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Introduction to *Preparing Today's Students for Tomorrow's Jobs in Metropolitan America*

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Abstract

Although disagreeing about how much of an increase is required, most scholars agree that the United States must raise the educational attainment of its population in order to meet the knowledge requirements of future jobs (see Zumeta 2010 for a discussion of this debate). In *Help Wanted: Projections of Jobs and Education Requirements through 2018*, Anthony Carnevale, Nicole Smith, and Jeff Strohl (2010) attempt to quantify this need. They project that, by 2018, about two-thirds (63 percent) of all jobs (including both new and replacement jobs) will require at least some postsecondary education or training, up from 59 percent in 2008 and just 28 percent in 1973 (Carnevale, Smith, and Strohl 2010). Their projections further suggest that "most job openings for people with a high school education or less will be low-wage jobs, and many of these will be part-time or transition jobs" (Carnevale 2010: vii). Carnevale, Smith, and Strohl demonstrate in their chapter in this volume that workers with postsecondary education will have access to a wide range of occupations, whereas workers with no more than a high school diploma will be concentrated in blue collar, sales and office support, and food and personal services occupations.

Disciplines

Curriculum and Instruction | Education | Educational Administration and Supervision | Educational Assessment, Evaluation, and Research | Educational Methods | Higher Education | Secondary Education

Introduction

Laura W. Perna

Although disagreeing about how much of an increase is required, most scholars agree that the United States must raise the educational attainment of its population in order to meet the knowledge requirements of future jobs (see Zumeta 2010 for a discussion of this debate). In *Help Wanted: Projections of Jobs and Education Requirements through 2018*, Anthony Carnevale, Nicole Smith, and Jeff Strohl (2010) attempt to quantify this need. They project that, by 2018, about two-thirds (63 percent) of all jobs (including both new and replacement jobs) will require at least some postsecondary education or training, up from 59 percent in 2008 and just 28 percent in 1973 (Carnevale, Smith, and Strohl 2010). Their projections further suggest that “most job openings for people with a high school education or less will be low-wage jobs, and many of these will be part-time or transition jobs” (Carnevale 2010: vii). Carnevale, Smith, and Strohl demonstrate in their chapter in this volume that workers with postsecondary education will have access to a wide range of occupations, whereas workers with no more than a high school diploma will be concentrated in blue collar, sales and office support, and food and personal services occupations.

Rather than focusing on the magnitude of the required increase in college degrees, other reports call for better “alignment” between education and workforce needs, emphasizing the need for greater attention to the correspondence between what workers know and can do and the knowledge and skills required to perform available jobs. In *Degrees for What Jobs?*, the National Governors Association (2011) concludes from its review of survey and other data that “businesses and states are not getting the talent they

want—and students and job seekers are not getting the jobs they want” (p. 8). The report recommends that state leaders take “steps to strengthen universities and colleges as agents of workforce preparation and sources of more [economic] opportunity, more growth, and more competitive advantage” (p. 3).

Along the same lines, in its December 2009 report, the Springboard Project, a Business Roundtable Commission, stresses the need to improve education and skills, stating, “The American workforce has reached a critical juncture; even when the unemployment rate declines, new jobs will require higher levels of education and skills than many of the jobs of the past. Our workforce increasingly finds itself lacking the skills and education demanded by the growing needs and challenges of today’s global marketplace” (p. 5). Nearly two-thirds (61 percent) of employers responding to a survey by the Springboard Project agreed that finding “qualified workers to fill vacancies at their companies” is difficult (p. 5). Similarly, the Society for Human Resource Management (2008) questions the preparation of U.S. workers for the highly skilled jobs that are characteristic of an increasingly competitive global workforce.

Drawing from its work with leaders of education, business, government, and philanthropy, the Business-Higher Education Forum (2011) also identifies the lack of alignment between the interests, education, and training of workers and employer needs, stating, “Critical disjunctions exist between what is taught and learned in postsecondary education and the skills that are in high demand in the workplace. Another mismatch exists between student interest in high-growth jobs and employer demands for workers who can fill those jobs. Moreover, even in fields where student interest is in equilibrium with workforce demands, students may be underprepared for jobs in those fields” (p. 4).

