

THE BREAKING THROUGH PRACTICE GUIDE

Labor Market Payoffs

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LABOR MARKET PAYOFFS

Introduction

A significant barrier to improving the career prospects of low-skilled adults (both older and younger) revealed during the 2004 *Breaking Through* research is the lack of “labor market payoffs” for those seeking to upgrade their marketable skills. To raise their academic skills to the level needed to qualify for postsecondary occupational credentials, they must invest significant time and resources—but there is no economic reward for skill improvement until one earns a full credential. With few incentives and many obstacles along the way, it is far too easy for adult students, especially those juggling work, family, and school, to get sidetracked. No wonder so few adults entering remedial programs ever earn college certificates or degrees.

The only potential early payoff built into the U.S. education system for low-skilled adults comes with earning the GED, intended for those who did not complete high school but have the motivation to develop their basic skills to a high-school level. The GED was introduced in 1942 to give World War II veterans without a high school diploma a way to take advantage of GI Bill benefits (Tyler & National Bureau of Economic Research 2001). Today, the GED is most useful as a “gatekeeper”: a number of community colleges require a diploma or a GED for matriculation, and research suggests that the payoff of postsecondary training for GED holders is just as high as for regular high school graduates (Tyler & National Bureau of Economic Research 2001).

A GED alone, though, is far from a guarantee that its holder can succeed in postsecondary education, let alone earn enough to support a family. The GED was associated with higher wages when it was first introduced, but current research into the true labor market value of the GED shows no clear-cut wage advantage (Murnane, Willet & Boudett 1995; Heckman & LaFontaine 2006; Tyler, Murnane & Willet, 2000; Tyler & National Bureau of Economic Research 2001).

While some employers may require a diploma or a GED, receiving that credential while employed does not entitle the worker to a pay raise. In addition, GED programs fail to address the needs of adults who already have a high school diploma yet still have low academic skills. The 2003 National Assessment of Adult Literacy found that for all three types of literacy it surveys—prose, document, and quantitative—about 10 percent of the adults sampled with a GED or high school diploma as their highest credential tested at below basic, “no more than the most simple and concrete literacy skills” (Kutner et.al. 2007, Kaestle et al. 2001).

Four issues concerning labor market payoffs have emerged:

- > Most low-skilled adults also have little knowledge of the modern labor market—what kinds of jobs are available, what they pay, what academic or technical skills are needed. As a result, they can waste time in training programs for which they lack aptitude and interest.
- > The designers and operators of many remedial programs lack knowledge of the modern labor market—about job availability and value and about employers and their skill needs. As a result, remedial programs are frequently taught with little or no reference to concrete information about the labor market (e.g., what jobs are in the region, and what skills and credentials employers require for these jobs).
- > College-based technical programs often take months or years to complete and are disconnected from one another. As a result, many low-skilled students drop out in response to life challenges, and they do not build on entry-level training or certification toward more advanced certifications.

- > Attempts to create career pathways for low-skilled adults depend on having industries in the region that offer decent entry-level jobs and a progression of jobs toward higher pay and better working conditions—but many regions lack a base of such industries.

Consequently, the *Breaking Through* report proposed this solution: create labor market payoffs for low-skilled adults (Liebowitz & Taylor 2004). During the demonstration phase, *Breaking Through* colleges innovated in four areas:

- > Providing career-exploration opportunities that enable low-skilled adults to make sound career choices.
- > Establishing connections with local employers and other key labor market actors to develop and maintain up-to-date information about jobs and advancement opportunities in the region.
- > Creating career pathways by “chunking” training programs into sections that respond to identified employer needs, awarding credentials that are recognized in the regional labor market and are stackable toward more comprehensive certifications and degrees, and eliminating skill gaps between “chunks.”
- > Participating actively in regional efforts to retain and recruit businesses and industries that meet the advancement needs of low-skilled adults.

Provide Career Exploration Opportunities

Traditionally, programs for low-skilled adults did little to help students learn about the world of employment or about how their aptitudes, interests, and experiences align with local jobs, training activities, and advancement opportunities. Programs that provide academic remediation—adult education and developmental education—generally consider these economic issues to be outside their mandate.

Publicly funded training programs all too often focus on a few types of training, and they channel the people who present themselves into the training slots available at the time. Such programs have paid little attention to how well jobs match individuals, whether actual jobs are available for those who complete the program, or what potential they offer for career advancement. Institutions that offer training for a fee—usually colleges, whether public or private—rely on their students to choose programs that match their skills and interests by the time they walk through the door.

