

GAME CHANGERS

EDUCATION and INFORMATION TECHNOLOGIES

Edited by **DIANA G. OBLINGER**

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Game Changers: Education and Information Technologies

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FROM THE EDITOR

I would like to thank the many people who made this book possible, particularly Gregory Dobbin for managing the project and Karen Mateer for her research.

—Diana G. Oblinger

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IT Innovations and the Nontraditional Learner

Pamela Tate and Rebecca Klein-Collins

Introduction

IN 1998, THE COUNCIL FOR ADULT AND EXPERIENTIAL LEARNING (CAEL), a national nonprofit organization dedicated to the adult learner, hired the American Productivity & Quality Center (APQC) to conduct a benchmarking study of adult-learning-focused colleges and universities. We wanted to answer the question “What are the postsecondary services and programs that best serve adults—especially those who are working full time—and their special needs and challenges?”

Among best-practice principles was the belief that the use of technology to enhance the learning experience of adults was of critical importance.¹ In 1998, this was not tremendously surprising. E-mail and the Internet were already fairly well established in offices as well as in many homes. Students used computer databases to organize and access information. However, we were a long way from where we are now. Then, online learning was a fledgling offering by just a few institutions and providers. Most homes had only dial-up access to the Internet, rather than today’s high-speed broadband. And college applications were still mostly paper-based rather than online forms.

The subsequent speed with which online learning went from a niche offering to one that is a common option within academia has been striking. The National Center for Education Statistics (NCES) reports that in 1999–2000, only 8 percent of undergraduates took at least one distance-education (including online) course during the survey year, but by 2007–2008, more than 20 percent of undergraduates had done so. This more than doubling of participation in distance/online learning in eight years is even more remarkable given

that in 1995–1996, NCES surveys did not even include the question about distance education.²

Since that APQC benchmarking study, we have seen the kind of technological progress that many of us could not have imagined, including technology's applications in postsecondary learning and degree completion. This book is highlighting how these advances have changed the college experience and its outcomes; this chapter focuses on some of the game changers that CAEL and other organizations have worked to develop for the *nontraditional student*. One of these game changers is the use of online learning and degree programs specifically tied to career pathways, another is the use of online portals that recognize and document college-level learning from various sources, and a third is the development of online tools that help students understand the connections between and among current skills, degree programs, and possible occupations.

These innovations are helping to highlight learning outcomes rather than inputs, and they are helping nontraditional learners access degree programs that employers value and that accommodate the schedule of the working world.

The Nontraditional Learner and Postsecondary Learning

CAEL's focus has always been the "adult learner," but these days, we are more likely to use the term "nontraditional learner" in recognition of the fact that a broader group of people attending college today share many of the same characteristics and barriers of the 25-and-older crowd. Even younger individuals can have life experiences and labor-force participation that create barriers to postsecondary success.

The NCES defines the nontraditional learner as a student with one or more of the following characteristics:

- has delayed enrollment in postsecondary education beyond the first year after high school graduation
- attends part time
- is financially independent from parents
- works full time
- has dependents other than a spouse
- is a single parent
- has no high school diploma or GED³

NCES found that in 2002, 73 percent of all enrolled students had at least one of the above characteristics, and 56 percent had two or more

characteristics.⁴ While these students may be considered nontraditional, they are no longer uncommon.

Some postsecondary institutions have recognized this emergence of nontraditional learners in higher education and have been proactive in addressing their needs and barriers.

The barrier of time and place: One significant barrier for the nontraditional learner is the lack of time to take classes while also working full time. In the past, institutions would try to lower this barrier by offering classes in the evenings or on weekends. Today, institutions serving nontraditional learners might be just as likely to offer courses that are compressed into a shorter time frame, in addition to online learning options.