As measured by degree completion, the mismatch between the educational qualifications of the population and the educational requirements of current and future jobs is particularly dramatic in many of our nation’s metropolitan areas. As one example, Figure I.1 shows that in Philadelphia, the share of the population that is educationally qualified for unskilled jobs substantially exceeds the share of unskilled jobs (jobs that require no more than a high school education, 53 percent versus 38 percent). In contrast, the share of the population that is educationally qualified for professional jobs (jobs that require at least a bachelor’s degree) is lower than the share of pro-

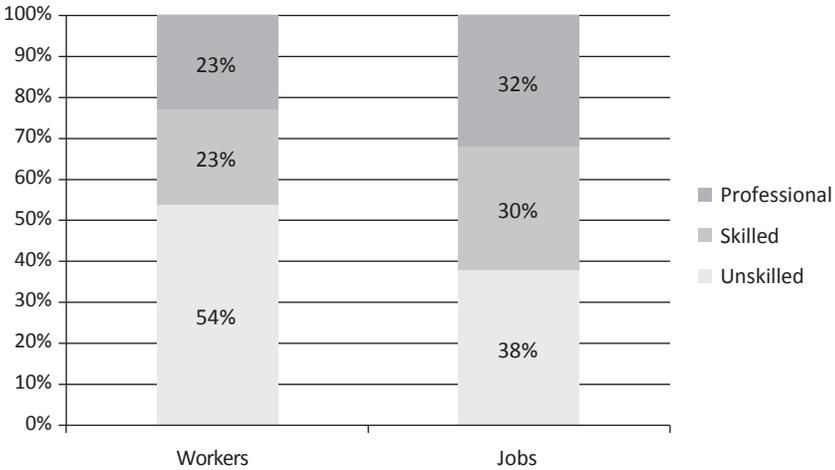


Figure I.1. Mismatch of educational requirements of workers and jobs in Philadelphia. *Source:* Shorr 2011. Data from: 2007–9 American Community Survey Public Use Microdata Set; Economic Modeling Specialists, Inc.: Complete Employment—4th Quarter 2010.

fessional jobs available (24 percent versus 32 percent). Only 24 percent of Philadelphia’s population is educationally qualified for skilled jobs (jobs that require some postsecondary education but less than a bachelor’s degree), even though skilled jobs represent 30 percent of all jobs.

Philadelphia is not the only metropolitan area that is experiencing this type of mismatch. The Brookings Institution’s (2010) *The State of Metropolitan America* report offers a “demographic typology” to categorize the 100 largest metropolitan areas based not on region but on measures of population growth, population diversity, and educational attainment. The seven categories are: diverse giant ($n=9$), skilled anchor ($n=19$), next frontier ($n=9$), new heartland ($n=19$), industrial core ($n=18$), border growth ($n=11$), and mid-sized magnet ($n=16$). The education and employment challenges vary across and within these groupings. For instance, most of the “skilled anchors” (seventeen of the nineteen) metro areas are located in the Northeast and Midwest and “have made the difficult transition to service-based economies” from manufacturing and shipping (p. 32). These skilled anchors are also characterized by large numbers of medical and higher education institutions

as well as less racial/ethnic diversity than other large metropolitan areas. Although one might expect these skilled anchors to be characterized by the availability of more and higher paying jobs in the service sector, skilled anchor cities like Philadelphia, Baltimore, Boston, and Rochester face high urban unemployment.

In metropolitan America, unemployment rates are especially high for young adults and people of color. In 2009 in a number of cities nationwide, the unemployment rate for individuals age sixteen to nineteen was more than twice as high as the citywide average. Illustrating this pattern, in the city of Cleveland the unemployment rate for youth (age sixteen to nineteen), at 32.4 percent, was substantially higher than the city average (18.8 percent) (Bureau of Labor Statistics 2009a). In Dallas the unemployment rate for youth (35.2 percent) was more than three times as high as the citywide average (10.7 percent). Unemployment rates are also typically higher for Blacks than for others. For instance, in the city of Charlotte, the average annual unemployment rate in 2009 was 17.2 percent for Blacks compared with an overall rate of 12.4 percent. Similarly, in the city of Indianapolis, the average annual unemployment rate was 22 percent for Blacks but 11.4 percent overall (Bureau of Labor Statistics 2009a).