Unfortunately, many trainees subsequently discover that they either do not like or cannot function effectively in the occupation or industry for which they are preparing themselves. Examples abound: no matter how well paid they may be, people who become ill at the sight of blood belatedly acknowledge that nursing is a poor career choice; people who do not like working outdoors in bad weather realize that construction is not for them; people with chronic back trouble discover that they cannot stand all day to operate machinery.

Opportunities for career exploration early in education programs are critical: they give people the chance to experiment with a variety of fields and to learn what they like and do not like, as well as what their abilities are. The roots of career exploration go back to the beginning of the twentieth century and the movement to provide vocational guidance, which primarily focused on teens and young adults transitioning from school to work. As the movement matured, it focused more and more on the needs of the individual, and on helping the individual make career choices based on understanding both the labor market and oneself. Vocational guidance has embraced the use of tests (increasingly computerized) to identify individual skills and interests, and it has broadened in response to the civil rights, women’s, and disabilities movements (Agnew 2000; Shahnasarian & Herr 2001).

Federal laws and regulations have reflected, and at times promoted, these advances in the vocational education movement. As early as 1917, the Smith-Hughes Act provided states with funding for secondary-level programs, and the 1929 George-Reed Act increased the funding for vocational guidance activities. Today, the Carl D. Perkins Career and Technical Education Act funds career guidance at the secondary and postsecondary levels (Moraru & Neilson n.d.; Patterson n.d.).

The U.S. Department of Labor has contributed to the quest for better ways to make career choices. It researches and analyzes occupations (publishing the first *Dictionary of Occupational Titles* in 1939), supports the development of aptitude tests for use in employment offices (introducing the first General Aptitude Test Battery in 1945), and funds career guidance for youths and adults (currently through the Workforce Investment Act) (Shahnasarian & Herr 2001). In recent years, the department has moved its considerable portfolio of career-assessment and information tools to the Internet. O*NET is the updated, on-line version of the *Dictionary of Occupational Titles*. It is described as “the nation’s primary source of occupational information, providing comprehensive information on key attributes and characteristics of workers and occupations. The O*NET database houses this data and O*NET OnLine provides easy access to that information.” (For more information on O*NET, see: <http://online.onetcenter.org/>; see also careeronestop.org.)

Adult educators are also rethinking their role in helping students understand the world of work as it relates to their goals. During the 1980s, Congress began to look more closely at the question whether adult education (under the Adult Education Act, as it was then called) was improving outcomes for students in areas such as employment. The resulting National Literacy Act of 1991 included stronger accountability provisions and also established the National Institute for Literacy, with responsibility for identifying and monitoring progress toward goals. In response, NIFL implemented Equipped for the Future, an initiative that identified three essential adult roles, one of which is “worker,” and researched “role maps” (what workers do) and competencies associated with the roles. During subsequent years, several states have further implemented the EFF framework, but materials associated with implementation, such as lesson plans and curricula, have not emerged, and implementation of the 2009 Framework is spotty. (Stein 1999; Center for Literacy Studies, n.d.)

During the demonstration phase, *Breaking Through* colleges built on existing models of vocational guidance to develop career exploration and navigation tools, resources, and supports, with a focus on two practices:

- > *Career assessment and exploration*: This includes interest and skill assessments, college- and career-success courses, short courses on career exploration and skill building, and the development of career and education plans. Some colleges build career-exploration activities into basic skills and remedial training, offering opportunities for adults to investigate career options while improving reading, writing, and research skills.
- > *Career pathways road maps*: Colleges provide information on occupations, related education and training opportunities, credentials and certificates, industry information, and employment opportunities, often presented graphically as maps illustrating the steps to finding a certain job or entering a certain career.

CAREER ASSESSMENT AND EXPLORATION

Community College of Denver’s FastStart@CCD program sees the identification of career and educational goals as a key component in student success. Career-exploration activities are infused into class activities and assignments in academic courses and in a one-credit college and career-success course. Participants identify and investigate their career interests through research, interviews with those in the field, and visits to worksites. They also write an “I Search” paper on the results of their career exploration, including an action plan that lays out the courses they need to take to achieve their goals. Through these activities, participants also build their reading, writing, and research skills.

The college and career success course gives students an opportunity to further investigate their career interests through informational interviews, job shadowing, and labor market research, culminating in an individual education plan. In addition, at career-majors fairs students meet with employers, college-program advisors, and former program graduates who work in the field.

Cuyahoga Community College, as part of its health care career pathway, helps low-skilled adults assess and explore their career options. Opportunities include assessments of career interests, as well as activities designed to help students explore careers, related jobs, career pathways, and the college's career education and training programs. There are also one-hour workshops on topics such as career planning, academics, and financial aid; the program includes job search and placement assistance as well.

