

# UNIVERSITY EXTENSION AS A STRATEGY TO SERVE WORKING LEARNERS

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It has become widely accepted that for many careers, especially those in the STEM (science, technology, engineering, math) fields, that learning is a lifelong necessity. New technologies, new programming languages, new products and processes remake jobs and the skills and knowledge needed to perform them. Most of us applaud this continuing cascade of innovation and governments make policy to encourage it, but innovation can create problems, sometimes very serious problems, for workers trying to maintain relevant skills.

First is a problem related to time. Workers with a job, workers with families, and especially workers with jobs *and* families will have trouble finding the time for learning new skills, leading to considerable stress.<sup>1</sup> Employers can help by allowing skills-related training during work time, but employer training is declining in the US.<sup>2</sup>

A second problem is relevance. Job-related education for working adults—typically called “training” once one is out of school to due to a narrowed focus and different instructional formats<sup>3</sup>--is a challenge for governments because it is hard to know what skills are in demand

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<sup>1</sup> Gonzalo Valdés and Stephen R. Barley, “Be Careful What You Wish For: The Learning Imperative in Postindustrial Work,” *Work and Occupations* 43(2016): 466-501.

<sup>2</sup> C. Jeffrey Waddoups, “Did Employers in the United States Back Away from Skills Training During the Early 2000s?” *ILR Review* 69(2016): 405-434.

<sup>3</sup> David B. Bills and Randy Hodson, “Worker Training: A Review, Critique, and Extension,” *Research in Social Stratification and Mobility* 25(2007): 258–272.

and thus what skills should be taught-- especially given the diversity of economic regions across the United States. Government training programs have been criticized for training people for jobs that do not exist.<sup>4</sup>

We argue that universities have worked to solve these problems, and they have done so successfully, for more than a century. They are not everywhere equally successful, but our fieldwork over five major cities, multiple universities, as well as site visits and analysis of many others, have revealed eight key principles of success through which universities can effectively serve working learners. Our research focused on STEM training as well as support jobs in high science and technology industries because STEM jobs are the areas where skills obsolesce the quickest,<sup>5</sup> and they are also major areas of job growth.<sup>6</sup> Nevertheless, the eight principles do not only apply to STEM fields.

*Principle 1: Learning is now a lifelong commitment*

The main campuses of American universities have typically operated on a “graduate and gone” model: Students earn credits, graduate, and then leave, forever transformed in the eyes of the university into “alumni,” and possible sources of donations. Graduation ceremonies still retain this quaint understanding of the education process. In reality, adults in many jobs, or those who wish to make a change, will need new education just to maintain their current jobs and standard of living, and others will seek more learning to adapt to shifting skill demands or enter new fields due to downsizing or layoffs.

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<sup>4</sup> Gordon Lafer, *The Job Training Charade* (Ithaca: Cornell University Press, 2002).

<sup>5</sup> David J. Deming and Kadeem Noray, “Earnings Dynamics, Changing Job Skills, and STEM Careers,” *Quarterly Journal of Economics* 135(2020): 1965-2005.

<sup>6</sup> Enrico Moretti, *The New Geography of Jobs* (Boston: Houghton Mifflin Harcourt, 2012).

This is especially true in fast-moving STEM fields like software development. The National Research Council reported in 2001 that, based on advice from IT professional associations and job placement specialists, IT workers needed to spend 1.5 to 2 hours *per day* in some kind of training to maintain relevant skills. Not doing this would lead to a decline in employability.<sup>7</sup> Major authorities on STEM education, including the Accreditation Board for Engineering and Technology (responsible for giving accreditation to US schools of engineering) and the National Academy of Engineering, both continue to maintain that engineers *must* embrace lifelong learning in order to keep their skills up to date.<sup>8</sup>

Universities playing a role in adult learning will understand this lifelong learning imperative for many if not most graduates. Rather than “graduate and gone,” there may be an expectation of repeated reconnection for renewed education and a commitment in faculty culture to that reconnection.

*Principle #2: Universities need specialized, strategic institutional mechanisms to reach adult learners*

Universities hoping to move from the “graduate and gone” approach to students cannot expect that their traditional divisions of sciences, engineering, social sciences and the humanities will be equipped to attend to adult learners. They may get the job done, but universities are better able to reach these adult populations if they have developed full-scale, formally institutionalized divisions for this purpose. The names may vary—extension, continuing education, professional

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<sup>7</sup> National Research Council, *Building a Workforce for the Information Economy* (Washington, DC: The National Academies Press, 2001), 254-255.

<sup>8</sup> National Academy of Engineering, *Understanding the Educational and Career Pathways of Engineers* (Washington, D.C.: National Academies Press, 2018), 7, 37, and Chapter 2 generally.

studies—but they share many similarities, and the principles described in this brief apply to all that try to reach adult learners.