“Before the worst of the recession set in,” employment rates for college-educated workers were fairly uniform across the 100 largest metropolitan areas, but varied considerably across metro areas for workers with lower levels of education (Brookings Institution Metropolitan Policy Program 2010: 112). In five of the nation’s largest metropolitan areas, fewer than 60 percent of adults who had no more than a high school diploma were employed (Stockton, Calif.; McAllen, Tex.; Fresno, Calif.; Detroit-Warren, Mich.; Bakersfield, Calif.). Higher levels of education also provided some cushion from the impact of the Great Recession on unemployment. Between December 2007 and 2009 unemployment rates nationwide increased from 2.0 percent to 4.7 percent for college graduates, but from 4.7 percent to 10.6 percent for high school graduates (Brookings Institution Metropolitan Policy Program 2010). This pattern plays out in individual metropolitan areas. The inverse relationship between educational attainment and unemployment is especially dramatic in such cities as Detroit. In Detroit the average annual unemployment rate in 2009 for adults age twenty-five and older ranged from 6.2 percent for those with at least a bachelor’s degree, to 18.1 percent for those with some college, to 26.7 percent for those with a high

school diploma, to 38.8 percent for those without a high school diploma (Bureau of Labor Statistics 2009b). Similarly, in Baltimore average annual unemployment rates ranged from 4.9 percent for those with at least a bachelor's degree, to 6.8 percent for those with some college, to 14 percent for those with a high school diploma, to 26.2 percent for those without a high school diploma (Bureau of Labor Statistics 2009b).

Beyond employment rates, raising the level of educational attainment is associated with a number of economic and non-economic benefits for individual workers and urban areas more generally (Baum, Ma, and Payea 2010). In 2008 median earnings for full-time workers nationwide age twenty-five and older were considerably higher for those whose highest degree was a bachelor's degree (\$55,700) or associate's degree (\$42,000) than for those whose highest degree was a high school diploma (\$33,800) (Baum, Ma, and Payea 2010). The national pattern is evident in individual metropolitan areas. As one example, in Philadelphia median earnings increase with the level of educational attainment, rising from \$28,200 for those who have no more than a high school education, to \$36,662 for those with some postsecondary education but less than a bachelor's degree, to \$50,919 for those with at least a bachelor's degree (Shorr 2011).

Increased levels of educational attainment are also associated with greater job satisfaction, lower rates of poverty, better working conditions, improved health, and other individual benefits (Baum, Ma, and Payea 2010). As Carnevale, Smith, and Strohl illustrate in their chapter in this volume, postsecondary education has also become increasingly important to attaining a middle-class income. Society benefits from higher levels of educational attainment through increases in taxes paid, lower rates of dependence on social welfare programs, and greater civic and community engagement (Baum, Ma, and Payea 2010).

In February 2009, President Barack Obama alluded to the societal benefits of postsecondary education when he articulated the goal of having the United States "once again" lead the world in the educational attainment of its population:

I ask every American to commit to at least one year or more of higher education or career training. This can be community college or a four-year school; vocational training or an apprenticeship. But whatever the training may be, every American will need to get more than a high

school diploma. And dropping out of high school is no longer an option. It's not just quitting on yourself, it's quitting on your country—and this country needs and values the talents of every American.

The importance of addressing the mismatch between the educational attainment of individuals and the educational requirements of jobs in metropolitan America is underscored by the size of these areas and the challenges that these areas are experiencing. The nation's 100 largest metropolitan areas are not only home to about two-thirds of the nation's population but also are growing at a faster rate than the rest of the nation (Brookings Institution Metropolitan Policy Program 2010). These large metropolitan areas are also on the front lines of several other national trends, including the racial/ethnic diversification of the population and gaps in educational attainment across groups (Brookings Institution Metropolitan Policy Program 2010).

In part because of immigration, the racial/ethnic diversity of the population of the United States has been increasing. In 2008, non-Whites represented one-third of the total U.S. population but half of children under the age of eighteen in the 100 largest metropolitan areas (Brookings Institution Metropolitan Policy Program 2010). The majority of the nation's multiracial population (68 percent), Blacks (74 percent), Hispanics (80 percent), and Asians (88 percent) reside in the nation's 100 largest metropolitan areas (Brookings Institution Metropolitan Policy Program 2010).

Attention to the racial/ethnic diversity of the population is particularly important given differences in educational attainment across groups. Educational attainment is lower for Blacks and Hispanics than for Whites and Asians, especially in the nation's large metropolitan areas (Brookings Institution Metropolitan Policy Program 2010). In 2008, the bachelor's degree attainment rate was 21 percentage points lower for Blacks and Hispanics in large metropolitan areas than for Whites and Asians (Brookings Institution Metropolitan Policy Program 2010).