Portland Community College offers several career exploration and navigation tools, resources, and supports to low-skilled adults in its career pathways programs. Students participate in interest assessments and receive assistance in developing career and education plans and selecting a career major. Students also write an "I Search" paper, which requires them to interview one or more people working in careers that interest them. In addition, students receive advice and assistance with their job search.

Southeast Arkansas College, as part of its nursing and allied health career pathway, provides low-skilled adults with interest and skill inventories to ensure that the field is a good fit. A college-success course includes tours, job shadowing, and informational interviews with workers in the health care field, and it culminates in a career-readiness certificate. *(For information on MECA, see "Definitions" in the Practice Guide Supplementary Materials.)*

Davidson County Community College offers low-skilled adults a three-day orientation that covers basic skills, the college, and career exploration. Career exploration includes an assessment tool to help students identify their career interests and aptitudes, plus a tool that shows which certificate and degree programs at the college align with their interests.

The college then places students in the basic skills class they need—ABE, GED, ESL, or college review. Instruction is contextualized to their career interests and aptitudes and selected career-pathways areas.

Another career-exploration tool is the Microcomputer Evaluation of Careers and Academics—MECA. This "virtual reality" program for career exploration and planning includes computer-guided training and interactive kits that offer hands-on experience in a field. *(For information on MECA, see "Definitions" in the Practice Guide Supplementary Materials.)*

Mott Community College's career-pathways programs provide comprehensive intake and skill assessments, career pathway road maps, and skill enhancement. This includes Operation Fast Break, an intensive, eight-week, thirty-hour-a-week program to prepare participants to enter career tracks or college. Fast Break helps participants build their math, reading, writing, computer, and employability skills. It uses WorkKeys to assess individual abilities and KeyTrain to help them improve their skills to WorkKeys Level 4, which is the skill level employers generally require for entry-level jobs. Fast Break also includes college and career exploration. Participants earn a certificate of completion, endorsed by the local workforce board. *(For information on WorkKeys and KeyTrain, see the Practice Guide Supplementary Materials.)*



Tip: Make sure students have opportunities to explore career options before they enroll in a career pathway.

At **South Piedmont Community College**, Human Resource Development—part of a statewide program—provides a range of short courses on career exploration and skill building. These are free of charge to the unemployed, underemployed, and those with incomes below the federal poverty level, with the state providing tuition waivers, although they still generate funding for the college. Topics include career interest and aptitude tests, career planning and assessment, career readiness and exploration of specific occupational areas, computer skills, workplace communication skills, customer service, and job search. The program serves as the front door for the college, where students can continue their education and training in the occupational areas they have explored. Participants are recruited through community partnerships and the local Job Link Center.

Tacoma Community College offers a three-credit college-success course as part of its Integrated Basic Education and Skills Training (I-BEST) program. The course covers such topics as career exploration, academic planning, goal setting, study skills, test-taking techniques, time management, communication, college and community resources, respecting diversity, and money management. As part of the course, students develop an educational and career action plan. The college also provides I-BEST students with a support specialist, who serves as a single point of contact and helps them navigate the college and employment systems.

CAREER-PATHWAYS ROAD MAPS

Portland Community College provides the low-skilled adults in its career-pathways programs with “road maps.” Students receive guidance on the requirements for entering the program, industry information, employment opportunities, and related education and training opportunities (ranging from precollege “bridge” programs to three- to six-month programs, certificate and Associate’s degree programs, and further education opportunities). For an example of PCC’s career maps, see page 4.12.

At **Southeast Arkansas College**, the nursing and allied health department has developed career-pathways road maps that include information on occupations, credentials required, and certificates that can be earned along the way.

The career-pathways programs at **Mott Community College** provide road maps in four high-demand industries: business, engineering/manufacturing, human services, and health. Students can easily see how they progress from one stage of the pathway to the next, as well as the credentials associated with each of those stages. An example of Mott’s road maps can be seen on Page 14.

Establish Connections with Key Labor Market Actors

Too often community colleges and adult education programs have weak or nonexistent connections with employment-related institutions, particularly employers, business associations, and workforce-development agencies. This is primarily because the colleges do not view such connections as part of their mission. As a result, attempts to develop pathways to careers for adults can be abstract rather than grounded in the realities of the regional labor market. Colleges may teach technical skills no longer needed in the workplace, neglect critical “work-readiness skills,” or fail to connect students with actual employers and jobs. Low-skilled adults suffer disproportionately from programs and pathways disconnected from employers and existing jobs because they tend to lack their own personal connections to and knowledge of the labor market.



