

Fulfilling our Promise in the 21st Century: Integrating Scholarship, Education and Innovation

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Public research universities are powerful institutions. We are vital in the development of human capital, attracting and engaging hundreds of thousands of students every year working toward baccalaureate, masters and doctoral degrees. We have a central role in the generation and dissemination of knowledge, at a massive scale and across a range of disciplines and emerging interdisciplinary fields. From the land-grant institutions brilliantly conceived in the Morrill Act, to the larger community of state flagship universities, our work shapes and reflects the priorities of society (The Lincoln Project: Excellence and Access in Higher Education (2015).

- Our collective research and creative activity solves urgent societal problems, promotes historical and cultural knowledge, fuels the innovations that create jobs, and infuses meaning and purpose in our lives.
 - We are instrumental in the development of talent, as we contribute to the workforce of creative thinkers and problem solvers who are capable writers, team members, innovators, citizens and leaders. Perhaps most central, we strive to prepare lifelong learners capable of thriving in the multiple careers they will likely pursue. As research universities, we have the unique role of preparing future scholars who will generate knowledge, meet the needs of industry and the academy, and serve as leaders. We continue to balance affordability, access and excellence in our institutions, even as state support has declined.
 - We stand on common ground with our communities – locally, regionally, nationally and internationally – working together on relevant issues, promoting vitality in our neighborhoods, and improving quality of life.
 - Our innovation extends technologies forged and founded through university scholarship into the public arena, generates jobs, and promotes healthy economies.
 - Our institutions are major employers, often among the largest in our communities.
- Clearly, public research universities have noteworthy records of impact and relevance. At the same time, we face striking challenges as we redefine our role in the 21st century. New competitors – nationally and internationally - have emerged, technological advances signal disruption in traditional educational models, and demographic shifts in the population of high school graduates ne-

cessitate change in our approaches to recruitment and enrollment. The cost of higher education has outpaced inflation as our institutions adapt to declining support from our state partners. A sharpened emphasis on accountability has required us to more honestly examine both our successes and our limitations.

Among the most urgent issues we face as public universities are the rate of baccalaureate degree completion and time to degree. Nationally, just over half of students entering four-year institutions earn their degrees within six years. Students from diverse backgrounds, including students who are the first in their family to attend college and students from low-income backgrounds, are even less likely to leave college with the degree they sought. For the institutions participating in the 2015 Merrill conference, six-year completion ranged from 64% to roughly 79%. One or two of every five students beginning college at our institutions leaves without earning the baccalaureate.

The completion of the baccalaureate degree has a transformative influence on well-being and quality of life. Degree completers have higher incomes and lower likelihood of unemployment and poverty, as well as a stronger sense of meaning and purpose in their work lives (Pew Education Research, 2014). During the most recent recession, four of every five jobs lost involved a person without a post-secondary credential. Perhaps most surprising is that individuals who have some college but no degree experience little benefit over their peers whose formal education concludes with high school; in contrast, the difference in outcomes for those who complete the baccalaureate,

compared to peers with high school and those with some college, is striking (Carnevale, Rose & Cheah, 2011; Pew Education Research, 2014). *Degrees matter.*

Economic vitality and innovation within a region are also heavily influenced by the presence of individuals with college degrees. By 2020, two-thirds of all jobs in the U.S. are forecast to require a post-secondary degree or credential (A Stronger Nation, 2015; America Needs Talent, 2015). Thus, it remains true that higher education – and significantly the attainment of the degree – is a powerful influence on both personal and societal advancement.

Despite these well-documented benefits, degree completion remains elusive for large segments of the U.S. population. Nationally, about 40% of adults ages 25-64 have attained a post-secondary credential (certificate, associates or baccalaureate degree), with only 34% completing the bachelor's degree (National Center for Education Statistics, 2015). The percentage of individuals from underrepresented backgrounds earning baccalaureate degrees in the U.S. is significantly lower; for example, only 15% of U.S. Hispanic adults has earned a bachelor's degree (NCES, 2015).

For decades, public research universities have focused on enabling access for talented students independent of their backgrounds, the visionary “right to rise” emphasis of the Morrill Act. In the 21st century, this noble vision is incomplete without parallel emphasis on completion. This expanded emphasis is imperative for the renewal, relevance and continued vitality of the public research university.

Public research universities have a distinctive and exceptional opportunity

to address the completion challenge. In addition to large scale and scope of influence, our missions of research and creative discovery, of innovation and engagement, afford us unique strategies and tactics to promote persistence and completion. How can public research universities, particularly those who add value through a less highly selective student population, improve attainment rates? How can we enlist the special attributes of our institutions to advance undergraduate student success?