The Challenges of Better Preparing Today's Students for Tomorrow's Jobs

Addressing the national mismatch between educational qualifications of workers and jobs is complicated by persistent low levels of educational attainment in many metropolitan areas. The definition and measurement of

high school graduation rates are widely debated. Nonetheless, “a growing consensus has emerged that only about seven in 10 students are actually successfully finishing high school,” considerably fewer than the commonly accepted 85 percent graduation rate (Swanson 2008). Moreover, average high school graduation rates mask the markedly lower rates for racial/ethnic minorities than for Whites, for boys than for girls, and for students from lower income families than for students from higher income families. High school graduation rates also tend to be lower for students attending urban schools than for those in rural and suburban high schools; on average, high school graduation rates are 15 percentage points lower in urban schools than in suburban high schools (Swanson 2008). High school graduation rates are more than 25 percentage points lower in the urban segments than in the suburban segments of twelve of the fifty largest metropolitan areas (Swanson 2008).

High school graduation rates are even lower in the nation’s largest urban centers (Swanson 2008).¹ Using the Cumulative Promotion Index (CPI) to calculate graduation rates,² the Editorial Projects in Education Research Center found that only 52 percent of students attending public schools in the fifty largest U.S. cities graduated on schedule (Swanson 2008). In all but six of the fifty largest cities, 2003–4 high school graduation rates were below the national average rate of 70 percent. High school graduation rates were shockingly low in Detroit (25 percent), Indianapolis (31 percent), Cleveland (34 percent), and Baltimore (35 percent). Together, the public school districts in the fifty largest cities account for 14 percent of the nation’s ninth graders but 23 percent of the nation’s non-graduates (Swanson 2008).

Moreover, as described in other chapters in this volume (Alan Ruby; Harry Holzer), even those students who graduate from high school in many large metropolitan areas face substantial hurdles to meaningful employment with the opportunity for career progression, in part because today’s workforce requires additional skills beyond a high school education to compete in an advanced service economy. Thus, individuals with no more than a high school education may obtain an entry-level position, but, without further education, face considerable challenges in climbing the rungs of the career ladder. The changing nature of employment means that, increasingly, jobs require workers with complex communication and expert thinking skills, rather than routine manual or cognitive skills (National Governors Association 2011).

Ironically, metropolitan youth have relatively low levels of formal education even when an abundance of educational opportunities are seemingly

available. As one example, the economic development marketing organization Select Greater Philadelphia (2011) reports that the Philadelphia metropolitan area is home to more than 100 colleges and universities. Yet even with the apparent availability of higher education institutions, college enrollment and completion rates are lower for Philadelphia youth than the national average. Of 100 students who started ninth grade in Philadelphia in 1999, only 48 graduated from high school on time (compared with 69 nationwide), 23 entered college directly after high school (compared with 42 nationwide), and 10 graduated from college within six years (compared with 20 nationwide) (Center for Collaborative Learning 2010).

Other data document the persisting stratification of educational attainment by family income and race/ethnicity. Summarizing analyses conducted by Tom Mortenson, the Pell Institute for the Study of Opportunity in Higher Education (2011) reports that, between 1977 and 2007, bachelor's degree attainment rates increased by 45 percent and 17 percent among dependent eighteen- to twenty-four-year-olds in the top and second family income quartiles, respectively, but by only 7 percent for those in the second-lowest family income quartile, and 2 percent for those in the lowest family income quartile. Bachelor's degree attainment rates by the age of twenty-four were 46.8 percentage points higher in 2009 for dependent students in the top half of the family income distribution than for dependent students in the lower half of the distribution (Pell Institute for the Study of Opportunity in Higher Education 2011). Although the share of the U.S. population with at least a bachelor's degree has increased over time, degree completion rates also remain substantially lower for African Americans and Hispanics than for Whites (Baum, Ma, and Payea 2010).