Tip: Connect students’ academic learning with their career paths and long-term goals whenever possible.

This challenge has been clear for some time, but little has emerged to address it. One exception is the NIFL Equipped for the Future Framework, and several states have begun to act on their own. Texas LEARNS, the Texas Adult Education and Family Literacy Collaboration, has emerged as a project of the state agency administering adult education that is committed to developing workplace literacy and language development. It developed the Texas Industry Specific English as a Second Language Curricula (TISESL) for three sectors: health care, manufacturing, and retail.

No comparable initiatives have connected developmental education with labor market goals. Therefore, *Breaking Through* innovations to connect career-pathways programs with the labor market will be of potential interest to a wide array of programs working with low-skilled adults.

Breaking Through community colleges have developed a variety of career pathways that result in high-demand jobs and careers. Key features include:

- > A focus on high-demand occupations: Pathways lead to jobs that are in demand in the local or regional labor market, and they provide family-supporting wages and opportunities for advancement. These jobs are usually in construction and building trades, manufacturing, health care, and early-childhood education.
- > Active engagement of labor market actors: The colleges make a major effort to involve employers and unions in developing and implementing their programs, inviting collaboration in such areas as curriculum development and program delivery. They also arrange for job placement for students who complete programs.
- > Structures that accommodate students who work: Instruction is offered at a variety of times and locations that are most likely to be convenient for adults who both work and attend school. Some courses involve work-based learning, which takes place at the students' workplaces. On-line courses are frequently available.

ENGAGE WITH LABOR MARKET ACTORS IN HIGH-DEMAND FIELDS

Central New Mexico Community College offers a number of certificate and degree programs in the construction and building trades, such as: two-term certificate programs in carpentry, plumbing, and welding; three-term certificate programs in air conditioning, heating, and refrigeration and electrical trades; and a two-year Associate's degree in construction technology.

Unlike the workforce-development department, the Adult Education/basic skills side of the college (where the *Breaking Through* program was developed) had weak ties to industry. The *Breaking Through* team used the workforce department's model, which includes advisory meetings with business and industry representatives, to develop its program and assess both local labor needs and the associated skills that students needed to develop.

Central New Mexico Community College targeted the construction and building trades for several reasons. First, it knew from a critical-needs survey conducted through the region's U.S. Department of Labor WIRED grant that the construction field was growing. Second, CNM was committed to working with low-skilled adults, especially vulnerable populations. For example, the construction industry wanted to expand recruitment and was open to hiring those previously incarcerated. There was also interest in increasing the number of participants in registered apprenticeships—a common element in construction pathways. Many low-income adults need to earn while they learn, and this is a key feature of apprenticeship programs. Students also can earn college credit while in the apprenticeship program.

CNM works with industry partners to hire instructors for classes offered through the apprenticeship programs, and advisory meetings help ensure that programs meet local labor market needs. Industry partners who hire program graduates are a source of valuable feedback on students' career readiness and job skills, which can further help with program development. For example, industry suggestions led to an increased focus on soft skills—communication, timeliness, and critical thinking—as well as an emphasis on reading and math development through contextualized curricula.

North Shore Community College's early-childhood education career pathway is designed for child care workers who are English language learners. It provides them with a pathway to Child Development Associate (CDA) training and to the college's Associate's degree program in early childhood education. Contextualized ESL enables the participants to start on the early-childhood education pathway by taking noncredit workshops in English as a second language and courses contextualized for early-childhood education.

A leadership team, with representatives from a variety of college departments as well as community-based organizations and the local WIB, helped North Shore develop its focus on child care pathways. There was a local need to increase the skill level of child care workers, and the college already had a strong CDA program that could be adapted for the needs of non-native English speakers.

The college counts employers as crucial partners in this effort as well. Employers send incumbent workers for training and offer their child care centers as training sites. Those hosting onsite courses receive vouchers that enable their incumbent workers to take additional courses free of charge.

The CDA training assists child care workers in the process of obtaining their CDA credential, which is required for certification for child care teachers in Massachusetts, and is the first step toward earning higher wages for child care work. Massachusetts encourages more education and training for those working in early childhood education and has plans to raise requirements in the future. Such requirements provide employers and community colleges with an incentive to develop education and training programs for incumbent child care workers.

As part of the training, participants take courses in early-childhood education, covering such topics as child growth and development and developmentally appropriate early-childhood education practices. They also do fieldwork with children and develop portfolios demonstrating what they learn.

North Shore Community College also offers a two-year Associate's degree program in early-childhood education. Those who obtain a CDA credential can apply for six additional credits—a semester's worth of credit toward the Associate's degree.