The tradition is a long one. In 1891, University of Wisconsin and the University of Kansas established formal extension divisions, and the first president of the new University of Chicago, William Rainey Harper, insisted that an extension division be included with the other more traditional divisions, part of the university opening in 1892. By 1920, 31 universities had official extension offices or divisions, separate from the federally-supported, agriculture-focused Cooperative Extension Service. Extension enrollments increased throughout the 20<sup>th</sup> century, going from 200,000 in 1924 to 300,000 in 1934, 500,000 in 1950, and 1.5 million in 1955.<sup>9</sup>

These extension schools have continued to flourish. The University Professional and Continuing Education Association (UPCEA), founded in 1915, now has more than 400 institutions as members and 9,000 individual members. It provides a range of training, seminars, and individualized consulting to help these institutions deliver the right educational services in the right ways to the right markets.

*Principle #3: Effective extension schools have an entrepreneurial mindset*

Rapid technological change and market shifts in a globalizing world require extension schools to be creative about seizing opportunities and taking risks. The most effective extension schools are creative about seizing opportunities and taking risks to develop capacity to serve particular markets, solving both the time and relevance problems that plague training. It may be that the organizational, especially fiscal, context of university extension spurs an entrepreneurial mindset. Universities are typically stingy with their extension schools. Not only do they

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<sup>9</sup> Malcolm S. Knowles, *The Adult Education Movement in the United States* (New York: Holt, Rinehart and Winston, 1962), 48, 50, 251.

appropriate few resources to extension, they typically expect extension to be a profit generator for the campus. Extension schools can earn great prestige in their regional economies, but they can rarely rest on their laurels. The best ones are watchful, resourceful, responsive, and entrepreneurial.

There is a long history of this. A hundred years ago, according to one historical account, elementary and secondary school teachers asked for opportunities to continue professional training; extension schools responded. Owners of a machine shop came to a university to request night engineering courses for their employees; extension responded.<sup>10</sup> Responding to demand is one thing, but the best schools will *anticipate* demand. In our site visit to Chicago, we learned that DePaul University developed IT and software training courses specifically for the air traffic controllers who were fired by President Reagan for going on strike. DePaul's training helped them transition to this growing sector.

The entrepreneurial mindset leads to the building of partnerships and sometimes whole organizational eco-systems. In San Diego, UCSD Extension played a key role in the rise of the region's telecom industry. Qualcomm, a growing chipmaker, had developed a new technology, "code-division multiple access" (CDMA), that enabled cellular and data connections used on mobile phones. CDMA was so new that the firm had trouble finding engineers to work on their new projects. Qualcomm approached the UCSD Extension School for a partnership, providing the firm's top-level R&D technical talent to work with the university to develop a curriculum to be taught both locally and online. Though Qualcomm wanted to upskill its own workers, much of this offering was for non-employees as well. This is because Qualcomm "needed new CDMA-specific training to support its ecosystem of suppliers and partners and to train its ever-increasing

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<sup>10</sup> John R. Morton, *University Extension in the United States* (Birmingham: University of Alabama Press, 1953), p. 12.

roster of engineers.”<sup>11</sup> Extension provided that training, and the company, the engineers, and the extension school thrived.

Extension schools are also entrepreneurial in terms of the mode of instruction delivery. This has been true since their founding in the 1890s, as they experimented with night instruction, correspondence courses, and then radio and television.<sup>12</sup> Today, extension schools regularly offer various mixes of in-class and online learning, depending on market responsiveness.

*Principle #4: Effective extension schools are nimble*

Traditional divisions of arts and sciences are famously slow, almost ossified. Reaching adult learners requires a totally different approach because their needs for job-ready skills and knowledge are very specific and change rapidly. To serve this market, to be truly entrepreneurial, extension schools also must be able to move quickly, they must be nimble, to allow students to upskill quickly.

This has many consequences. One of the most significant is the outcome of extension training: typically nondegree credentials, or even workshops that result in training but no credentials. Degrees are simply too slow to earn and too long to accredit. If the course sequence needs to be changed frequently, degree programs will not work. Extension training can be as fast as an afternoon seminar or workshop, but is more typically a course sequence culminating in a certificate. If employers want something different, that course sequence can be changed immediately, and no reaccreditation is necessary.

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<sup>11</sup> Mary Walshok and Joel West, “Serendipity and Symbiosis: UCSD and the Local Wireless Industry,” in Martin Kenney and David C. Mowery, eds., *Public Universities and Regional Growth: Insights from the University of California* (Stanford, CA: Stanford Business Books, 2014), 127-152, 143.

<sup>12</sup> Knowles, *Adult Education Movement*, 84.

*Principle #5: Effective extension schools are practical*

While departments in arts and sciences divisions, as well as professional schools for management and law, may chase the metrics of external ranking services, the best extension schools focus on whether their training is related to what employers, especially regional employers, believe they need right now. This is all about solving the relevance problem so common in government training programs. The key to achieving this practical approach to learning is employer input or co-design of curricula.