Stratification occurs not only in terms of who earns what types of educational credentials but also in terms of who attends what types of postsecondary educational institutions. Individuals with low incomes and racial/ethnic minorities disproportionately attend less-selective four-year colleges, community colleges, and for-profit institutions (Baum, Ma, and Payea 2010; National Center for Education Statistics 2011b). As William Tierney discusses in his chapter in this volume, both the number of for-profit institutions and the number of students enrolling at these institutions have grown tremendously over the past two decades (National Center for Education Statistics 2011b). The concentration of low-income students, Black students, and Hispanic students in for-profit institutions and community colleges, as well as less-selective

and minority-serving four-year colleges and universities, when coupled with other characteristics of these institutions (such as rising cost of attendance, relatively high student loan default rates, and low completion rates, National Center for Education Statistics 2011a), raises questions about how well participation in particular educational programs provides individuals with the knowledge and skills that are required to meet employers' needs.

Moreover, as William Tierney (this volume) also observes, efforts to improve readiness for college and careers, and reduce stratification of educational (and thus economic) opportunity, must increasingly occur within a context of scarce public resources. In part because of increases over time in the number of students enrolled, state appropriations for higher education per full-time-equivalent student were about 19 percent lower in 2009–10 than in 1999–2000 after controlling for inflation (College Board 2010). Although there is variation across states, most have also been struggling with the impact of the Great Recession on the availability of state revenues. These challenges were eased somewhat by the availability of federal stimulus funding through the American Recovery and Reinvestment Act of 2009. However, these funds will not be available moving forward. The National Association of State Budget Officers (2010) predicts continued “fiscal stress” for states in the coming years.

When state revenues decline and when the public and political leaders do not support revenue enhancements, reductions in funding for public K–12 and higher education typically follow given the magnitude of the state budget allocated to education and the “discretionary” nature of education funding in most states. Illustrating the widespread pattern, in March 2011 Pennsylvania Governor Tom Corbett’s proposed budget for fiscal year (FY) 2012 reflected a 3 percent decrease over FY 2011 in state spending overall, but a 10 percent reduction of in spending for instruction in K–12 public schools (\$550 million), including the elimination of prekindergarten and full-day kindergarten programming, and a 52 percent reduction (\$625 million) for higher education (Gallagher 2011; Hagerty 2011).

Restrictions on state funding for education reduce the availability of resources for elementary and secondary schools to adequately prepare students academically for college and careers. Reductions in appropriations to public higher education may further reduce educational opportunity, if higher education institutions compensate for reductions in state appropriations by raising tuition or reducing enrollment.

These data and trends raise critical questions about the most appropriate allocation of limited public and private resources for ensuring that today's students are prepared for the jobs and careers of tomorrow. Yet before determining how to allocate public and private resources to best achieve this goal, other more basic questions must first be answered. Among the most important foundational questions are: How do we measure and define the "learning" that is required by employers? What are the roles and contributions to workplace readiness of the many different providers of education and training, including workplaces, high schools, for-profit postsecondary educational institutions, community colleges, and traditional four-year colleges and universities? How can institutional practices and public policies promote the educational preparation of students for tomorrow's jobs?

Purpose of This Volume

Framed in terms of the need to raise educational attainment, initiatives by several organizations have recently focused on various dimensions of workforce readiness. For example, the Lumina Foundation (2011) is supporting efforts to define "the knowledge and skills that students need to acquire to earn associate's, bachelor's, and master's degrees." The Partnership for 21st Century Skills (2009) has developed a framework to guide school districts in integrating "21st century themes" (such as global awareness; financial and business literacy; civic, health, and environmental literacy), "learning and innovation skills" (creativity and innovation, critical thinking and problem solving, communication and collaboration), and "information, media, and technology skills" into core academic subjects (p. 8).

Even with these efforts, however, many questions remain. In particular, prior to this volume, little systematic consideration has been given to how to define and measure workforce readiness, the role of different educational sectors in providing the necessary education and training, or the most effective institutional programs and public policies for stimulating educational preparation for work.

Through a review of existing data and research and some new analyses, the chapters in this volume shed light on these important issues. Although pointing to the need for additional, and more rigorous, research to improve our knowledge of workforce readiness, together these chapters also offer useful insights into what we do know about these issues.

The chapters that follow are organized into three sections. The first section considers how we define and understand “success” in preparing students for the world of work.