Tip: Develop students' general employability skills. These can carry over to new industries when local labor markets change.



Tip: Identify and stay in touch with employers in targeted industries and occupations. This is key to ensuring that the technical aspects of the curriculum meet employers' needs and help students prepare for jobs.

Cuyahoga Community College's health care career pathway offers a pipeline into careers for low-skilled adults and increases the skills and credentials of those already in the field to help them advance. One key feature is Pre-State Tested Nursing Assistant (Pre-STNA) training, which provides an on ramp into health care training for students with very low skill levels. For those who need it, the college also offers a path to completing the GED, which is necessary for advancing into higher-level training programs. This contextualized basic skills training is designed to prepare participants for the next level, STNA training. STNA training provides over 100 hours of instruction, including clinical experiences, and usually takes four to nine weeks to complete.

Cuyahoga's Workforce and Economic Development division collaborates with employers to create incentives for enrolling and persisting in training programs, such as paid work release time or flexible scheduling. The college also relies on industry advisory committees so that students gain the skills they need to succeed in the workplace.

Of the sixty-six students enrolled in the first eight cohorts, 79 percent completed the STNA training, and 75 percent of the completers passed the STNA exam. These numbers include the very low skilled students who enrolled in the Pre-STNA program before beginning the STNA training. Of the students who started the program, whether at the STNA or Pre-STNA level, 24 percent were attending college as of late 2009.

Southeast Arkansas College has conducted labor market studies to identify high-growth fields in their service area, one of which is nursing and allied health. The college offers a number of certificate and degree programs in this field, including one-semester certificate programs (e.g., emergency medical technology, nursing assistant, and phlebotomy); one-year certificate programs (e.g., practical nursing and surgical technology); and two-year Associate's degree programs (e.g., LPN-to-RN nursing transition, radiologic technology, and respiratory care). Low-skilled adults start nursing and allied health career pathways by taking FastTrack developmental education, which offers basic skills training in reading, writing, and math, all contextualized for nursing and allied health occupations.

Employers are key and active partners in the nursing and allied health care career pathway. For example, health care employers provide sites for clinical experiences in the practical-nursing training program. They have also collaborated with the college to create career-pathways road maps to inform incumbent workers about advancement opportunities and related education and training programs.

As of spring 2008, SEARK had enrolled three cohorts of students into FastTrack developmental education and accelerated allied health. Of the students enrolled in FastTrack, 93 percent completed the sequence. By comparison, the traditional developmental education completion rates at SEARK ranged from 50 to 60 percent. Two-thirds (66 percent) of students enrolled in the accelerated allied health pathways have completed their programs.



Tip: Stay informed about state and local job markets. This is critical to helping students make informed choices and to guiding the college's decisions about program offerings.

Lake Michigan Community College, Michigan

ENHANCING WORKFORCE DEVELOPMENT PROGRAMS

Lake Michigan Community College's *Breaking Through* project focused on enhancing the college's existing workforce-development programs. LMCC added several elements that enhanced its *Breaking Through* portfolio, including remediation through KeyTrain, the opportunity to earn a National Career Readiness Certificate, and a Career and College Essentials course.

A variety of factors led the college toward development of their *Breaking Through* initiative:

- > Local employers had identified the need for literacy training for their incumbent workers.
- > Michigan Works (the state Workforce Investment Board) had found that many adults in the college's community were ineligible for the No Worker Left Behind program because they were not college ready.
- > The chair of transitional studies was concerned that LMCC's developmental education program was discouraging for students and felt that adult students needed flexible programming options.

A request from the dean of business services (who has since become the president of the college) to develop courses for a local health care facility was the start of LMCC's efforts to develop new, *Breaking Through*-oriented programming. LMCC found that cross-college collaboration was key to getting the project started.

- Develop a leadership team within the college: At LMCC, the *Breaking Through* team includes high-level administrators from developmental education, workforce development, business services, career education, and WorkKeys.
- Strengthen connections to the local Workforce Investment Board: LMCC is planning combined training for advisors from the college and the WIB so that two stakeholders in the labor market—education and employment—can get to know each other. The training will be followed by ongoing meetings.
- Work with credit-side instructional faculty: LMCC staff are examining the content and textbooks of courses on the for-credit and noncredit sides to create ladders for student advancement.

LMCC started by adding *Breaking Through* components to three noncredit workforce training courses (welding, hospitality, and pharmacy tech). The *Breaking Through* components included remediation through KeyTrain as well as the Career and College Essentials course, which covers a variety of topics aimed at advancing students' education and careers:

- > How to efficiently and seamlessly transition from noncredit to credit courses;
- > Opportunities for career-interest exploration;
- > An introduction to available training courses and their requirements;
- > Advice to students on college expectations and the resources available to them; and
- > Discussions of the advantages of postsecondary education. At LMCC, this discussion is led by TRIO support staff.

