocity, pension portability, and consideration of teaching experience accrued in other districts).

- Consider early outreach efforts in middle and high schools, and targeted recruiting on college campuses, to attract students to the teaching profession by offering financial assistance (e.g., scholarships, tuition assistance, forgivable loans) for those willing to teach in underserved areas for specific amounts of time.

- Explore possibilities for nurturing local talent through "grow-your-own" programs.

- Thoughtfully consider teacher compensation issues. As James Hunt of the National Commission on Teaching and America's Future (NCTAF) observes, neither the nation nor the state can expect to prosper as long as teaching is perceived "as a second rate occupation" (NCTAF, 2003).

Graduate Education

The subject of graduate education has received little attention in the "seamless system" literature. The majority of such initiatives are characterized by the P-16 label, as opposed to the P-20, although West Virginia, Delaware, Florida, Hawaii, Illinois, Mississippi, and Virginia efforts bear the latter designation. Despite the P-20 title, however, few of the states' reports include any specific mention of graduate education.

Issues related to graduate education, however, particularly to its research capacity, have been increasingly visible in West Virginia, most recently in Governor Wise's (2004a) State of the State address. The Progressive Policy Institute (2004) emphasizes the link between a healthy research and development sector and a state's economy, pointing out that a postsecondary education system that attracts top-notch faculty and that responds to employer and community needs can help to generate and maintain a vibrant economy.

Education research is equally important in light of the various reforms under way in response to the No Child Left Behind law. The multiple initiatives under way in the K-

12 environment will require systematic evaluation in order to determine their effectiveness in meeting state and national education goals. It is primarily graduate professors who prepare undergraduate teacher education faculty and meet practicing teachers' needs for professional development.

While we found few models in the research to assist in the enhancement of graduate education on a statewide level, as opposed to an institutional level, we think the following suggestions could begin to integrate graduate education into the "seamless system" envisioned by P-20 advocates:

- Investigate the possibilities inherent in targeted graduate certificate programs (e.g., 18-hour programs specializing in teaching disadvantaged students or teaching in rural areas) as potential post-master's or postbaccalaureate programs, and encourage the recognition of such programs for advancement or salary purposes.

- Explore the potential for mutually beneficial research-based partnerships between K-12 schools and universities.

- Explore ways for institutions to develop the capacity to attract creative and competent scholars who can help to develop the next generation of outstanding researchers and faculty.

Details and support for these suggestions are provided in the individual chapters of this report. These chapters address what the state's education system can do to enable the next generation of West Virginia students to accomplish their education goals. Collectively, they make clear that postsecondary success is attainable if the entire system, from early childhood initiatives through graduate school, is integrated in such a way that educating students for lifelong learning is the objective at every single level of the academic journey.

Many of the initiatives explored in this report will require an infusion of resources, both human and fiscal. We say this not without reservation, as we recognize the difficult financial circumstances in which the state finds itself. The Education Commission of the States (2003) estimates that an increase of roughly 12% in state spending would be adequate to realize most of the goals in a seamless education system from birth through graduate school (O'Bannon, 2001, p. 6).

Investment in a P-20 system is literally an investment in the future. A seamless education system that improves learning outcomes for all students contributes to a society less dependent on social programs and creates a highly trained, highly skilled workforce with the potential to increase revenues through higher earnings and a broader tax base.

Most important, it is about doing the right thing for students. Throughout this project, we were guided by the century-old advice of John Dewey: What the best and wisest parents want for their own children, so must the state want for all of its children.

Introduction

"It is well to remember that the last generation has seen a greater change in American college education than any single period in college history," noted social historian Ralph Boas. He continued:

> Curricula have been widened; colleges have come to take on public functions which they never had before; and the influence of the colleges has penetrated into hitherto unknown places. Chief, however, of the new facts has been this—that a college education has come to be thought a necessity for every boy and girl who can possibly get it.

It is not Boas's sentiment that is notable, it is his timing. His observation was made in an article titled "Who Shall Go to College?" published by *The Atlantic Monthly* in 1922. Clearly, the matter of the importance of a college education is neither a recent nor a short-lived phenomenon. Boas's primary concern was that the increase in demand for a college degree was overwhelming institutions' ability to accommodate the numbers of potential students, resulting in what he viewed as an increasing exclusivity in admissions practices. He particularly deplored the "reticence of college authorities" who refused to recognize the absence of anything even remotely resembling social justice in public discussions of the issue.

Perhaps Boas would be pleased, then, to learn that in the 80 years since his article appeared, access to some form of postsecondary education has improved steadily for virtually every racial, ethnic, and economic group in the United States. More likely, he would be disappointed that it has taken so long for a consensus to emerge, although he recognized, regretfully, that "decisions on public questions can apparently be reached only after a period of drifting, during which public opinion has been more or less violently aroused."

The necessity of broader participation in postsecondary education, which became the conventional wisdom in the past decade, was fueled largely by concerns that the nation's economic competitiveness was at stake and that public education was failing in its responsibility to prepare a more highly skilled and better-educated workforce. It was this economic imperative, in combination with various reports that called into question the general academic performance of the nation's schools, that galvanized both policymakers and citizens.

While Boas's writing suggests there is nothing unique about our current interest in ensuring broader and more successful participation in postsecondary education, a brief examination of the various forces converging to impel P-16/P-20 initiatives may help policymakers to clarify their own rationale and to craft an agenda consistent with their intent. This report provides an environmental update, then proceeds with an examination of current national and state participation data; an exposition of P-16/P-20 initiatives in states demographically similar to West Virginia; and an analysis of themes or issues

common to those initiatives, accompanied by sets of research-based policies and practices that support them and represent possible directions for West Virginia's own P-20 project.

National Background

The rationale for postsecondary initiatives is something of a contested terrain. For the past two decades, successive reports have taken the position that increased participation in postsecondary education is central to numerous governmental interests. Chief among these have been the preservation of the nation's dominance in a globally competitive economy and maintaining our long-standing commitment to helping students develop the academic skills necessary for lifelong learning, the knowledge needed to fulfill civic responsibilities, and the dispositions for living in a diverse society. While most reports share the opinion that the well-being of the nation at large depends on a thriving economy, the extent to which the "knowledge economy" has arrived, or is imminent, remains unclear. Likewise, while preparing thoughtful citizens and workers is recognized as an appropriate goal for the nation's education system, judgments concerning how well schools are accomplishing that task differ as well.

The Economic Imperative

The vast majority of reports recommending increased participation in postsecondary education, both recent and earlier, are predicated on the premise that the United States is poised to lose its dominance in the emerging global economy unless steps are taken to dramatically overhaul the nation's education system (Brock, 1993; Carnevale & Desrochers, 2003; Day, 1996; Gladieux & Swail, 2000; Guillory, 2001; Kazis, Conklin, & Pennington, 2004; McCabe, 2001; Pathways to College Network, 2004; Usdan & Podmostko, 2001; Van de Water & Rainwater, 2001). Usdan and Podmostko, for example, note "growing apprehensions that education is not measuring up in a competitive global economy" (p. 2), consistent with Guillory's description of "an era of accelerating change brought on by the new economy." The new economy, he observes, has effected a "radical reshaping of the American economy argu[ing] for a radical redesign of American education."

Former Secretary of Labor William E. Brock, writing for the Wingspread Group on Higher Education, is even more adamant:

> An increasingly open global economy requires—absolutely requires—that all of us be better educated, more skilled, more adaptable and more capable of working collaboratively. These economic considerations alone mean that we must change the way we teach and learn. . . . America is falling short on each of these counts. It has much to do. (1993)

Van de Water and Rainwater (2001) agree that "the underlying shift to the Information Age" helps to "drive the need to reexamine how we deliver education services to citizens," while Carnevale and Desrochers (2003) warn that neglecting to address the issue of student achievement "may put the United States in the position of losing its preeminent economic status among world nations. . . . The advantages afforded the United States because of the sheer size of its labor force will eventually be overcome by smarter and more efficient workforces worldwide" (p. 65).

Whether or not insufficient educational achievement is what threatens the nation's economic dominance, however, remains an issue of contention. Pointing out that a college diploma, and the education and skill levels it represents, "should be a sure-fire ticket for getting and keeping a good job," Bernstein and Chasanov (2004), writing for the Economic Policy Institute, report that instead, "the ranks of unemployed college-educated workers are larger and growing—in 2003, they made up 19% of those who were out of work for six months or longer." Challenging Federal Reserve Chairman Alan Greenspan's comment that the nation has "a shortage of highly skilled workers and a surplus of lesser-skilled workers," Bernstein and Chasanov suggest that the question is not whether a sufficient number of highly educated workers are available, but whether job creation will keep up with rising graduation rates:

> The problem is the lack of job creation in the occupations and industries that tend to employ [college graduates]. . . . Technological advances in computing and telecommunications combine with a huge pool of relatively highly skilled workers in other countries to put educated U.S. workers in direct competition with foreign workers who can do the work for much lower wages. It is not at all clear that there's a shortage of highly skilled U.S. workers. . . . While investments in education are critical to our economic future, they are not sufficient. If we are to have good jobs for our educated workforce we must control the loss of jobs to imports and do more to create jobs here at home, in export industries, in the public sector and in private research and development. (2004)

A brief examination of the Bureau of Labor Statistics' occupational outlook for 2002-2012, modified in February 2004, lends some credence to the Economic Policy Institute's stance. The 10 occupations with the largest job growth are identified as these:

1. postsecondary teachers (38% growth)
2. registered nurses (27%)
3. nursing aides, orderlies, and attendants (25%)
4. customer service representatives (24%)
5. combined food preparation and serving workers, including fast food (23%)
6. general and operations managers (18%)
7. janitors and cleaners, except maids and housekeeping cleaners (18%)
8. waiters and waitresses (18%)
9. retail salespersons (15%)
10. cashiers, except gaming (13%)

Only postsecondary teachers, registered nurses, and general/operations managers are identified as occupations requiring college degrees, with nurses needing associate's degrees, general/operations managers needing bachelor's or higher degrees, and postsecondary faculty needing doctoral degrees. The remaining occupations are characterized as needing "short-term on-the-job training," with the exception of customer service representatives, whose training is described as "moderate-term on-the-job" (Bureau of Labor Statistics, 2004).

Bracey (2003) casts further doubt on the nexus between public education and economic performance, predicated on extensive research he conducted using data from the Third International Math and Science Study (TIMSS) and the World Economic Forum (WEF). Among the 35 nations in the TIMSS, the United States was ranked first in 2001; among the 75 nations ranked for global competitiveness by the WEF, the United States was second.

Bracey (personal communication, July 5, 2004) also points to current economic circumstances in Asian markets as evidence of the tenuous connection between a nation's economy and its education system. He notes that while the Japanese education system is frequently cited as a model and Japanese children are always among the highest scoring on international measures of student achievement, their performance has not spared the nation from more than a decade of economic stagnation or recession. A contributing factor, he says, is that China's accelerated economic growth of 7% to 9% per year has extracted jobs from Japan because Chinese workers can and will do them more cheaply.

Carnevale and Desrochers (2003) arrive at largely the same conclusion, noting that while Japanese students are routinely among the frontrunners on international tests, the average purchasing power of American families is 40% greater than the purchasing power of Japanese families. They observe, as well, that while students in the European Union generally outperform U.S. students, the U.S. gross domestic product per capita "towered over that of the European Union nations—$27,800 versus $19,300" (p. 67). The reason for those differences, they explain, is this:

> The United States may not have, on average, the world's *best* stock of skills, but it is pretty good and because of its size, it has *more top students*. For instance, the United States' population is roughly four times the size of that of France, Italy, and the United Kingdom, and three times the size of Germany. So while on average the United States may be in the middle of the pack on international tests, because of its size, it tends to have more high performers than the nations that do better. (p. 6, emphases in original)

The sheer size of the working population will not always be a national ally, however. The U.S. population in general nearly quadrupled from 76 million people in 1900 to 281 million in 2000 (Hobbs & Stoops, 2002). Although this growth was remarkable in comparison to that of other industrialized nations, the U.S. share of the world's population has declined as less developed countries have grown more rapidly.

The growth of the U.S. population to nearly 300 million during the course of the twentieth century represents more than the current population of every country in the world, with the exception of China, India, and Indonesia (Hobbs & Stoops, 2002). Workers in these countries represent the bulk of the international labor force as emerging technologies have made it simpler to outsource geographically mobile jobs.

The integration of technology has affected the labor market within the United States as well, although Lerman and Schmidt (1999) observe that the impact has not been uniform (p. 28). Although technology increases the skill demands of many jobs, favoring workers with good math and communication skills, it has de-skilled many others. Manufacturing industries that have invested the most in technology, for example, have developed a higher demand for "nonproduction workers" (e.g., secretaries and janitors) relative to production workers. This phenomenon would help to explain the Bureau of Labor Statistics' occupational outlook, cited previously.

There is some disagreement, thus, concerning whether the threat to the nation's competitiveness is insufficient numbers of well-educated workers or a national economic policy that favors outsourcing over creating jobs at home. There is little dispute, however, concerning the impact that important demographic trends taking place in the U.S. population will have as they relate to the workforce. The "prime-age" group of 25- to 54-year-olds constituted "virtually all the workers added to the labor force" in the past two decades of the twentieth century (Lerman & Schmidt, 1999).

Between 1976 and 1996, 38 million prime-age workers joined the labor force. By 2010, however, Lerman and Schmidt (1999) project that fewer than one in three (31%) of those entering the workforce will come from this age group. The proportion of 25- to 44-year-olds in the labor force is projected to decline from 52.6% in 1996 to 44.5% as early as 2006. This is not good news in a country where between 2005 and 2010 the population of 65- to 69-year-olds will increase by 17%, and then explode by another 37%. The rise in the 70-and-over population between 2010 and 2020 will reach 38%, from 24.6 to 31.8 million people.

Obviously, the question of whether the size of the labor force will be adequate to sustain the number of retirees is a crucial one, particularly as it intersects with another demographic trend: the changing ethnic composition of the nation. Projections suggest that the combined Hispanic and Asian share of the population will increase from 14% in 1995 to 19% by 2020, and continue to grow thereafter.

Lerman and Schmidt (1999) report that Hispanic workers have the lowest education attainment of any major ethnic group in the United States, with only 55% over age 25 having completed high school (p. 6). As educated workers participate in the workforce at substantially higher rates than the less educated, the education attainment of the Hispanic population group is critical.

There is also little dispute in the literature concerning the value of a college degree to the individual who earns one. Carnevale and Desrochers (2003) recognize "the

inescapable reality" that ours is a society "based on individual economic autonomy. Those who are not equipped with the knowledge and skills necessary to get, and keep, good jobs are denied full social inclusion and tend to drop out of the mainstream culture, polity and economy" (p. 2). The authors reemphasize this point:

> Unlike the European welfare states that guarantee access to relatively high levels of income and benefits irrespective of individual performance at school or on the job, the United States increasingly relies on education, especially access to postsecondary education and training, as the arbiter of economic opportunity. . . . As economic and demographic changes increase the demand for workers with at least some college, income differentials between the most and least skilled will continue to grow, threatening the egalitarian base at the core of America's culture. (p. 6)

Likewise, the Pathways to College Network's *Shared Agenda* notes that "educational attainment means individual and national prosperity" (2004, p. 15), and Gladieux and Swail write that "simply put, on average, the more education one has, the more one earns" (2000, p. 688). Even the Economic Policy Institute, while dubious of the nexus between the college graduation rate and the nation's economic productivity, says, "Don't get us wrong: Highly educated workers are far more likely to be employed and to be better compensated than those with less education" (Bernstein and Chasanov, 2004).

Regardless, then, of whether a correlation between postsecondary participation and the nation's economic performance can be conclusively drawn, the benefits of an extended education for individual productivity appear to be broadly accepted. Attempting to tie the education of students to the needs of a national economy—the only stable characteristic of which is its inherent changeability—may well result in equally mercurial goals. If we adopt as our focus, instead, "giv[ing] each citizen the information he needs for the transaction of his own business," as Jefferson urged (1818), the business of the country will be the ultimate beneficiary. By extending the reach of individuals, we can extend the possibilities of the nation.

The Nation's Education Performance

K-12 schools. Disputes over how well the nation is meeting its obligation to prepare the citizen, the worker, and the cultivated individual are, if anything, more intense than those concerning the relationship between education and the economy. The publication of *A Nation at Risk* in 1983 set off skirmishes between educators and researchers on one side, and policymakers and education officials on the other, which persist more than 20 years later.

Salisbury and Lieberman (2003), for example, writing on the twentieth anniversary of *A Nation at Risk*, argue that "although the report generated a landslide of attention and multiple reform efforts, our education system is still in crisis." They provide a glimpse of "our continuing educational emergency," noting American students

still trail their counterparts in other countries in science and mathematics and characterizing the performance of public schools as stagnant. Chester Finn, former U.S. Assistant Secretary of Education, agrees, saying that since 1983 "a lot of effort and goodwill and activity and money [have been] spent on our schools, and yet [there is] very little to show for it by way of improvement" (in Coeyman, 2003).

Bracey (2003), however, questions the veracity of *A Nation at Risk*, characterizing it as "a litany of spun statistics" based on "only the most circumstantial of evidence." Proceeding systematically through the data presented in *A Nation at Risk*, he points out statistic after statistic for which the authors (whom he asked directly) were unable to provide any documented evidence. Unable to confirm the premises on which the report rested, he concludes that *A Nation at Risk* "was false then and is false now."

Gabbard (2003) is even less diplomatic, warning that readers "should consider *A Nation at Risk* to be the greatest lie that the state has ever produced regarding America's public schools." Characterizing it as "more than a document," he goes on to describe it as "a well designed and orchestrated propaganda campaign," the dimensions of which clearly resemble Cold War propaganda. In the same way that Cold War propaganda was intended to exclude from culpability those whose political decisions allowed the Soviets to develop their space program ahead of the Americans, Gabbard argues that *A Nation at Risk* was intended to shift the blame for the United States' increasing inability to compete in international markets away from those who actually develop economic policy and toward the nation's schools.

Data collected by Jennings and Hamilton (2004) provide support for those who argue that American schools are not as inferior as their critics claim. The authors report that between 1990 and 2000, National Assessment of Educational Progress (NAEP) math and reading scores for students in Grades 4 and 8 increased "across the board and for all major racial and ethnic groups" (p. 1) and that the scores have continued to rise since 2000. Scores on college admissions tests are also up, with the average SAT math score reaching 519 in 2003—an 18-point gain over the 1990 average and the highest average in three decades. The average verbal score on the SAT reflected a gain of 7 points over the 1990 average, and ACT scores are holding steady. These developments are an accomplishment, given the increased number of students taking the tests, a factor that ordinarily drives the averages down.

Whether test scores are accurate measures of students' knowledge, however, is one of the most vehemently debated issues in the education policymaking arena. Kohn (2001) says flatly that "the truth of the matter is [standardized tests] offer a remarkably precise method for gauging the size of the houses near the school where the test was administered." Robinson and Brandon's (1994) study of 1992 NAEP math scores finds that a combination of four variables unrelated to instruction explained 89% of the differences in state scores—number of parents living at home, parents' education background, type of community, and state poverty rate. In fact, one of those variables, the number of students who had one parent living at home, accounted for 71% of the variance all by itself.

The same pattern holds within states. In Massachusetts, five factors explain 90% of the variance in scores on the Massachusetts Comprehensive Assessment System (MCAS) exam, leading Clancy (2000) to conclude that students' performance "has almost everything to do with parental socioeconomic backgrounds and less to do with teachers, curricula, or what the children learned in the classroom" (p. A19). Similar findings are reported for Ohio (Hoover, 2000) and Florida (Wilgoren, 2000).

Studies examining scores on the Scholastic Aptitude Test (SAT) reflect the same trends. Writing for The College Board, Camara and Schmidt (1999) report that "increased family income and parental education are associated with higher scores on tests such as the SAT I" (p. 11) as well as with other academic measures such as grade point average and class rank. Moreover, they caution that family income may be "too gross" a financial criterion, as it fails to capture "accumulated wealth" (e.g., savings, stocks, home equity, retirement), which the authors argue would be a fairer and more sensitive variable (p. 13).

A more reliable, and less contentious, measure of student achievement centers on curriculum. Jennings and Hamilton (2004) report that high school students are taking more demanding courses, noting that the number of students enrolled in advanced placement classes has increased from an average of 36 students per school in 1989 to 55 students per school in 1999 (p. 2). Given the controversy concerning whether standardized test scores are accurate reflections of student knowledge, this is a particularly encouraging finding. Venezia, Kirst, and Antonio (2003, p. 40), writing for the Stanford Bridge project, point out that it is "students' high school course-taking patterns [that] are the main predictor of college success," a position that is shared by Adelman (1999), a senior researcher for the U.S. Department of Education, and by the Bill and Melinda Gates Foundation (2003), and the Pathways to College Network (2004):

> A strong academic program in high school predicts college success better than high grades or test scores. A rigorous high school curriculum has greater impact on bachelor's degree completion than any other precollege indicator of academic preparation, regardless of socioeconomic status or race. (Pathways, 2004, p. 13)

Their research indicates that more high school students are entering postsecondary education, a trend that is consistent for all major racial and ethnic groups.

Higher education. As is the case with K-12 schools, disagreement also persists concerning the performance of higher education. The Education Trust's *A Matter of Degrees* (Carey, 2004, p. 1) warns that there is a "serious and deep-rooted problem" in America's four-year colleges and universities; namely, too many students who enroll are not successful in acquiring their degrees. Summoning the same economic imperative cited for K-12 schools, Carey writes that "low college graduation rates are something our economy can no longer afford and our society must no longer tolerate" (p. 5).

Venezia and associates (2003), writing for Stanford University's K-16 Bridge Project, are equally concerned about college completion rates, noting that "the percentage

of four-year graduates among the U.S. adult population has barely increased since 1980, despite increasing attendance" (p. 46). Likewise, the American Diploma Project, a partnership of Achieve Inc., The Education Trust, and the Thomas B. Fordham Foundation, reports that "most college students never attain a degree" (Achieve, 2004, p. 2).

Others, however, are not convinced of a college completion crisis. Clifford Adelman (2004) finds that today's college students are doing no worse than their predecessors 30 years ago when it comes to persisting through college to earn a degree—this despite the steadily increasing numbers of high school graduates who go on to college. Using longitudinal transcript data from the high school classes of 1972, 1982, and 1992, his research of approximately 9,000 student records is the most thorough in the literature, and the most often cited.

Adelman's data indicate that the average undergraduate can expect to complete the typical four years of baccalaureate study in just under five years, with the average time-to-degree increasing from 4.34 years for the class of 1972 to 4.56 years for the class of 1992. He also reports that two in three traditional-age students (18 to 26 years old) in baccalaureate programs will earn bachelor's degrees by their late twenties.

ACT (2002) shows the same trend, reflecting a 51% graduation rate within five years of initial enrollment for students in baccalaureate institutions. Wes Habley, director of the ACT Office for the Enhancement of Educational Practices, observes that as the percentage of students going to college increases, it is likely that some of them will be less prepared academically than their peers:

> Those students are more likely than others to struggle in the classroom. The fact that graduation rates have remained relatively steady as college enrollment rates have increased should be interpreted as good news. It suggests colleges are paying attention to the needs of students with a greater diversity of academic skills. (ACT, 2002)

There are many who question the use of graduation rates as an accountability measure, given the difficulty of tracking those students who transfer to other institutions. The institution from which the student transfers must count the student as a loss, and the institution to which the student transfers is required to follow only the progress of the students who were admitted as first-time, full-time freshmen (Burd, 2004, April 2).

The National Center for Education Statistics (NCES) concurs. Among students who intended to earn a bachelor's degree and began their postsecondary education at a four-year institution in 1995–96, 55% had earned bachelor's degrees at that institution within six years. However, approximately one quarter of those seeking bachelor's degrees transferred from the first institution and continued their education elsewhere. When the outcomes for these transfer students are considered, the cohort's overall bachelor's degree attainment rate increases to 63% (NCES, 2003).

Few people, however, even among those who believe the data on college completion rates belie a crisis, would deny that there remains room for improvement. Adelman's (2004) data, for example, reflect a fairly substantial gap in graduation rate by socioeconomic status. The Pathways to College Network (2004) also reports that "in 2000, 82% of high school graduates from the top income quartile enrolled in college, while only 57% of those from the bottom quartile did so" (p. 10), and those students from the top quartile were five times more likely to earn bachelor's degrees by age 24 than their peers from the bottom quartile.

Gaps in completion exist by race as well, with one third of Whites having a bachelor's degree by their late twenties as compared to 18% of African Americans and 10% of Hispanics (Pathways, 2004, p. 11). Kazis and associates (2004), arguing that the "educational pipeline is inefficient," point to minority students' need for postsecondary remediation and their drop-out and completion rates as evidence of "leaks."

As was the case with the economic imperative, a legitimate case can be made for improvement even if the academic circumstances are not quite as dire as critics assert. The identification of those improvements most likely to be beneficial can be initiated by examining first where West Virginia stands relative to the data presented above.

West Virginia's Context

The current environment within the state as it relates to assessments of economic growth and education achievement reflects both discouraging and encouraging news. In terms of the presumed nexus between the state's education enterprise and its economy, there is sufficient disparity between economic performance and education accomplishment to suggest that those who question the extent to which schools and institutions of higher education can be held responsible for economic growth may have a point. Recent measures of education achievement, however, provide reason for optimism.

The Economic Imperative

As is the case at the national level, calls for improving education in West Virginia are grounded in the need for economic growth. The executive order establishing the P-20 Council includes in its rationale the conviction that "a well-trained and highly skilled workforce will enable West Virginia to retain its existing businesses and to grow and attract new businesses which means the creation of higher paying jobs" (p. 1). The governor's weekly column of April 9, 2004, reiterates this position: "Education is the cornerstone of our economic development efforts. Companies large and small need a workforce that can use the latest technology and knows how to learn new skills, communicate effectively and work as a team" (Wise, 2004b).

Likewise, the Higher Education Policy Commission's Compact for the Future of West Virginia cites as its overall goal aligning the state's higher education system "to contribute to the long-term growth and diversification of West Virginia's economy" and as its target increasing the state's per capita income "to or above the national average by the year 2020" (WVHEPC, 2002). Among the specific goals in that document are increasing the number of high school graduates, increasing the number of students enrolled in postsecondary education, and creating "a total of 5,000 new jobs by 2005."