In the initial chapter, Alan Ruby reminds the reader that questions about the link between education and work are not new. He also offers a comprehensive discussion of competency-based education, which involves efforts of educators to identify and develop skills that have value in the workplace. Ruby notes the advantages of focusing on “generic” competencies, given the delay between students’ choice of curricula and their employment, and the time required for educational institutions to adapt curricula and instruction. He offers “study abroad” as an example of an effort that is intended to provide specific competencies that are perceived to respond to employers’ demands for workers in a global economy, but that has not been demonstrated to lead to improved labor market outcomes. This example also points to the challenges of connecting specific educational experiences and curricula with the skills and experiences that employers need and value. In addition, Ruby raises critical questions about the role of the workplace in promoting problem-solving, teamwork, and other capabilities, as well as questions about the measurement of individual competencies.

In their chapter, Katie Barghaus, Eric Bradlow, Jen McMaken, and Sam Rikoon identify challenges that limit current efforts to assess and measure workforce readiness. One issue is the lack of agreement in the literature on how to define workforce readiness, the skills required for readiness (including the distinctions between generic and specific skills), the instructional practices and curricula that best promote workforce readiness, and the outcomes that should be used to define and measure workforce readiness. A second issue is the absence of rigorous empirical research on these topics. Building on a review of four recent examinations of workforce readiness, the chapter offers multiple suggestions to guide future research in this area, as well as recommendations for enhancing state longitudinal data systems so as to make available high-quality data that can be used to substantially improve knowledge of workforce readiness.

Bridget O’Connor then considers the utility of such work-based learning initiatives as career and technical education, often called CTE for high school students. The chapter considers what is known from prior research about the success of work-based learning initiatives in terms of several “domains”: student satisfaction, actual learning, application of learning, graduation rates, and earning power. The chapter concludes that, when well-designed

and properly implemented, work-based learning initiatives promise to promote college and career readiness for all students.

The second section of the book considers the roles of different educational providers in preparing students for work. In her chapter, Nancy Hoffman offers critical insights into and recommendations for the system of career and technical education in the United States. She underscores the need for improvement by describing the poor performance of the United States relative to other nations on a number of indicators including youth unemployment and employment rates, high school completion rates, and the OECD's PISA assessment (a measurement of college and career readiness among fifteen-year-olds). She also argues that countries that outperform the United States on these indicators tend to have policies that support youth and to have a considerable share of their youth population participating in a vocational education and training program that integrates work and learning. Hoffman concludes by pointing to "promising practices" for career and technical education in high schools and community colleges in the United States that may improve connections between education and work, particularly for youth in metropolitan areas.

Anthony Carnevale, Nicole Smith, and Jeff Strohl then demonstrate that, at least in part because of changes in technology, postsecondary education and training is now required for access to middle-class status in the United States. The authors also predict that the demand for workers with postsecondary education will continue to exceed supply, building on a pattern that began in the mid-1980s. Carnevale and his coauthors illustrate the considerable variation in earnings among individuals who earn a particular degree (associate's degree or bachelor's degree). Their analyses point to the importance of understanding the relationship between educational attainment and occupation, as well as variations in earnings by major field, when considering the forces that determine demand for postsecondary education. While recognizing the dangers of focusing exclusively on earnings as the measurement of "success" of postsecondary education (arguing that this focus ignores other outcomes that are valued by individuals and society), the authors conclude by noting the need for greater alignment of particular postsecondary educational programs with labor market demand.

In their chapter, Thomas Bailey and Clive Belfield consider the role of community colleges, with particular attention to the benefits to workers (as measured by earnings) of certificates and degrees by field of study. Drawing on both a review of prior research and their own analyses of data from the

Survey of Income and Program Participation (SIPP), the chapter provides useful insights into the labor market returns of community college outcomes. Building on a discussion of how the distinctions between occupational and academic credentials have been exaggerated, the authors conclude by offering recommendations for creating a more appropriate balance between occupational and academic education.

Next, William Tierney discusses the role of for-profit colleges and universities in meeting the nation's education and training needs. While acknowledging the skepticism that many have about how an organization that operates "for profit" can produce educational benefits for individuals and society, Tierney argues that the nation cannot achieve international competitiveness goals without these institutions, especially given recent constraints on state funding for public colleges and universities. Noting that more research is required to fully understand outcomes for students who attend for-profit institutions, Tierney also concludes that, as evidenced by enrollment patterns, for-profit institutions are effectively reaching populations of students that have been historically underserved by traditional colleges and universities, including low-income students and Black and Hispanic students.