LMCC is using data from the first *Breaking Through* cohort to evaluate the success of these courses, but it is already moving to incorporate the initiative's components into more courses. Its advice for practitioners seeking to improve their workforce development offerings is to:

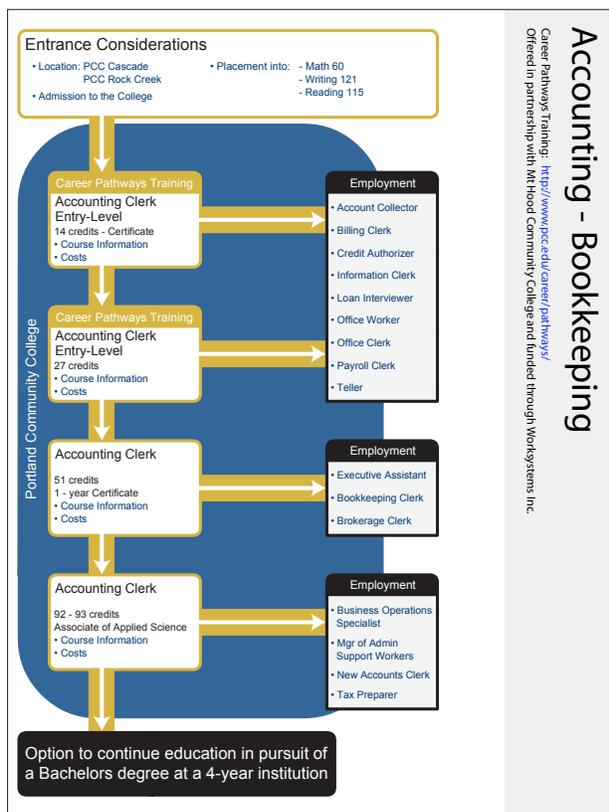
- Work with the WIB and local employers.
- Start by adapting existing programs and add new programs as needed.
- Use data to look at how students transition to college-level programs.
- Work closely with for-credit instructional faculty and administrators.

Chunk Training to Create Career Pathways

Breaking Through colleges learned about various approaches to creating career pathways in the series of national meetings held between 2005 and 2008. Most influential to the vision of seamless pathways was **Portland Community College's** Career Pathways program, which “chunks” two-year occupational and technical degree programs into units that:

- > Are one year or shorter (12 to 44 credits);
- > Represent the mastery of skills in demand by local employers, and;
- > Build on prior coursework and credentials toward two-year and four-year degrees.

Figure 1 shows PCC's accounting/bookkeeping pathway.



Tip : Divide technical curriculum into shorter “chunked” modules that yield credentials, enabling students to get jobs (or promotions) more quickly. This also makes it easier for students to “stop out” for life emergencies without losing credit for work they’ve accomplished.

Figure 1. Portland Community College's Pathway Map for Accounting/Bookkeeping

In 2004-05, PCC's pathways were only open to college-ready students; low-skilled adults were not eligible, so the college has since added “bridges” to several pathways for students with lower academic skills. These bridge programs include coinstruction, with basic-skills instructors joining content instructors in the classroom.

(For more information on Portland Community College's fourteen career pathways and six vocational English as a second language pathways, see www.pcc.edu/pavtec/pathways.)

A number of *Breaking Through* colleges have grasped PCC's essential notion of “chunking” and adapted it to create a continuum of programs for students starting at low skill levels. For example, Mott Community College has created pathways connecting noncredit workforce students to for-credit technical programs in four industry sectors. Figure 2 shows how the pathway looks in health sciences.

A somewhat different approach to seamless stacking comes from **Owensboro Community & Technical College** and the **Kentucky Community & Technical College System**. Unlike the preceding examples, created inside a single college, and limited potential for expansion beyond that college, OCTC functions in a statewide system with the potential to build career pathways across the system. This potential was built into a statewide course catalogue developed by KCTCS explicitly to support the development of career pathways.

The KCTCS course catalogue presents career pathways in 108 technical areas, from Advanced Imaging in Radiology to Zoo Animal Technology, with notes indicating which of Kentucky's 16 community and technical colleges offer which courses in each program. The catalogue was developed using an "embedded credentials" approach that makes explicit the competencies taught in each course and aligns them across courses. Thus, students can map out a sequence of courses that add up to credentials and degrees. *(To access the KCTCS catalogue, go to <http://stage.kctcs.edu/catalog/curric/index.cfm?action=s>.)*

An innovative feature of the catalogue is to present courses and certifications available at the precollege level for a number of the programs. "Welder helper," for example, is open to people who test at the ninth-grade level. Various courses are offered at the next level up, and a student can build on the welder helper certificate to what KCTCS calls a "diploma" (less than a two-year degree), and then to a college degree.