As is also the case with national-level data, however, the question of whether the presence of a well-educated labor pool is sufficient to catalyze economic development in the state is relevant. "Selected Data for West Virginia Higher Education," a presentation created by the state's Higher Education Policy Commission for the National Collaborative on Postsecondary Education in 2004, suggests that for the transition to a knowledge economy to be successful, policymakers will need to look both at education preparation and at job creation. The presentation, for example, indicates that only two states—Rhode Island and North Dakota—lose more of their bachelor's degree graduates than does West Virginia (WVHEPC, 2004b, February).

"Selected Data" reports figures from the 2000 U.S. census, which provided information on West Virginia's net migration by occupation for 22- to 29-year-olds with college degrees. The census data indicate that among that population, 200 remained in the state: 60 in law enforcement, 60 in personal care/service work, 40 in postsecondary teaching, and another 40 in the physical sciences. There were, however, 5,160 who left, among them 800 K-12 teachers, 600 engineers, 480 computer specialists, and 340 financial specialists (WVHEPC, 2004b, February; see also Appendix A).

The *West Virginia Economic Outlook 2004* reflects those figures (Hammond, 2003). Noting that the state continues to struggle to generate job growth—despite the National Bureau of Economic Research's declaration that the national recession ended in November 2001—the report predicts that "the service-providing sectors will generate the driving force behind West Virginia's job growth during the next five years" (p. 9). That observation is consistent with the Bureau of Labor Statistics' projections for national job growth (2004). Moreover, the *Forecast Update 2004* (Hammond, 2004) calls for overall job growth in West Virginia to average only 0.6% between 2004 and 2014, which is "half the expected rate of job growth for the nation and is significantly below the 1.1% per year rate that the state posted during the 1992-2003 period" (p. 1).

While West Virginia's PROMISE scholarship is to be commended for keeping students in-state to attend school, the implicit assumption that recipients will remain after their graduation from college is tenuous at best. There is presently no requirement that they do so and, as is illustrated above, absent some aggressive job creation or compensation for staying in West Virginia (e.g., agreeing to teach in disadvantaged schools or districts in exchange for a fiscal incentive in the form of a hiring bonus, increased salary, or loan forgiveness), the mobile bachelor's-degree-holding population will continue the exodus.

West Virginia also faces the same demographic warnings that confront the nation. The state's challenges are even more daunting. The *Economic Outlook Forecast Update* (Hammond, 2004) reports that the state can expect the under-18 population to decrease by 23,000 residents, the 18- to 44-year-old population to decline by 33,000, and the baby boom generation to begin joining the 65-and-older group in 2011. Longanecker (2003) projects from those data a drop of 9.5% in higher education's feeder population between 2000 and 2015, stemming from a 12% decrease in high school graduates.

The dynamics between and among economic growth, demographics, and education preparation are clearly complex ones. It seems reasonable to assume, however, that any state benefits from increasing the number of well-educated individuals within its borders, and West Virginia should be no exception. As was noted previously, the value of postsecondary education to individual productivity is widely recognized. By investing in and increasing individual potential, we help to cultivate the collective potential of the state.

The State's Education Performance

K-12 schools. Now in its eighth year, *Education Week's* Quality Counts report compiles numerical data on K-12 schools' performance and assigns five "grades" across four categories: standards and accountability, teacher quality, school climate, and resources (assessing both "equity" and "adequacy"). In 2004, based on more than 100 indicators across those five indices, West Virginia achieved the highest grades in the nation (Appendix B).

The report notes changes in West Virginia's testing system elevated the state's grade to an "A" in standards and accountability this year. The addition of standards-based exams at elementary, middle, and high school levels in mathematics, science, and social studies/history make West Virginia 1 of only 14 states to have such exams in every core subject and at every grade level. Improvements include the range of means used to measure student achievement, which now includes multiple-choice, short-answer, and extended-response questions.

"Quality Counts 2004" commends West Virginia's requirement that teachers pass a full battery of tests to earn their initial licenses, ranging from basic-skills to subject-matter exams. The report also points out that the state provides almost 67% of total state and local funding for education, which categorizes West Virginia among the highest states in the resource adequacy classification. Even so, however, West Virginia data demonstrate "a positive wealth-neutrality score," indicating that, on average, "well-to-do districts in the state still receive more state and local funding than property-poor districts do."

On another evaluation, this one of student achievement, the National Assessment of Educational Progress (NCES, 2004, April), West Virginia students' scores are perhaps less impressive than educators would hope but remain respectable, hovering close to the

national average (i.e., slightly above average on some tests and slightly below on others). NAEP represents the only student assessment administered by a national governing board in all 50 states. Scores on the 2003 NAEP tests for the state's fourth and eighth graders in reading, mathematics, science, and writing reflect an increase over 1998 scores, with the exception of eighth-grade reading (which showed a decrease in percentage of students at or above proficiency level from 28 to 25). There are no comparisons for fourth-grade science or writing, as these were administered for the first time in 2000 and 2002, respectively.

Improvement can be seen on the curricular front as well. The West Virginia Department of Education's Policy 2510 has increased graduation requirements for students entering high school in the 2004-05 school year. While the minimum college preparatory core has been defined by ACT as four years of English, three years of mathematics, three years of natural science, and three years of social science (ACT, 2001), Policy 2510 exceeds these recommendations by requiring a fourth year of social science courses.

The West Virginia Center for Professional Development (CPD, n.d.) notes progress on the advanced placement (AP) front, as well. The CPD reports that more than 2,900 educators have participated in AP training opportunities since 1992, and the number of AP courses in high schools has increased significantly since that time. The National Center on Public Policy and Higher Education (2002) reports that West Virginia led the nation in increasing the numbers of high school students taking upper-level math and science courses, as well as the number of eighth graders taking algebra.

These latter developments are promising, in light of the recent research correlating success in postsecondary education with course-taking patterns in high school (Bill and Melinda Gates Foundation, 2003; Pathways to College Network, 2004; Venezia et al., 2003). Adelman's (1999) research further illuminates the relationship between coursework and college success, identifying high school curriculum as the variable that accounts for 41% of the "academic resources" incoming freshmen bring with them. Test scores represent 30% and academic rank/grade point average the remaining 29%.

The West Virginia Higher Education Policy Commission (2004, April) reports that more West Virginia high school graduates are choosing to go to college as well. The Commission's data reflect a 2.86% increase in college enrollments from 2002 to 2003.

Higher education. As is the case with K-12 performance, West Virginia higher education compares favorably to the national data. The number of bachelor's degrees awarded annually increased between 1991-92 and 2001-02 from 8,168 to 9,032 (11%). The decade also saw an 18% increase in master's degrees, a 167% increase in post-master's degrees, a 23% increase in first professional degrees, and a 26% increase in doctoral degrees. Only associate's degrees showed a decline at 7% (WVHEPC, 2002, September).

The state's college-going rate for recent high school graduates has increased steadily since 1996 (Appendix C). Getting students enrolled, of course, is only part of the equation. Retaining them is critical. Statewide retention rates for all first-time, full-time freshmen were stable between the 1996-97 (69%) and 2000-01 (69.5%) academic years (Appendix D). The rate for baccalaureate institutions dropped only 0.5%, from 73% to 72.5%, and the community college rate held steady at 59% (WVHEPC, 2002, May).

The disaggregated data for statewide retention indicate a relatively stable pattern as well. In 1996-97, 69% of White students were retained as compared to 70% in 2000-01. During the same period, retention rates for African American students increased slightly, from 64% to 66%; for Hispanic students, the rate increased from 58% to 66% (Appendix E).

Participation rate figures compare favorably to those posted by states that are demographically similar to West Virginia (Appendix F). They remain, however, below the "benchmark" standards recommended by the Education Commission of the States. Rhode Island sets the standard for 18- to 24-year-olds with a 47.7% participation rate, while California is the top performer in the 25-and-over age group, with a 6.4% rate (Ruppert, 2003).

The West Virginia Higher Education Policy Commission's goal of an overall postsecondary participation rate of 70% exceeds these national benchmarks. The Compact for the Future of West Virginia also aims to increase the adult postsecondary participation rate to 3% or more in each county, raise to 26% the number of adults who hold bachelor's degrees or higher, raise to 8% the number who acquire associate's degrees, and increase by 25% the number of students transferring from two-year to four-year programs (WVHEPC, 2002).

These are ambitious figures by any state's standards. Their achievement will require a combination of creativity and sensitivity—creativity in developing a P-20 program that is designed to meet West Virginia's unique needs, and sensitivity to the fiscal condition of the state. While we recognize that the formulation of specific fiscal recommendations lies outside of the confines of our research, we think it important to acknowledge our awareness of the financial environment in which we write.

We understand that given the circumstances affecting the federal budget, all states will likely continue to face steep budgetary challenges for the foreseeable future, West Virginia more so than many. Increased expenditures at the federal level for the war in Iraq, coupled with additional homeland security costs and an ever-increasing deficit, mean that states can expect little financial assistance. The state, thus, will be required to prioritize its interests within the limited resources available to it.

Improving Postsecondary Participation

In addition to numerous state-level interventions designed to enhance enrollment in postsecondary education, a number of professional associations and policy organizations have launched initiatives to galvanize policymakers around P-16/P-20 issues. Among them are the State Higher Education Executive Officers, The Education Trust, the Education Commission of the States, the Pathways to College Network, the Educational Testing Service, the Institute for Educational Leadership, the National Governors Association, and the National Conference of State Legislatures.

Most of these organizations concern themselves, as do the state initiatives, with increasing college attendance as opposed to increasing postsecondary enrollments in a broader fashion, and they demonstrate a common concern for underrepresented populations. The need to provide equal education opportunities to low-income and minority students was identified as a national priority in the 1960s. The first federal attempts to improve education for these populations, the Elementary and Secondary Education Act and the Higher Education Act, were implemented alongside the Civil Rights Act and various antipoverty measures. These were followed in the early 1970s by the establishment of the Basic Educational Opportunity Grants, now referred to as Pell grants, to extend financial aid directly to low-income students.

Subsequent decades witnessed the development of numerous outreach programs to encourage low-income and minority youngsters to prepare themselves for college—and to help them stay there once they enrolled. Given the recent and projected demographic changes outlined in this report, the need to increase attendance in these population groups is of increasing concern nationally.

The participation of low-income and minority students is especially important, as it relates to raising the enrollment numbers of West Virginia's postsecondary population, particularly if the state aspires to reach the Higher Education Policy Commission's proposed goal of an overall postsecondary participation rate of 70%. The commission reports that of the state's 17,833 high school graduates of 2002, 56.53% attended college that fall. Of the state's 55 counties, 26 had participation rates of 50% or more. Only three counties (Harrison, Ohio, and Taylor) showed participation rates of more than 75%. Among the 24 counties with participation rates less than 50%, 5 (Lincoln, McDowell, Morgan, Summers, and Wyoming) were below 40%. These 5 counties all exhibit median household incomes below the state figure of $29,696, all have lower percentages of individuals age 25 and older who hold bachelor's degrees, and all but 1 (Morgan) have higher percentages of residents living below the poverty level than does the state as a whole (see Appendix G).

A number of initiatives are emerging as promising strategies for increasing the number of low-income and minority students who not only enroll but also succeed in college. They range from preschool to high school, as is appropriate for the implementation of an integrated system. While each element of the system must be

effective, each must also work effectively with the others to achieve the common goal of engaging every student's capacity to learn.

Some initiatives, such as those addressing the need for effective early childhood education programs and based on the value of college/university outreach programs, are grounded firmly in research (described in subsequent sections) demonstrating their efficacy. Others spring from data on financial resources and identification of particular needs (e.g., the difficulty of attracting high-quality personnel to challenging schools or districts), and still others grow from assumptions that, while logical, will require time for any evidence of effectiveness.

What follows herein is an explication of common themes or patterns that emerge from the current research on P-20 initiatives. Themes are arranged into five primary categories: early childhood education, outreach programs, curriculum and assessment, financial aid, and quality teaching. This is followed by an exploration of the benefits of increasing enrollments in graduate education, a matter not commonly addressed in the literature on postsecondary participation, although six states include the focus in their P-20 titles. Each chapter distills the emerging consensus on the subject under discussion and offers recommendations that may be feasible for West Virginia's P-20 initiative.

While the primary themes emerging from the P-20 research are examined individually, we want to emphasize here the importance of their interrelatedness. The themes intersect and overlap in many ways, so success in one area may positively affect others. The same is true for the influential effects of failure. We envision these thematic areas not as discrete elements on a continuum but as parts of a holistic strategy, broadly conceived, to improve postsecondary success.

Before we begin the exposition of strategies for improvement, we have one broad recommendation to make: the P-20 Council should not be dissolved on December 31, 2004, as was specified in Executive Order 3-01, which established the body. Enhancing postsecondary participation and success in West Virginia requires the systematic, ongoing involvement of a body that focuses solely on the broadening of postsecondary opportunities for underserved students. Such an initiative calls for leadership from across the education spectrum in order to ensure that duplication of effort is reduced and cooperation is maximized—two crucial factors in a state with limited fiscal resources.

Given the size of the state's population, we do not think it necessary to establish regional P-16/P-20 councils as, for example, Georgia and Kentucky have done. A single council, guided by several smaller advisory committees composed of representatives selected for their expertise in the areas discussed herein, should prove adequate to accelerate and sustain postsecondary opportunities in West Virginia.

Chapter 1: Early Childhood Education

Success in college is influenced by a number of variables. Family and cultural attitudes, individual aspirations, and awareness of opportunities are among them, as are academic preparation and course-taking patterns. The latter are the most powerful (Adelman, 1999; Bill and Melinda Gates Foundation, 2003; Pathways to College Network, 2004; Venezia, Kirst & Antonio, 2003), and the groundwork, as Rendon (1997) points out, must be laid early: "By the time students reach the 12th grade, it is too late to . . . increase the numbers of students who are ready for college. In fact, it could be said that students begin to drop out of college in grade school" (p. 7).

Lee and Burkham (2003) agree, noting that "disadvantaged children start kindergarten with significantly lower cognitive skills than their more advantaged counterparts." The authors point out that these children enter school as much as 60% behind their advantaged classmates on kindergarten diagnostic tests, and the problem is compounded by their attendance in low-resource schools in disadvantaged neighborhoods.

Study after study has clearly documented that the early years are crucial to a child's long-term development (Barnett, 1993; Barnett, Young, & Schweinhart, 1998; Howes, Phillips, & Whitebook, 1992; National Research Council, 2000; Weikart & Schweinhart, 1997). Given these findings, it may seem puzzling that early childhood education has been largely absent from the national agenda. As Kagan (2001) and Cahan (1989) point out, the oversight is likely attributable to a national history that has been largely reluctant to intervene in family affairs. Thus, unlike K-12 schooling, the education of children under the age of five has been the domain of the family rather than the society.

Numerous and promising efforts in the early childhood arena are occurring across the country, however, and their success is supported by the kind of evidence-based research required by the U.S. Department of Education's new Institute of Education Sciences. Three of the best known and respected are longitudinal studies—the Abecedarian Project, the Chicago Child-Parent Center Study, and the Perry Preschool Project. Each study tracked participating children into adulthood.

The Abecedarian Project

The Abecedarian Project, conducted by the FPG Child Development Institute at the University of North Carolina, was a carefully controlled study in which 57 infants from low-income families were randomly assigned to receive early intervention in a high-quality child care setting and 54 were in a nonintervention control group. The Abecedarian Project differs from most other early childhood experiments in that it began working with subjects in early infancy rather than at age two or older, and children in the

intervention group had five years of exposure to early education before entering kindergarten, whereas most other programs have been of shorter duration.

Results from a young adult follow-up assessment of study participants, involving 104 of the original 111 infants (53 from the intervention group and 51 from the control group), yielded the following findings.

- Reading achievement scores were consistently higher for individuals with early intervention. Intervention effect sizes remained large from primary school through age 21.

- Mathematics achievement showed a pattern similar to that for reading, with individuals in the intervention group earning higher scores. Effect sizes were medium, however, in contrast to the large effects for reading.

- Those in the intervention group were significantly more likely to be in school at age 21—40% of the intervention group compared with 20% of the control group.

- A significant difference was also found for the percentage of young adults who ever attended a four-year college. About 35% of the young adults in the intervention group had either graduated from—or were attending, at the time of the assessment—a four-year college or university. In contrast, about 14% in the control group had done so. (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002)

These findings are impressive. The Abecedarian Project provides strong evidence that early childhood education significantly improves the academic success and education attainment of poor children, even into early adulthood. The study's intervention in early infancy emphasizes the importance of providing a learning environment for children from the very beginning of life.

The Perry Preschool Project

The Perry Preschool Project delivers similar findings, demonstrating that children born in poverty who participated in a high-quality, active learning preschool program at ages three and four have, as adults, half as many criminal arrests, higher earnings, and greater property wealth. The project reports that over participants' lifetimes, the public is receiving an estimated $7.16 for every dollar originally invested (Schweinhart, Barnes & Weikart, n.d.).

Conducted by the High/Scope Educational Research Foundation of Ypsilanti, Michigan, the study divided 123 African American three- and four-year-olds, born in poverty and at high risk of failing in school, into two groups: one group received a high-

quality, active learning preschool program, and the second group received no preschool services. At age 27, 95% of the original study participants were interviewed, with additional data gathered from school, social services, and arrest records. The findings included these:

- Nearly one third more preschool members than nonpreschool members graduated from a regular or adult high school or received GED certification (71% vs. 54%). The preschool group had a significantly higher average achievement score at age 14 and a higher average literacy score at age 19 than the nonpreschool group.

- At age 27, four times as many preschool group members as nonpreschool members earned $2,000 or more per month (29% vs. 7%). Almost three times as many owned their own homes (36% vs. 13%), and more than twice as many owned two cars (30% vs. 13%).

- By age 27, only one fifth as many preschool group members as nonpreschool group members had been arrested five or more times (7% vs. 35%), and only one third as many were ever arrested for drug dealing. (Schweinhart, Barnes, & Weikart, n.d.)

A cost-benefit analysis was conducted by estimating the monetary value of the program and its effects in constant 2001 dollars, discounted annually at 3%. Dividing the $105,324 in benefits[1] per participant by the $14,716 in cost per participant results in a benefit-cost ratio of 716% of the program investment returned to the public. The investigators note that the program was "an extremely good economic investment, better than the stock market during the same period of time" (Schweinhart, Barnes, & Weikart, n.d.).

The program's teachers were certified public schoolteachers who made weekly home visits. The study reports that an increase in the number of children per teacher from five to eight could reduce the program's cost per child per year to $5,398—less than the average cost of Head Start programs in 2001—with no anticipated loss in either quality or benefits.

These findings, like those of the Abecedarian Project, demonstrate the dramatic impact that high-quality early childhood programs can exert. The investigators observe that "because Head Start and other preschool programs have served only a fraction of the children living in poverty and because the quality of these programs has varied, the nation has been losing the recoverable human and financial potential of its most vulnerable citizens. It is essential that the nation invest fully in high-quality, active learning preschool programs for all children living in poverty or otherwise at risk of failing in school" (Schweinhart, Barnes, & Weikart, n.d.).

[1] Benefits categories include such considerations as reductions in expenditures for school services such as remediation or special education, reductions in criminal justice system expenditures for both juveniles and adults, and increases in adult earnings and tax revenues related to increases in educational attainment.

The Chicago Longitudinal Study

The Chicago Longitudinal Study, now in its 18th year, is a federally funded investigation of the effects of an extensive early childhood intervention in central-city Chicago—the Child-Parent Center (CPC) Program. The study was launched in 1986 to investigate the effects of government-funded kindergarten programs for 1,539 children in Chicago's public schools.

To examine the short- and long-term effects of early childhood intervention, the study traces the academic achievement and social development of participating children and the influences of family and school practices on children's behavior. The CPC program provides comprehensive educational and support services to families with children age three to seven.

Each Child-Parent Center is run by a head teacher and includes a staffed parent resource room, school-community outreach activities, and health services. After preschool and kindergarten, the school-age program in the elementary school provides reduced class sizes, teacher aides for each class, continued parent involvement activities, and an enriched classroom environment for developing reading and math skills.

Relative to comparison groups, preschool participants had a 29% higher rate of high school completion, a 33% lower rate of juvenile arrests, a 42% reduction in arrests for violent offenses, a 41% reduction in special education placements, and a 40% reduction in the rate of grade retention.[2] School-age participation and extended program participation for four to six years were associated with 30% to 40% lower rates of grade retention and special education placement. Compared to children with one to three years of participation, extended program participants also had higher achievement test scores in adolescence (Reynolds, 2000).

Following the same procedures as those who evaluated the Perry Preschool Project, investigators conducted a cost-benefit analysis in 1998 dollars. Results indicated that each component of the CPC program had economic benefits that exceeded costs. With an average cost per child of $6,730 (1998 dollars) for 1.5 years of participation, the preschool program generated a total return to society at large of $47,759 per participant. The largest benefit was program participants' increased earnings capacity, projected from higher educational attainment. Economic benefits of the preschool program to the general public (taxpayers and potential crime victims), exclusive of increased earnings capacity, were $25,771 per participant (Reynolds, 2000).

The largest categories of public benefits were increased tax revenues associated with higher expected earnings capacity (28%), criminal justice system savings due to lower rates of arrest (28%), savings on tangible costs for crime victims (24%), and

[2] African American children born in poverty and at high risk of failing in school were involved in the project. At ages 3 and 4, these individuals were randomly divided into a group who received a high-quality, active learning preschool program and a group who received no preschool program.

savings on school remedial services (18%). Overall, $7.10 was returned to society at large for every dollar invested in preschool.

Participation in the program for four to six years (preschool to second or third grade) also was associated with economic benefits that exceeded costs. The 1998 value of benefits to society at large was $24,772 per participant. Given an average cost of $4,068 per participant, the extended intervention program provided a substantial return to society at large with a benefit-cost ratio of $6.09 per dollar invested.

The Chicago Longitudinal Study provides evidence that large-scale child-development programs can provide substantial long-term benefits to society by "increasing economic well-being and reducing educational and social expenditures for remediation and treatment" (Reynolds, 2000). The benefits to the 100,000 children who have been served by the program to date have yielded as much as $2.6 billion in public savings since the program opened (1998 dollars).

Every child deserves a good start in an environment that is safe, healthy, emotionally supportive, and cognitively stimulating. Extensive early childhood and preschool programs, particularly for at-risk populations, enhance not only participants' academic success but their social mobility and economic productivity. Given the increasingly limited availability of financial and human resources for health and education interventions, investing in programs with demonstrated cost effectiveness is sound public policy.

Suggestions

Our selection of early childhood intervention programs as the first item for discussion represents our conviction that it is the most important among the strategies for enhancing academic success in the P-20 environment. It is the one initiative among the several we examine here that stands to have the strongest short- and long-term impact on the state's educational future. **We suggest the establishment of an advisory committee on early childhood education to provide recommendations to the Council on the following issues.**

Reexamine the Organizational Structure for Providing Services to Children and Families

At least three separate state agencies are presently charged with meeting the needs of families with children under school age: the West Virginia Department of Education (WVDE), the Department of Health and Human Resources (DHHR), and the Governor's Cabinet on Children and Families (the Cabinet). Head Start is also a player, although it works through federal grants distributed directly to local community agencies and has no presence at the state level.

While H.B. 4259 (WV Code §5-26-3), passed in March 2004, charges the Cabinet with the development of "a cross-agency multi-year state plan for improving the well being of children and families," S.B. 247, passed in March 2002, mandates that DHHR and WVDE establish preschool services for four-year-olds. S.B. 247 (WVDE policy 2525, WV Code §18-5-44) assigns the responsibility for these preschool programs to WVDE, with collaborative oversight from DHHR. These two entities have established PIECES (Partners Implementing an Early Childhood Education System) in response to the legislation.

The Cabinet, meanwhile, had already established Starting Points Centers in 1996 to "bring together the community's existing early childhood services and programs in one place" (Starting Points Centers, n.d.). Among the services the centers provide are intake and assessment, service coordination, health and nutrition, developmental screening, parent education, preschool education, home visits, referrals, and follow-up. These services may be available at the center or through linkages to other community programs.

The matter is further complicated at the local level, where both public and private schools, Head Start, and independent child care providers often offer duplicate or overlapping services. Although early childhood programs have been neither funded nor planned as systems, this loose configuration nevertheless functions as a system—one that has common goals (i.e., serving young children) and common constraints (i.e., inadequate resources and staffing). This haphazard development has decreased efficiencies and increased confusion (Kagan, 2001).

A bill that was introduced by the Executive in 2002 may deserve reconsideration. The legislation would have continued the Educare initiative, which was established in 1997 to improve the quality of early care and education through the creation of partnerships in communities. Educare pilot sites served 2,250 children in 59 programs in nine counties through combinations of Head Start programs, child care centers, and public and private preschool programs, among others (Jones, n.d.).

Preliminary evaluations conducted at the pilot sites documented increased collaboration and service coordination as a result of the incentives provided through the Educare model (Steven Heasley, personal communication, August 17, 2004; Jones, n.d.). However, legislation designed to extend the Educare initiative and situate it within the Governor's Cabinet on Children and Families failed to pass.

An alternative, perhaps preferable to asking the Cabinet or one of the other agencies involved in the arena to take on the oversight role, would be to consider the establishment of an office that is not part of the current structure and would thus be independent of any competition for either resources or authority. An Office for Early Care and Education, housed in the Department of Education and the Arts to recognize its independence from the agencies presently involved in early education and family services, could signify the importance of early childhood issues by acknowledging them as appropriate state-level concerns.

Whether it is the reconsideration of Educare, an Office for Early Care and Education, or another coordinating model, any comprehensive birth-to-five approach will need to address now-scattered responsibilities and services and devise an organizational structure that rectifies the current disjointedness and reduces "turf wars."[3] We recognize that this process will require both diplomacy and patience and that it has legislative dimensions as well. We believe, however, that the importance of early childhood programs to West Virginia's educational future makes the P-20 Council an appropriate body for advocating such an initiative.

Reconsider the Timeline for Universal Preschool

S.B. 237/ WVDE Policy 2525 postpones universality for nearly another decade, until the 2013-14 school year. By that time, another generation of disadvantaged children will have entered school significantly less prepared than their peers. Understanding the difficulties of implementing a project of this scope, we nonetheless urge the Council to aggressively pursue an earlier commencement.