Four Strategies for Fulfilling Our Promise as Public Research Universities

1. Expand Pathways to Completion

We have long approached undergraduate education as if there was a single path to success: recruit talented high school students who are emotionally and intellectually connected to our residential institutions and engage these students for four-year plans of study through completion. This traditional model applies to a segment of our students, but has not held true for many undergraduates and seems even less applicable given the advent of new competitors, online educational options, and the lower-cost attraction of two-year community colleges for many students who ultimately aim to attain the baccalaureate. Creative, proactive models of *pathways to completion* are needed to better match our present reality and effectively meet student needs.

A variety of pathway models are in development across the nation. At the University of Utah, we are working with our partner institution, Salt Lake Community College, to direct prospective U students who would be well-served by starting at SLCC to a shared program,

ACCESS U, that engages them in both institutions with planning for completion from the beginning of their college careers. ACCESS U students have academic advisors and student success advocates in both institutions, and take at one course per semester from the U during the time that they are enrolled at SLCC. The concept is a welcoming, seamless approach to college through two different institutions, with a completion plan from the outset. The goal of the program is to prevent the loss of many talented students who begin at a community college with the aim of the baccalaureate, but who ultimately do not successfully make the transition.

Pathway programs with varied features exist at several institutions, including the University of Illinois and Clemson University. Key features of impactful programs are the coordination and communication of efforts across community colleges and four-year institutions, the simultaneous rather than sequential approach of traditional transfer, and the focus on a shared *Plan-To-Finish* from the outset.

2. Exploit the Linkage of Research and Education

Perhaps the most obvious opportunity we have as research universities is to integrally connect undergraduates with our scholarly efforts. We believe that scholarship informs teaching, and in turn, that educational efforts enlighten and enliven scholarship. Furthermore, we espouse that learning from scholars who are active in the generation of knowledge – and the opportunity to take part in the generation of knowledge – is what makes for vibrant undergraduate education. We certainly articulate this in

student recruitment efforts as the fundamental rationale for choosing a public research institution over other higher education options. In reality, though, relatively few undergraduates are engaged in the generation of knowledge, and an even smaller number are closely connected with faculty scholarship. It seems likely that first-generation students, especially students who are working many hours per week to finance their education, are even less likely to benefit from the deep learning experience that can come from involvement with research. We also know that students who feel that they belong in a university are more likely to persist (Strayhorn, 2012); it's difficult to imagine a better way to "belong" at a research university than to be part of research. How can we enable more students to connect with their education through research? Can we make this a part of the larger completion agenda?

Many of us became interested in scholarship through research with a faculty member who demonstrated an interest in our success and/or our potential. The traditional approach of volunteering in a faculty research activity continues to be valuable, but it cannot be the only way that research universities create opportunities for students to connect with the institution or to link education and scholarship. Three extensions of the traditional model may enable broader participation in research.

- For undergraduates who are working to pay for education, creating a work-study type model specifically dedicated to compensate students for time spent with faculty on scholarship can open the door of opportunity and

learning through research, opportunities otherwise inaccessible.

- As we have expanded access to learning abroad through new mechanisms, such as one- to two-week international experiences linked to courses, we might similarly devise ways to enable every undergraduate to connect directly to the research enterprise at some level, rather than maintaining a one-size-fits all ideal.
- Virtually all of our institutions are engaged in cluster hiring of faculty to strengthen our ability to solve urgent societal problems, areas that cross departmental and college boundaries, such as climate and water, behavioral health, and sustaining biodiversity. These areas are ideal for undergraduate participation given the visibility and impact of the scholarship. As funding is provided to support clusters, small amounts of supplemental funding could be made available to allow undergraduates to participate in these research efforts. Seed funding could enable success with larger external support in these strategic areas.

3. Employ Data Analytics to Increase Student Success

Large public universities have a wealth of data, largely unexamined, that can inform our efforts to increase persistence and completion. We have hundreds of thousands of cases from which description and prediction of student success can be analyzed, from student characteristics at the beginning of college to course and program enrollment and sequencing, from student engagement on campus to student use of a learning management system. Detailed data analytics

are perhaps the most promising element of the portfolio available to large research universities for increasing completion.

Many institutions are beginning to realize the potential of data analytics to drive change and improve outcomes for students. A few insights from this work are offered here. At the University of Utah, we have discovered that students who complete within six years perform differently in their academic work beginning in the first semester, relative to those who do not complete within six years. In concert with demographic characteristics and other relevant variables – such as living in the campus housing and enrolling full-time, both positively associated with completion - we are using first semester performance to create a “success index” and assertively engaging students from the beginning of college with a Student Success Advocate (a new position created to promote completion and engagement with the institution). