

# GAME CHANGERS

## EDUCATION and INFORMATION TECHNOLOGIES

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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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# Scaling Up: Four Ideas to Increase College Completion

Vernon C. Smith

## Introduction

LOW PERSISTENCE AND GRADUATION RATES, especially among low-income young adults and minorities, are ongoing problems that U.S. higher education faces. The College Board's *College Completion Agenda Report*<sup>1</sup> in 2010 tracked how the United States is losing ground in awarding postsecondary degrees in comparison to other industrialized nations. In response, a number of national initiatives have emerged, including President Obama's American Graduation Initiative,<sup>2</sup> Completion by Design,<sup>3</sup> and the Next Generation Learning Challenges,<sup>4</sup> in the hope of increasing the attainment of postsecondary degrees. Research from the Georgetown University Center on Education and the Workforce reports that by 2018, 68 percent of jobs will require postsecondary education, which is a 40 percent increase over the current level.<sup>5</sup>

In spite of the need for education, the uneven distribution of alternatives or the lack of capacity to meet those needs remains a barrier. Recent estimates show that in California, 670,000 potential students are unable to enter the higher education system because of the massive funding cuts that limit institutional capacity to enroll students.<sup>6</sup> In essence, the California system, like other state systems, is oversubscribed. This compounds the completion-productivity equation. As Complete College America reports, "Time is the enemy of college completion."<sup>7</sup> Students stop out and drop out or turn to other expensive options that require taking on greater debt. Sticker shock at the high cost of college is a great deterrent and hurts the national completion agenda.

To increase the number of graduates produced, the nation will need high-quality solutions that leverage technology to achieve impact at scale. This chapter describes some ideas that might allow us to meet our college completion goals.

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## **Ideas for Incubation**

Ideas have the potential to alter fundamental assumptions and reveal solutions. While ideas often take a long time to mature, technology can enable those ideas, catalyzing shared reconceptualization that alters the landscape.

At two recent convenings held at Rio Salado College (a Maricopa Community College in Tempe, Arizona) in February and April 2011, thought leaders and other representatives from twelve high-quality, highly scalable online and hybrid colleges and universities came together to identify and incubate ideas surrounding access, retention, and completion in higher education.<sup>8</sup> These ideas have the potential, if given time to incubate, and if enabled by information technology, to change higher education.

Participants considered four ideas to have the most potential for increasing access, retention, and completion in U.S. higher education, and thus the most potential for helping the nation increase to 60 percent the number of college graduates produced by 2020. To be considered, each concept would need to improve student success for more than 100,000 students. These four themes are

- partnerships to serve oversubscribed institutions;
- course and credit exchange in an SOC-like (Servicemembers Opportunity Colleges) network;
- research, analytics, and metrics for student loss and momentum; and
- competency-based design of courses, programs, and degrees.

While the ideas are at different stages of evolution and may not be “ready for prime time,” each is catalyzed by IT and has the possibility to alter the landscape of higher education. These ideas are offered as examples of how higher education might be designed in the digital age.

## **Partnerships to Serve Oversubscribed Student-Serving Institutions**

Throw out a statistic such as “670,000 underserved and unserved students in California,” and the need for educational options and the dire circumstances of current institutions and students become obvious. And this is just California—the number does not include students in rural areas throughout the country or busy working adults in other states seeking more convenient access to a college degree. A recent Pearson Foundation study indicates that 32 percent of college students nationwide were unsuccessful in enrolling in their desired college course.<sup>9</sup>

Online and hybrid courses can provide the flexibility to cover these supply gaps. Rio Salado College, a Maricopa Community College, is an example of how online courses help students get the classes they want without having to wait for the next semester. At Rio Salado College, online courses never get canceled. If one of over 600 courses is listed in the online schedule, it will be open to students to register. Moreover, online courses are available for forty-eight start dates a year—practically every Monday an online course is available. Technology is key to not only delivering but also to managing online courses and student services in order to rapidly expand capacity. But having technology infrastructure and capacity is not enough. Institutions must address political and policy barriers as well.

Private, for-profit institutions are moving quickly into this online/hybrid course market space. However, their tuition rates tend to be much higher, and even with the help of private providers, it will take an “all-hands-on-deck” approach to ensure students have sufficient access to courses and programs to keep them from stopping and dropping out before reaching their graduation goals. Public nonprofits face their own state-funding crises, and most have underdeveloped capacity or limited access to the capital needed to scale up to meet online/hybrid learning demand. On top of this situation is the recent U.S. Department of Education ruling that requires state authorization of distance learning programs to ensure institutional eligibility to offer students access to federal student financial aid. This policy shift in an environment of shrinking state budgets has triggered caution on the part of online colleges and universities that could serve in overenrolled states as they struggle to understand and manage the additional bureaucratic red tape of over 50 unique state authorization processes. And do not forget that some of those processes reflect the natural turf protection that goes on in any sector, including higher education. Additionally, institutional approval to operate in a state is not the same as having authorization to run a specific program such as teacher preparation, dental hygiene, and nursing—these require additional application processes to obtain approvals.