In the third and final section, four chapters offer insights and recommendations for institutional practice and public policy.

Based on their review of available rigorous research, Lashawn Richburg-Hayes, Michael Armijo, and Lisa Merrill identify several promising strategies used by K-12 and postsecondary institutions to prepare students for careers. Richburg-Hayes and her coauthors note that only a small share of studies from the larger body of available research use experimental or quasi-experimental research designs to establish whether a program is the cause of improvements in student outcomes. To enhance the contribution to knowledge, the authors recommend that future research studies not only identify whether a particular intervention causes specific outcomes, but also include attention to understanding why an intervention worked, how the program was implemented, and through what mechanisms the program achieved the outcomes. The chapter offers a useful template for conceptualizing research that will improve knowledge of how and why career-pathways interventions work for specific groups under particular conditions.

Acknowledging the importance of postsecondary education and training to labor market outcomes as well as the challenges that limit "college for all," Ronald Ferguson argues that students and their families should be able

to choose from among multiple pathways. The chapter proposes a system that offers high-quality pathways to college and careers, pathways that integrate work- and career-related experiences into learning beginning in elementary school, continuing through postsecondary education and training and into adult employment. Ferguson stresses the need for such a system that would recognize and promote opportunity for all youth, but especially youth who are least well-served by the current system (such as students from lower income families, racial/ethnic minorities, low academic achievers). The proposed system envisions involvement from multiple stakeholders, including families, schools, religious institutions, and employers and organizations in the public and private sectors. The chapter offers ten practical and tangible recommendations, along with supporting examples, that states and metropolitan areas could use to develop and sustain such a system.

In their chapter, Laura Wolf-Powers and Stuart Andreason focus on the connections between urban economic development policies and school-to-work policies in the United States. With an emphasis on adult workers without postsecondary education, the chapter describes and critiques the existing system for providing employment training and placement in the United States, concluding that this system appears to have had limited impact on workers' earnings. The chapter then reviews contemporary city and regional economic policy, with particular attention to the promising effectiveness of sector-based initiatives and industry partnerships in promoting workforce development. The authors conclude by suggesting changes to improve the nation's employment and training system for adult workers and better align urban and metropolitan economic development policy with workforce development goals.

In the final chapter, Harry Holzer summarizes the role of programs and policies in preparing youth for employment, particularly in our nation's metropolitan areas. The chapter describes central characteristics of workers and jobs in U.S. metropolitan areas and offers recommendations for promoting stronger connections between education and the workforce. Holzer highlights the many challenges that limit these connections, including the inadequacy of information for students about college and careers, and then points to educational practices that research suggests show promise for improving labor market outcomes. Following a discussion of the unevenness of opportunity within metropolitan areas, the chapter offers recommendations for institutional practices, as well as state and federal public policies, that may

improve educational and employment opportunity and outcomes, especially for racial/ethnic minorities and individuals from low-income families.

Following these chapters, I offer a brief conclusion summarizing key themes that cut across the chapters. This chapter highlights implications for institutional leaders, policymakers, and researchers that flow from these chapters.

Preparing Today's Students for Tomorrow's Jobs

Ensuring that today's students have the education and training required for the jobs and careers of tomorrow is critical for reasons of international competitiveness, national employment productivity, and the economic and social status of individuals. Improving the match between educational preparation of workers and the knowledge demands of employers is especially important to the continued economic and social health and vitality of our nation's metropolitan areas. Understanding how to improve readiness is also important given the changing demographic characteristics of the population (for example, the rapidly growing Hispanic population) and increasing constraints on the availability of public resources.

Although much recent attention has focused on the need to increase the educational attainment of the U.S. population, less attention has focused on what types of education and skills today's students, especially those in metropolitan America, require to be ready for the jobs of tomorrow. In particular, little systematic consideration has been given to how to define and measure workforce readiness, to the role of different educational sectors in providing the necessary education and training, or to determining the most effective institutional programs and public policies for stimulating educational preparation for work.

The chapters that follow advance the discourse and state of knowledge on these issues. While identifying some critical areas for additional and higher quality research, the volume also provides a number of useful insights for practitioners and public policymakers. In addition to establishing that more research is required, the chapters in this volume offer valuable insights that educators, educational leaders, public policymakers, and researchers may use to improve the readiness of today's students for tomorrow's jobs in metropolitan America.

