



THE INNOVATION LANDSCAPE IN HIGHER EDUCATION

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Introduction

This is a time of enormous flux as well as opportunity in higher education. Many traditional assumptions about the value of college are being questioned, especially as tuition skyrockets, student debt balloons, and the internet provides free access to information and even credentials that were once the sole province of educational institutions. Student demographics have changed dramatically, as have student behavior and expectations. For public colleges and universities, state support has dwindled and is projected to decrease even further; many private institutions, dependent on tuition dollars, face shrinking enrollments and are struggling financially.

The classic image of the 18-22-year-old college student who lives on campus and studies full-time no longer reflects reality: the majority of undergraduates live off campus and attend school part-time. Most students attend more than one college over the course of their education; some attend more than one college at the same time.

Of course, the world outside higher education has changed dramatically as well; inevitably, students' experiences as digital consumers influence their expectations for education: they want engagement, stimulation, sophisticated technology, and 24/7 access to learning. Listening to a professor lecture for an hour in an enormous auditorium is guaranteed to disappoint. Students also want and expect a college education to prepare them for a good job; the recent recession, coupled with sweeping changes both in the economy and the nature of work, have eroded old assumptions that a college education necessarily prepares an individual for a successful career. Higher education is regularly confronted by shifting economic and societal trends that require thoughtful reaction. Two such current trends are the decline of the American middle class and the changing needs and demands of employers, paired with changes in student behavior. (Garcia, 2017)

In fact, the very relevance of higher education to jobs and careers is increasingly under scrutiny. Many traditional faculty, especially in the liberal arts, resist the very notion that higher education *should* prepare students for employment. Even colleges that accept their role as preparing students for the workplace are not necessarily succeeding, at least from the perspective of employers.

Aligning Education with Careers

Overview

The world of work itself is changing, requiring more than disciplinary content knowledge; instead, graduates need what are sometimes called “soft” skills but which the Quality Assurance Commons terms “essential employability qualities.” These are “not specific to any discipline, field, or industry, but are applicable to most work-based, professional environments; they represent the knowledge, skills, abilities, and experiences that help ensure that graduates are not only ready for their first job, but also ...a lifetime of



engaging employment and participation in the rapidly changing workplace of the 21st century.” (Wolff and Booth, 2017)

In theory, General Education is supposed to develop these qualities, but in reality, they are best developed over time and with continued attention across students’ curricular, co-curricular, and applied and work-based experiences. Even where these skills exist, it is difficult for graduates to recognize them and communicate them to employers. For this reason, there is increasing attention to capturing the full range of skills that graduates can bring to the workplace, a job which the academic transcript was never designed to do. This has led to interest in developing a transcript that is skills- rather than course-based and that provides a more holistic view of the student’s capabilities. The pilot [Comprehensive Student Records \(CSR\)](#) project addresses the question of how student records can most accurately reflect student learning. Funded by a grant from Lumina Foundation and spearheaded by AACRAO and NASPA, the project is focused on developing comprehensive student records that document evidence of student learning and achievement beyond traditional course names, credits, and grades. The current project includes twelve higher education institutions -- including two- and four-year, public and private – that are already developing records that display learning outcomes, use competency-based education approaches to education and/or document co-curricular experiences.

As Matthew Pittinsky puts it: “Colleges and universities need to capture the entire educational experience to create a common understanding of both course and campus-based achievements. And higher education needs to do so electronically via a consistent document structure and data standard that institutions can use as a way to extend their traditional academic transcript or as a next-generation successor.” (Pittinsky, 2015)

Credential Movement

The need to signal the range of skills a graduate possesses has led to increasing interest in credentialing. Unfortunately, both students and employers find the current credential marketplace confusing. There is a lack of clarity as to what specific credentials mean and what specifically counts as a credential. The [Connecting Credentials framework](#), funded by the Lumina Foundation, represents an attempt to bring clarity and integrity to the situation and to close the gap between industry and higher ed.