This is accomplished in various ways but the most common way is the constitution of regular, standing advisory boards made up of extension school officials; leaders from the business, government, and nonprofit world; and ladder-rank faculty from the main campus with expertise in the subject matter. These advisory boards may meet on different schedules for different course offerings, so that they meet more often in areas that change more frequently. At these convenings, the extension personnel share with the experts the content in the current program, and seek guidance on what to change, eliminate, or add. The extension personnel are also able to bring market knowledge to the meeting, so that suggestions for change that have already been tried (and failed) can be shot down or modified in ways that might reach the market in new ways.

This approach is very different from traditional university teaching. The focus on the practical means that instructors do not need to have PhDs, and do not need to be based in a university. Indeed, many of the best extension instructors are practitioners themselves, who have a detailed and extensive experience with how skills and knowledges bases can be put into practice immediately. Through this focus on the practical, extension offerings have a deep connection to their regional labor markets.

*Principle #6: Effective extension schools have extensive ties to their markets*

Modest institutional support for extension activities, together with the expectation that they are profit-generating or at least revenue neutral, means that the most effective extension schools have developed multiple ties to their market. Some may see their market as national, but most serve their economic region, defined roughly as commuting distance or the nearest major industries.

In our fieldwork, nearly every extension school leader we met with relied on at least two sources of market knowledge. First, they may use consulting from UPCEA, the professional association of extension schools. Second, they may use labor market data from Burning Glass, a firm that scrapes the internet and compiles job opening data for cities, states, and the whole US. Some use both of these and a number were building internal market research capacity, particularly in high STEM employment regions, such as Seattle and San Diego.

Both sources are very helpful and insightful, but by themselves, incomplete. The best extension schools will go beyond these data sources, building connective tissue to the surrounding region to more fully understand their market. The advisory committees and boards give real-time reports about what is needed, what is coming, and where skills scarcity may be found. With an established reputation in a regional economy, another source of market data is students, or potential students, themselves. When a substantial number call in and ask for a workshop, course, or certificate in particular area, extension officials take the hint, research the market, and sometimes respond with new offerings.

Skillful use of data analytics and listening to their regional economies are why many extension schools mirror so accurately their economic context. UC-San Diego, surrounded by

one the nation's largest biotech hubs, has a large set of offerings related to life sciences research. It offers a certificate in "ADMET Processes" (Absorption, Distribution, Metabolism, Excretion, and Toxicology). A certificate in "Regulatory Affairs Essentials" offers "a comprehensive and balanced education focusing on the key areas of regulatory affairs and the FDA imposed regulations pertinent to the pharmaceutical and biologics industry." Meanwhile, UC-Davis offers education tailored to the wine industry, UCLA a series of certificates for the entertainment industry, and UC-Santa Cruz set up shop in Silicon Valley, where it offers certificates in computer software, computer hardware, and biotechnology. This is not just a University of California phenomenon, though this deep integration with regional markets is especially prevalent in the newer economies of the West Coast. The University of Washington in Seattle, for example, partners with its tech economy and aeronautics (Boeing).

*Principle 7: Effective extension delivers quality education*

It is ironic that traditional faculty and administrators overseeing arts and sciences education and professional schools sometimes look askance at extension schools and raid their budgets, thinking these non-PhD and practitioner instructors cannot be delivering the quality education found elsewhere in the university. In fact, extension schools must be *more* attentive to the quality of their instruction than the main campus.

This is because the main campus divisions are mostly worried about prestige as assigned in rankings from third parties—ranking services that, notably, do not use their services. The main campus divisions and departments tend to respond to the metrics that these rating services use,

driving practices and policies to raise rankings (such as high rejection rates), without an eye toward instructional quality.<sup>13</sup>

The situation is different at extension schools, where there are no third-party ranking services. What matters to extension administrators is the extension school's reputation among their students as well as the employers who hire the students. This directs their attention to quality. If students do not believe they are getting value from their investment in time and money in their totally voluntary extension education, and if employers do not believe the extension credential signals competence, the extension school will suffer.

Thus, unlike the main campus, where instruction can be an afterthought to research efforts, at extension instructional quality is an imperative. Extension administrators, instructors, and advisory board members are high quality, and if not, they are removed.

*Principle #8: Effective extension schools are accessible*

The best extension schools bring their educational benefits to anyone qualified to take advantage of them. While there will be educational requirements, such as a college degree or an advanced degree, for extension offerings, in every other way courses are designed to be accessible and open to as many people as possible.

This starts with price. While nimbleness and entrepreneurial mindsets may direct extension schools to nondegree offerings, accessibility also points in that direction. Certificates cost a fraction of the price of a full degree (about \$3000 compared to \$10-20,000), and thus make extension offering far more accessible. The principle of accessibility also pushes schools

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<sup>13</sup> This can be seen in the global push for more international students, since this is an indicator of a “world-class” university. John Skrentny and Natalie Novick, “Research Universities and the Global Battle for the Brains,” in Jal Mehta and Scott Davies, eds., *Education in a New Society: Renewing the Sociology of Education* (Chicago: University of Chicago Press, 2018), pp. 271-296.

toward night classes, online classes, and short, efficient course sequences. The main campus's expectations of revenue generation may push against accessibility, sometimes greatly at particular schools, the most effective extension schools will be accommodating and value-oriented.

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