The need for relevance: Younger students right out of high school may not have a good sense of what a college education should provide, but students who have spent some time in the workplace and who choose to go to college do so because they want to improve their work or career situation. They therefore have expectations that college will teach them things that they can use in the workplace or that will help them advance in their careers. Programs that are designed for adults are therefore often contextualized in that the instruction draws upon real examples from meaningful academic, real-life, and occupational contexts.⁵

The frustration of college-level learning that isn't recognized: While we are no longer defining the nontraditional learners merely by age, almost one-third of all undergraduate students are, in fact, older than the traditional 18- to 24-year-old student.⁶ Nontraditional learners may have dropped out of an earlier try at college, or they may have chosen not to continue education after graduating from high school. In either case, they have been in the workplace, in the military, and in their communities, and they have been gaining new skills and knowledge in these environments. When they do return to learning, they often find themselves in courses that cover material that they already know. Therefore, another best practice for serving these learners is to offer options for evaluating that prior learning so that they can gain advanced standing in a degree program or earn college credits for the college-level learning they already have. Prior learning assessment, or PLA, is the term that CAEL has used for more than thirty years to describe the range of evaluation methods used for this purpose, including standardized exams (e.g., advanced placement [AP] and College Level Examination Program [CLEP]), challenge exams, and portfolio evaluation.

The challenge of navigating a complex labor market and higher education system: Workers without postsecondary credentials often know that they need more education to be more employable, to advance in their careers, or to hold

on to a job in a tight labor market. However, today there is a wide variety of possible occupations and career paths, many of which may not even be known to the average worker. It is also not immediately apparent which occupations have staying power in this ever-changing, knowledge-based economy. And finally, even if the career pathway may be clear to the worker, determining what to study or what institution to attend is nearly as difficult.

None of the above challenges and frustrations facing adults is easy to solve, and yet technological solutions have made significant progress in innovative ways. Online learning programs have been developed in collaboration with business and industry, so that the programs are not only accessible to persons working full time, but they are also leading to credentials that are relevant to their work and valued by the employers. Online service providers have emerged to help individuals with extensive skills and knowledge gained outside the traditional classroom, or who have earned credits from multiple institutions. These sites provide the student with a way to have that knowledge evaluated, documented, and translated for use in postsecondary institutions. Finally, web-based tools and databases are available to provide guidance to various target populations on the career options and related educational programs that build on the students' previous experiences.

These innovations may not be well known in the average American household, but in our view, they are important developments, made possible only through technology, for helping the adult or nontraditional learner.

Online Learning Tied to Career Pathways

The field of workforce development had for many years been primarily the purview of employers, corporate trainers, and public-sector job-training operations. Employers and corporate trainers addressed job-related training of the incumbent workforce, and public-sector agencies provided training to the unemployed to become more viable in the labor market. Community colleges offered some vocational training, but for the most part, postsecondary institutions were not closely attuned with the realities and skill requirements of the workplace.

As the economy changed, or rather, as the United States migrated to more of a knowledge-based economy, colleges and universities have become much more aware of the connection of learning to the workplace, and of learning to long-term employability in a wide range of industries. As a result, industry-specific degree-program offerings have expanded, and there has been a growing focus within both workforce development and postsecondary education on the concept of career pathways.

Programs designed for career pathways are not focused on preparing someone for a single job, but rather for entry into an industry position with long-term employment and advancement potential. The entry step on a pathway may or may not require high skill levels, but as the worker gains new skills on the job and through additional postsecondary studies, the worker can access higher-level, higher-paying positions along a pathway. The pathway may not be linear, and it may at times resemble more of a lattice or spiderweb, but there is an explicit understanding that incremental gains in skill and knowledge make the pathways accessible.

One example of a career pathway is provided on the website of the Advanced Manufacturing Career Collaborative, a partnership of education and workforce organizations, industry associations, and local industry in southwest Pennsylvania. Figure 1 is a career pathway in manufacturing, which shows how additional education and training leads to higher-level positions along a pathway.

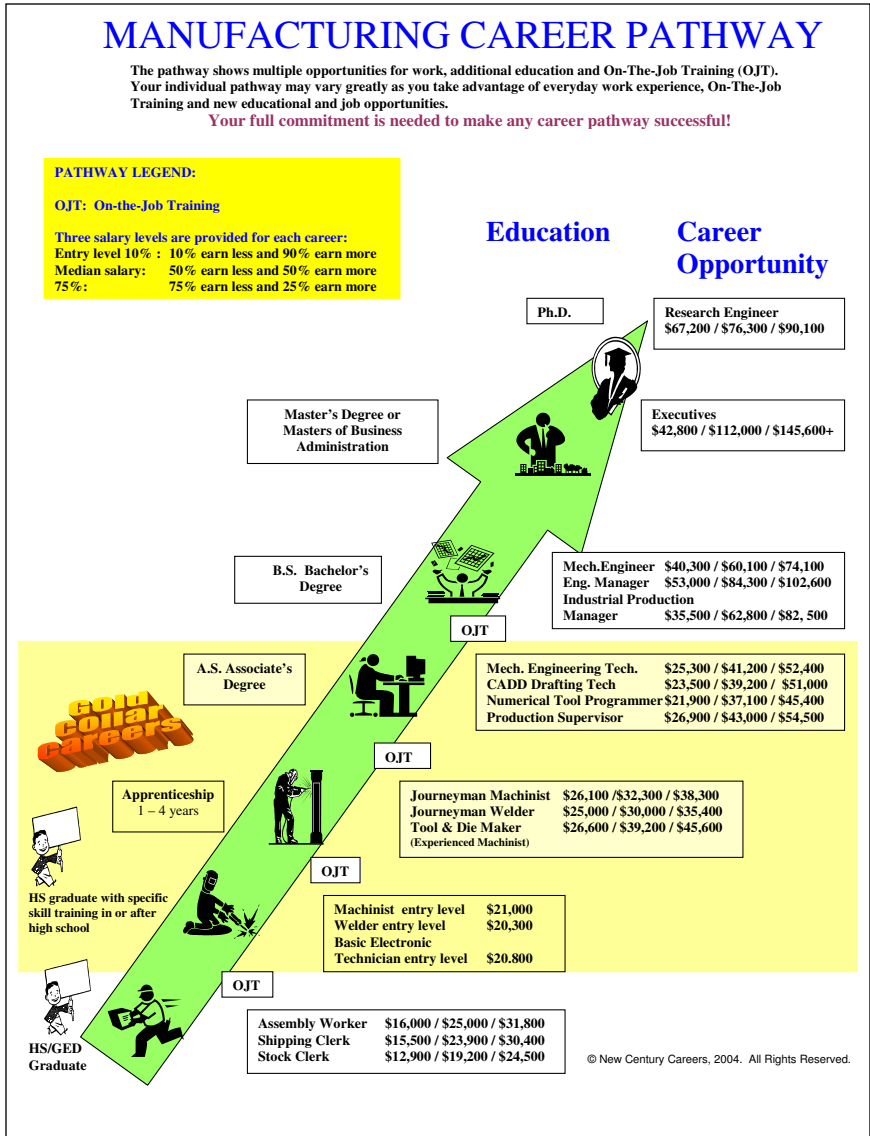
One thing that technology has brought to these career-pathway initiatives is greater accessibility to the training that leads to higher-level positions. Before the easy access to online learning, a worker in a lower-level job might find attending classes after a full day's work nearly impossible. It might have been geographically unmanageable to get to school on time after work, or family responsibilities might have posed a different set of challenges. The flexibility of online learning made postsecondary learning far more accessible to working adults. The ability to remove time and place barriers also allowed, in some cases, for greater involvement of business and industry in career-pathway initiatives.

To illustrate this point, it may be helpful to again revisit the 1990s, a time when it was becoming clear that the United States was shifting to a knowledge-based economy, and that the success of business and industry depended upon a workforce that was able to learn and adapt to constantly changing market conditions.

Large employers were able to build extensive employee-training departments to address this need, but smaller employers typically did not have the resources to follow suit. CAEL worked with many small manufacturers in the 1990s and, in some cases, proposed the development of what we called "employer learning consortia." A learning consortia was an alliance of employers in the same industry that would pool their training dollars in order to offer courses for employees throughout the industry, but primarily for the incumbent workers of the consortia companies. In this way, the companies could create some economies of scale to meet their employee learning and development needs.

The limitation of this approach was geography. In order to be able to offer a course that could be attended by employees from different companies, those

Figure 1



Source: <http://www.amcsquared.com/mfgpathways2.pdf>

companies all needed to be in the same geographic area. As a result, CAEL's work with consortia was primarily in industries where smaller suppliers tended to be in close proximity to the prime companies. For several years, for example, CAEL supported the development of a supplier learning consortium for the steel industry in Indiana, which at that time had a number of such suppliers.