Even an institution experienced with online programs, such as Coastline Community College in California, cannot serve as many students as it would like. State funding limitations have basically capped its ability to expand its offerings. It has the institutional will, knowledge, and experience to serve more students, but it lacks the resources to capitalize on those strengths and meet the available demand.

Imagine a scenario whereby institutions with a high capacity to deliver online and hybrid courses could partner with oversubscribed or underdeveloped institutions. A partnership or consortium model could remove the barriers to

operate and leverage alternative funding mechanisms that already exist. The model found in the Southern Regional Education Board's Electronic Campus, for example, could serve as a starting point for a national model.<sup>10</sup> In the southern region, colleges and universities entered into a consortial agreement that allows online providers preferred access across state lines in an open marketplace. The creation of such a consortium on an even broader scale would benefit students who have been shut out. Moreover, partnership arrangements with other institutions that have already developed capacity would help build a transitional bridge until policies and other political limitations are resolved. A model that would work for institutions in California would most likely also work well for colleges and universities in other states. The technologies and business processes currently exist to address this critical need for flexible and reliable access to higher education, but it will take a higher level of innovation and collaboration to overcome the barriers.

### **Course and Credit Exchange in an SOC-like Network**

The SOC (Servicemembers Opportunity Colleges) network of over 1,900 colleges and universities opens educational opportunities for military service members and their families. Institutions with large online programs such as the University of Maryland University College (UMUC) provide the bulk of instruction.

Service-member students can take advantage of the new GI Bill, as well as the U.S. Department of Defense's tuition-assistance program, which provides \$250 per credit hour. They can access information through the GoArmyEd portal and other information sources available through the military. They can also take advantage of the special articulation agreements in the SOC network. Once service-member students are registered, they can take courses at any SOC institution and have the assurance that those courses and credits will seamlessly transfer back to their home institution.

Inspired by the SOC model, some higher education institutions and thought leaders have begun to envision a new course and credit exchange. Such an exchange would follow the SOC network principles but be available to civilians through a new type of consortium. Imagine a scenario in which public and nonprofit institutions with quality, capacity, and scalability come together in a course- and credit-exchange network to serve students who have been shut out of higher education. By combining the lower tuition costs of community colleges and the efficiencies of online universities, this network could significantly drive down the overall costs for students. Seamless and universal transfer of credits in the network would minimize course and credit

loss while shortening the time to degree completion. Once the network was established through seed money—both from private foundations and governments—it could help participating institutions achieve scale through a perpetual education funding model. This type of funding mechanism would provide incentives to deliver online and hybrid courses and programs for completion that, in turn, would increase the supply of courses and programs for other institutions. The end result would be new options and pathways that facilitate the easy transfer of credit, lower costs, and acceleration of degree completion. While some states have made great strides in articulating and transferring credit, this new relationship would clarify pathways and reduce risks for students on a national basis, in that access to high-quality institutions online would remove geography as a limiting factor. The utilization of electronic portfolios and other IT supports will be critical to implementing this type of course- and credit-exchange network.

### **Research, Analytics, and Metrics for Student Loss and Momentum**

Colleges and universities collect mountains of data in their student information, learning management, and other systems. At the same time, students come and go—often at predictable “loss points” such as the transition from high school to college, during remedial education, and so on.

In one scenario, higher education would use the power of information technology to mine student information and data on a massive scale across multiple institutions. This would involve aggregating, mining, and identifying the key momentum and loss variables, and then scaling up solutions that effectively address those factors. The idea would be to then create predictive models through the use of advanced statistical modeling that would identify possible stumbling blocks and help drive early interventions for students, especially low-income young adults and minorities. A growing body of best practices and interventions that remove barriers to student progress and success exists, but those interventions would be better informed if they were based on what the research and actual behaviors indicate, rather than on anecdotal notions or experience alone.

An example of this idea that has moved to a “proof of concept” stage is the Predictive Analytics Reporting (PAR) Framework coordinated by the Western Interstate Commission for Higher Education’s (WICHE) Cooperative for Educational Technologies (WCET for short), with support from the Bill & Melinda Gates Foundation. In an impressive pilot phase, the PAR Framework project is deconstructing the problems of retention, progress, and completion to find solutions for decreasing loss and increasing momentum and success. Six

PAR partner institutions (American Public University System, Colorado Community College System, Rio Salado College, University of Hawaii System, University of Illinois–Springfield, and the University of Phoenix) are federating and aggregating more than 600,000 de-identified online student records and will apply descriptive, inferential, and predictive analytical tests to the single pool of records to look for variables that seem to have an effect on student achievement. Currently, researchers are focusing early efforts on identifying and exploring the patterns between and among more than thirty variables that are common across participating institutions. This process has accelerated the capture and collection of key student data from multiple student information systems. This identification and harmonization of variables will provide the basis for the inclusion of many more institutions, which will help provide a deeper and more robust view of the factors that decrease loss and increase momentum, and vice versa.