OCTC started off by offering dislocated workers and others access to pathways in several industry areas that begin with precollege certificates and build toward college-level courses and degrees. OCTC is working to incorporate another innovation based on crucial observations made by program staff: the academic (KCTCS uses the term "foundational") skills of many students in these precollege certificate programs are well below college level, and the certificate programs do not include instruction in foundational skills. As a result, students can complete the requirements of precollege technical certificates but be unable to advance further because they cannot pass college-entrance exams or function at the reading and math levels required for the college-level technical courses. OCTC will experiment with several approaches to building these skills, using contextualized materials. The goal is to advance students' foundational skill levels alongside technical-skill development, seeking to ensure that those who want college-level certifications can matriculate into college and enroll in the courses they need.



Tip: Stack "chunked" curriculum modules so students can advance toward further credentials and degrees.

THE ROLE OF CERTIFICATES AND CREDENTIALS

One theme cutting across discussions of chunked pathways is the essential role of certificates and other credentials. These are fundamental to the ability of low-skilled adults to advance in the labor market. If credentials are developed correctly, they match a set of skills that employers identify as needed, and they attest that the holder of the credential has mastered those skills. *Breaking Through* colleges have used this principle to construct and strengthen career pathways in several ways:

- > Incorporating nationally or state-recognized certificates into the early stages of a career pathway, giving participants a labor market advantage even before mastering technical material;
- > Using the design process to ensure that certificates for a particular occupation or industry stack, with the competencies to be mastered in a higher-level certificate building on competencies learned at the preceding level; and
- > Designing certificates that ensure a seamless sequence—that is, all the competencies needed for the next higher level of certification are presented in the preceding one.

The *Practice Guide Supplemental Materials* include a taxonomy of certificates, which fall into four types: career readiness, short-term, occupation specific, and community college based. They also describe each type of certificate, illustrated with examples of how *Breaking Through* colleges have used them.



Tip: Work with local and regional employers to connect training for incumbent workers with related certificates and/or degrees at the college. Then, develop pathways that enable students to build on employer-sponsored training to earn college certificates and degrees.

Participate in Regional Efforts to Retain and Recruit Businesses and Industries

For some time national organizations, and also state and municipal governments, have promoted the goal of integrating economic development with workforce development. In practice, integration focuses on the high end of the labor market and neglects the low-skilled adults targeted by *Breaking Through*. For example, states often seek to attract biotechnology firms, while promoting training that offers employers a supply of highly skilled labor. Nevertheless, public agencies can include workers at the lower-skilled end of the spectrum in economic-development efforts, especially to attract and retain industries and firms that offer both family-supporting jobs at the entry level and formal opportunities to increase skills and advance to jobs with higher pay and responsibilities.

Breaking Through has nurtured several efforts to promote regional economic development intended to benefit low-skilled adults. Participating community colleges are expanding opportunities for low-skilled adults by influencing the direction of regional economic development in several ways, including:

- > Targeting industry sectors that provide low-income, low-skilled adults good jobs at the entry level and offer opportunities for skill building and advancement, and in which there is high demand;
- > Partnering with the public and private sectors on regional economic and workforce-development efforts;
- > Addressing the education and training needs of firms' incumbent workers to help them advance; and
- > Making targeted, short-term training part of longer-term certificates and degrees to promote advancement and further education and training.

PARTICIPATION IN REGIONAL ECONOMIC DEVELOPMENT

Portland Community College is a key partner in its region's economic and workforce development efforts. One way it does this is by joining in efforts to recruit biotech, microelectronics, solar, and other new industries. By collaborating with new industries and firms, the college is involved with them from the outset. For example, after helping recruit biotech firms, PCC then engaged these firms in developing a 13-credit bioscience technician career-pathways certificate program. The goal was to meet employers' workforce needs while providing low-income, low-skilled adults with employment opportunities.

PCC's career-pathways certificate programs are aligned with the regional economy and high-demand industry areas, and the college collaborates with existing industries to help them grow. When firms experience labor and skill shortages, they are more open to working with the community college and providing employment opportunities to job candidates they might have previously overlooked.