With the emergence of the Internet, that geographic limitation has all but disappeared. In 1997, with initial funding from the Alfred P. Sloan Foundation, CAEL began developing a new kind of learning consortium that we called an online industry alliance. This new approach could be national, could include large and small employers in an industry, and could include the involvement of employer associations and labor unions.

CAEL established the Energy Providers Coalition for Education (EPCE), an online industry alliance for the energy industry, and the National Coalition for Telecommunications Education and Learning (NACTEL), an alliance for the telecommunications industry, both of which have continued to grow and thrive. Each of these initiatives

- targets both incumbent workers and those new to the industry;
- partners with carefully selected high-performing online education and training providers;
- is led by a broad-based industry coalition;
- provides curriculum content codeveloped by industry and educational experts; and
- reaches participants nationally and internationally.

The EPCE industry coalition currently represents approximately 65 percent of the electric utilities industry. The initiative offers associate's degrees and certificate training through Bismarck State College, and program enrollments currently average 1,500 a year. Additional degree and certificate programs have been developed with Bismarck State College for the nation's nuclear power plants. Now, EPCE is working on a partnership with Clemson University to offer an online electrical engineering degree, with prerequisite courses provided by Colorado Community College Online.

The most recent expansion has been the Light Up Your Future program, which is a partnership with a utility employer, Virtual High School (VHS), Bismarck State College, and local high schools. This model now complements the college-level online learning through EPCE's practice of connecting high school students to a potential future with their local energy employer.

The NACTEL program partners represent nearly 2 million telecommunication workers. The curriculum is offered through Pace University, and since its start in 1999, the programs have continually grown to reflect the evolving

telecom industry. The curriculum includes an associate's degree program in applied information technology, a bachelor of science in telecommunications degree program, and an advanced certificate in emerging telecommunications technologies.

Today, NACTEL is the premier source for industry-based telecommunications education. The Pace University programs are now beginning their thirteenth year, with more than 550 students taking an average of 2,500 courses each year.

Online Portals That Recognize and Document Previous Learning

As noted earlier, many nontraditional learners are students who are coming to postsecondary education several years after graduating from high school. During this time, they may have taken courses from one or more postsecondary institutions in previous attempts at a degree. In addition, they may have gained college-level skills and knowledge from their life experiences. Such skills and knowledge can often be acquired from experiences such as serving in the military, working, volunteering in the community, self-study, or a combination of these activities.

Nontraditional learners therefore may have college credits from various sources in addition to possessing knowledge and skills gained outside of the classroom that may be at the college level. The challenge for the learners is that often this prior learning is not recognized for their degrees. Colleges and universities have widely varying policies concerning how many credits and what kind of credits can be accepted in transfer, as well as the evaluation of prior learning for credit.

Advances in information technology are helping to address some of these challenges. Today, there are online services that help students find ways to maximize their prior learning. These services include online credit-transfer support services and online prior-learning assessment services.

Online credit-transfer support services: Today there are more than 43 million Americans age 25 and older who have some college credit but no degree.⁷ When these individuals make the decision to return to school to complete a degree, they do not always return to the same institution they attended before. Often they are surprised to learn that some or all of the credits they earned previously will not be accepted in transfer or will not count toward their degree at the new institution.

Some students faced with this challenge search out an institution that will accept their previous credit. Unfortunately, this is akin to taking a shot in the

dark. Students may need to contact a number of different institutions to determine which colleges or universities will accept the most credits in transfer, and not everyone is willing or able to do this kind of legwork. It is no wonder, then, that the average community college student will earn a total of 140 credits while pursuing a bachelor's degree even though typically only 120 credits are necessary.⁸

In recent years, the Internet has provided better ways for the nontraditional learner to search for transfer-friendly institutions, as there are now web-based credit-transfer support services that provide information about articulation and transfer policies in various states and for specific institutions.

Some states, for example, offer web-based services with information on credit-transfer policies that help students plan for future transfers. The Alabama Statewide Transfer and Articulation Reporting System, or STARS, is an articulation website and database developed by a state mandate in 1995 in response to the large number of community college students losing credits after transferring to a four-year institution. Officially implemented in 1998, STARS provides Alabama students with information that can guide them through their first two years of coursework and prevent them from losing credit hours when they transfer to public four-year universities in the state.