Much could be accomplished by the establishment of the coordinating body focused on a comprehensive birth-to-five initiative, as suggested above, particularly with regard to coordination of multiple providers. This body could also facilitate and expedite the development of administrative policies pertaining to accreditation of preparation programs; the credentialing/licensing of personnel; the provision of adequate professional development opportunities; and other planning, governance, and regulatory or oversight matters.

Fiscal planning for early implementation should take into account the potential revenue streams that will emerge from a statewide system.[4] Among them are tax revenues from those who will enter the workforce as preschool personnel and from parents currently electing to stay home until their children reach school age, who can return to the workforce a year earlier. The financial plan should also take into consideration the savings that will accrue from reductions in social expenditures (e.g., fewer grade retentions, less remediation, fewer referrals to special education, decreased welfare dependence and justice system costs).

In previous decades, the idea of investment in children from birth to age five was not part of the national conversation. Parents spent more time at home and with children, the early years were not recognized as critical to cognitive development, and providing early care at public expense was considered too costly. What we have learned since then is that both parents are likely to be in the workforce, that cognitive development from birth to age five is crucial to subsequent success, and that on average every dollar

[3] California, Delaware, Florida, and North Carolina have been engaged in comprehensive early childhood planning efforts since 2001. Their initiatives can be explored in the Web site companion to this document.
[4] Maine, Ohio, and Rhode Island are moving in this direction.

invested in young children can save seven in later expenditures. The sooner West Virginia can make that investment, the sooner we will realize the returns.

Chapter 2: Early College Outreach Programs

Researchers have known for decades that the strongest predictor of children's likelihood to attend college is the extent of their parents' education. Children of college-educated parents are "automatically enrolled in a 'program' that, early in life, exposes them to the advantages and possibilities of higher education" (SHEEO, 2003, p. 2).

Early college outreach programs are designed to help children who lack the "automatic enrollment program" of their more affluent peers to see that a college education can be possible for them, and that they too can succeed if they learn what to do and how to do it. These programs work to compensate for the shortcomings in disadvantaged students' environments by offering academic support, college visitation opportunities, assistance in navigating the labyrinthine financial aid process, and other related services that help to increase the participation rate for low-income and minority students.

Historically, outreach programs have tended to be ancillary initiatives that are integral to neither postsecondary institutions nor state education policy organizations. For example, John Tafel, vice chancellor of the Ohio Board of Regents, describes his state's outreach situation as "program rich and system poor" (Tafel & Eberhart, 1999). The program's existence, however, is due to the broad acceptance that the educational system lacks the resources to meet the needs of all students, particularly those most at risk.

National Efforts

The needs of a rapidly increasing number of disadvantaged students catalyzed the first wave of outreach programs in the 1950s and 1960s, supported initially by private charities and religious entities. The federal government became involved through the authorization of the Higher Education Act in 1965, which created Upward Bound, Talent Search, and Student Support Services.

Together, those three programs became known as the TRIO programs. Other programs have been added (i.e., Educational Opportunity Centers, the McNair Baccalaureate Achievement Awards, Veterans Upward Bound, and Disability Student Support Services), but collectively they retain the TRIO designation. Appropriations for TRIO programs have increased steadily and now amount to more than a billion dollars.

Despite these increases, Gladieux and Swail (2000) note that they serve only about 10% of the eligible students. Perna and Swail (2001) offer figures indicating that while "11 million Americans are eligible for services through TRIO program, only five percent of those eligible are being served due to limited federal funding for these programs" (in Rainwater & Venezia, 2003, p. 12).

Rainwater and Venezia (2003) report that there are literally hundreds of pre-college outreach programs presently operated by federal, state, and local governments, as well as by businesses, nonprofit organizations, and even individuals. Among the latter is the I Have a Dream project. Eugene Lang launched this program nearly 20 years ago, when he agreed to pay college tuition for 60 students from East Harlem if they graduated from high school. Other philanthropists and foundations have modeled their own outreach efforts on Lang's project, offering not only tuition but mentoring, counseling, tutoring, and other support to selected students.

Selection, however, is part of the problem. As Gladieux and Swail note, "for the millions of youngsters whose life chances are dim and might be brightened by such a program, the movement is almost a wheel of fortune. A youngster must be lucky enough to be in the right city, the right school, and the right classroom at the right time" (2000, p. 691).

An additional problem is that knowledge of existing programs tends to be isolated. Until the College Board released the results of its *National Survey for Outreach Programs* (2001), even researchers were uncertain how many outreach programs were in operation. Swail and Perna (2001) report that approximately 1,110 programs participated in the study, 465 of which were federal programs including Upward Bound, Talent Search, and GEAR-UP (Gaining Early Awareness and Readiness for Undergraduate Programs, a Clinton administration initiative focused on seventh graders who receive special counseling and support until they graduate).

The programs studied have been in place for an average of 11 years, and they share such goals as student persistence and improvement of grades in high school, graduation from high school, enrollment in college (either two- or four-year), and graduation from college. Of the programs that participated, 90% featured a focus on college awareness, college exposure, and college attendance; 84% expressed an interest in building students' self-esteem; 81% thought it important to provide role models; and 73% listed college completion as a major goal (Perna & Swail, 2001).

Gandara (2001) also examined the results of the National Survey of Outreach Programs and identified six components common to the most successful programs:

1. a single individual who monitors and guides the student over time (e.g., a teacher, mentor, counselor, or program director)
2. effective instruction embedded in a challenging curriculum that is tailored to students' individual needs
3. long-term rather than short-term interventions
4. cultural awareness of students' backgrounds
5. peer support
6. financial assistance and incentives

Perna and Swail (2001) agree that effective programs offer more than financial incentives. While the prospect of financial aid is an important element in keeping students involved in outreach programs, it is only part of the answer:

> A review of relevant research—plus the fact that gaps in access and completion have not been closed despite the resources the federal government has dedicated to closing them—suggests that merely making financial aid available for students to attend college is not enough to ensure that all students have equal access to the benefits associated with earning a college degree. (in Rainwater & Venezia, 2003, p. 11)

Gladieux and Swail (2000) make the same point, noting that for some at-risk students, the key to overcoming obstacles and enrolling and succeeding in college is a single individual—someone who serves as a mentor or a role model, or who somehow triggers hope in a young person who has little reason to believe college is a realistic possibility. Levine and Nidiffer (1996) describe getting disadvantaged students into college as "retail, not wholesale, work" because it "requires intensive involvement with individuals":

> In simplest terms, the recipe for getting to college is mentorship—one arm around one child. . . . What mattered most [was] not carefully constructed educational policy but rather the intervention by one person. . . . Sometimes the mentor was a loving relative; other times it was someone paid to offer expert advice. In either case, it was the human contact that made a difference. (p. 143)

Despite the "one arm around one child" advice, the need remains to dramatically expand outreach programs. Clearly, the numbers of students who need outreach services dwarf the capacity of existing programs or any conceivable expansion of them. A systemic approach, coordinated at the macro level of policymaking and implemented throughout the state educational system, would help all students—not only those who are fortunate enough to "be in the right school at the right time"—to understand what is expected of them at every educational level in order to progress to the next level and eventually to a successful postsecondary experience.

State Efforts

A few states have elevated precollege outreach issues to the state level. Details about these efforts are available via this report's companion Web site (www.ael.org/P-16&P-20Initiative). What follows is a glimpse into a few state-level programs to illustrate diverse approaches.

Florida

Florida appears to have the oldest state-level program, having established its CROP (College Reach-Out Program) in 1983. Focusing on disadvantaged students in Grades 6 through 12, CROP has as its goals motivating students to pursue a postsecondary education; developing students' basic learning skills; strengthening students' and parents' understanding of the value of postsecondary education; and fostering academic, personal, and career development through supplemental instruction.

Funds for the program are appropriated by the state legislature to the Florida Department of Education for distribution to postsecondary institutions around the state, and 26 community colleges, 10 state universities, and 7 independent postsecondary institutions are CROP partners. Participating institutions must develop procedures for continuous contact with students from the time they are selected for participation until they enroll in a postsecondary program. While limited in scope (9,300 students), CROP does feature clearly defined goals, specific criteria for selecting students, an identified funding stream, and a rigorous evaluation component.

Oklahoma

Oklahoma's Higher Learning Access Program (OHLAP), started in 1992, encourages student preparation for postsecondary education through a scholarship incentive funded by both state dollars and federal GEAR-UP monies. The program's original target population was disadvantaged students from urban centers, but as the state increased its fiscal commitment to the program, the target population was broadened to include students whose family income is $50,000 or less.

In the first year after the financial eligibility change, 9,500 students enrolled—nearly as many as in the first eight years of the program combined. To be eligible for the scholarship, students must enroll in OHLAP in the 8th, 9th, or 10th grade; complete a 17-credit core curriculum,[5] maintain a 2.5 GPA in both the required core and overall; attend school regularly; and graduate from high school.

Oklahoma also implemented a statewide effort to use ACT's Educational Planning and Assessment System (EPAS) to provide voluntary diagnostic examinations in English, math, reading, and science to all 8th- and 10th-grade students. The state also leveraged GEAR-UP funds to launch a broad public college awareness program. This combination of strategies allows the state to address all students through EPAS and the college awareness program, and to focus on the disadvantaged student population through OHLAP.

[5] The core curriculum includes four years of English, two years of laboratory sciences, three years of math, two years of history, one year of citizenship skills, two years of foreign language or computer technology, two additional units from the preceding subjects, and one year of fine arts or speech.

Rhode Island

In Rhode Island, the Commission for Higher Education initiated the Children's Crusade on the understanding that "substantial public commitment is necessary to increase access to higher education for poor children" (in Rainwater & Venezia, 2003). The Crusade is a nonprofit organization funded by multiple sources including state and federal dollars. From its inception in 1990 until 1996, enrollment increased to more than 3,300 students.

In light of an external audit that characterized the program as excessive in scope and unable to meet its financial commitments, however, the Crusade was scaled back to focus on 500 students annually in the most economically disadvantaged school districts. Its long-term intervention model emphasizes individualized student programs supported by mentoring, tutoring, scholarship counseling, summer enrichment camps, and tuition incentives. The program's evolution from a broad statewide effort to a smaller, more focused one could provide a model for states with limited fiscal resources.

What is notable about the Crusade is that it initiates the intervention earlier than most outreach programs, beginning when students are in the third grade rather than middle school. In an attempt to offset the effects of reducing the student population it had the capacity to serve, the Crusade helped to create the College Access Alliance of Rhode Island. CAARI works to improve access to postsecondary education for all of the state's students.

K-12–Higher Education Collaboratives

What these programs demonstrate is that the development of systemic outreach initiatives is possible even in the absence of extensive financial resources. Both Oklahoma and Rhode Island supplemented state monies with federal funding to broaden the reach of their respective approaches to increasing postsecondary participation.

The implementation of a comprehensive, statewide precollege outreach initiative is essentially a preventive measure. Such an initiative—because of its continuous support from the early grades through college—is far more likely to result in cultivating a habit for persistence among students than is a stand-alone program that serves only some students in some counties in some schools.

As is the case with curriculum and assessment reforms (which are examined in the next chapter), the key to enhancing postsecondary success is the creation of stronger connections between higher education institutions and the K-12 system. These are particularly important as the conceptualization and implementation of a statewide systemic initiative must be developed over time. Encouraging stronger collaboration between K-12 schools and colleges is a means of reaching students who will be lost to us if we wait for the creation of a more comprehensive system.

The best K-12–higher education collaboratives maintain keen awareness of the curricular requirements for college entrance, address the sometimes labyrinthine processes for securing financial aid, and work closely with teachers and parents in order to provide a more supportive network for at-risk students.

Middle Colleges

Among the more promising of public school-higher education collaborations is the middle college concept. The 25-year-old National Middle College High School Consortium consists of 30 high schools across the nation situated on and cooperating with community colleges to provide disadvantaged youth with early access to college.

The Consortium, funded by the Gates, Ford, and Carnegie foundations, blurs the high school-community college borders by providing both figurative and literal connections between high school and college. Students participate fully in the life of the college, which thereby becomes a realistic goal as well as a motivation for completing high school.

Students attend some college classes, and the college credits they receive also count toward their high school diplomas. The dual degree programs allow students to earn a high school diploma and an associate's degree in five years.

Where geography makes attendance at a middle college impossible, colleges can bridge the gap by providing dual credit options in high schools and engaging in cooperative ventures with middle and elementary schools to assist in meeting the needs of at-risk students through mentoring, tutoring, enrichment, or other services. What is important is the establishing of relationships.

California State University, Sacramento (CSUS)

California State University, Sacramento, has a promising approach to helping students prepare for college that draws on the Upward Bound model. Local districts and CSUS enter into a Memorandum of Understanding whereby they partner to increase college awareness among students and parents in the district, to enhance college preparation beginning in ninth grade, and to ensure that district students receive the necessary support to facilitate their admission to CSUS.

CSUS helps participating districts to determine what education needs exist and provides support services such as tutoring and coordinating community-based organizations to work in and with the schools. The University also agrees to place an academic advisor in each district's central office to help students develop educational plans and monitor their progress.

Suggestions

Some institutions have long-standing relationships with public schools, and we commend their outreach efforts. The need remains, however, to ensure that quality outreach services are available to all students. **We suggest, therefore, the establishment of an Advisory Committee on Outreach Programs.** This committee would include representatives from colleges, universities, K-12 schools, and existing outreach programs. It would make recommendations to the P-20 Council about the creation of a systemic initiative for promoting and distributing outreach program opportunities, beginning in those counties with the lowest postsecondary participation rates and eventually extending to all counties. Among the issues for this committee to explore are the following.

Conduct an Audit of Current Outreach Programs

The committee may wish to begin its work by conducting an audit of current outreach programs to identify initiatives that have had the highest success rates in West Virginia (i.e., those that have consistently encouraged students to enroll in rigorous courses, assisted in developing and sustaining early-college or dual credit coursework, provided support services to students in the form of tutoring or study skills development, or increased the college-going rate in the districts or schools in which they work). Several such programs have been operating in the state, some of them for a decade or more. Data regarding their efficacy should be readily available and can assist the committee in developing recommendations on which programs constitute suitable models for replication.

We also recommend exploring the possibility of extending the Middle College High School concept across the state's community college network. One program has been created at the University of Charleston. This might serve as a model, and we suggest that it be included in the outreach program audit. Potential funding for a pilot project on selected community college campuses could be sought from the Gates, Ford, and Carnegie foundations, which have supported such initiatives in other states.

Develop a Means of Systematizing Outreach

Develop a means of systematizing outreach by establishing an Office of Early College Outreach in the Higher Education Policy Commission's structure. This office could coordinate outreach efforts on a statewide basis, working with colleges and universities to ensure that all counties and schools within their service areas have a relationship with a postsecondary institution. The existing ad hoc programs that have helped many students are not sufficient. More students than those presently participating in early outreach programs need support.

An additional reason for suggesting a unit within the West Virginia Higher Education Policy Committee structure is the need to coordinate outreach efforts with student financial assistance programs to provide early information and assurance of affordability. This office will also need the involvement of campus representatives, the K-12 sector, and current outreach program officers in order to construct a comprehensive system that ensures that all students have the information and preparation they need to succeed in a postsecondary institution.

Examine Possibilities for Placing Academic Advisors in County or Regional Offices

Examine possibilities for placing academic advisors in county board of education offices or in each Regional Education Service Agency. As the Pathways to College Network (2004) points out, outreach coordinators are uniquely positioned to facilitate the postsecondary preparation of underserved students because they focus exclusively on that goal. Unlike guidance counselors, who often do little counseling in light of the other demands placed on their time (e.g., preparing the entire school's academic schedule and administering admissions tests), outreach liaisons have opportunities to work with both schools and colleges or universities to maximize students' preparation for college.

Making the adjustment from an ad hoc distribution of early outreach services to a more systemic one may be, as Rainwater and Venezia (2003) note, "more difficult in the short run, but it is the only way to serve all students equitably" (p. 23). In the long run, the development of a comprehensive system to better prepare students for college benefits both students and the state by reducing expenditures for remediation and increasing the likelihood that students will complete their degrees. As Adelman points out, "if we [intervene] in grade three, we won't have to do it in grade 13" (in Gladieux and Swail, 2000).

Chapter 3: Curriculum and Assessment

The issue of postsecondary persistence (i.e., the acquisition of certification or a degree) features prominently in the P-20 literature. The literature reflects a broad consensus that it is not test scores or grade point averages that best predict students' chances for success. It is course-taking patterns in high school (Adelman, 1999 and 1997; Bill and Melinda Gates Foundation, 2003; Gladieux & Swail, 2000; Pathways to College Network, 2004; Rendon, 1997; Somerville & Yi, 2003; Venezia, Kirst, & Antonio, 2003).

The research demonstrates repeatedly that students who take rigorous and progressively more challenging coursework are far more likely to both plan for and succeed in postsecondary education. The problem that remains, however, is this: While more students are announcing their intent to continue education beyond high school, an insufficient number of them appear to be taking the kinds of courses that the research indicates they need to be successful.

Course-taking patterns for low-income and minority students in particular make it difficult for them to meet postsecondary academic expectations. They remain less prepared and less able to succeed than their more advantaged peers. Gladieux and Swail (2000) break down the figures:

> Whatever the root of the problem the stark reality is that slightly over half of low-income high school graduates (53%) are considered qualified to go to college, compared to 86% of high-income students. . . . [J]ust 47% of African American students and 53% of Hispanic students are judged qualified for college, while 68% of white students are qualified. (p. 690)

These data reflect a significant problem: a substantial number of low-income and minority students who do elect to enroll in postsecondary institutions lack the skills required for success. The two obvious and convenient targets to blame for this development are K-12 schools and institutions of higher education, and both are held responsible to different degrees in numerous publications.

The establishment of culpability is a singularly unproductive exercise, however. To discern what should be done to strengthen students' academic preparation for the postsecondary environment, it may be helpful to look at the evolution of curricular policy in America's schools and the premises on which it has been predicated.

The Development of the K-12 Curriculum

The view that K-12 curricula should feature a rigorous academic core, particularly at the high school level, is not a novel one (despite recent reports that treat it as such). The Committee of Ten, a task force commissioned by the National Education Association (NEA) in 1892 and chaired by Charles W. Eliot, then president of Harvard University, called for a demanding core curriculum for all students, regardless of whether they intended to enroll in college. The committee included six university professors (some of whom had taught in secondary schools), three high school principals, and then-U.S. commissioner of education William T. Harris.

These 10 individuals convened nine separate subject matter "conferences," inviting an additional 98 educators from both the K-12 and postsecondary sectors to provide input for the final report. After consolidating the suggestions from those nine conferences, the committee issued its recommendations "on the general subject of uniformity in school programmes and in requirements for admission to college" (Committee of Ten, 1893). Among those recommendations were that *all* students receive four years of English language and literature, three to four years of mathematics and science, two to four years of history, and four years of foreign language.

> In order that any successful graduate of a good secondary school should be free to present himself at the gates of the college or scientific school of his choice, it is necessary that the colleges and scientific schools of the country should accept for admission . . . any youth who has passed creditably through a good secondary school course. . . . As secondary school courses are now too often arranged, this is not a reasonable request . . . because the pupil may now go through a secondary course of a very feeble and scrappy nature—studying a little of many subjects and not much of any one. . . . [These] recommendations . . . if well carried out, might fairly be held to make all the main subjects taught in the secondary schools of equal rank for the purposes of admission to college or scientific school. They would all be taught consecutively and thoroughly, and would all be carried on in the same spirit; they would all be used for training the powers of observation, memory, expression, and reasoning; and they would all be good to that end. (Committee, 1893)

The Committee of Ten emphasized the latter point repeatedly, identifying as the purpose of schools the development of "the invaluable mental power we call judgment." Rather than the "dry and lifeless system of instruction by textbook," they encouraged active inquiry through in-depth studies of primary sources, reenactments, field trips, museum study, seminars, debates, student legislatures, and political conventions.

The courses recommended by the committee as necessary for secondary school curricula were languages, including Latin, Greek, English, German, and French; mathematics, including algebra, geometry, and trigonometry; general history and the

intensive study of special epochs; natural history, including descriptive astronomy, meteorology, botany, zoölogy, physiology, geology, and ethnology—most of which could be grouped, the committee noted, under physical geography; and physics and chemistry. The committee's recommendations also had a distinctly interdisciplinary flavor, suggesting, for example, that English and history be "intimately connected" with ongoing cross-referencing to art and music. History, civics, and geography were to be integrated, as well, to ensure that graduates could "exercise at maturity a salutary influence upon national affairs" (Committee, 1893).

The committee was also prescient in arguing that "several subjects now reserved for high schools—such as algebra, geometry, natural science, and foreign languages—should be begun earlier than now, and therefore within the schools classified as elementary." The committee offered advice on how its curricular recommendations could establish a basis for dialogue between secondary schools and colleges concerning appropriate admissions requirements, and proposed methods for preparing "more highly trained teachers" to carry out their ambitious plans (Committee, 1893).

The Committee of Ten's work, however, was soon undone by a subsequent committee—the Committee of Nine on the Articulation of High School and College, which in 1911 determined that the common requirements recommended by the previous group "would force a multitude of students to drop out" (Gagnon, 1995). The Committee of Nine determined that the ability of schools to maintain attendance depended upon their meeting the interests that "each boy and girl has at the time."

The Committee of Nine insisted that the exclusive focus on academics "enslaved the high school to the college," leading students away from "pursuits for which they are adapted" to those "for which they are not adapted and in which they are not needed" (Gagnon, 1995). It was this committee's decision that schools should shift their focus to more practical pursuits, among them industrial arts and agriculture.

As the pace of industrialization began to increase and businesses needed more workers, society began to look to the schools to produce them. The Smith-Hughes Act of 1917 provided money for agricultural, trade, industrial, and home economics education, setting up the funding in such a way that vocational education was to be both administered and taught separately from general education, either in its own wing of a regular high school or in its own building.

Seven years after the Committee of Nine issued its recommendations, the National Education Association's (NEA) *Cardinal Principles of Secondary Education*, drafted in 1918, agreed to the dismantling of the academic focus of the Committee of Ten the NEA had commissioned only 25 years earlier. The *Principles* make no reference to specific academic subjects in the seven "main objectives of education": (1) health, (2) command of fundamental processes, (3) worthy home membership, (4) vocation, (5) citizenship, (6) worthy use of leisure, and (7) ethical character. The "fundamental processes" are later defined by NEA as "reading, writing, arithmetical computations, and the elements of oral and written expression" (Department of the Interior, 1928).

At about the same time, a debate was playing out in the pages of *The New Republic* between David Snedden and John Dewey. Snedden, the education commissioner of Massachusetts, advocated "social efficiency"—the idea that education should prepare students for the particular occupational niches they were destined to fill as adults. To that end, he argued, some high school students should receive vocational education, and others should receive a general education. Dewey's response was that such an attitude amounted to "social predestination," and "vocational education is, irreducibly and without unnecessary mystification, education for the pursuit of an occupation" (in Zehr, 1999). Dewey, it appears, lost the argument.

As late as 1959, James Bryant Conant was still steering educators away from a common core of academic courses, arguing that at most only 20% of high school students were sufficiently talented academically to benefit from a rigorous curriculum. The rest, he believed, "should follow vocational goals and . . . develop general interests" (in Gagnon, 1995).

Even those who helped develop and execute that model of vocational education, however, disagree about whether it served the country well. Herbert M. Kliebard, a former vocational education teacher who is now a professor emeritus of curriculum and instruction and educational policy studies at the University of Wisconsin-Madison, believes that separate training for narrowly defined jobs was never a good idea at the high school level: "This greatly exaggerated emphasis on education not simply as getting ready generally but as direct and explicit preparation for what lies ahead is perhaps the cruelest of the legacies of vocationalism" (in Zehr, 1999).

Two legislative initiatives of the 1990s have attempted to address that legacy. The Vocational and Applied Technology Education Act of 1990, for example, encourages the integration of academic and vocational education, and the School-to-Work Opportunities Act of 1994 aims to expose students of all academic levels to experiences in the workplace. Other reforms include "tech prep" programs, which connect high school students' vocational education with two years of study at the postsecondary level, and the High Schools That Work program, which requires of vocational students the same challenging academic courses provided to college-bound students.

For the greater part of the twentieth century, then, the idea of a challenging curriculum for all students seems to have had limited appeal. In the shift from the Industrial Age to the Information Age, however, it has become increasingly clear that the well-being of both individuals and society at large depends upon knowledge and the opportunity to benefit from extended learning opportunities. That recognition has focused attention once again on the rigor of the secondary curriculum.

Contemporary Curricular Reforms

As was the case with vocational reforms implemented in response to the industrialization of the United States, a majority of curricular reforms currently under recommendation are attributable to perceived changes in the labor market. Despite debates concerning growth occupations (delineated in the introductory chapter in this report), it is still broadly accepted that well-educated individuals are those who are most likely to be employed. The total number of workers with at least some college education has nearly doubled over the past 25 years, while the number in traditionally lower-skilled jobs with some college education has more than tripled (Carnevale, 2000).

Clearly, students and their families understand that a college education greatly enhances opportunities for economic security. In the 1990s, the college-going rate of high school graduates increased by nearly 20%. Presently, more than 75% enroll in some type of postsecondary education within two years of graduation, and national surveys indicate that as many as 90% of high school graduates intend to earn a college degree in the coming years (Somerville & Yi, 2003).

That more students include postsecondary education in their postgraduation plans is encouraging. That many appear to arrive on campus unprepared, however, is not. The data in the introduction to this chapter articulate the primary problem: it appears that insufficient numbers of students, particularly low-income and minority students, are taking the kinds of courses that research indicates they need in order to be successful.

Somerville and Yi (2003) write that the K-12 standards movement offered an opportunity to "establish a single set of rigorous academic standards to which all students in a state would be educated" (p. 28). It was, they fear, an opportunity missed:

> The standards movement in K-12 was underway before most policymakers or educators fully realized how rapidly the demands of the workplace and postsecondary education were converging. As a consequence, higher education was not a partner in the standard-setting process. Yes, nearly every standard-setting commission had a professor or two. But they were largely there as disciplinary experts, not as representatives of their universities, and not armed with the collective consensus of their colleagues on the skills and knowledge that entering college students should have. Consequently, high schools and high school students remain subject to multiple sets of signals on what is important for them to learn. (p. 29)

In high school, for example, students are subjected to at least two kinds of high-stakes assessments. All are required to take the state's standards-based examination (currently the WESTEST in West Virginia) in grades 3-8 and 10, but this test does not figure into college admission. To be considered for college admission, students must also

take college entrance examinations (i.e., the ACT or SAT), and some institutions also administer placement tests after students are admitted.

How does assessment relate to curriculum? High school curricula must be aligned with the state's standards-based examination, not necessarily with college entrance tests, and neither may be aligned with faculty expectations for college-level work. Kazis and colleagues (2004) argue that "the single most powerful change that states could make would be to better align high school exit requirements with the expectations of colleges."

Oregon has had such an alignment in place since 1993 with its Proficiency-based Admission Standards System (PASS), and in New York, the City University of New York system has begun to accept a state Regents math or English exam score of 75 or higher for admission. The California State University system urges local high schools to administer the system's placement test to high school students beginning in the sophomore year so they can develop an understanding of the universities' expectations.

The alignment of assessment measures could prove useful in reducing the number of testing hurdles students are required to clear in order to be admitted to college. Given the research reported here, which confirms that test scores are less important to students' academic success than the courses they complete in high school, the alignment of curricular expectations is likely to be more helpful.

It is critical, however, that any attempt to adjust the high school curriculum to better align it with the knowledge and skills students need for a successful college experience take into account the omnipresent influence of federal legislation. The No Child Left Behind requirements exert enormous pressure on state departments of education to ensure that curricular content be calibrated to items on their respective standardized tests.

The "prioritized curriculum" concept being implemented in many school districts, including some in West Virginia, is designed explicitly to ensure that material on which students will be tested is covered in a systematic if not rigid fashion.[6] Teachers are permitted a degree of latitude (e.g., perhaps one week in a four-week unit) to elaborate on or reteach certain concepts. But the idea of "prioritizing" the curriculum is to guard against the possibility that course content is insufficiently harnessed to material that appears on the state's standardized test.

The WESTEST, West Virginia's standardized examination for students in grades 3-8 and 10, includes three types of test items: selected response or multiple choice, short answer, and constructed response. Multiple-choice items dominate the exam, however, comprising 44 of 49 questions on the 10th-grade mathematics test and 75 of the 80

[6] For example, mathematics standard 10.5.02, "find the probability of conditional events and mutually exclusive events," would be taught on the same days/weeks in 10th-grade classrooms across the district. In West Virginia, this is a policy that has been initiated by the districts themselves, not by the West Virginia Department of Education.

questions on the 10th-grade reading/language arts test. The same basic ratio of multiple-choice to short-answer and constructed response items is true of the other grade-level tests.

Skill in answering multiple-choice questions, however, is unlikely to serve students well in college courses in which analytical reasoning and the Committee of Ten's "invaluable mental power we call judgment" are indispensable. Any effort to reconcile or balance the two, or to investigate the impact of the former on the latter, will need to be mindful of the federal requirements under which both the West Virginia Department of Education and schools themselves labor.

While the matter of how students are tested on curricular material is central to how that material is presented to them, what can be observed about the curriculum itself? The research reported here makes it quite clear that the primary indicator of students' success in college is the "quality and intensity" of the courses they take in high school (Adelman, 1999; Bill and Melinda Gates Foundation, 2003; Pathways to College Network, 2004; Venezia et al., 2003). What courses are West Virginia students taking?

Beginning with the incoming freshman class in the 2004-05 school year, the state's students will continue to need 24 course credits to graduate, 17 of which are core requirements (WVDE, Policy 2510).

- English/Language arts, 4 credits (English 9, 10, 11, and 12)
- Mathematics, 3 credits (two of the three credits must be Algebra I and above)
- Science, 3 credits (Coordinated and Thematic Science (CATS) 9 and 10, and one course above CATS 10)
- Social Studies, 4 credits (U.S. to 1900, World Studies to 1900, 20th and 21st Centuries, Civics)
- Physical Education, 1 credit
- Health, 1 credit
- Arts, 1 credit

Four of the additional required credits will be determined by the student's choice of a "career major" or "pathway": (1) "professional," for students whose goals are baccalaureate degrees or above; (2) "skilled," for students whose goals are associate's degrees or postsecondary certificates; and (3) "entry," for students who plan to enter the workplace immediately upon graduation. For each pathway, the four career major credits are as follows:

- Professional Pathway (a fourth credit in mathematics, which must be above Algebra I; a fourth credit in natural science; and two foreign language credits in one language)

- Skilled Pathway (a fourth credit in mathematics, which must be above Algebra I; three "concentration" credits—selected from the WVDE Required Technical Courses by Career Major)

- Entry Pathway (four "concentration" credits, which offer students the opportunity to earn an industry-recognized credential)

Students in the professional pathway who choose to substitute other career major courses for those identified as required must sign, along with their parents, a form stating that they understand the substitution will result in failure to meet the admission requirements of baccalaureate programs in West Virginia public colleges and universities.

Whether these changes in graduation requirements will result in improving students' academic success in college remains to be seen, as the students who must meet them will not enter college until the 2008-09 academic year. The research, however, suggests that simply increasing the number of credits students need for graduation does little to ensure that they are mastering the kind of course content that best prepares them for either college or the workplace. The result, Somerville and Yi (2003) point out, is that "one of every two college students lands in . . . remedial, non-credit bearing courses aimed at helping students learn the basic skills . . . [they] should have mastered in high school" (p. 31).

Data from the West Virginia Higher Education Policy Commission (2003) reveal that of 12,762 freshmen admitted to state institutions in the 1996-97 academic year, 37% were enrolled in at least one remedial/developmental course, either in mathematics or English. The numbers ranged from a high of 66.5% to a low of 23%, with one institution reporting zero since it offers no remedial courses. Retention rates for those students enrolled in developmental courses ranged from a high of 49% to a low of 31% (Appendix G).

Those figures are significantly lower than those for all freshmen retained (see Appendix C) and are cause for concern. Somerville and Yi (2003) feel that "at the very least, the two systems [higher education and K-12] must agree on a course of study in the two disciplines—mathematics and English/language arts—which mediate success in all other areas of study" (p. 30).

Thus, 110 years after the Committee of Ten recommended that all students adhere to a rigorous college preparatory curriculum, we find the National Commission on the High School Senior Year (2001) concluding that regardless of whether a student progresses from postsecondary education to a job, or to a job that eventually leads to enrollment in postsecondary education, all students need the kind of high-level knowledge and skills associated with a college preparatory curriculum.

It is a recommendation that has resonated better than might be expected. One of the reasons for the receptiveness of policymakers and educators alike is the number of studies that make clear the value of a college preparatory curriculum to succeeding in endeavors beyond college (Bottoms, 2002; Hallinan, 2002; Sum, 1999). Among the findings are that students' skills and knowledge are better developed in rigorous academic courses than in others, even for students in the bottom quartile (Somerville & Yi, 2003).

In addition, recent studies examining the needs of employers indicate that employer expectations are consistent with those of higher education institutions (Carnevale, 2000). This is particularly important as it relates to mathematics. The research indicates that if students do not enroll in more advanced math courses, they will most likely be excluded from math-based fields both in college and in the workplace. Moreover, even if the expectations are more modest, the data suggest that "students do not actually master one level of mathematics until they engage with the content at the next level." The same is true for the sciences (Adelman, 1999; Somerville & Yi, 2003).

Arkansas, Connecticut, Indiana, Maryland, and Oklahoma are now pushing for all high school students to take a college prep curriculum, as Texas will require in 2005. Whether such a step is appropriate or desirable for West Virginia is a matter for thoughtful consideration.

Suggestions

The development of recommendations for curricular and assessment issues has proven the most difficult in this report. In large part, that is because this particular area involves, in a way the other issues raised herein do not, requirements imposed by the federal government through the No Child Left Behind Act of 2001. This legislation is a factor in any discussion of curriculum and assessment, making it impossible to undertake an examination of course content or alignment with postsecondary or workplace expectations without calculating the potential impact on the state's standardized test.

State content standards and assessments should, however, bear some relationship to students' postsecondary plans. **To that end, we suggest the establishment of an Advisory Committee on Curriculum and Assessment** with heavy representation from the faculty ranks of both K-12 and postsecondary institutions in addition to those responsible for ensuring that state initiatives conform to federal law. The committee would make recommendations to the P-20 Council on the extent to which the state's Content Standards and Objectives (CSOs) and its standardized assessment prepare students for postsecondary education. Among the tasks for this committee are the following.

Examine the Relationship Between WESTEST Scores and Freshman Performance

Carefully scrutinize the skills and knowledge students develop to demonstrate mastery on the state's standardized examination and the extent to which their performance accurately represents their ability to engage successfully the demands of postsecondary education or the workplace. That scrutiny would be initiated by the committee in the form of a study to examine the relationship between student scores on the WESTEST and academic performance in the freshman year of college. As Conley (2003) notes, "It is not enough simply to know something; the learner must possess the ability to do something with that knowledge" (p. 9).

While test scores represent only 30% of the academic resources students bring with them to college (Adelman, 1999), an examination that has such enormous stakes for K-12 schools and students cannot be dismissed as unimportant. Ways to render the examination more academically meaningful should be explored. If it is determined by faculty at both K-12 and postsecondary levels that revisions in the state examination can result in a more academically informative instrument, those revisions should be encouraged.

Consider Using Complementary Alternative Assessment Measures

If it is determined that the dimensions of the WESTEST make it unsuitable for meaningful revision, the committee may wish to consider using complementary alternative assessment measures that shed more light on students' academic abilities and are more compatible with college/university expectations. For example, Maryland and Virginia have implemented end-of-course examinations in the major subject areas of English, math, science, and social studies, although the states attach different consequences to students' scores. Virginia students must pass two end-of-course exams in English and in four other courses of the students' choosing in order to graduate. Maryland presently does not count the test results toward graduation, although the state board of education is scheduled to vote on whether to do so beginning with the class of 2009.

Requiring more than one evaluation strategy is a recommendation of the Achieve Inc. study (2004), which suggests that all states should develop high school exit examinations and states that already have them should make them increasingly rigorous. Achieve also recommends, as does the Education Commission of the States (Pellegrino, 2001), that assessments involve a breadth of strategies, including end-of-course research projects or portfolio development. Some states that have implemented alternative evaluation measures have elected to use students' performance on those measures to allow them to waive college placement tests or to engage in dual enrollment in college-level courses while in high school.

Consider Aligning High School Exit Requirements with College Admission Requirements

Consider the feasibility of aligning high school exit requirements with college admissions requirements. Matters for investigation include the congruency of WESTEST scores with college entrance examinations (e.g., ACT and SAT) and placement tests, compatibility of credit-hour requirements for high school graduation with college expectations as they relate to subject matter (i.e., whether courses included in the West Virginia Department of Education "professional pathway" for college-bound students are consistent with courses known to provide students with the best chances for academic success), and perhaps a reexamination of the secondary-level Content Standards and Objectives (CSOs) themselves.

The Association of American Universities' *Standards for Success* study (Conley, 2003) involved more than 400 faculty from 20 research universities in developing guidelines for what students must do to succeed in entry-level college/university courses. Among the dominant themes were the "habits of mind" and "critical skills" students develop in high school and bring to their postsecondary studies. These include critical and analytical thinking and problem solving, willingness to accept feedback and adjust on the basis of that feedback, ability to deal with frustrating and ambiguous learning tasks, and an understanding of how to draw inferences and reach conclusions independently. It is possible that an analysis of the CSOs in light of these expectations could shift the focus from course titles, credits, grades, and tests to dispositions and skills. Should that occur, the benefits would accrue to students and faculty at both levels.

Examine the Appropriateness of Establishing the College Prep Curriculum for All Students

Examine the appropriateness of establishing the college preparatory curriculum as the default for all high school students. As noted above, at least six states are either moving in this direction or have already eliminated the alternative curricular tracks and placed all students in college prep courses. As these steps have been recent, there is no research related to their success, or lack thereof, in either promoting postsecondary attendance or improving students' high school performance.

While there are data indicating that low-performing students fare no worse in more rigorous courses and, in many cases, do better (Burris, 2004; Hallinan, 2002; Olson, 2002; Somerville &Yi, 2003), a change of this scope must be carefully examined. The committee should closely examine data related to this type of change in other states and districts and analyze the track record of High Schools That Work, which has experienced some success in extending to vocational students the same academically challenging courses offered to college prep students.

Consider Making the College Prep Curriculum a Prerequisite for Financial Aid

While most advantaged students with postsecondary plans automatically enroll in the college preparatory curriculum, their less advantaged peers often decline to do so. Those who choose the West Virginia Department of Education's "skilled pathway," for example, may avoid courses they consider too difficult in the interest of maintaining a suitable grade point average in the event they decide they want to pursue a bachelor's rather than an associate's degree, or in case they plan to transfer from a two-year to a four-year institution.

As has been noted previously, this is particularly harmful if the courses students are avoiding are the higher-level mathematics courses identified as gatekeepers to both postsecondary and workplace success (Adelman, 1999; Somerville, & Yi, 2003). To encourage students to engage in college preparatory study, it is suggested that the committee consider establishing the college preparatory or "professional pathway" curriculum as a condition of eligibility for all financial assistance. Such a requirement would better prepare students for success and increase the likelihood of return on scholarship providers' investments.

The requirement that PROMISE applicants complete the ACT core curriculum of four credits in English/language arts, three in mathematics, three in science, and three in social studies (as posted on the program's Web site) is actually less stringent than the West Virginia Department of Education's "professional pathway" for college-bound students. An additional credit in social studies is required for all students, beginning with the 2004-05 freshman class, and the "professional pathway" requires an additional credit in mathematics (which must be above Algebra I) a fourth credit in natural science, and two foreign language credits.

Consider Strengthening Middle School Mathematics and English/Language Arts

Explore the appropriateness of strengthening the intensity of mathematics and English/language arts classes for middle school students. While some states are beginning to push algebra instruction down to the middle school, there is disagreement from the cognitive development community concerning the appropriateness of that move as it relates to students' ability to master the material in pre-adolescence. The committee may wish to examine that research in order to determine whether to require higher-level mathematics courses earlier in students' programs of study. If, however, it is determined that middle school mathematics and English/language arts classes could be strengthened, students would be better prepared for high school expectations in those subjects. That, in turn, could perhaps spare them from remediation in those subjects in college.

Research has demonstrated repeatedly that students who take demanding and progressively challenging courses are far more likely to plan for and enroll in

postsecondary education. Adelman's (1999) longitudinal study of the high school graduating classes of 1972, 1983, and 1992 shows that among those who enroll, the ones most likely to finish are those who were best prepared academically, regardless of race, income, or financial aid. Strengthening the academic preparation of all students is critical to enhancing their opportunities to succeed at the postsecondary level.

Chapter 4: Financial Aid

With the passage of the G.I. Bill after World War II, the possibility of acquiring an education beyond high school was opened to hundreds of thousands of American families. In a single generation, higher education was transformed from an institution for the fortunate few to an institution that makes possible the dreams of many. Americans have come to understand that making college affordable remains the key to national progress and individual prosperity.

Affordability, however, has fallen victim to a series of economic cycles that have had a grave impact on both federal and state commitments to higher education. Precipitous tuition increases during the recession of the early 1990s were followed by tuition freezes and rollbacks as the economy recovered. More generous appropriations and higher expenditures ensued, only to be revoked as the next recessionary cycle began and tuition increases were again the norm.

The National Center for Public Policy and Higher Education (NCPPHE) (2003) points out that by 2002, many states and institutions had embarked on this cycle for the third time in little more than two decades. Conceding that state support for higher education increased over the past two decades, the Center's report, *Losing Ground*, finds that the increases failed to keep pace with tuition:

> Regarding affordability, we know that state support of public colleges and universities has increased; that these increases have not been commensurate with the rising costs of providing higher education; that the largest portion of these costs has been borne by students and families through increases in tuition; and that tuition is increasingly financed by student borrowing. Our conclusion regarding the affordability of a college or university education is this: Americans are losing ground. (p. 9)

Overall, Americans are working more hours, incurring more debt, and committing more of their income to paying for college. Low-income families in particular are "losing ground," as a greater proportion of their income is needed to offset college costs (see Appendix H).

Tuition at public four-year institutions represented 13% of income for the lowest-income families in 1980. By 2000, that figure had increased to 25% (NCPPHE, 2003). In general, from 1992 to 2002, tuition at four-year public colleges and universities rose faster than family incomes in 41 states, while 34 states saw community college tuition outpace family income.

McKeown-Moak (2001) offers a more thorough analysis, examining increases in current vs. constant dollars:

> Average public four-year in-state tuition rose 94% in current dollars or 51% in constant dollars over the time period FY 1991 to FY 2001. Similarly, average public community/technical in-state tuition rose 92.9% in current dollars and 50% in constant dollars over the same time. In contrast, median family income has risen only 20% since 1981 and only 4% since 1991; and the average cost of attendance (at public four-year colleges) as a share of family income has increased significantly for low and middle income families. For families whose income is in the lowest fifth of the distribution, average cost of attendance has increased from 40 to 62% of family income; and for families who are in the middle quintile, the COA increased from 12 to 17% of income. For families whose income is in the highest quintile, average cost of attendance has remained at 5% of family income. Growing income inequality in the nation compounds this problem. (p. 9)

Harvard University president Lawrence Summers refers to the gap in opportunities for students from differing economic backgrounds as "the most severe domestic problem in the United States" (in Roark, 2004). Richard Kahlenberg (2003) agrees, arguing that while racial inequality has been widely discussed on campuses for decades, economic inequality has not.

Whether it is fair to criticize colleges and universities for showing insufficient interest in low-income students may be an arguable issue, but there is little doubt that the challenge of reducing or eliminating financial barriers to college persists. Nelsen, Conklin, and Flanagan (2002, p. B16) identify "unmet need" (i.e., the gap between the cost of attending college and the resources a student has available) as the primary emerging policy question in the reauthorization of the Higher Education Act, scheduled for 2004.

Few are unfamiliar with the current economic circumstances affecting federal decision making. The existence of a half-trillion-dollar deficit looms large in budget discussions, and the repercussions have already driven every state in the nation into a deficit situation despite constitutional proscriptions in all but one. Continuing escalations in the costs of health care, social programs, courts and prisons, and emerging national security costs mitigate any possibility that states are going to be receiving much-needed federal assistance anytime soon.

Given the increase in the numbers of middle- and low-income students hoping to enroll in college and the difficult fiscal circumstances under which states are already laboring, the prospect of receiving even less federal aid for higher education is a daunting one. It is one that must be addressed, however, if the state is to reach its goal of increasing postsecondary participation.

While the preceding chapters have argued that focusing on access to the exclusion of success does only half the job of ensuring that students are prepared for college, the fact remains that strategies undertaken to improve graduation rates will be pointless

unless college is affordable. Comprehensive early education, increased outreach opportunities, and better aligned curricula with more informative assessments enhance the likelihood that students who enroll in college will be better prepared to succeed. Access to sufficient financial resources enables them to pursue that success.

This chapter focuses on two distinct but interrelated elements in the area of financial resources. One is the fiscal demand itself, the dollars-and-cents part of the equation, and the other is the need to provide clear information about college costs to students and families in order to demystify the financial aid process.

The Fiscal Demand

In 2002, the Advisory Committee on Student Financial Assistance established by Congress reported that in that year alone, 400,000 high school graduates who were qualified to enroll in college were prevented from attending their institutions of choice by "record-high financial barriers." Of those, 170,000 would decline to attend college at all (Nelsen, Conklin, & Flanagan, 2002, p. B16).

Education Week (2004a) reports that for most middle- and lower-income families, "the largest barrier to postsecondary education is cost," and the College Board (2003) estimates the cost at $4,694, on average, for the 2003-04 academic year—a 14% increase from $4,115 in 2002-03. To help offset these costs, the U.S. Department of Education provides numerous grant, loan, and work-study programs at a cost of $40 to $70 billion a year.[7] The Department's *Digest of Education Statistics 2002* (NCES, 2003) identifies federal aid as the largest source of student aid in the nation and notes that more than 40% of all undergraduates received some form of federal assistance in 1999-2000.

Despite these programs, low-income families remain 32% less likely to send their children to college than their more advantaged counterparts (*Education Week*, 2004a), and the Advisory Committee on Student Financial Assistance (2001) reports that students from low-income families attend college at about only half the rate of students from high-income families.

The Advisory Committee explains that the primary reason for this attendance difference is that the unmet need (i.e., the difference between the cost of one year of education and the amount of aid and family contribution) is far higher for low-income families than for others. On average, the unmet need to attend a public four-year institution is $3,800 for low-income students. The families of higher-income students, on the other hand, face a gap of only $400 (Advisory Committee, 2001). Given the negative projections for federal financial aid with the upcoming reauthorization of the Higher Education Act, average unmet need could increase by as much as $2,400 per student,

[7] *Education Week* provides conflicting figures on the U.S. Department of Education outlay. A June 9, 2004, article reflects a figure of $40 billion, while a June 23, 2004 article puts the cost at $70 billion.

reaching $6,200 for some students and their families over the next decade (Nelsen, Conklin, & Flanagan, 2002).

Even if federal aid holds constant—a possibility most researchers find unlikely, given the current fiscal environment in Washington—the increase in the number of students who want to pursue a college education in combination with strained state budgets and escalating tuition will make it difficult to meet the demand. This is particularly true for low-income and minority students, for whom competing public priorities in the face of shrinking resources may put affordable higher education even further out of reach.

Ruppert (2003) expresses her concern that "demographic and economic forces are converging to limit states' ability to protect—much less expand—college access over the next decade" (p. 2). Hovey (1999) agrees, writing that as early as mid-1999, it was clear that for all but a few states, sustaining levels of service would require funding that exceeded projected revenues.

The National Center for Higher Education Management Systems (NCHEMS) reaches the same conclusion, based on projected budget analyses through 2010 (Jones, 2003). States, and postsecondary education in particular, will be dealing with extremely limited budget conditions over the next eight years, NCHEMS reports. Even if steady revenue growth were to resume, increased spending on K-12 education, national security, and health care for an aging population would make it difficult if not impossible for states to continue supporting current levels of service.

According to the State Higher Education Executive Officers (2003), approximately half of the states reduced higher education appropriations by an average of 5% for the 2003-04 academic year. A contributing factor, Ruppert (2003) points out, is that postsecondary education has come to be known in state policy circles as "the budget balancer" (p. 4). When budgets are strained, appropriations for postsecondary education are more likely to be perceived as discretionary, particularly since an alternative source of revenue exists in the form of student tuition and fees.

Gold (in National Center for Public Policy and Higher Education [NCPPHE], 2003) makes the same point, noting that state budget flexibility is necessarily reduced in a worsening economy, which requires a greater shifting of state revenues to nondiscretionary items. In that environment, "higher education took the worst beating of any major spending category. . . . Appropriations in 1992-93 were less than one percent higher than in 1989-90" (p. 8).

The NCPPHE's *Losing Ground* report goes on to state the obvious: "During recent recessions, the answer to difficult [budget] policy questions has been alarmingly consistent: compensate for state budget cuts to higher education by precipitously increasing tuition for students and families" (2003, p. 8). This response raises costs at precisely a time when all but the most affluent can least afford it.

Adjusted for inflation, tuition at public four-year colleges and universities increased at four times the pace of median family income during the past decade (Ruppert, 2003), and for the 2003-04 academic year, tuition and mandatory fees increased in every single state (College Board, 2003). While the increases vary from state to state, tuition rose an average of 9.6% at public four-year institutions, 7.9% at public two-year institutions, and 5.8% at four-year private colleges.

Grant funding from states increased over the decade as well, with need-based aid growing by as much as 60%. West Virginia has awarded more than $200 million in need-based aid since the Higher Education Grant Program was created in 1968 (WVHEPC, 2004, June 13). The increase in need-based aid from 1999-2000 to 2003-04[8] was $7.2 million, from $15,221,479 to $22,460,940, nearly 33% (WVHEPC, 2004c, February).

Available need-based funding for the 2004-05 academic year, however, has decreased, with a projected expenditure of approximately $18 million. As of June 30, 2004, there were 33,240 students who had applied for the need-based grant, of whom 9,224 were recipients. While some of the 33,240 applicants would prove ineligible (e.g., for academic or financial reasons, an improperly submitted application, no evidence of residency), the demand clearly exceeds available resources.[9]

Nationwide, the average need-based state grant per recipient constituted 75% of the recipient's tuition in 1986, a figure that fell to a low of 52% in 1992 and then recovered to 64% in 1998. A decline in the "purchasing power" of the Pell Grant has compounded the problem (NCPPHE, 2003).

The NCPPHE (2003) notes that Pell Grants now cover a far smaller portion of tuition at public four-year institutions than was the case in 1986. In 1986, the average Pell Grant accounted for approximately 98% of a recipient's tuition. By 1998, however, that figure had dropped to only 57%. NCPPHE's *Losing Ground* reports, however, that not all students and families have experienced the same downturn:

> While need-based student financial aid has lost ground to tuition increases, programs for students without demonstrated financial need have proliferated. In 1981, 91% of state financial aid was allocated on the basis of need or a combination of need and academic qualifications. In 1999, only 78% of state aid took need into account. (p. 6)

Data from the National Association of State Student Grant and Aid Programs (2000) bear out the growth in non-need-based aid. Between the 1994-95 and 1998-99 academic years, the total amount of non-need-based aid awarded by states rose 81%, from $396.8 million to $717.7 million. Over that same period, need-based aid grew by only 20%, from $2.5 billion to $2.9 billion.

[8] The WVHEPC's figures for 2003-04 are reported as "available funds" for that period.
[9] Figures provided by Judy Kee, WVHEPC, personal communication, August 3, 2004.

Ruppert (2003) also reports that appropriations for non-need-based or "merit-based" aid are growing at a faster pace. McKeown-Moak (2001) confirms that finding, noting that merit-based programs, which award college scholarships based on students' academic records and not their demonstrated financial need, have found favor in state legislatures but are unpopular with many higher education analysts.

Among those analysts is The Kennedy School's Susan Dynarski, who observes that "any program based on merit rather than need funnels fewer dollars to low-income people." Sandy Baum, financial aid researcher and professor of economics at Skidmore College, agrees that such policies are at odds with any national agenda aimed at increasing college access: "Policies designed to increase access are efficient if—and only if—they target those students whose behaviors they can significantly alter: student with very limited financial resources" (Lumina Foundation, 2003).

Financial aid researchers also question the efficiency of federal tax credits in broadening access. Two federal income tax credits were created by the Taxpayer Relief Act of 1997 to help offset tuition costs. Taxpayers can take a credit of up to $1,500 under the HOPE credit and, beginning with the 2002 tax year, up to $2,000 under the Lifelong Learning credit.

In the 2000 tax year, according to Harvard researcher Bridget Long, taxpayers took nearly $5 billion in credits, a figure she expects to double. Like merit awards, Long believes, the primary beneficiaries of tax credits are families whose children would be going to college anyway. She cites a U.S. General Accounting Office study that shows that approximately 66% of financially dependent undergraduates who received HOPE credits and 70% of those who received Lifelong Learning credits came from families earning at least $60,000 annually (Lumina Foundation, 2003).

Long views the development as a shift in government priorities, a position shared by Michael McPherson, president of Macalester College in Minnesota. "There has been tremendous interest in helping the middle class pay for college. It's a way of getting money to people who vote." The Kennedy School's Dynarski agrees, describing state merit aid as "entitlement programs" because funding for them is guaranteed. Need-based aid, on the other hand, receives specific appropriations and thus must compete with other legislative priorities for funding (Lumina Foundation, 2003).

Most researchers, however, find it highly unlikely that policymakers will reconsider the economic wisdom of continuing to fund merit aid programs. The NCPPHE (2003) recommends that the creation and enhancement of such programs be accepted as an agenda completed, and that those charged with broadening access to postsecondary education return their focus to low-income students for whom affordability continues to be an impediment. Making college affordable for these students, NCPPHE says in *Losing Ground* (2003), "remains the major unfinished national and state agenda."

Any discussion of financial aid must take into account the issue of student loans, the bulk of which are extended by the federal government. The issue is of current interest

as the upcoming reauthorization of the Higher Education Act pits one group (those who favor the current practice of permitting graduates to consolidate their debts, both federally subsidized and unsubsidized from other sources, at a fixed annual rate) against another (those who advocate requiring borrowers to submit to variable interest rates).

The National Education Association's higher education Web site reports that the ratio of federal grants to loans has shifted significantly over the last three decades. In the 1970s, the ratio of grants to loans was 70% to 30%. In 2004, that ratio has effectively been reversed, with 75% of federal aid now coming in the form of loans (NEA, 2004). The association notes that such a reversal increases the number of students facing significant debt at graduation. The NEA expresses concern that this situation ultimately discourages students from pursuing careers in public service, as public service positions typically pay less, meaning it will take graduates longer to repay loans.

The NCPPHE (2003) points out that students have been coping with the increased costs of college in numerous ways, including working more hours to supplement their tuition, reducing their course loads, and lengthening time to graduation. They are also, however, borrowing more money than ever before:

> The rich as well as the poor borrow money to attend college, but a higher percentage of low-income students borrow, and borrowing is a much greater burden on low-income students and parents. . . . For those in the lowest income quartile, such debt grew from $7,629 to $12,888 (in constant dollars [between 1989 and 1990]). . . . In most cases, families of the lowest income students cannot help repay loans. And low-income college students are more likely than other students to be contributing to the support of their families while attending college. (p. 7)

As does the NEA, the NCPPHE (2003) feels that the consequences of high student debt extend beyond the individual to society at large. The effort to attract graduates to socially important but not well-paying jobs (e.g., teaching, nursing, social work, and other public service occupations) is undermined by increasing student debt burdens.

The decline in college affordability is clearly a national concern, but its impact is felt most keenly by low-income students and their families. The failure of financial aid to keep pace with tuition increases, the inclination to provide non-need-based assistance to middle- and upper-income families, and the shift from grants to loans have combined to create an environment in which the attendance of low-income students is even further jeopardized than in previous decades.

Recent economic circumstances may have exacerbated the problem, but as Callen and Finney (in NCPPHE, 2003) point out, "economic times are either good or bad—never normal—and their succession is inevitable. It is this recurrence, not any single recession, that threatens college opportunity" (p. 11). The costs of getting a college

education have simply increased faster than families' ability to keep up—and this is particularly true for low-income families.

Callen and Finney believe this cycle can be interrupted with targeted public policies, one set for good economic conditions and another for bad. In hard economic times, they recommend three steps. First, avoid disproportionately large budget cuts to higher education. When higher education reductions are significantly larger than those required of other state programs, large tuition increases will inevitably follow.

Second, focus on the principle of shared responsibility. When budgets are cut, students should expect to pay higher—but not excessively higher—tuition. Colleges and universities should expect to absorb their share of the shortfall, and to do so by allocating reductions in ways that are least detrimental to accessibility and educational effectiveness. College presidents and governing boards should have some flexibility in enacting reductions within these parameters.

Third, when tuition is increased, states should exempt need-based student aid from reductions in state appropriations. Need-based aid should, instead, be augmented to mitigate the effect of tuition increases on the neediest students. Finally, states that are experiencing or anticipating enrollment increases should work with colleges and universities to allocate budget cuts to protect educational opportunity over the long term (in NCPPHE, 2003, p. 11).

Callen and Finney also recommend several strategies states should adopt in more prosperous economic periods. One of these strategies is to explore the potential of information technologies to improve the effectiveness of both on-campus and off-campus instruction. Another is to monitor requests for new colleges or universities and encourage alternatives to full-service campuses. Alternatives may include extension or learning centers and distance education for underserved geographic areas; planning for tuition increases that are moderate, gradual, and predictable; and focusing student financial aid programs on college-eligible students with the greatest financial need rather than subsidizing higher-income students who are likely to attend college anyway. In the likely event that policymakers are reluctant to discontinue non-need-based programs, the authors urge means-testing as an alternative to the "inefficient use of public dollars" they believe non-need-based programs represent (in NCPPHE, 2003, p. 13).

Two recent affordability initiatives, one implemented by a state and another by a public university, also aim to blunt the impact of tuition increases on low-income students and their families. The University of North Carolina (UNC) at Chapel Hill has started a plan to give freshmen from qualifying low-income families sufficient financial aid to finish college debt free. Illinois legislators passed a bill locking in tuition at freshman-level prices for each new class of students at all of the state's public universities.

The UNC plan, called the "Carolina Covenant" went into effect for the incoming freshman class in 2004. While the university already met 100% of the documented

financial aid for all students who applied for aid on time, about a third of that need was being met through loans. Through the Covenant, students whose families are at or below 150% of the federal poverty level are eligible to work on campus 10 to 12 hours a week throughout their undergraduate careers. In exchange, the university covers their unmet costs through campus-based grants or scholarships so the students can graduate without outstanding student loans.

To fund the initiative, UNC will reallocate existing funds in the Office of Scholarship and Student Aid and pledge a growing reserve of private gifts dedicated to low-income students. The initiative is expected to cost about $1.38 million annually when fully phased in three years from now.

In Illinois, legislators passed a Truth in Tuition law, which freezes tuition for new students in the state's nine public four-year institutions at the levels they were charged as freshmen. The respective institutions are permitted to set their own prices, although Cavanaugh (2003) reports that university officials predict they will need to cover their rising expenses by raising tuition for each incoming class. Even so, families will be able to gauge costs throughout the remainder of students' college years and budget for them. Should the legislature determine that institutions are enacting unreasonable increases, stricter price caps may be imposed.[10]

A promising approach has been recommended by the Citizens' Scholarship Foundation of America, or CSFA (Nelsen, Conklin, & Flanagan, 2002). Arguing that the four sectors that provide financial aid—federal and state governments, higher education institutions, and the private sector—"work at cross-purposes," with each devising its own solutions to the problem of inadequate resources, the CSFA proposes a partnership approach.

Using its own Collegiate Partners program as a model, the CSFA advocates making the most of financial aid resources through partnerships between and among the various financial aid providers:

> Private foundations and individual donors frequently tell students to get their federal and institutional aid first and then come back if they still don't have enough money for college. That approach allows donors to stretch their own dollars and know the precise impact of each contribution. But only one person or entity can provide the last dollar. And if no one is willing to give the first dollar, the total pool of scholarship money will shrink. Negotiating partnership approaches rather than playing the last-

[10] The University of Charleston in West Virginia has had a tuition guarantee since 2001. The admissions director at the time, Kimberly Scranage, reported that parents responded positively to the program, which they believe made their financial planning simpler (in Cavanaugh, 2003). There is no evidence that enrollments have increased as a result, however. Scranage is no longer with the university, and the current financial aid director, Jan Ruge, couldn't be reached at the time of this writing. If a tuition guarantee is under consideration, we suggest contacting Ms. Ruge for further information.

dollar game will be more productive for everyone. (Nelsen, Conklin, & Flanagan, 2002, p. B16)

The West Virginia Higher Education Policy Commission (2004, June) reports that students who receive need-based aid are more likely to complete their degrees. Of those who received need-based aid in 1997, 56% attained their bachelor's degrees in 2003, as compared to a 43% graduation rate for qualifying students who did not receive state-level need-based aid. The same was true for need-based students attending two-year colleges, with a 46% graduation rate for recipients vs. a 21% rate for nonrecipients.

Clearly, the recipients of need-based aid return the investment the state has made in them. While the state is to be commended, as noted previously, for its ongoing commitment to the Higher Education Grant since its inception in 1968, the fact that financial aid was awarded to only about a third of the 33,240 who applied for assistance for the 2004-05 academic year illustrates that the demand far outpaces available resources.

Demystifying Financial Aid

A substantial amount of research has been dedicated to understanding how knowledge of the financial aid process affects the participation rate of minority and low-income students. One of the consistent findings is that the least wealthy know far less about the cost of tuition than any other income group, and their estimates typically exceed the actual amount (American Council on Education [ACE], 2002). In fact, an ACE survey of 700 U.S. adults conducted in 2000 found that most respondents estimated community college tuition and fees to be as much as 300% higher than they actually are, and they overestimated four-year institutions' costs by more than 200%. Obviously, significant confusion exists in the public mind about college expenses.

As was discussed in the previous section, financial barriers are far more prevalent for low-income and minority students than for others. Heller (2001) observes that "in general, African American, Hispanic, and low-income students also tend to be more price responsive (i.e., are less likely to enroll in college, or change the type of institution in which they enroll in the face of tuition increases) than are white and middle- and upper-income students."

Longanecker and Blanco (2003) write that misperceiving the cost of higher education has little impact on upper-income families, while for middle-income families the effect may be to change their choice of college. While it is unlikely to dissuade them from attending altogether, overestimating postsecondary costs can have a devastating impact on students from low-income families, who may decide that a college education is simply out of the question financially. For that reason, it is essential that the families of low-income students be made aware of actual costs and the availability of financial aid by the time students are in middle school or early high school:

> Without both comprehensive information and an assurance that adequate aid will be there when they graduate, students may be less likely to prepare academically, to look at their postsecondary options seriously, and to begin financial planning. It is not uncommon for high school seniors to learn about their financial aid awards only weeks—or a few days—before classes begin. This timing presents an insurmountable obstacle for low-income students who do not have adequate resources at hand to cover remaining costs. (Longanecker & Blanco, 2003, p. 51)

The authors argue that "commitment" on the part of government would go a long way toward resolving the timing problem. Pointing out that the Pell Grant is more than 30 years old, they wonder why the program "can't commit to a 13-year-old eighth-grader whose family lives below the poverty line that he or she will absolutely receive a Pell Grant when matriculating" (p. 59). The answer, of course, is a purely technical one: current governments cannot legally obligate future governments to commit resources.

An additional, and ubiquitous, complaint about financial aid is that it involves an arcane and mysterious application process. As Longanecker and Blanco note, "no one ever talks about how simple it is to apply for financial aid, and there are no reliable estimates on the numbers of students and families who simply give up" (p. 54). They go on to argue that "no one outside the financial assistance club can understand the rules." They suggest that aid programs are complicated because "they are designed to serve the needs of institutions and government first and foremost, not of the students" (p. 58).

Susan Dynarski of The Kennedy School agrees, saying that "a lot of policymakers have come to the conclusion that the complexity of the process blunts the impact of aid on low-income kids." Tom Kane of UCLA advocates replacing the Free Application for Federal Student Aid (FAFSA) form with something far simpler and removing consideration of family assets in determining student eligibility for aid. He suggests "a table with family income and size that would show easily how much aid a student would qualify for" (Lumina Foundation, 2003).

Longanecker and Blanco (2003) share Kane's frustration with the FAFSA, characterizing it as "a daunting task for families with limited means, sophistication, and literacy skills" (p. 58). While conceding that some of the impediments inherent in the process are necessary to manage exceptionally large programs or to prevent fraud, they believe nonetheless that much of the complexity could be reduced.

It appears that Minnesota's Shared Responsibility Plan (SRP) provides a model for simplifying the process. The SRP makes clear to students what their obligation is, what their parents' responsibilities are, and what the government will provide through federal or state programs.

The goal of enhancing postsecondary participation among low-income students will not be achieved unless students and their families are aware that college is more

affordable than they think. It is critical that these families receive information that is understandable and accurate, and that they receive it early enough to plan for both access to and success in postsecondary education.

Suggestions

Affordability must be a central element in any effective P-20 strategy for enhancing broader participation in postsecondary education. As the Pathways to College Network (2004) observes, "Financial aid often does not sufficiently address the needs of low-income students; many of those with high unmet need do not enroll in college. The pathways that should lead to college and promising careers are still dead-end streets for too many young people" (p. 8).

We agree with that observation and suggest establishing an Advisory Committee on Financial Aid to provide recommendations to the Council. One possibility is that this work be conducted through the West Virginia Financial Aid Coordinating Council. Established in 2002 through H.B. 4534, the Coordinating Council was officially charged with just such a challenge. Among its responsibilities was the preparation of a report to have been submitted in December 2002, after which it was to be terminated in April 2003. If more time was requested to complete the work, the report deadline was to be extended to December 2003 with a termination date of April 2004. We have been unable to determine as of this writing whether the Council achieved the goals set out for it, or whether it has been officially terminated.

In the event the latter was the case, we suggest reconstituting the Council as an advisory committee for the purposes for which it was created, giving it permanent status rather than a termination schedule, and reconfiguring the membership to include more representation from the people who work most directly with students applying for aid—college financial aid officers and secondary school counselors (or academic advisers, if the suggestion in Chapter 2 is implemented). We make this suggestion for the same reason we recommend healthy representation of teachers and professors in discussions concerning curriculum and assessment issues: individuals whose daily and sole responsibilities involve the subjects under discussion can bring a much-needed element of realism to reform—and this perspective can help inform policymakers whose obligations are far broader and more removed. We suggest the Advisory Committee/Coordinating Council address the following issues.

Consider a Partnership Model

First, we strongly encourage the consideration of the partnership model recommended by Nelsen, Conklin, and Flanagan (2002) and practiced by the Citizens' Scholarship Foundation of America. Such an approach requires no additional commitment of revenues, but rather maximizes existing funding by coordinating awards between and among the federal, state, higher education, and private sectors.

Transforming the "last-dollar" giving practice into an active partnership can enhance postsecondary opportunities for all students.

Consider Making Grants the Primary Form of Financial Aid

To broaden opportunities for the most underrepresented students, consider making grants the primary form of financial aid for low-income students and limiting (or eliminating altogether) loan burdens for students. The Carolina Covenant provides an excellent model for developing this kind of strategy.

Consider Committing Grant Aid to Students in Middle or Early High School

Explore possibilities for the development of financial aid programs that commit grant aid to students in middle school or early high school. If academic advisors are placed in schools, districts, or RESAs, as suggested earlier, those individuals would be in an ideal position to provide such information.

Investigate the Efficacy of Tuition Freezes

Investigate the efficacy of tuition freezes in those states and institutions where they have been implemented to determine whether they constitute a viable means of ensuring that tuition increases are as moderate and gradual as possible and to determine whether they actually permit a level of accurate financial planning by families. The impact on institutional finances should also be examined.

Consider Exempting Need-Based Aid from Reductions in State Appropriations

Examine the allocation priorities for student financial aid, and consider exempting need-based aid from reductions in state appropriations. Is it possible to shelter need-based aid in the same fashion that merit aid is protected? The fact that need-based aid is a specific appropriation, which means it must compete with other legislative priorities, and that higher education spending is perceived as discretionary in difficult economic periods, makes need-based aid necessarily vulnerable to cyclical economic pressures. If the state is to seriously address the impediments to affordability for low-income students, it is imperative that monies intended for their benefit be protected in the same way that funds for their more advantaged counterparts are sheltered.

Consider an Income Cap for the PROMISE Scholarship

As the NCPPHE (2003) points out, the establishment of merit-based programs is essentially an agenda completed. These programs are unlikely to be discontinued, but an

income cap on PROMISE scholarships would ensure that scarce state revenues are not subsidizing students whose families have more capacity to pay the costs of their children's educations.

Recognition of the future fiscal implications of the program led to recent changes in the eligibility criteria for the scholarship, with the required minimum subscore in each section of the ACT test elevated from 19 to 20. While the change led to a smaller number of qualified applicants, the effect was essentially one of raising the floor as opposed to lowering the ceiling. Research has proven repeatedly that test scores and grade point averages correlate across the board with socioeconomic status; thus the students most affected by the change were likely not higher-SES students but those closer to the middle- or lower-income levels.

While the PROMISE Web site no longer provides information on recipients' expected family contributions or adjusted gross incomes, information posted in 2002 indicated that of the 3,479 PROMISE recipients, only 20% came from families earning less than $30,000 a year. In contrast, 31% were from families whose household income exceeded $75,000. Additionally, while an expected family contribution (EFC) of $4,000 or less qualifies students for needs-based aid, 53% of the students receiving PROMISE funds had an EFC in excess of $6,000 per year (PROMISE Scholarship Board, 2002).

Current information on the PROMISE Web site indicates that of 4,300 students eligible for the scholarship, only 1,200, or 28%, are also eligible for the Higher Education Grant. The fact that fewer than a third of the recipients meet eligibility criteria for need-based aid does not, of course, prove that all of the remaining two thirds go to families who are able to fully underwrite their children's postsecondary education. In fact, the 2002 data (above) suggest that only another third actually fall into that category.

Still, the economic implications of the program deserve reconsideration. If the state is to reach the 70% participation goal articulated by the Chancellor, an effort is necessary to ensure that as many of the 33,240 students as possible who applied for need-based aid this year may enroll in college. A possible alternative would be to award PROMISE monies on an income continuum, which would allow all eligible students to receive some assistance. Perhaps the Advisory Committee/Coordinating Council can identify other options as well.

While we recognize that this particular suggestion will likely be an unpopular one, we think it important to raise nonetheless. The broad effects of state and national economic circumstances on higher education funding in general suggest a need to explore every possible option for making efficient use of the state's scarce resources.

Consider Making the First Year of College Free

Finally, in the interest of exploring all possible options, we encourage the Advisory Committee/Coordinating Council to consider making the first year of college

free. It isn't such a radical idea. A half-century ago, going to college was for a select few and many, if not most, never considered it especially necessary. The material presented in this report, however, suggests that the nation is coming to the realization that postsecondary education is no longer merely an option for some but a necessity for all.

By making college free, we'd be saying to postsecondary students what we said to K-12 students ages ago: we are willing to underwrite the cost of educating you with the understanding that when you graduate, you will get your opportunity to work, contribute to the economy, support your family, and pay taxes that will help fund the education of the next generation. Making that commitment to postsecondary students merely recognizes the changes that have occurred since the time when a high school diploma was adequate to accomplish that task.

One need not look to the social democracies of Europe for models. The City College of New York paved the way originally, and New Jersey's STARS program guarantees New Jersey high school graduates who finish in the top 20% of their classes free tuition at any of the state's community colleges. The PROMISE scholarship essentially does the same for students who achieve high admissions test scores, maintain a "B" average in high school, and complete a specified core curriculum.

Since the research reported here suggests that tests and grades account for the lesser of the "academic resources" students bring to college, and that courses taken accounts for the greater, what if we were to consider as the eligibility criterion the successful completion of a college preparatory curriculum? And what if we were to take into consideration all of the monies available through scholarships, grants, loans, campus work-study jobs, and so forth—from all sources—and allocate those funds to postsecondary institutions in the same way we distribute revenues to the K-12 system—on a per student basis?

The state has taken the position that our postsecondary participation rate could be enhanced by informing students as young as middle school age that with the right combination of test scores, GPA, and courses, they could attend college tuition-free through the PROMISE program. Could we say to students that we will support their postsecondary plans if they enroll in rigorous courses designed for college preparation and complete them satisfactorily (instead of requiring them to achieve a high test score, maintain a 3.0 GPA, *and* complete the recommended core curriculum)?

Needless to say, such an approach would go a long way toward simplifying the financial aid application process, which research suggests is unnecessarily complex and frustrating, even for families with college experience of their own. As we have noted, the goal of broadening postsecondary participation among low-income students cannot be accomplished unless students and their families are aware that college is more affordable than they think.

It is merely a suggestion, of course, and we place it last because it is controversial. We encourage the Advisory Committee/Coordinating Council, however, to consider the

possibility. Should the recommendations offered in relationship to curriculum and assessment be fully implemented, it is possible that within the next decade the majority of high school students will present themselves for PROMISE scholarships. We simply advocate entertaining that possibility sooner rather than later.

Chapter 5: Quality Teaching

The fifth and final primary theme in the literature on P-16/P-20 initiatives is teacher quality. With the preceding themes, the issue of teacher quality is an interrelated element in the holistic view of a seamless educational system that ensures that students at every level of the education enterprise are fully prepared to be successful at the next. It is also the subject on which there is the least consensus.

The No Child Left Behind requirement that all schools have "highly qualified teachers" in each classroom by the end of the 2005-06 school year has had an obvious influence on states' interest in and focus on the subject. At both the state and national levels, perceptions of an impending shortage resulting from attrition and high turnover rates, difficulties in filling positions in high demand areas (i.e., math, science, special education, and bilingual education), anticipated growth in the K-12 population in several states, and efforts to reduce class sizes have contributed to the concern as well.

What Is High-Quality Teaching?

Despite the widespread interest, a definitive list of characteristics that constitute a "highly qualified teacher" are hotly contested. Quality is itself difficult to define, and attempts to define teacher quality have relied largely on measurable constructs such as academic degrees, scores on licensure exams, certification, and years of teaching experience. The report from the National Commission on Teaching and America's Future (NCTAF, 2003) includes one of the more comprehensive definitions of what constitutes quality teaching. The NCTAF describes "high-quality teachers" as those who can do the following:

- possess a deep understanding of the subjects they teach
- show evidence of a firm understanding of how children learn
- demonstrate teaching skills necessary to help all students achieve high standards
- create positive learning environments
- use a variety of assessment strategies to diagnose and respond to individual student learning needs
- demonstrate and integrate technology into the curriculum to support student learning

- collaborate with colleagues, parents, community members, and other educators to improve student learning

- reflect on their practice to improve future teaching and student achievement

- pursue professional growth in both content and pedagogy

- instill a passion for learning in their students

Clearly, finding a way to measure the extent to which teachers "instill a passion for learning" or "reflect on their practice" is difficult, so several states are considering tying teacher quality to students' scores on standardized tests. Such recommendations are meeting with stiff resistance, however, from administrators and teachers alike, who question the appropriateness of evaluating teaching by how well adolescents "bubble in answers" on a test sheet. *Quality Counts 2004* (Education Week, 2004b) reports that 12 states are taking that angle a step further by holding teacher training programs accountable for how well their graduates' students perform on state exams.

Whether more "objective" measures of quality are accurate indicators or not, most states are scrambling to meet No Child Left Behind's (NCLB's) mandate that teachers be "highly qualified" in the subjects they teach. The NCLB definition of a highly qualified teacher is one "with full certification, a bachelor's degree and demonstrated competence in subject knowledge and teaching." All classrooms are to have such teachers by the end of the 2005-06 school year, except for qualifying rural schools, which have until 2006-2007 (US Department of Education, n.d.).

Given the difficulties cited above in discerning "quality" teaching, the majority of states are turning to degrees, certification, and tests to prove the subject-matter competency of their teachers. Thirty-four states now require that high school teachers pass subject-knowledge exams prior to initial licensure, up from 29 states in 2000. *Education Week* (2004b) reports that an additional 6 states plan to adopt the same approach in the near future.

The NCLB legislation provides funding to states and districts for activities that will strengthen teacher quality, particularly in schools with high numbers of disadvantaged students. Funding can be used to support a wide array of activities, including interventions for teacher professional development, so long as the activities are grounded in scientifically based research. Because communities nationwide face such a variety of needs when it comes to teacher quality, the law gives schools and districts a measure of flexibility in how the money is spent.

Federal funding may also be used to recruit nontraditional candidates to teaching through alternative certification processes. The Transition to Teaching program has allocated nearly $42 million to states, districts, and nonprofit groups to attract professionals with bachelor's degrees in fields "related to" the subject areas in which they

wish to teach. The Transition program also supports the Teach for America (TFA) initiative,[11] which recruits recent college graduates with noneducation degrees to pursue certification in the subject areas in which they earned their degrees. A similar program, Troops to Teachers, is designed to streamline the entry of former military personnel into schools as teachers.

Is There a Shortage?

The number of federal initiatives to support states in recruiting new teachers from pools other than traditional teacher education programs seems to project a dire shortage of teaching personnel. The vast majority of the research consulted for this report, however, both educational and noneducational, suggests otherwise. The NCTAF (2003), chaired by former North Carolina governor James B. Hunt and directed by Stanford's Linda Darling-Hammond, is quite explicit on the subject:

> The conventional wisdom is that we lack enough good teachers. But the conventional wisdom is wrong. **The real school staffing problem is teacher retention.** Our inability to support high quality teaching in many of our schools is driven not by too few teachers entering the profession, but by too many leaving it for other jobs. . . . In the mistaken belief that teacher supply is the core problem, quality teaching is too often compromised in an effort to recruit a sufficient quantity of teachers to fill classrooms. The results: standards for entry into the profession are lowered; quality teacher preparation is undercut; licensure becomes a bureaucratic barrier to be side-stepped, instead of a mark of quality; and the mythology that "anyone can teach" gains more ground with each fall's round of stop-gap hiring. Today, thousands of unqualified individuals are in classrooms across the nation, hired because state laws and district

[11] The TFA program has been prominently featured in recent news articles reporting the success of the program as analyzed by the Mathematica Policy Research Group. The research focused on 41 TFA teachers and 57 control teachers, of whom 18 were novices. Mathematica's findings have been widely questioned by researchers, who point out that many of the TFA teachers, with bachelor's degrees in the fields in which they were teaching, actually had more pedagogical training than did the novice teachers, with 51% of the TFA teachers earning certification by the end of the first year of teaching, and 40% having earned a master's degree by the end of the second. The control group, by contrast, included numerous teachers with emergency and temporary permits who were teaching out of field. In terms of results, students of both TFA and control group teachers scored very poorly on the Iowa Test of Basic Skills. The achievement scores in reading for the students in the sample, for example, went from the 13th to the 14th percentile for the control group and increased at the same rate (from the 14th percentile to the 15th percentile) for TFA teachers. Thus their gain scores were essentially the same—which is virtually no gain at all. These students are still reading more poorly than 85 percent of their peers nationwide and well below grade level. The Southeast Center for Teaching Quality (2003) reports that "if TFA is producing slightly higher student achievement gains, perhaps it is because they are more likely to be prepared to teach than the woefully under-prepared control group of teachers. The study's authors admit that 'compared with a nationally representative sample of teachers, the control teachers in the schools in our study had substantially lower rates of certification and formal education training.'" The report is available at www.teachingquality.org.

> policies are ignored in the name of meeting immediate needs of schools that appear to face "shortages." But the real problem is that these schools are unable to retain a sufficient number of teachers with the proper credentials. We have mistaken the symptom for the problem. (p. 6, emphases in original)

Hirsch (2004) agrees, citing an NCES (1997) study that showed poor working conditions influence many well-qualified teachers to leave the profession prematurely.[12] On average, he reports, 30% to 50% of teachers leave the field altogether within the first five years (p. 2). Ingersoll's (2001) data are more specific. For the 1987-88 school year, for example, 178,344 new teachers entered America's schools. At the end of that year, a total of 390,731 left, only .09% of them retirees.

The trend has continued, with 191,179 entering schools in 1990-91 while 382,879 left; 192,550 entering in 1993-94 and 417,588 leaving; and 232,232 entering in 1999-2000 and 539,778 leaving. The numbers of retirees in each of those years were 12%, 12% and 14% respectively. Ingersoll suggests that a more appropriate question than "Where will the teachers come from?" is "Why are they leaving?"

Characterizing the assumption that growing student enrollments combined with projected retirements necessarily forecasts an inadequate supply of new teachers as "a superficial conclusion," the NCTAF argues that the facts, such as those reported by Ingersoll above, show otherwise: "Overall, the nation dramatically increased its supply of teachers during the 1990s and generally produces enough teachers to meet each year's new needs" (2003, p. 8). With the exception of the specific fields of math, science, special education, and bilingual education, the new teacher supply far exceeds the demand.

So why are qualified teachers leaving the profession? Hirsch (2004) writes that it is poor working conditions, primarily "dissatisfaction with administrative support, student behavior, social atmosphere, and a lack of autonomy" (p. 2). According to his analysis, the latter has been significantly exacerbated by the pressures of No Child Left Behind, which some districts and schools report have led them to completely prescribe what teachers will teach, on which days, and for how long.

The issue is especially critical in challenging schools, where conditions not only fail to support but actively undercut quality teaching. A California survey reveals that teachers in high-minority, low-income schools report significantly worse working conditions than their peers in less difficult circumstances—including inadequate facilities, fewer books and supplies, larger class sizes, and uneven administrative support

[12] Hirsch (2004) cited an NCES study, 1997, "Characteristics of Stayers, Movers, and Leavers, Results from the Teacher Follow-Up Survey: 1994-95." NCES identifies the target population as "the universe of elementary and secondary school teachers who taught in schools that had a first grade and/or higher in the United States during the 1993-94 school year. This population was divided into two components: those who left teaching after the 1993-94 school year (former teachers) and those who continued teaching (current teachers)." The NCES report is available at http://nces.ed.gov/pubs97/97450/.

as principals transferred in and out frequently.[13] A follow-up analysis has provided additional evidence that turnover problems are more strongly influenced by school working conditions and salary levels than by the characteristics of the student population in these schools (Loeb, Darling-Hammond, & Luczak, in press).

Rural schools face the same difficulties. A survey conducted by the American Association of School Administrators and the Appalachia Educational Laboratory (AEL, 2004) reports that the negative effects of low salaries and social and geographic isolation are major concerns for rural districts in recruiting and retaining qualified teachers. Respondents also cited the economic health of the community, the distance from colleges and universities, and expectations that they teach multiple subjects or more than one grade level as deterrents to working in rural areas.

The impact of teacher turnover in low-income and high-minority schools is felt keenly by students who, like students everywhere, need stability in their school lives. Students from low-income and high-minority schools are most likely to have teachers who are not certified in their subject areas, teachers with little experience, or teachers who are short-term substitutes.

A Tennessee study reveals that children who had the least effective teachers three years in a row posted academic achievement gains that were a full 54% below those of children who had the most effective teachers in their classrooms for three consecutive years (Sanders and Rivers, 1996). Studies in Boston and Dallas reach similar conclusions (U.S. Department of Education, 2002).

Based on studies in Tennessee, Massachusetts, Texas, and Alabama, The Education Trust concludes (1998) that not only does high-quality teaching matter, it matters a lot. "If we but took the simple step of assuring that poor and minority children had teachers of the same quality as other children, about half of the achievement gap would disappear. If we went further and assigned our best teachers to the students who most need them, there's persuasive evidence to suggest we could entirely close the gap" (p. 2).

What Are States Doing?

Despite the interest of the federal government in highly qualified teachers, both teacher supply and demand and quality issues are essentially regarded as state-level matters, and most researchers believe efforts to improve both will be more effective if they are grounded within the context of a P-16/P-20 initiative (Crowe, 2003). Whether

[13] For other studies of teacher working conditions and their relationship to student achievement, see also Ingersoll (2002) who cites results of the NCES Teacher Follow-Up Survey (1997); and reports of two surveys of North Carolina's teachers conducted in 2002 and 2004 as part of Governor Mike Easley's Teacher Working Conditions Initiative (Easley, 2003; North Carolina Professional Teaching Standards Commission, 2004; Southeast Center for Teaching Quality, 2004).

states have P-16/P-20 agendas or not, the strategies states are implementing to address quality issues and the perceived shortage of teachers are quite similar.

Exploring Alternative Routes to Certification

Operating on the dubious theory that the problem is one of inadequate numbers of new teachers, many states, West Virginia among them, are exploring alternative routes to certification. Hirsch (2004) writes that there are presently more than 115 alternative programs operating in 40 states and the District of Columbia. Collectively, they have certified more than 129,000 teachers. The three largest are in California, New Jersey, and Texas, where 16% to 22% of the new teacher hires have earned their certification through alternative routes.

West Virginia's initiative, articulated in the West Virginia Department of Education's Policy 5202, would permit noneducation majors to teach in content areas of shortage, as identified by county superintendents, if they have a bachelor's degree in a field related to the area in which certification is sought; show proficient scores on the Pre-Professional Skills Test and on a content-area test; and enroll in a Board-approved, 18-hour alternative certification program (WVDE, 2004).

Policy 5202 does not permit alternative certification in the areas of special education or elementary education. It also exempts some applicants from certain tests if they have master's degrees or doctorates in the fields in which they would be teaching. The policy was out for public comment until the end of August 2004, and results were unavailable at the time of this writing.

The NCTAF takes a dim view of alternative certification initiatives. Based on the research and data they have collected, it is the commission's position that neither perceived nor real teacher shortages (i.e., those in math, science, special education, or bilingual education) justify the proliferation of alternative programs:

> No research evidence supports the claim that quality teacher preparation, rigorous program accreditation, or strong licensure and certification standards are barriers to providing the nation's schools with a sufficient quantity of highly qualified teachers. There is no basis for sacrificing these standards of quality—even temporarily—on the altar of emergency. Taking a shortcut around quality-assurance measures only aggravates the very conditions that drive good teachers away from the schools and students that need them. (2003, p. 7)

Increasing Teacher Salaries

Several states are following the advice of NCTAF chairman James Hunt to find ways to increase teaching salaries. "If we are to be fair," he writes, "we must ask what

'carrot' we are offering, when so much of the new accountability system emphasizes the 'stick'" (Hunt, 2004). The pool of teachers will only get better, Hunt argues, with a sustained commitment to excellence, which "requires an updated compensation system."

Hirsch (2004) agrees with that sentiment, pointing out that in 1999, new college graduates in all fields received average salary offers in excess of $37,000 compared to an average beginning salary of $26,639 for teachers. In an effort to attract new teachers and keep experienced faculty as well, 11 states passed legislation to increase salaries for teachers in 2000. These states are hoping that more competitive salaries give them an important recruiting tool while increasing the overall quality of the teaching workforce.

North Carolina, for example, passed the Excellent Schools Act in 1997 to increase teachers' salaries by 11.3%, and Alabama provided an 8.5% cost-of-living adjustment in 1998. The current average teaching salary in Alabama is now $36,000 and the starting salary for new teachers is $29,000 (Hirsch, 2004).

These recent efforts are generating some intense competition for teachers among states in the same region. Numerous Oklahoma educators, for instance, were crossing the border to teach in Texas, where annual salary increases of $3,000 had been set aside for teachers over the next two years. In response, Oklahoma felt compelled to increase its own teachers' salaries by $3,000 and to establish a statewide minimum starting salary of $27,000. Border states represent some competition for West Virginia as well, as illustrated in Table 1.

Table 1

Beginning and Average Teacher Salaries in West Virginia and Border States

Salary	KY	MD	OH	PA	VA	WV
Beginning Teachers	$30,142	$33,260	$31,771	$34,612	$32,951	$29,361
All Teachers	$42,663	$50,422	$46,953	$54,960	$44,041	$42,124

Source: *Education Week.* Education Counts Custom Table Builder, www.edweek.org.

Offering Financial Incentives

In addition to general salary increases, several states are considering other kinds of financial incentives to attract qualified teachers. In some cases, those incentives come in the form of sign-on bonuses to teachers willing to commit to working within the district for a specific number of years. Massachusetts, for example, began providing $20,000 bonuses to qualified new teachers who committed to teaching there for a minimum of four years. The program, called the Massachusetts Signing Bonus Program

for New Teachers, is designed to recruit mid-career professionals, recent graduates, and even college seniors with math, science, or foreign language degrees.

Other, even more enticing offers include relocation expenses and downpayments on homes. Baltimore, for example, in addition to a recent $3,000 starting salary increase, provides $1,200 in relocation expenses and $5,000 toward closing costs on a home for teachers willing to work in the city's troubled schools.

New York offers an annual stipend of $3,400 for up to three years to any certified teacher who agrees to work in a critical shortage area. It may be Mississippi, however, that provides the most generous package. Targeting teachers seeking master's degrees, the state agrees to provide tuition expenses or scholarships for pursuing the graduate degree, professional development opportunities, computers, participation in extensive mentoring programs, and home loans in exchange for three years of service in critical-need areas. Up to $1,000 is also available for moving expenses.

Nearly 200 districts nationwide and 39 states offer incentives or bonuses for veteran teachers who acquire certification from the National Board for Professional Teaching Standards (NBPTS). California passed legislation in 2000 setting aside $20,000 bonuses for NBPTS-certified teachers who agree to teach in low-performing schools or districts, while New York awards $10,000 bonuses. Hirsch (2004) reports that some states are also enhancing retirement systems and offering tax credits to attract qualified teachers to underserved schools.

All of these initiatives are consistent with the suggestion of NCTAF Chairman James Hunt that states or districts reward teachers who agree to mentor others, teach in difficult schools, or teach in subject areas where shortages actually do exist (i.e., math, science, special education, and bilingual education). It should be noted, however, that such incentives have not gone unchallenged.

A judge in Missouri ruled in January 2004 that a small district outside of Kansas City was wrong to offer bonuses to attract teachers. The small Sherwood-Cass school district (900 students) was offering $1,000 to $2,000 bonuses, termed "commitment fees," to teachers who agreed to sign two-year contracts. The National Education Association filed suit on behalf of three teachers who contended that the bonuses were both illegal and unfair.

A new state law in Louisiana, while not a challenge to incentives *per se*, also limits measures districts may take to recruit teachers to troubled schools and systems. The state's Distinguished Educator Program had pulled numerous experienced teachers out of top-tier districts to place them in low-performing schools. Participating educators were attracted to the program by the 35% salary increase and the professional distinction that accompanied selection as one of the state's Distinguished Educators. Those selected, however, had to agree to a two- to six-year appointment that took them out of their home districts. Of the 35 teachers selected, 10 (29%) were from the St. Charles Parish, and officials heavily criticized the program, saying their district was bearing too much of the

burden. The new law limits the number of teachers who can be drawn from a single district to 10% of all recruits, so Louisiana will need to fill next year's nine vacancies with teachers from other districts.

These developments reveal the difficulties that low-performing schools and districts face in competing with their larger or more affluent peers, and the problems that can ensue if they want to provide incentives to some teachers and not others. For this reason, the NCTAF suggests a different method.

NCTAF's chairman recommends a "pay-for-performance" system based on student achievement and expertise. Calling the idea an "ambitious bargain," he proposes that the nation "once and for all step up to raising teacher pay," but that it be done "in return for commensurate increases in quality and accountability based on student achievement" (Hunt, 2004).

Citing his own state of North Carolina as an example, Hunt reports that $138 million was distributed in bonuses in 2003 for increased student achievement on standardized tests. The state also rewards teachers who acquire National Board certification. Hunt notes that the cost of these changes is not insignificant, but he believes the necessary revenues can be found:

> If, for example, we invested an additional $30 billion—less than a tenth of what we spend now on education—we could give all teachers a 10% raise. More importantly, we could give the top half of all current or potential teachers a 30% boost, based on their demonstrated excellence.

The position of the NCTAF is that it is an investment we can't afford *not* to make. "Research shows," Hunt continues, "that quality teaching matters. We've got to stop treating quality teachers as if they don't."

Promoting Teaching as a Career

States are pursuing a variety of avenues to promote teaching as a career. Strategies include early outreach programs, financial assistance, professional development opportunities, and "grow-your-own" initiatives.

Early outreach programs. Among the strategies states are implementing to build the teaching pool is strengthening early outreach by raising students' interest in teaching prior to college. The South Carolina Center for Teacher Recruitment starts to raise awareness with middle school students who may enroll in the ProTeam Program, which promotes teaching as a career and encourages students to make the necessary academic choices for college entrance. The Center also has three programs that concentrate on high school students: the Teacher Cadet Program, the Teaching Assistant Program, and the Teaching Fellows Program. All are designed to provide hands-on experience, and some South Carolina higher education institutions grant college credit for successful completion.

Financial assistance. Twenty-seven states offer financial assistance to college students willing to become teachers in return for their commitment to teach for a designated period of time in the state that provides their support. Based on the National Direct Student Loan program, which forgave loans if graduates were willing to work in underserved areas, these programs offer scholarships, tuition assistance, and forgivable loans.

Professional development opportunities. Some states, notably North Carolina, provide additional enrichment activities in addition to the financial assistance. Students in the North Carolina Teaching Fellows Program receive scholarships worth $6,500 a year for four years, and they are involved in conferences, workshops, school visits, and other professional development activities. Former fellows are presently teaching in 96 of the state's 100 counties (Hirsch, 2004).

"Grow-your-own" initiatives. Using Title II Teacher Quality Enhancement Recruitment Program funds, several districts are involved in "grow-your-own" initiatives, in which schools or districts partner with colleges and universities to recruit and prepare teachers. Few states appear to be involved in such strategies, which are more likely to be developed locally between school and higher education partners.

One of the more visible is the Los Angeles Unified School District's partnership with the California State University (CSU) system. The program includes a high school internship program in which students prepare to work as paraeducators while they matriculate at one of the CSU campuses. Students are eligible for scholarships and stipends, and upon completion of their university programs, they will have acquired both a bachelor's degree and initial teacher certification.

Streamlining the Hiring Process

Another suggestion for attracting and retaining quality teachers involves streamlining the hiring process. Hirsch (2004) reports that the complexity and timing of hiring decisions often create obstacles to getting qualified teachers into classrooms. Policies on reductions in force sometimes require that schools offer vacant positions to teachers who have been laid off before opening them to other candidates. This often leads to a massive shuffling of teachers and positions that is not fully resolved until only weeks before the beginning of the new academic year. In addition, Hirsch points out that information on vacancies is not always easily accessible, and that applicants wishing to be considered in more than one district in a state must usually complete and submit multiple and duplicative forms and documentation.

Reducing Interstate Barriers

The Council for Basic Education (CBE) and the North Central Regional Educational Laboratory (NCREL) are studying ways to facilitate teacher mobility in an effort to reduce barriers that make it difficult for teachers to move between states (NCREL, 2001). Obstacles include the lack of reciprocity of teacher licenses and certification, restrictions on pension portability, and the reluctance or inability of some districts to pay teachers for accrued experience in other districts.

The CBE-NCREL study is exploring the idea of regional job banks to ensure a sufficient supply of teachers across states. The idea is that states with an oversupply of educators in certain subject areas could assist their teachers in finding employment in states with severe shortages. Any such cooperative effort, however, will need to find ways to resolve the obstacles to teachers' moving from one state to another.

Attracting Retired Teachers

The difficulty of finding an adequate supply of teachers in critical shortage areas, particularly in math and science, has led several states to create policies permitting retired educators' retention of their full pension benefits while teaching full or part time. California, Maryland, Missouri, North Carolina, South Carolina, and Texas passed legislation in 1999 to alter existing regulations affecting retirees' benefits. In 2000, Alabama, Kentucky, Louisiana, Massachusetts, Oklahoma, and Tennessee approved similar changes.

Clearly, states are attempting to be both creative and flexible in ensuring that all classrooms are staffed with fully certified and qualified teachers. Hirsch (2004) writes that no fewer than 450 bills addressing teacher recruitment were introduced in 41 states during the 2000 legislative sessions. There is, however, neither a simple nor a single solution. Strategies for keeping highly qualified teachers in West Virginia classrooms will need to be incorporated into a long-term and comprehensive plan to improve education across the board. The P-20 initiative is well-suited as the rubric under which such initiatives can be subsumed.

Strengthening Teacher Preparation Programs

Two additional issues to surface in relationship to the quality of teaching, although not appearing as often in the research as those above, appear often enough to merit some mention. The first is strengthening teacher preparation programs. The subject is addressed by Crowe (2003), who recommends that prospective teachers "develop a strong foundation of knowledge" in the subjects they teach, "learn how to teach their subjects," understand how to use assessment data to gauge student progress, and have access to well-designed and extensive clinical experiences prior to their graduation and certification (p. 39).

Teacher education programs that have recently been accredited by national agencies (e.g., the National Council for the Accreditation of Teacher Education, North Central Association) have already increased expectations for content knowledge and pedagogy consistent with new accreditation guidelines, and they are attempting to provide more time for clinical experiences for students. As Crowe (2003) points out, however, few institutions are able to sufficiently support the costs of increased field experiences, and few states provide the resources to universities to do the job well:

> If states and institutions expect faculty to be in the schools working with students and new graduates (as indeed they should), there are important workload and compensation issues that must be addressed. . . . A key first step is to make sure that clinical experiences are a core component of the training program instead of a weakly funded afterthought. Accomplishing this step will require that the cost of clinical experience be built into the state and campus funding formulas. (pp. 41-42)

Class-Size Reductions

The last issue sometimes raised in the literature related to quality teaching, although not as often as earlier discussed issues, is the matter of class-size reductions. Perhaps it is because this is a subject more closely related to organizational structure than to teacher quality. If student achievement is to be central to quality teaching, however, it is an issue that deserves attention.

The definitive study in the field is Tennessee's 1985-1989 Student/Teacher Achievement Ratio, or STAR, research (Word et al., 1990). The STAR project was one of education research's few large-scale, experimental studies, involving 11,600 students and 1,300 teachers in 76 schools and 42 districts. At each grade level, kindergarten through third grade, a controlled study was conducted to determine whether small classes of 13 to 17 students had a positive impact on student achievement as compared to regularly sized classes of 22 to 26 students.

STAR data confirmed that small classes led to statistically significant improvements in reading and mathematics, and that benefits were greatest for students who started small classes early (i.e., full-day kindergarten or first grade). The STAR findings were replicated in Wisconsin's Student Achievement Guarantee in Education (SAGE) project, a statewide effort to increase the achievement of children living in poverty (Molnar et al.,1999). SAGE reinforced STAR's findings, in a different location and with a different ethnic population of students. SAGE also demonstrated that the impact of smaller classes is greater for low-income students.

Additional research has demonstrated that while smaller class sizes benefit all students, the effect is more substantial for minority or low-income students (Krueger & Whitmore, 2001; Nye, Hedges, & Kostantopoulos, 2000). For these students, smaller classes contribute to reductions in the achievement gap, decreases in the numbers of

students retained, fewer disciplinary problems, reductions in drop-out rates, and more students eventually taking college entrance exams.

The research is careful to point out that the numbers themselves are crucial. For example, reducing class size from 30 to 26 will be of little benefit to students. If students' achievement is to show the improvements demonstrated in the research, class size cannot exceed 17, and the general consensus is that a classroom of 15 students is an ideal size.

The findings also indicate that while the benefits of reducing class size beyond the third grade are ambiguous, students who were in small classes in grades K-3 continued to demonstrate an advantage over their peers in subsequent years (Finn, Gerber, Achilles, & Boyd-Zaharias, 2001). The research emphasizes that policymakers need to recognize the distinction between student-teacher ratio and class size, two constructs that are often mistaken as synonymous. The calculation of student-teacher ratio is a straightforward division of the number of students in a school by the number of personnel, which includes counselors, administrators, aides, and others. As such, it cannot be used as a calculus for class size, which involves simply the number of students for whom the teacher in the classroom is responsible.[14]

Requiring Systemic Teacher Induction

An additional recommendation that surfaces in the research is the need for states to require and finance new teacher induction systems. We do not address that matter because West Virginia already requires and finances a one-year mentoring program for all beginning teachers. There are some indications in the literature that a one-year induction period may be insufficient, but as required mentoring is a fairly recent phenomenon, there is little conclusive evidence to support that position thus far.

Suggestions

While interest in attracting and retaining highly qualified teachers is clearly high, there are obvious challenges. Committing the fiscal resources necessary to effect any of the changes described here, from salary increases or incentives for working in high-need schools to strengthening teacher preparation programs or reducing class sizes in the early grades, will be a difficult task.

As former North Carolina Governor James Hunt points out, however, "teaching is the profession that makes all other professions possible." This position is shared by the NCTAF, which he chairs. The nation, the commission believes, will not continue to lead

[14] See, for example, the West Virginia Report Card 2002-2003. The pupil/teacher ratio is reported as 14:1 on page 5 of the foreword, but average class size is reported as 19.6 on page 7. See http://wvde.state.wv.us/data/report_cards/2003/foreword.pdf.

if it persists in viewing teaching as a second-rate occupation. Both compensation issues and matters related to teaching conditions must be addressed.

Consistent with our recommendations in previous chapters of this report, **we suggest either the establishment of an Advisory Committee on Quality Teaching to provide recommendations to the Council on the following issues, or that the Council conduct this work** through the West Virginia Commission for Professional Teaching Standards (WVCPTS). The WVCPTS was established by the West Virginia Department of Education in 2003 for the purpose of developing and recommending to the state board of education "a systematic plan for the professional development of educators that begins with recruitment and concludes with retirement" (WVCPTS, 2003). We suggest that the Advisory Committee or Commission consider these recommendations to enhance the opportunities for every child to have a highly qualified teacher in every classroom.

Consider Establishing an Office to Oversee K-12–Higher Education Partnerships

We encourage the Advisory Committee/Commission for Professional Teaching to consider the establishment of an office charged with oversight for partnerships between higher education institutions and K-12 schools. While several such partnerships currently exist, they tend to be ad hoc in nature, develop sporadically, focus on short-term issues, and occur between a single institution and district or school.

Such haphazard proliferation of programs leads to duplication of effort in some areas and an absence of opportunities in others. It makes little economic sense, for example, to allocate Title II monies for professional development to 55 separate counties that then secure their own services when many share the same needs. Coordination of professional development services through a single office that matches district/school needs with higher education or external providers could mitigate the duplication of initiatives and reduce expenses.

Collect and Evaluate Data Relevant to Quality Teaching

A primary focus of the Advisory Committee/Commission on Professional Teaching should be the collection and evaluation of data relevant to quality teaching. Among those data are teacher supply and demand, in the aggregate and by subject areas and grade levels; attrition rates of new teachers; the extent of out-of-field teaching; and the number of teachers with temporary permits. Both the West Virginia Department of Education and the Higher Education Policy Commission have enormous databases but maintain different interests and thus different reports.

The issue of teacher supply, for example—a matter of reporting the numbers of students in various program areas in higher education—would be handled by the Policy Commission. Teacher demand, on the other hand, is a matter for the state department of education. If one wishes to explore teacher vacancies in the state, it is necessary to have a

log-in ID and password for the Department's West Virginia Education Information System (WVEIS) database. The information isn't accessible to the public. It simply makes sense to maintain those data in an easily accessible, single location.

It will also be important to collect data on the implementation of any strategies employed to recruit and retain teachers. Many of the initiatives reported here (e.g., bonuses, tax credits, early outreach efforts, increasing mobility, pay-for-performance initiatives) have been in place for only a short time, and their effectiveness has not yet been demonstrated. West Virginia will need to closely monitor any such initiatives and carefully compile the data in order to conduct thorough evaluations on the efficacy of these efforts. The state's required mentoring program for new teachers should also be studied carefully in order to determine the extent to which it is successful in retaining teachers.

Develop Regional Relationships

Related to the issue of data collection is the need for data sharing. The potential development of regional relationships related to teacher supply and demand should be explored. A shared databank of vacancies, for example, could facilitate the state's staffing of hard-to-fill positions by advertising them to a broader pool of applicants, and assist graduates in West Virginia and adjacent states in locating job openings. Any such cooperative efforts will need to first address the interstate agreements on matters related to licensure and certification reciprocity, pension portability, and consideration of teaching experience accrued in other districts.

Both regional and state schools and districts could also benefit by streamlining the hiring process. Hirsch's (2004) observation that the complexity and timing of hiring decisions often create obstacles to getting qualified teachers into classrooms is a legitimate one, and it should be explored. The usefulness of a common application system should also be explored in order to reduce the need for duplicate and multiple submission requirements for applicants (AEL, 2004; Hirsch, 2004).

Develop Coherent Outreach Programs

The recruitment of teachers can be enhanced by the development of early outreach efforts in middle and high schools and targeted recruiting on college campuses. The South Carolina initiatives profiled earlier in this chapter provide useful models for reaching students in secondary schools (i.e., ProTeam in middle schools and Teacher Cadets, Teaching Assistants, and Teaching Fellows in high schools). More than half of the states also offer financial assistance to college students willing to become teachers by providing scholarships, tuition assistance, and forgivable loans for those who agree to work in underserved areas for specified periods of time.

At the other end of the spectrum lie possibilities for luring retired educators back into the classroom to teach in critical shortage areas, an option many states are pursuing. At least a dozen states have established policies permitting retirees to return to the classroom without jeopardizing their retirement benefits. Given the shift in West Virginia's demographics (i.e., the projected increase in the state's population age 45 and over), retired teachers may constitute a substantial pool of talent.

Crafting policies designed to permit retirees to work full-time, however, rests on the assumption that they will actually want to do so. We believe a better use of their talents would be involving them in a mentoring capacity. Presently, mentors are themselves educators who are trying to induct new teachers into the profession while meeting their own teaching obligations. Retired educators are more likely to have both the experience and the time necessary to fully support novice teachers, and strategies for encouraging them to do so should be considered.

Develop Local Talent

The Advisory Committee/Commission on Professional Teaching may also want to explore the kind of "grow your own" programs that Hirsch (2004) examines. The Southeast Center for Teaching Quality (2002) considers developing local talent a central component in resolving staffing problems in troubled schools. Most such programs target education paraprofessionals and classroom aides already working in schools, although some (e.g., the South Carolina early outreach efforts) focus on local students as well. As Hirsch notes, few states have enacted policies that facilitate the creation of such programs, relying instead on districts and colleges or universities to develop their own partnerships.

As previously mentioned, however, a single office charged with developing and overseeing such programs could coordinate the process and reduce duplication of both effort and expense. Creative use of the state's extensive education telecommunications networks could extend such services to all parts of the state.

Address the Issue of Teacher Compensation

Finally, however difficult, the issue of teacher compensation must be addressed. As observed by NCTAF chairman Hunt, neither the nation nor the state can expect to prosper as long as teaching is perceived "as a second rate occupation" (Hunt, 2004). The pre-1970 labor market was able to maintain a stable standard of teacher quality largely because few other opportunities existed for bright women. That is no longer the case, and if the profession is to prove attractive to talented and intelligent individuals, an updated compensation system is critical.

The initiatives implemented in North Carolina (i.e., bonuses for educators whose students demonstrate increased achievement, monetary recognition for National Board

certification) are worth considering. The Advisory Committee/Commission on Professional Teaching may also wish to entertain the myriad other financial incentives states are offering in order to recruit and retain quality teachers in hard-to-staff schools (e.g., signing bonuses, tax credits, moving expenses, and increased salaries). It is important to bear in mind, however, that these kinds of initiatives have met with legal challenges that have been largely successful.

Hunt (2004) also points out that were the country to invest $30 billion, every teacher in the country could receive a 10% raise. This figure represents less than one tenth of what is currently spent on public education, and it is an investment that Hanushek (1994) argues would pay for itself in the long run, as higher salaries attract more talented and experienced teachers, resulting in better teaching that leads inevitably to increased student achievement.

The NCTAF (2003) has as its goal "a competent, caring and qualified teacher for every child" (p. 4). The efforts described in this chapter of the report confirm that states are making progress toward that goal, but significant challenges remain. Problems are particularly intractable in low-income and rural areas where inexperienced and underprepared teachers are often concentrated and where conditions simply do not support quality teaching.

The initiatives under way illustrate the extent to which guaranteeing the quality of teachers is a shared responsibility involving state legislatures and education decision-making bodies, higher education institutions, and school districts. The NCTAF (2003) puts it this way:

> Because we all have a stake in high-quality teaching, we are all, ourselves, accountable for bringing the best people we can into the teaching profession and keeping them there. . . . Whether we think of it this way or not, we are betting the future of this country every day on our teachers. We are daily entrusting the dreams of our young people to their teachers. And whether those dreams are delayed or denied—or fulfilled—is ours to decide. (p. 35)

Chapter 6: Graduate Education

Graduate education has received little attention in the "seamless system" literature. The majority of seamless education initiatives are characterized by the P-16 label, as opposed to the P-20, although efforts bear the latter designation in West Virginia, Delaware, Florida, Hawaii, Illinois, Mississippi, and Virginia. Despite the P-20 title, however, few of the states' reports specifically mention graduate education.

Hawaii's P-20 Web page, for example, explains that the P-20 designation was chosen to "reflect a more inclusive focus." The "P," it is noted, refers to provisions for early learning, and the "20" refers to years of schooling thereafter, beyond college and even graduate school. "P-20," according to Hawaii's Web page, "is the code for lifelong learning" (Hawaii P-20, 2004).

Leadership for Hawaii's P-20 effort comes from the state's Good Beginnings Alliance, the state department of education, and the University of Hawaii. The initiative involves four working groups (school readiness, middle schools, high school to college, and education-to-employment transitions), none of which is working specifically on graduate education.

In Illinois, it is Northern Illinois University (NIU) that is "provid[ing] leadership toward building a P-20 system, focusing . . . efforts on the three goals of raising student achievement, improving teacher quality, and creating seamless transitions across the system" (NIU, 2004). The Illinois P-20 Web site describes the state's emphasis on the development of partnerships as the chief strategy for accomplishing its goals:

> In a P-20 system, education partners work together to improve links between interdependent parts of the system, especially transition points such as that between high school and college, where too many students currently need remediation. To these ends, NIU will provide leadership toward building a P-20 system, focusing our efforts on the three goals of raising student achievement, improving teacher quality, and creating seamless transitions across the system. (NIU, 2004)

The particular types of partnerships established as part of the Illinois initiative will be explored later in this section. It appears, however, that Northern Illinois University is the driving force in the state's efforts, rather than a statewide council. The state's P-20 Web site, hosted by NIU, confirms that the task force was appointed by NIU president John Peters to oversee NIU's P-20 initiatives and to provide statewide leadership on P-20 issues.

Given the current environment in public education, it is not surprising that states have felt compelled to focus their efforts on the K-12 sector, even if their ultimate plan is to include graduate education. The mandates of No Child Left Behind, and penalties for failing to accomplish them, are significant for both schools and states. The issue of

graduate education is nonetheless receiving some attention, particularly in light of the necessary reauthorization of the Higher Education Act.

National Attention

While official reauthorization has been postponed for this year[15] (Burd, 2004, July), the need to shore up graduate education was central to the Graduate Opportunities Act (GOA, H.R. 3076, authored by Rep. Pete Hoekstra, R-MI) approved by the House Education and the Workforce Committee as part of the reauthorization effort. The GOA recognizes the important role graduate programs play in the nation's maintaining its place in a technologically advanced global economy and ensuring the success of education reform in classrooms across America (Committee on Education and the Workforce, 2003a).

Rep. Jon Porter (R-NV) who convened a series of subcommittee hearings in preparation for the reauthorization, opened with these remarks:

> As we enter the 21st century, the need for advanced education is becoming increasingly more crucial to successfully maintaining our place in the technologically advanced economy. Now, more than ever, our citizens are obtaining graduate degrees in order to gain more expertise in their field of study. . . . Graduate education produces immeasurable benefits for our nation. Not only do these programs enrich our citizenry, but they also nurture discovery and innovation that will someday lead to medical and technological advances. Graduate programs also train the next generation of researchers, engineers, doctors, lawyers, poets and professors. These individuals will be vitally important in preparing the United States to meet the challenges of the future. (Committee on Education and the Workforce, 2003b)

Rep. John Boehner (R-OH), chairman of the committee, agreed with that observation, reiterating the important role graduate programs play, particularly in assisting K-12 teachers in updating their skills (Committee on Education and the Workforce, 2003a).

A series of witnesses called to testify to the importance of graduate education programs echoed the representatives' remarks. Earl Lewis, Graduate School Dean at the University of Michigan, addressed the worldwide recognition of America's graduate programs, observing that "our graduate institutions are respected and emulated

[15] Rep. Howard McKeon of California confirmed that the House Education and the Workforce Committee's consideration of the Higher Education Act (HEA) has been stalled because of "politics," and that debate on the bill has become "too partisan." The most controversial features of the reauthorization are related to the issue of consolidation of student loans and interest rates, which some members wish to make variable rather than fixed. Burd's article in *The Chronicle of Higher Education* indicates that lawmakers will likely pass a one-year extension to the HEA, which is scheduled to expire this fall.

worldwide" and that "our unique system of combining graduate education with research strengthens the American education system and serves as the backbone for our nation's leadership in science and technology" (Committee on Education and the Workforce, 2003b).

Former University of Iowa president Mary Sue Coleman, notes that "graduate education in this country has made us the envy of the entire world in our ability to produce inquisitive, creative scholars" (Coleman, 1999). The Rensselaer Polytechnic Institute's plan to enhance graduate education also incorporated the centrality of "research as a creative process" that generates new knowledge and catalyzes new technologies, connecting the university to communities through the development of new industries and the supplying of a highly educated workforce (Jackson, 2003).

Blandina Cardenas, Dean of the College of Education and Human Development at the University of Texas at San Antonio focused, as did Boehner, on the role graduate programs play in meeting the needs of K-12 teachers. Citing the teaching shortages in math, science, special education, and bilingual education, Cardenas expressed her concern that "shortages in specialized teachers for the nation's schools track directly to the shortage of qualified faculty in those fields." The pipeline for producing qualified teachers in critical subject areas will remain "grossly inadequate," she explained, as long as the pipeline for preparing college faculty in those fields remains unattended (Committee on Education and the Workforce, 2003b).

William Allen, Director of the Public Policy and Administration Program at Michigan State University, pointed to shortages of college faculty in what he considers another crucial area, albeit one not often mentioned in the literature: American history and western civilization. "American higher education has experienced a significant decline in the preparation of professors and teachers in those areas. . . . A direct consequence of this trend has been an erosion of the training of professors—and therefore K-12 teachers—to preserve broad familiarity with facts, texts and significant dates affecting our civic existence" (Committee on Education and the Workforce, 2003b).

Clearly, while graduate education is less likely than either the K-12 sector or undergraduate education to generate headlines in the No Child Left Behind environment, it is encouraging that those charged with the eventual reauthorization of the Higher Education Act recognize its vital functions. The contributions of higher education's research community in generating new technological, scientific, and medical knowledge to enhance our collective progress—and the centrality of its education faculty to the success of K-12 reforms—must be supported.

State Attention

Graduate education has not always been a priority in West Virginia. Public deliberations on education funding have focused primarily, if not exclusively, on the K-

12 sector and undergraduate education. Graduate education matters have been, for the most part, confined to agencies that provide oversight to institutions and to the institutions themselves.

That changed with Governor Bob Wise's 2004 State of the State message, in which the subject received explicit attention:

> In the past three years, our state's universities have vastly expanded their capabilities to do research. Because of their new strength, they have received hundreds of millions of dollars in federal research funding. . . . We must create a landmark research program to allow West Virginia to compete for jobs in industries in the future. Our universities need a steady dependable revenue stream of research funds, and it needs to be more than one year. We have to show we are serious about research. . . . We will start with an additional $10 million; expand the Research Challenge Grant Program; hire top-quality faculty and researchers; purchase cutting-edge equipment; and create research opportunities for students. (Wise, 2004a)

A month later, the governor reiterated his support: "Strong research universities contribute to small business creation and the commercialization of new products and technologies. We can't underestimate the importance of scientific research to higher education and the critical role of research in West Virginia's economic development" (WVHEPC, 2004a, February).

The *Final Wrap-Up of the 2nd Session of the 76th Legislature*, however, indicates an appropriation of $4 million from lottery monies to the Research Challenge Fund (West Virginia Legislative Services, 2004, p. 2), less than half of the governor's request.[16] The governor's initial proposal called for 1.5% of the net revenues from video lottery games at state racetracks to be allocated as part of the Fund, but it received only 0.5%.[17] Despite less than substantial funding, the Higher Education Policy Commission reports that West Virginia's higher education research sector has been increasing its output.

Research grants and contracts grew from an average of $50 million in 1997-2000 to more than $152 million in 2002 (WVHEPC, 2004a, February). West Virginia University, recognized as being among the top 3% of the country's research universities, has brought nearly $1 billion to the state in the last decade. Marshall University's grant activity increased from about $4 million in 1990 to more than $30 million in 2003.

Smaller institutions have been increasing their capacity to attract grant monies as well, including Concord University, Eastern West Virginia Community and Technical College, and Fairmont State Community and Technical College. The restoration of land grant status to West Virginia State University in 1998 has added nearly $20 million to the

[16] We are unable to determine at this writing whether that amount has been supplemented with funding from other sources.
[17] Figures provided by Jay Cole, OSEA, personal communication, August 13, 2004.

state's economy, supporting the implementation of more than 40 research and outreach programs (WVHEPC, 2004a, February).

It is important that this progress be not only sustained, but enhanced. The Progressive Policy Institute (2004) emphasizes the link between a healthy research and development sector and a state's economy, pointing out that a postsecondary education system that generates high levels of external funding for research is responsive to employer and community needs, attracts top-notch faculty, and helps to generate and maintain a vibrant economy.

The Institute's 2002 assessment of West Virginia's performance in the "new economy" suggests there is much room for progress. Its *State New Economy Index* ranks the state last in 2002, dropping from 48th in 1999 (Appendix I). While the research and development environment constitutes only one of the 17 measures used to rank the states, the report notes that the most competitive states on the list contain institutions with high research and development (R&D) expenditures, primarily from federal sources.

In the Progressive Policy Institute's assessment of state R&D expenditures per capita, West Virginia's $42 to $84 ranks in the lowest quintile, compared to $134 to $301 in the highest quintile and an average of $113 for the nation (Appendix J). Those figures are consistent with the representation of federal R&D monies as a percentage of the state's total R&D expenditures (Appendix K), which also places West Virginia in the lowest quintile, with a range of 31% to 47%. The highest quintile shows a range of 63% to 77%, and the national average is 59% (Progressive Policy Institute, 2004).

As noted, efforts by West Virginia policymakers and higher education institutions themselves are improving the research capacity of the state, particularly in traditional R&D fields: science, medicine, and technology. Economic research units are also located in two universities—the Bureau of Business and Economic Research at West Virginia University and Marshall University's Center for Business and Economic Research.

What is missing is a focus on graduate programs in education and a thriving center for education research. As pointed out in our examination of national issues, an emerging consensus recognizes graduate schools of education as critical to high-quality teaching. It is faculty in these schools who prepare undergraduate teacher education faculty. It is also graduate faculty, in education and content areas, who meet practicing teachers' needs for professional development.

Education research is equally important in light of the various reforms under way in response to the No Child Left Behind law. Multiple initiatives are under way in the K-12 environment, many of which will require systematic evaluation in order to determine their effectiveness in meeting the state's and nation's education goals. Changes in assessment practices, curriculum alignment, professional certification, state and district intervention measures, and so forth, must be thoroughly examined and their effects documented in order to ensure that students are receiving the best possible education.

Strengthening graduate education in West Virginia is an investment with potential for multiple returns, both economic and academic. Maintaining current levels of support and attracting more federal investment are key to continuing and enhancing current research efforts. Developing an education research enterprise and supporting graduate schools of education are equally important to ensuring the success of the state's education reforms.

Suggestions

The issues examined in this and previous chapters will require an infusion of resources, both human and fiscal. The difference between strengthening graduate education and supporting the previously described initiatives is that a strong graduate education component requires adequate numbers of both faculty and students if the state's research and academic goals are to be met.

Certainly if undergraduate enrollments are to reach the state's 70% goal, a commensurate increase in undergraduate faculty will be necessary. It is faculty in graduate schools who will prepare those individuals. It is also graduate faculty who will attend to the professional development and academic advancement needs of West Virginia's K-12 teachers as well as conduct and direct vital research on the effects of recently implemented education reforms.

From the research perspective, it is in graduate programs that future researchers develop the knowledge and skills necessary to conduct the investigations that advance not only institutions but states and the nation. Adequate numbers of faculty researchers to provide support and direction are critical to that process, as are sufficient numbers of graduate students who can ensure the continued generation of new knowledge.

To those ends, **we suggest the establishment of an Advisory Committee on Graduate Education, with representation from administration and faculty in graduate schools/colleges, investigators and staff in university research units, and financial aid officers, to provide recommendations to the Council on the following issues.** These suggestions were among the most difficult for us to develop, as we had few examples to follow in the P-16/P-20 literature.[18] The models we found for enhancing graduate education are primarily institutional in nature; several of them are from universities whose research budgets alone eclipse institutional budgets in West Virginia.

The fact that West Virginia established a P-20 Council as opposed to a P-16, however, indicates an interest in and support for graduate education, as well as an awareness of the benefits that can accrue to the state from a healthy research sector. We

[18] We are also sensitive to the possibility that our suggestions may be perceived as expressions of self-interest, given our identities as graduate professor and doctoral student. We have tried, however, to adopt as objective a stance as possible in relationship to the initiatives described here, and those instances in which our suggestions derive from our own experiences are noted.

suggest that the Advisory Committee consider the following recommendations, many of which are interrelated, to strengthen graduate programs in the state.

Target Financial Aid to Students Entering Graduate Programs

Before the next generation of researchers can be trained, they must enter the graduate school doors. One way to do that is to target financial aid to students entering graduate programs. West Virginia has demonstrated its commitment to providing funding to promising undergraduate students through its merit-based and need-based programs. Similar efforts aimed at the potential graduate student population could prove instrumental in meeting the state's research goals.

The Higher Education Adult Part-time Student (HEAPS) grant program, for example, could be expanded to include graduate students, many of whom pursue their degrees while working full-time. This is particularly true of master's degree students, and of many doctoral students as well.

In addition, it may prove helpful to examine ways to publicize more broadly the availability of financial aid opportunities for graduate students. While financial aid can be confusing for undergraduates and their families, as previously mentioned, it is a highly visible process. It is less visible at the graduate level, where students' only notice of possible aid frequently comes from faculty members or peers. Increasing awareness of federal programs such as the Graduate Assistance in Areas of National Need Fellowships (GAANN) could encourage more students to apply.

Encourage Institutions to Adopt More Responsive and Flexible Programs

To increase the number of West Virginia residents who elect postbaccalaureate educational opportunities, institutions should be encouraged to adopt a more responsive and flexible approach to graduate degree and program offerings. The technological advances that emerged in the late decades of the 20th century changed how America both learns and works. "Lifelong learning" is no longer simply a catchy phrase; it is a condition of employment. The knowledge and skills professionals need to do their jobs successfully require constant updating, as acknowledged by continuing education requirements.

Within the continuing education framework, however, professionals typically choose from a number of highly focused subject options, selecting those they consider most relevant to their education needs and those they can complete in the most efficient fashion, considering time and accessibility.

Education professionals, however, have traditionally been expected to pursue the conventional pathways to enhancing their skills, pursuing master's or doctoral degrees. While valuable professional development opportunities are offered by the West Virginia

Center for Professional Development, these are not generally recognized for salary enhancements at the K-12 level.

Graduate programs are beginning to recognize the possibilities inherent in certificate programs, condensed and highly focused 12- to 18-hour programs that provide postbaccalaureate and post-master's degree options to those seeking to enhance their knowledge and skills in targeted areas. Marshall University offers certificate programs in elementary science education, English as a second language, early childhood education, educational computing, technology management, school library media, social services and attendance, business management foundations, and behavioral statistics, among others. Many of these programs are available as Web-based options, allowing for the flexibility of time and accessibility critical to working professionals.

We encourage the Advisory Committee to explore broader recognition of these kinds of programs for salary or promotion purposes, which could increase the numbers of graduate students enrolling. Strengthening recognition of the educational specialist degree (Ed.S.) could also increase post-master's enrollments, particularly for undergraduate faculty who decline to pursue the doctoral degree.

Institutions should be encouraged to reconsider the requirements for the Ed.S. as well. In many cases, students with master's degrees could acquire the educational specialist degree simply by enrolling for an additional six to nine hours of coursework, because the Ed.S. requirements often overlap with courses required for the master's degree. The Ed.S. has also been occasionally viewed as something of a "consolation prize" for students who began doctoral work but didn't complete their studies. Reconceptualization of the educational specialist degree as a distinct and rigorous credential in its own right could improve the likelihood of its recognition as a legitimate criterion for advancement in terms of salary or promotion.

Establish Partnerships Between Graduate Schools of Education and K-12 Schools

In terms of education research, the need for systematic evaluation of current reforms presents opportunities for graduate schools of education and their students to establish mutually beneficial partnerships with K-12 schools. Such partnerships could provide the vehicle for schools and universities to restructure in-service education or professional development models (e.g., a certificate program focusing on the particular challenges of teaching in disadvantaged rural or urban schools, with course content delivered online and on-site sessions held in the schools or districts themselves), as well as to conduct the field-based research necessary to thoroughly investigate the impact of current reforms.

These opportunities for field-based research could prove valuable to both schools and graduate programs. Schools or districts could identify issues or questions that lend themselves to research-based inquiry, and graduate programs could provide those

services, meeting the needs of schools and capitalizing on the existence of meaningful conditions in which aspiring researchers could develop their skills.

A useful model exists in the CoVenture program, developed by the Appalachia Educational Laboratory (AEL) and universities in the region. This initiative involves AEL's partnering with 15 research institutions in Kentucky, Tennessee, Virginia, and West Virginia to identify research needs, to provide opportunities for meaningful field-based research for faculty and graduate students, and to use joint findings to improve teaching and learning.

Field-based or "action" research is a means of developing researchers who are as committed to their local communities as they are to the communities of scholars in their disciplines. The pressing need to generate high-quality research relevant to the success of education reforms provides an excellent opportunity for that development.

Enhance Institutions' Capacity to Attract Creative and Competent Scholars

Finally, graduate education in the United States has attained its international stature by producing creative and competent scholars. For any research program to excel, whether in science, technology, medicine, energy, or education, institutions must have the capacity to attract the creative and competent scholars who can help to develop the next generation of outstanding researchers and faculty.

The primary goal should be to arrive at a position where the majority of funds for research comes from external sources. To get there, however, it is necessary to first attract and retain exceptional research faculty, or to find ways for existing research faculty to give more time to research activities. We encourage the Committee to investigate as broad and imaginative a range of strategies as possible to generate the kinds of competitive salaries and working conditions necessary to accomplish this aim.

Successive budget cuts have had a detrimental effect on institutions' ability to attract outstanding faculty. This is particularly true as it relates to the market for research faculty who are aggressively recruited by institutions that view their research capacity as crucial to maintaining viability in the shift from an industrial economy to an era dominated by information.

Vacancies resulting from retirements or attrition have gone unfilled to keep institutions within reduced budgetary parameters, increasing the class sizes and advisory loads for those who remain. Even faculty who are deeply committed to engaging in research and to directing graduate students in developing their investigative skills can find it difficult to make time to do so if they have teaching responsibilities that exceed the normal load for graduate faculty. Because most take their teaching obligations seriously, the time available for research is necessarily reduced.

Even when departments are authorized to fill faculty vacancies, they find it nearly impossible to attract outstanding candidates at the salary ranges they are able to offer.[19] Many graduate faculty salaries are, in fact, lower than those in the K-12 sector, given the experience increment and recognition of advanced degrees in the public school salary formulae. The salary schedule for Putnam County Schools, for example, reflects a figure for those with 15 years of experience and a doctoral degree that exceeds what many higher education faculty in the region are receiving—and with no expectation for engaging in individual research or advising on theses or dissertations.

Most higher education faculty made the decision to teach at the college or university level with full knowledge of such discrepancies, choosing to work in an environment that encourages research and scholarship. We raise this issue merely as a way of acknowledging the lack of competitiveness in faculty salaries.

To ensure that the state's research universities provide excellent environments for preparing future researchers, it is imperative that they be attractive to the best and brightest faculty. Attention to compensation issues and working conditions can begin the work of creating those environments.

[19] Our own department nearly scored a coup with a former Drexel University professor who wanted to return to West Virginia to be near his aging parents. He was willing to accept a reduced salary in return for proximity to his family and had agreed to an offer pending the department's contacting his references. One of his references, however, upon discovering he was in the market, offered him literally twice the salary we were able to extend, and the candidate accepted. He is now a faculty member at East Carolina University, with his commute to his parents' Summers county home still half what it was from Philadelphia.

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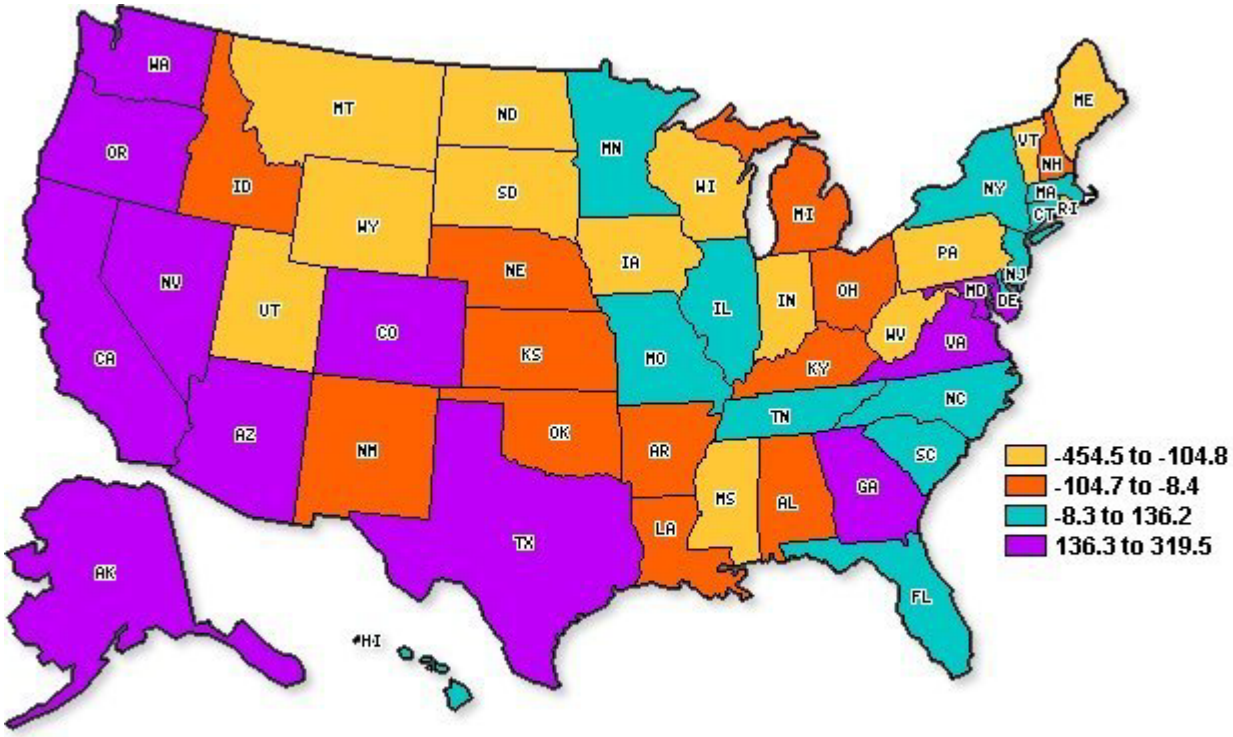
Appendixes

Appendix A
Migration Rates, 22- to 29-Year-Olds With Bachelor's Degrees



Source: US Census Bureau, Public Use Microdata Samples, Based on the 2000 Census

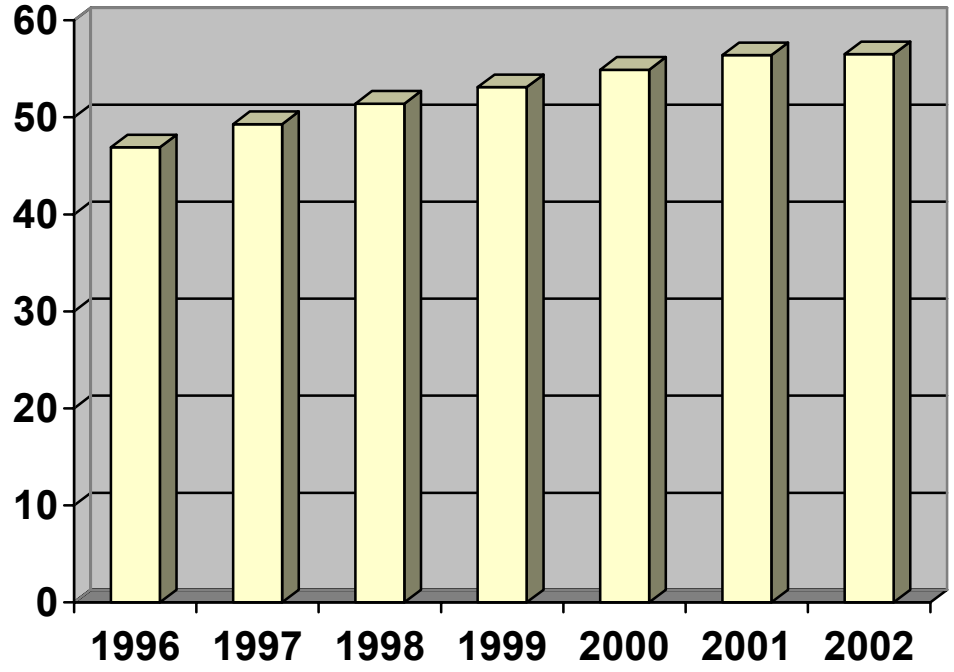
Migration Rates, 22-to-29-Year-Olds With Bachelor's Degrees

Appendix B
Quality Counts 2004 Data for States Demographically Similar to West Virginia[20]

	Standards and Accountability	Teacher Quality	School Climate	Resource Adequacy	Resource Equity	Average Score
Alabama	**B**	**C**	**C**	**C**	**C**	**2.2**
Arkansas	**C**	**B**	**C**	**C**	**B**	**2.4**
Idaho	**C**	**D**	**C**	**C**	**C**	**1.8**
Kentucky	**A**	**B**	**C**	**C**	**B**	**2.8**
Louisiana	**A**	**B**	**D**	**C**	**C**	**2.4**
Mississippi	**B**	**C**	**D**	**D**	**C**	**1.8**
Montana	**D**	**C**	**C**	**C**	**D**	**1.6**
New Mexico	**B**	**C**	**C**	**C**	**B**	**2.4**
North Dakota	**C**	**D**	**C**	**C**	**D**	**1.6**
Oklahoma	**B**	**B**	**C**	**C**	**B**	**2.6**
South Dakota	**C**	**D**	**C**	**C**	**C**	**1.8**
West Virginia	**A**	**B**	**B**	**A**	**C**	**3.2**
Wyoming	**D**	**D**	**B**	**A**	**C**	**2.2**

[20] States selected using U.S. Census 2000 data for percentage of population enrolled in K-20, percentage of population w/ bachelor's degrees, per capita income, and percentage of population below the poverty level.

Appendix C
College-Going Rates of Recent West Virginia High School Graduates[21]



[21] West Virginia Higher Education Report Card, 2003 (West Virginia Higher Education Policy Commission , 2003)

Appendix D
First-Time Full-Time Freshmen Retained, Within Institution Fall 1996-97 and Fall 2000-01[22]

	Retained Fall 1996-Fall 1997	Retained Fall 2000-Fall 2001	Change
Statewide	69%	69.5%	↑.05%
Baccalaureate	73%	72.5%	↓ 0.5%
Community College	59%	59%	-----
Marshall University	69%	74%	↑ 5%
West Virginia University	79.5%	78%	↓ 1.5%
Bluefield State College	61%	67%	↑ 6%
Concord College	62%	61%	↓ 1%
Fairmont State College	69%	67%	↓ 2%
Glenville State College	66%	61%	↓ 5%
Shepherd College	70%	68%	↓ 2%
West Liberty State College	68%	68%	-----
WVU Institute of Technology	63%	59%	↓ 4%
West Virginia State College	58%	55%	↓ 3%
WVU Parkersburg	57.5%	59%	↑ 1.5%
Southern WV Comm. College	58%	56%	↓ 2%
WV Northern Comm. College	63%	55%	↓ 8%
Potomac State WVU	59%	58%	↓ 1%

[22] Within Institution Retention Report: Fall 1996-97 Through Fall 2000-01 (West Virginia Higher Education Policy Commission, May, 2002)

Appendix E
First-Time Full-Time Freshmen Retained, Within Institution: Disaggregated Demographics Fall 1996-97 and Fall 2000-01[23]

	Retained Fall 1996-Fall 1997			Retained Fall 2000-Fall 2001		
	White	African Am.	Hispanic	White	African Am.	Hispanic
Statewide	69%	64%	58%	70%	66%	66%
Marshall University	69%	65%	86%	74%	77%	90%
West Virginia University	80%	79%	58%	78%	82%	74%
Bluefield State College	62%	46%	N/A	69%	55%	50%
Concord College	62%	57%	67%	62%	35%	25%
Fairmont State College	69.5%	56.5%	40%	67%	67%	83%
Glenville State College	66%	42%	50%	60%	83%	50%
Shepherd College	70%	64%	86%	68%	68%	67%
West Liberty State College	67%	88%	60%	68%	78.5%	75%
WVU Institute of Technology	62.5%	73%	100%	59.5%	50%	0%
West Virginia State College	61%	50%	0%	56%	52%	0%
WVU Parkersburg	57.5%	100%	0%	59%	100%	50%
Southern WV Comm. College	56%	100%	0%	56%	100%	N/A
WV Northern Comm. College	63%	100%	N/A	56%	50%	0
Potomac State WVU	60%	48%	60%	59.5%	48%	0

[23] Within Institution Retention Report: Fall 1996-97 Through Fall 2000-01 (West Virginia Higher Education Policy Commission , May, 2002)

Appendix F
ECS Postsecondary Participation Rates for States Demographically Similar to West Virginia[24]

	Students 18-24	Students 25 and older
Alabama	**33.3%**	**3.3%**
Arkansas	**28.6%**	**3.0%**
Idaho	**30.7%**	**4.4%**
Kentucky	**29.5%**	**3.3%**
Louisiana	**32.3%**	**3.7%**
Mississippi	**31.3%**	**3.1%**
Montana	**33.8%**	**3.8%**
New Mexico	**29.1%**	**6.0%**
North Dakota	**44.1%**	**3.7%**
Oklahoma	**31.8%**	**4.0%**
South Dakota	**34.6%**	**3.4%**
West Virginia	**33.2%**	**2.8%**
Wyoming	**31.6%**	**4.4%**

Mean, 18-24: 32.60 **Median, 18-24: 36.35**
Mean, 25+: 3.76 **Median, 25+: 3.80**

[24] States selected using U.S. Census 2000 data for percentage of population enrolled in K-20, percentage of population w/ bachelor's degrees, per capita income, and percentage of population below the poverty level. Participation rate data reported by Education Commission of the States, 2003.

Appendix G
Selected Demographics of West Virginia Counties with Low-Postsecondary Participation Rates[25]

	Median Income	% Living in Poverty	% w/BA degrees	Participation Rate Fall 2002[26]
United States	**$41,994**	**12.4%**	**24.4%**	**54%**
West Virginia	**$29,696**	**17.9%**	**14.8%**	**56.53%**
Lincoln County	**$22,662**	**27.9%**	**5.9%**	**37.23%**
McDowell County	**$16,931**	**37.7%**	**5.6%**	**35.95%**
Morgan County	**$35,016**	**10.4%**	**11.2%**	**35.97%**
Summers County	**$21,147**	**24.4%**	**10.1%**	**37.86%**
Wyoming County	**$23,932**	**25.1%**	**7.1%**	**39.35%**

[25] Data on median income, percentage living in poverty, and BA attainment from U.S. Census Bureau: U.S. and West Virginia Quick Facts (2003). Data on participation rate from WV Higher Education Policy Commission, WV Higher Education Report Card 2003 (2004).

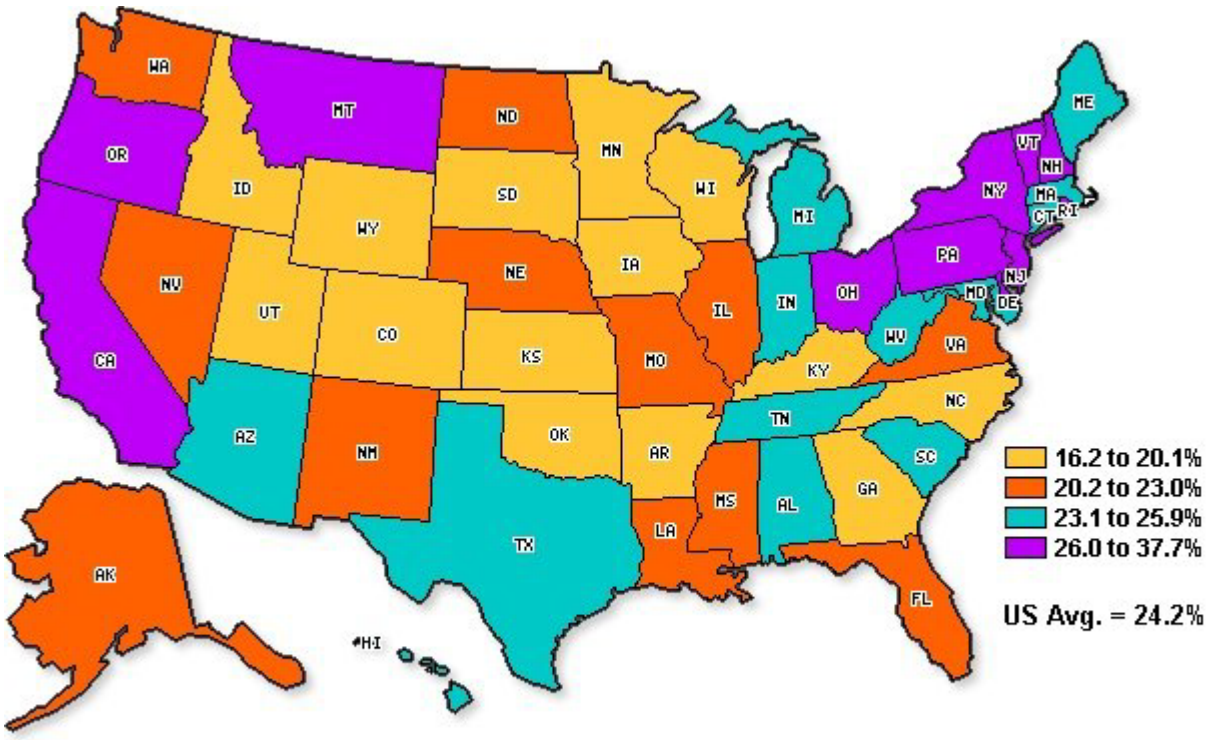
[26] U.S. Census data report a figure of 33.2% for West Virginia residents ages 18-24 enrolled in college or graduate school in 2000, compared to the national figure of 54%. West Virginia Higher Education Policy Commission figures for West Virginia and the five counties are for 2002 high school graduates attending postsecondary institutions in the fall of 2002.

Appendix H
First-Time Full-Time Freshmen Retained Enrolled in Any Developmental Courses
Fall 1996 to Fall 1997[27]

	Number of Freshmen	Freshmen in Any Developmental Course Number/Percentage		Not Retained Number/Percentage	
Statewide	**12,762**	**4,747**	**37%**	**1,805**	**38%**
Marshall University	**2,061**	**864**	**41%**	**270**	**31%**
West Virginia University	**3,151**	**0**	**0%**	**0**	**0%**
Bluefield State College	**571**	**307**	**54%**	**121**	**39%**
Concord College	**608**	**234**	**38%**	**84**	**36%**
Fairmont State College	**1,211**	**677**	**56%**	**223**	**33%**
Glenville State College	**525**	**217**	**41%**	**72**	**33%**
Shepherd College	**666**	**328**	**49%**	**112**	**34%**
West Liberty State College	**468**	**106**	**23%**	**32**	**30%**
WVU Institute of Technology	**525**	**274**	**52%**	**104**	**38%**
West Virginia State College	**729**	**485**	**66.5%**	**201**	**44%**
WVU Parkersburg	**709**	**438**	**62%**	**205**	**47%**
Southern WV Comm. College	**806**	**387**	**48%**	**191**	**49%**
WV Northern Comm. College	**362**	**234**	**65%**	**107**	**46%**
Potomac State WVU	**410**	**196**	**48%**	**83**	**42%**

[27] Statewide Retention Trend of Fall 1996 First-Time Freshmen: Fall 1996 to Fall 2002 (West Virginia Higher Education Policy Commission, April 2003). Note: Six-year trend data, 1996-2002, report statewide figures only; institutional figures span only 1996-1997, and those are the figures reported in this table.

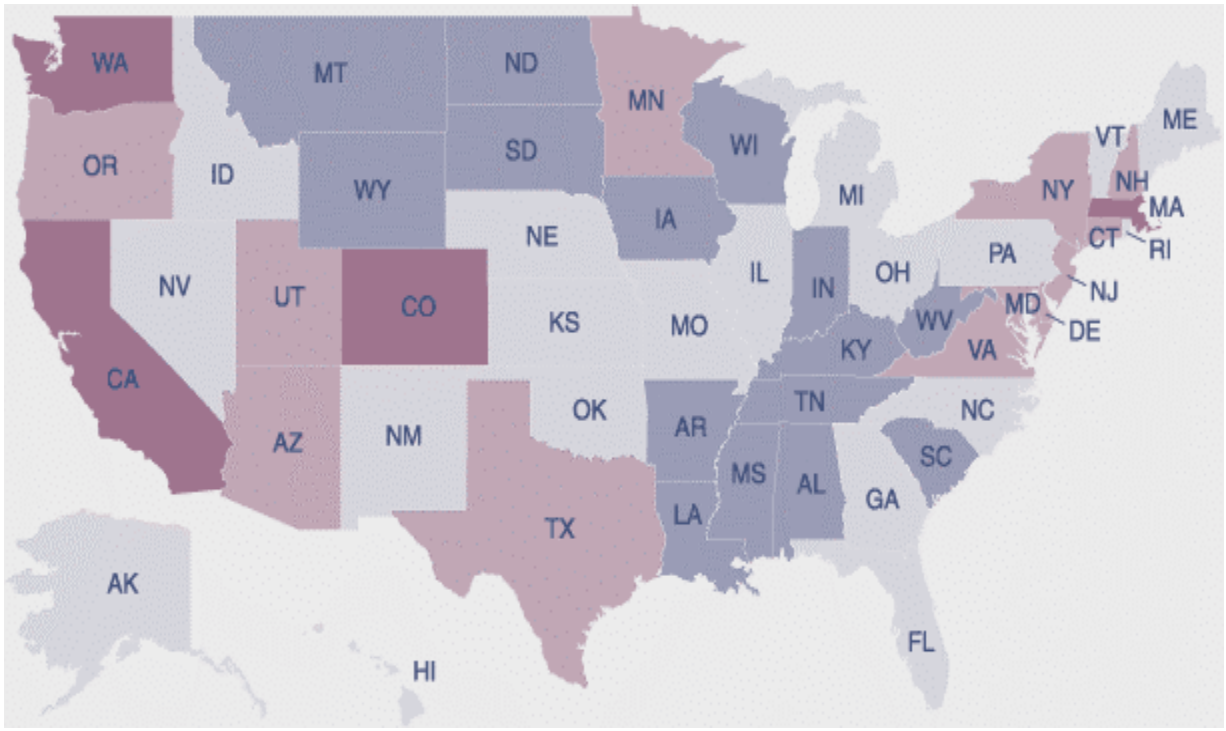
Appendix I
Percentage of Family Income Needed to Pay for College



Source: Measuring Up: The State-by-State Report Card for Higher Education

(National Center on Public Policy and Higher Education, 2002)

Appendix J
State New Economy Index



Source: The 2002 state new economy index: Benchmarking economic transformation in the states. (Progressive Policy Institute, 2004).

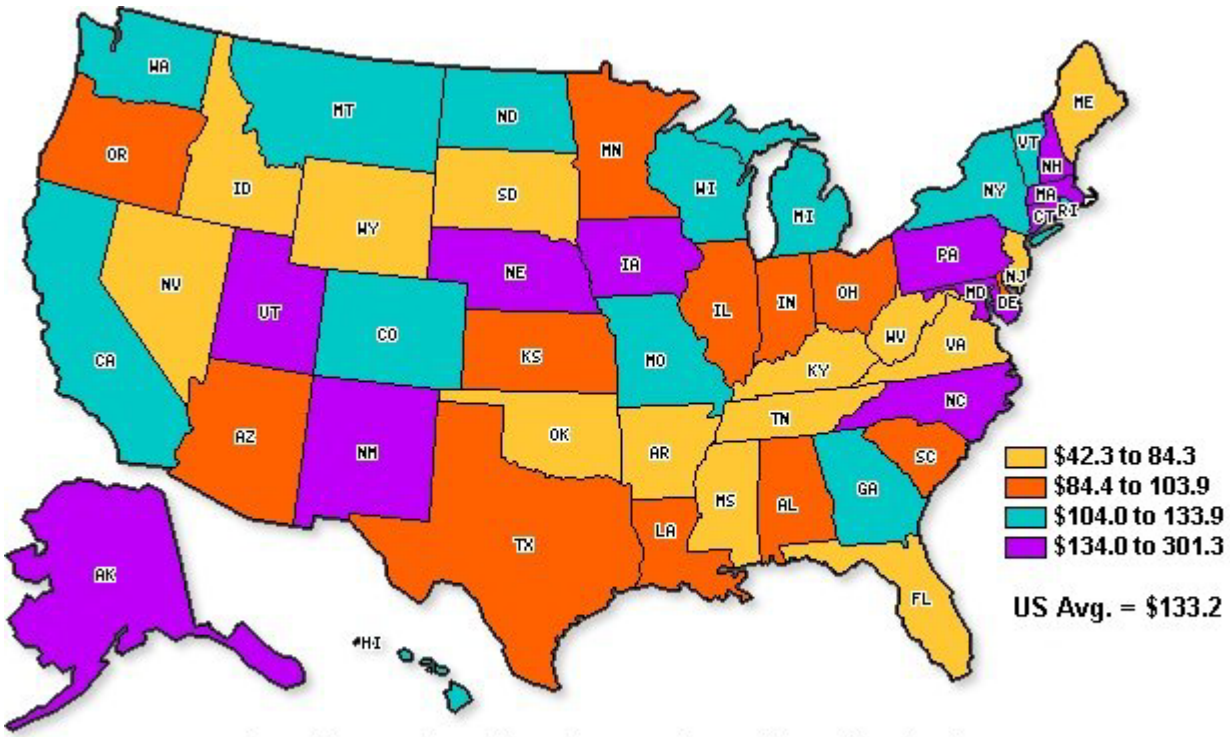
Appendix J
State New Economy Index (continued)

STATES BY RANK

Rank 2002	Score 2002	State	Rank 1999	Score 1999	Rank Change
1	90	Massachusetts	**1**	82.3	0
2	86.2	Washington	**4**	69	2
3	85.5	California	**2**	74.3	-1
4	84.3	Colorado	**3**	72.3	-1
5	75.6	Maryland	**11**	59.2	6
6	75.1	New Jersey	**8**	60.9	2
7	74.2	Connecticut	**5**	64.9	-2
8	72.1	Virginia	**12**	58.8	4
9	70.5	Delaware	**9**	59.9	0
10	69.3	New York	**16**	54.5	6
11	68.9	Oregon	**15**	56.1	4
12	68.7	Utah	**6**	64	-6
13	68.7	Minnesota	**14**	56.5	1
14	67.6	Texas	**17**	52.3	3
15	67.6	New Hampshire	**7**	62.5	-8
16	67.2	Arizona	**10**	59.2	-6
17	64.7	Illinois	**22**	48.4	5
18	62.7	Florida	**20**	50.8	2
19	62.3	Pennsylvania	**24**	46.7	5
20	61.6	Idaho	**23**	47.9	3
21	61.5	Rhode Island	**29**	45.3	8
22	60.1	Georgia	**25**	46.6	3
23	60	Michigan	**34**	44.6	11
24	58.9	Missouri	**35**	44.2	11
25	58.3	Maine	**28**	45.6	3
26	57.5	North Carolina	**30**	45.2	4
27	57.2	New Mexico	**19**	51.4	-8
28	56.9	Vermont	**18**	51.9	-10

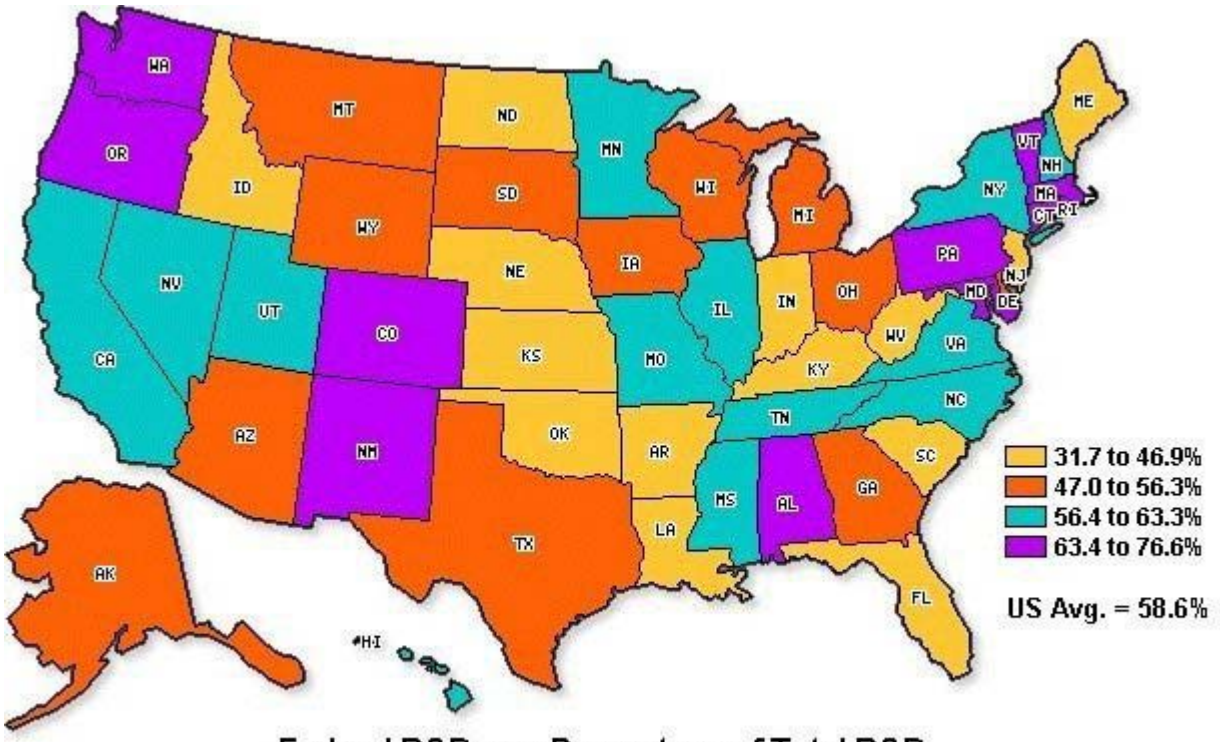
Rank 2002	Score 2002	State	Rank 1999	Score 1999	Rank Change
29	56.7	Kansas	**27**	45.8	-2
30	56.5	Ohio	**33**	44.8	3
31	56.3	Alaska	**13**	57.7	-18
32	55.7	Nevada	**21**	49	-11
33	54.4	Nebraska	**36**	41.8	3
34	54.1	Oklahoma	**40**	38.6	6
35	53.7	Hawaii	**26**	46.1	-9
36	52.8	Indiana	**37**	41	1
37	52.8	Montana	**46**	29	9
38	52.2	Iowa	**42**	33.5	4
39	52.2	Tennessee	**31**	45.1	-8
40	52	Wisconsin	**32**	44.9	-8
41	51.1	South Carolina	**38**	39.7	-3
42	48.6	Kentucky	**39**	39.4	-3
43	47.4	South Dakota	**43**	32.3	0
44	46.1	North Dakota	**45**	29	1
45	45.9	Louisiana	**47**	28.2	2
46	45.7	Wyoming	**41**	34.5	-5
47	45.3	Alabama	**44**	32.3	-3
48	41.7	Arkansas	**49**	26.2	1
49	40.9	Mississippi	**50**	22.6	1
50	40.7	West Virginia	**48**	26.8	-2

Appendix K
State R&D Expenditures Per Capita



State Research and Development Expenditures Per Capita
Source: National Science Foundation, US Census Bureau

Appendix L
Federal R&D as a Percentage of Total R&D



Federal R&D as a Percentage of Total R&D
Available from www.higheredinfo.org