PCC ensures that training not only meets the needs of specific firms but also aligns with certificate and degree programs: training is part of a career pathway. For example, PCC collaborated with a solar energy employer to develop a short-term training package designed to provide the skills required for entry-level jobs. Students completing the training earn credits—and a stackable credential—that can be applied to PCC’s one-year certificate and two-year degree programs.

Both external and internal partnerships are critical. External partners include economic developers, employers, and industry; internal partners include a college’s credit and noncredit sides.

Owensboro Community & Technical College collaborates extensively with its region’s economic-development stakeholders—including local government, the economic-development corporation, and unions and employer organizations—to improve the vitality of key sectors in the regional economy and provide low-income, low-skilled adults good jobs and advancement opportunities. OCTC is the workforce arm of regional economic development.



Tip: To improve job opportunities for low-skilled adults, community colleges must partner with state or regional economic-development organizations to attract or retain firms and industries with entry-level positions and genuine advancement opportunities.

OCTC’s targeted sectors include manufacturing and health care. In manufacturing, the focus is on helping the region retain its local manufacturing base and attract new firms. Such efforts have included providing incumbent workers with the training required to maintain new industrial machinery, and, more recently, providing dislocated workers with retraining. In health care, the focus is on helping the local hospital system meet its need for hundreds of additional nurses. OCTC provides the hospital’s entry-level workers with the education and training required to move into these jobs.

OCTC structures training as part of a pathway, with short-term training and credentials embedded in longer-term certificates and degrees. The college’s activities related to economic development have helped it promote institutional change, bringing a new focus on who is served, and on how and where training is provided.

Scaling Up Labor Market Payoffs: Case Study of Mott Community College

In scaling up successful practices Mott Community College provides multiple opportunities for students to gain labor market payoffs from their education in the form of both noncredit occupational certificates and college credits. Mott does this by connecting its noncredit workforce-training programs with its for-credit side.

For students, the connection makes the best of both worlds available: students get opportunities to quickly earn employment credentials valued by employers, while also accumulating college credits that they can later apply toward more advanced certificates and degrees. Mott has instituted its innovative linkage process in all four of its high-demand industry/occupational program areas: health sciences, human services and public administration; business, management, marketing and technology; and engineering/manufacturing. Mott has restructured itself to provide full pathways into the college for low-skilled adults, with sequential certificates and degrees in all four industry areas.

Mott Community College is located in Flint, Michigan, where the auto industry dominated the economy for most of the twentieth century. The decline of the industry has meant huge job losses; by 2006, the number of employees at General Motors had decreased by 90 percent from its peak. With high numbers of unemployed workers, many of whom lack postsecondary credentials, the community college has an important role to play in Flint's economic revitalization.

Before Mott joined *Breaking Through*, career-advancement opportunities for students at its Workforce Education Center were limited, as they are at the noncredit centers of most community colleges. The connections between academic remediation and workforce training were weak, and students who entered with low academic skills had few opportunities to advance in technical training. Even more important, students had no way to build on technical training they had received and to earn college-level certificates and degrees. While noncredit students with poor basic skills could enroll in the college, they had to start in developmental education. Then, once they formally matriculated, they would have to start technical training back at the entry level.

While a number of *Breaking Through* colleges developed "demonstration programs" that they now seek to scale up, Mott Community College took a different approach: moving from having no connections between noncredit and credit programs to systematically developing pathways in four major industry/occupational areas that together accommodate the needs of most students. To roll out these pathways, Mott developed several processes that create opportunities for students to earn seamless sequences of noncredit and credit-level labor market credentials:

- > **Articulation:** Traditionally, "articulation" has referred to the process of formalizing agreements about such matters as the transferability of course credits across separate institutions. Mott adapted articulation to align content between its own noncredit and credit sides. See the *Practice Guide Supplemental Materials* for the items Mott developed to support this process.
- > **Industry/occupational program areas:** Faculty and other staff came together to restructure the curriculum. Now, both noncredit and credit faculty teach segments of some certificate programs, and students can receive college credit along with an industry certificate.
- > **Written programs of study:** For each student, a written program of study details the sequence of courses required to earn a two-year degree in the chosen field. It took several years to hammer out this process: many college staff and administrators had to be convinced that noncredit students were capable of college-level work.

Now students can advance through a clear sequence of certifications, each developed with regional employer input, and each connecting to a job in the chosen industry. For example, a student can acquire a Corrections Preparation Certificate, preparing him or her for a job earning \$12.98 to \$14.23 per hour, followed by a one-year Criminal Justice Certificate, for a job earning \$12 to \$16.23 per hour. This career pathway then leads to two-year Criminal Justice Associate's degree, which provides access to jobs paying up to \$24 per hour.

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