A representative of the system reported last year that over 625,000 transfer guides had been viewed or printed through the state's articulation website since 1998, and over 86,000 transfer students, academic advisors, faculty members, and college administrators obtained or viewed transfer guides online using STARS in the 2008–2009 academic year alone.⁹

Students clearly benefit from having access to this kind of system, since it will save them from wasting time and money on courses that do not transfer. The system is also helping the state's two-year colleges provide better advice to students while streamlining their courses to be a better match for transfer requirements.¹⁰

Nationally, there are web-based credit-transfer support options as well. Academy One is one organization that provides students with national information on institutional credit-transfer policies, while also providing unique tools to help students document their previous academic histories and other learning experiences.

One such tool is a student "passport," which is a web-based platform for consolidating a student's academic history in a single online location. Academy One then provides students with information on which institution's degree programs and course offerings are the best fit for the student's prior learning (both college credits earned as well as prior learning that has not yet been evaluated for credit).¹¹

Online evaluation and transcription of prior learning: Nontraditional learners often have had extensive life experiences from which they have learned, and often this learning is comparable to what is taught in college-level courses.

Prior learning assessments (PLA) measure what a student has learned outside of a college course. Through a variety of different assessment methods, institutions can determine what the student knows, and then evaluate whether that learning is college level and how many college credits are equivalent to that learning.

PLA includes the following methods:

- **National standardized exams** in specified disciplines, e.g., Advanced Placement (AP) exams, College Level Examination Program (CLEP) tests, *Excelsior College Examinations (ECE)*, DANTES Subject Standardized Texts (DSST)
- **Customized exams**, also called “challenge exams,” which are offered by some colleges to verify learning—these may be current course final exams or other tests developed at the department level for assessing general disciplinary knowledge and skill
- **Evaluation of noncollege programs**, e.g., American Council on Education (ACE) evaluations of corporate training and military training
- **Individualized assessments**, particularly portfolio-based assessments

Students who earn credits through PLA often save time by not having to take courses in subjects they have already mastered. They also may save money, since PLA assessments typically cost less than the tuition and fees for courses that student might otherwise need to take. Further, a recent CAEL study found that PLA may serve as a motivator to adult learners: in examining the academic records of more than 62,000 students from 48 institutions, CAEL found that more than half (56 percent) of adult PLA students earned a postsecondary degree within seven years, while only 21 percent of non-PLA students did so.¹²

Despite the benefits to students from PLA, credit for prior learning is not universally available in higher education. Many postsecondary institutions recognize AP and CLEP credit, but offering a formal program for helping students develop portfolios and then formally evaluating those portfolios for credit requires an investment of staff and ongoing training of faculty evaluators. Many institutions do not make that investment.

Challenging this reality has been possible through advances in information technology. This past year, CAEL collaborated with the ACE and the College Board to develop an online PLA service called LearningCounts.org, which makes PLA more widely available to students nationally. Through

LearningCounts.org, CAEL offers portfolio courses and faculty evaluations of student portfolios and refers students to the College Board for standardized exam services and to ACE for credit recommendations for the student's military or corporate training.

During its initial pilot stage, LearningCounts.org is working with a group of more than one hundred postsecondary institutions to serve students on a referral basis. The vision is for LearningCounts.org to eventually serve thousands of students per year, including students not yet affiliated with a specific institution.

The online model allows for easy access to PLA for all adult learners, it increases the number of colleges that are able to grant credit for prior learning, and it will build awareness of PLA among currently enrolled adults as well as those adults considering college.

Tools for Understanding Career and Education Options

Technology has allowed workers to access industry-based degree programs, and it is also revolutionizing the way adults gain recognition for their previous learning experiences. But before any of that can happen, these adults need to determine what their career goals are and how to reach those goals through education.

Such important decision making is made more difficult by the fact that in this global economy, industries and jobs are rapidly changing. Jobs that once allowed someone to support a family without a college degree have all but disappeared (e.g., manufacturing), and many other jobs that once provided entry to various industries are vanishing as well (e.g., meter readers in the utilities industry and customer-service jobs that have moved to other countries). Pre-1980, the high-growth companies were the large Fortune 500 companies, whereas today most of the job growth is in companies with fewer than 500 employees.¹³ The challenge for individual job seekers is that career opportunities and pathways in these smaller and emerging companies are much more difficult to identify and often result in a number of detours or wrong turns along the way.

Meanwhile, the world of higher education is also dramatically different than it was in years past. At community colleges, for example, current offerings are much more varied than earlier generations would have experienced, ranging from vocational programs to liberal arts, and from professional certifications to online degree programs. There are also many more for-profit offerings and distance-learning opportunities. Some colleges cater to the adult

learner, while other institutions have made few accommodations for nontraditional learners.

When adults are motivated to pursue postsecondary education, they are faced with a dizzying array of options in terms of both career pathways and educational programs. Navigating these choices is nearly impossible without some guidance. A lucky few have access to professional advisors through work, and other individuals who understand the need for advice and who have the personal resources to pay for it might seek out such assistance independently.

Information technology has opened up a third option: technology-based tools for helping prospective students make better-informed decisions about where to enroll and what to study. There are numerous web resources that provide information about the different kinds of postsecondary institutions, what kinds of degree programs they offer, how much they cost, and so on. There are also other online resources that take it several steps further by helping to match the student to career pathways and educational programs that build on the student's existing skills and knowledge.

One example of this kind of online resource is offered by the Minnesota State Colleges and Universities System (MnSCU) for veterans who are considering postsecondary education. The site is called GPS LifePlan, with pages of links to online resources and tools for career and education planning, decision making, financial assistance, and personal goal setting. One of the resources is Veterans Education Transfer System (VETS), an online application that helps past, present, and future servicemen and servicewomen determine how their military training can count for credit at Minnesota State Colleges and Universities institutions.

Through the VETS site, the veteran enters information about his or her past military occupation and training, as well as the career that the veteran is considering. The website then provides a link to labor-market information about that career as well as a list of degree and certificate programs for that career offered by various state colleges and universities. If a particular education program is of interest to the veteran, the site provides a direct link to an application for a "request for transfer evaluation." An evaluator for MnSCU then examines the skills and knowledge required for that veteran's previous military occupation and makes a recommendation for awarding credit to that individual for the desired degree program. As more veterans use this system and request transfer evaluations, the transfer-evaluation process will become more automatic.

What makes the VETS tool a game changer is its ability to connect military occupations to civilian jobs and degree programs, while also recognizing the college-level skills and knowledge that service members demonstrate

through their military occupations. Information technology makes this service accessible to veterans at any stage of their decision-making process, and it also automates the navigation through a complex labor market and an offerings-rich educational system.

Conclusion

As game changing as the innovations just discussed are, we have probably only just scratched the surface of what might be possible to make higher education more accessible to nontraditional students and to help those students reach their postsecondary goals.

We can envision, for example, even greater innovations in career and education advising. This chapter has noted the challenges students have in understanding what their career options are and in navigating their educational options. It would be a tremendous benefit to have more advanced tools to help with these challenges. These tools would help students avoid spending their limited time and money on educational pursuits that turn out to be a bad fit or that lead to career paths with limited opportunities. The tools that are emerging on various websites are a promising start, but we can imagine a world where algorithms are developed to assist decision making in a much more sophisticated way.

These and other advances would be helped by institutional, state, and federal policies that are more in step with the needs of the nontraditional learner. The recognition of prior learning for credit, for example, is challenging when public policy and accrediting bodies define the credit hour—the primary unit used to measure learning—in terms of time spent in learning activities rather than in terms of learning outcomes. There is a greater focus on learning outcomes today than in previous eras, but there is nevertheless a reluctance to move too far from the “seat time” approach, and so we remain on the cusp of real change.

Further, IT innovations can only change the game for nontraditional learners if people have access to that technology. The United States is behind other developed nations, ranking only fourteenth in the world in its broadband penetration rate.¹⁴ Policies that expand this access will help put new tools into the hands of nontraditional learners that will facilitate good educational choices, ensure the recognition of their previous learning, and enable them to be successful in meeting their postsecondary goals.

IT innovations have indeed helped nontraditional learners have greater access to learning opportunities. It is with great anticipation that we look to the future and what may still be possible.

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