### **Competency-Based Design of Courses, Programs, and Degrees**

Customization and personalization of the student learning experience will increase the number of students who successfully complete their studies in higher education. The ability to implement this online has great potential because of the emergence of adaptive technologies. Students come to college with different experiences and levels of mastery. Students also absorb and apply their knowledge at different rates. While these conditions are self-evident, technology now has a fundamental role to play in the national completion agenda by enabling personalized instruction and learning.

Consider how music for years was packaged and sold in albums to the music-buying public as a metaphor for how learning is designed and delivered in higher education. Anyone who has ever bought an album knows that you must pay for the entire album, even if you only really want one or two songs. But music consumers wanted the choice of purchasing individual songs instead of the whole package (album) and then creating (and re-creating) their own sequence of songs. The advent of digital reproduction and distribution technologies enabled customers to pick and choose only the songs they want without having to buy the entire album. The customer, not the music label, now controls the buying and listening experience.

Packaging music by the album is much like what higher education has traditionally done in packaging learning. For the most part, students have had to buy the entire album in the form of the course. The reality is, for learning to be most efficient and streamlined, students may not, and often do not, need the entire course. Instead they may need only certain aspects of the course

to round out their learning. Packaging learning differently could be a game changer in higher education.

Imagine a scenario in which courses were unbundled and disaggregated into competencies that were mapped throughout the course, similar to what the Khan Academy has done in the open educational resource setting.<sup>11</sup> Imagine a scenario whereby students master those competencies through granular modules. As the student progresses, new modules are presented based on previous performance and predictive models that indicate the needed remediation as well as the next steps necessary to progress through the course. Students would spend time on modules where they have gaps in knowledge instead of time on modules where they have demonstrated mastery. Demonstrated mastery of the competency could serve as a new unit of learning for the digital age instead of "seat time," based on industrial-era Carnegie units.

Competency-based assessment in all or part of a course would change the way progress toward college completion is documented, with far-reaching implications. It would facilitate recognition of prior learning for credit if students could demonstrate their mastery of course competencies by a recognized assessment process, which in turn would accelerate time to degree. It would improve the quality of assessment tools and foster their use at a more granular level while at the same time promoting the creation of higher-quality online lesson content. Additionally, course and program competencies could be aligned with business and industry competencies to ensure a highly trained workforce that possesses relevant mastery of the knowledge needed to succeed and compete in a global economy.

For Western Governors University (WGU), this is business as usual. WGU has made tremendous strides in the development of competency-based curricula. The transfer of credits from WGU to another institution remains a struggle, though, as credits have to be translated into traditional units when transferred to another institution (thus making it preferable that students simply graduate from WGU). Recognition of competency-based credits across institutions would change the nature of how higher education packages learning. Instead of committing to the entire curriculum (album), students could select the content (individual songs) that aligns with the competencies they lack.

Acceleration of completion through a competency-based model is challenging. It requires commonly accepted definitions of learning outcomes across courses and programs, many of which will not have defined student success in competency terms. Relevant regulations, such as those governing federal financial aid, are attempting to address alternative models of student work and attainment. However, they are still deeply rooted in the credit hour, requiring

institutions to translate newer, more adaptable competency schemas back to the older “full album” model of learning units.<sup>12</sup>

The spirit of innovation in the United States, and the need to increase the knowledge capital and intellectual capacity of its citizenry, calls for different approaches. At minimum, there should be ongoing pilots and evaluations of competency-based approaches with targeted outcomes. Regional accrediting bodies and other policy makers should support forward-thinking institutions in building innovative methods to both recognize and facilitate the seamless transfer of competency-based credits that are not based on seat time. Just as the music industry was forced to reexamine its model of packaging music, higher education needs to reexamine the merits of competency-based courses, programs, and degrees.

## Conclusion

Author William Gibson is attributed with saying, “The future is already here—it’s just not very evenly distributed.” The ideas that have been outlined here are not new. The best practices can be found in pockets across higher education. However, these ideas need to be highlighted, explored, and implemented. It will take additional thinking, awareness building, and promotion of these ideas in order for them to achieve the scale necessary to meaningfully change the landscape of higher education.

## Notes

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## Four Ideas to Increase College Completion

8. These convenings were made possible through the support of the Bill & Melinda Gates Foundation.
9. *Pearson Foundation Community College Survey*, <http://www.pearsonfoundation.org/education-leadership/research/community-college-survey.html>.
10. Southern Regional Education Board's Electronic Campus, <http://www.electronicampus.org/>.
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12. *Information for Financial Aid Professionals (IFAP)*, Federal Student Aid, March 18, 2011, <http://ifap.ed.gov/dpclatters/GEN1106.html>.

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