Career Pathways

The Career Pathways movement takes a different approach to closing the gap. *Career Pathways: Five Ways to Connect College and Careers* posits that integrating education and workforce data can help remove the guesswork for individuals navigating the college and career maze. A number of states have started to leverage integrated education and workforce data by developing publicly available information tools in these five areas:



- Education Projections, Business Expansion, and Workforce Quality
- Program Alignment with Labor Market Demand
- Curriculum Alignment with Workforce Requirements
- Counseling and Career Pathways
- Job Placement and Skills Gap Analysis

Career pathways programs provide post-secondary education and training that is organized as a series of manageable steps leading to successively higher credentials and employment opportunities in growing occupations. Each step is designed to prepare individuals for the next level of employment and education and provide a credential with labor market value. (Career Pathways).

The idea behind Career Pathways is to address the reality that, despite the fact that college education is one of the largest investments people will ever make, there is still inadequate information about which paths are more likely to lead to meaningful employment. Nor are educational institutions able to keep pace with the changing economy:

The variety of postsecondary credentials available has multiplied rapidly in recent years, including degrees, certificates, certifications, licenses, and badges and other microcredentials. New providers as well as delivery modes and models, such as online and competency-based education, have added further to the growing complexity and confusion. This has translated into an explosion of choices and decisions that make it hard for people to navigate in and out of college and careers. (Carnevale, Garcia, and Gulish, 2017)

Modular and Stackable Credentials

Stackable Credentials

In the traditional academic model, a degree is a set number of credits, typically 120 for a bachelor's degree. One consequence is that students who fall short of the required number -- even by a single credit -- have no credential at all. This all-or-nothing approach has had terrible consequences for the millions of students who - for whatever reason - have not completed their degrees. And while academic institutions have long offered shorter-term certificates, until recently, these typically did not count towards a degree -- someone who had completed a 9 month dental technician certificate, for example, might need to start from scratch if she wanted to earn an associate degree.

The goal of stackable credentials is to create a pathway that enables students to earn credentials on the way to a bachelor's degree. It recognizes the reality that many students stop in and out of postsecondary education and provides meaningful entry and exit points that enable students to pick up where they left off, without losing ground. It also encourages persistence, creating small victories along the path. While the notion



of stacked credentials is not entirely new -- there have long been associate degrees leading to bachelor's degrees leading to master's degrees, today's stackable credentials are usually "sliced thinner, typically starting with an industry certification or the completion of a course sequence that provides the student with a marketable skill." (Garcia, 2017).

Microcredentials

As Jim Hundrieser of the Association of Governing Boards put it during the 99th annual meeting of the American Council on Education, "Students are no longer buying that whole college" experience. (Arnet, 2017) Hundrieser analogized needing to earn a full college degree to having to buy an entire album for one or two good songs. Just as digitized media has enabled the purchase of individual songs, technology has made it possible for students to earn shorter-term, more targeted certificates, credentials and job-related curricula rather than complete degrees.

Badges

While the term "badges" may conjure up the colorful patches on Girl Scout sashes, in the higher education context it refers to a way to give "prospective employers, professional groups, community groups, schools, collaborators and other learners a more complete picture of knowledge, skills, and abilities. Badges are certified by a learning provider - either formal or informal - and digital badges contain the certifying metadata which validates the accomplishment." (WCET, 2017).

Pathways Models

Meta-majors

For students with limited time or financial resources, the typical smorgasbord of courses and majors at most colleges does more harm than good. Confronted with too much choice, students can easily flounder or go off-track. In recent years, the concept of "meta-majors," sometimes referred to as "career clusters" or "communities of interest," has emerged as a way to decrease attrition and speed time to graduation. The idea is to group individual majors under a larger academic umbrella and provide students with a clear pathway to graduation, helping them make connections between what they are studying and different career tracks. In 2013, the Florida legislature required all community colleges in the state to adopt meta-majors in eight areas of study:

- Arts, humanities, communication and design;
- Business;
- Education;
- Health sciences;
- Industry/manufacturing and construction;
- Public safety;



- Science, technology, engineering, and mathematics; and
- Social and behavioral sciences and human services.

Guided Pathways Model

Like meta-majors, guided pathways are intended to reduce attrition and improve the student navigation of often-confusing college options.

College students are more likely to complete a degree in a timely fashion if they choose a program and develop an academic plan early on, have a clear road map of the courses they need to take to complete a credential, and receive guidance and support to help them stay on plan. However, most community colleges, rather than offering structured pathways to a degree, operate on a self-service or “cafeteria” model, allowing students to choose from an abundance of disconnected courses, programs, and support services. (Bailey, Smith Jaggars and Jenkins, 2017).

To address these issues, the guided pathways approach presents courses in the context of highly structured, educationally coherent program maps. The four essential practices of a Guided Pathways model are to:

1. Clarify the path for students
2. Help students choose and enter a path
3. Help students stay on the path
4. Ensure that students are learning

While these seem like common sense, straightforward recommendations, they have not yet been universally adopted.

Technology

The potential impact of technology on higher education cannot be overstated; however, technology remains underutilized as a tool in higher education. At the same time, online education, once the province of for-profit institutions, is increasingly mainstream, and has influenced the rise of hybrid models that combine in-person and online learning. But conventional distinctions like “online,” “hybrid,” and “brick and mortar” belie the fact that however they attend school, most students spend their lives immersed in digital environments. Whether they are interacting “IRL” or online, it is inevitable that their experiences as digital consumers and producers of content will influence their expectations as learners. Anytime, anyplace access to learning is a given; the idea that education is limited to a specific time and place seems archaic. Outside of education, students are also accustomed to a consumer-level user experience, which -- at a minimum -- is interactive, has compelling graphics, and can be used on any device. It is also likely to involve some degree of AI to drive personalization. Such an experience is



not yet to be found in a Learning Management System (LMS) or student portal. Many educational applications do not even have mobile versions. The potential of digital experience for learning (e.g., through simulations and smart tutoring) is also so far underutilized.

Mobile learning

But the ubiquity of smartphones and tablets is difficult to ignore. Once seen as distractions from learning, they are increasingly viewed as opportunities for learning and ways to extend education beyond the classroom. Mobile learning, also called “mlearning,” builds on the technology that students already have and know how to use.

First-generation projects like SMILE (Synchronous Mobile Interactive Environment) laid the groundwork for mlearning, while using a fairly traditional approach which included real-time “lessons” in virtual classrooms, complete with whiteboards. (Richard, 2015). However, SMILE also began to move beyond the digital replication of the analogue experience, exploiting features intrinsic to digital devices, such as chat rooms, polling, application sharing, and closed captioning. Yet there is even greater potential to reconceptualize the learning experience. In corporate training, for example, mlearning is used to replace expensive in-person training that takes individuals away from their work; instead, it provides on-demand access to bite-sized learning that can easily be integrated into the work day or the commute home. Mlearning thus overlaps with “microlearning,” which involves focused learning activities typically tied to specific objectives. These bursts of microlearning are typically very short, and make extensive use of videos and engaging graphics and multimedia. They also involve some kind of assessment and make use of gaming devices, such as points, quests, leaderboards to drive engagement and interest. (Eades, 2013).

Adaptive Learning

Technology has also enabled adaptive learning and other models that facilitate targeted and personalized learning. The promise of adaptive learning is to “give every learner their own personalized course, made specifically for their strengths, weaknesses, goals, and engagement patterns,” that “adapt[s] in real-time to their activity and adjust[s] moment by moment to their performance and interest level.” (Posner, 2017). While this dream has not yet been fully realized, a number of companies are pursuing this path.

Data Analytics

One of the most important uses of technology in higher education has been the rise in learning analytics. This has not only enabled adaptive learning, but also illuminated the learning process itself, providing granular information on learner activity and accomplishments. It has also been used to identify students at risk and enable early intervention. However, some critics argue that analytics alone are insufficient to address



increasing problems of success and retention. Institutions must also use the data to take a “brutally honest” look at themselves. (Aird, 2017).

Implications for Military and Military-Serving Institutions

The main takeaway for the military is that awareness of the needs of adult and “post traditional” students has finally permeated higher education. There are multiple new options for those who do not fit the mold of full-time residential students. Many of these harness the power of technology to extend learning beyond the classroom; some, like mlearning, are certain to evolve in new and interesting ways.

Higher education is also beginning to accept -- if not yet embrace -- its role in preparing students for the workplace. There is increasing willingness to reconceptualize the degree, not as a monolithic whole, but as a sequence of components, each of which has value in the marketplace. Stackable and modular credentials aligned to workforce needs are among the most promising, but new models are certain to evolve. Military training and education provide an ideal foundation for the development of such credentials, given the focus on targeted skills and competencies rather than content knowledge for its own sake. Military-serving institutions have an important role to play in supporting these innovations.



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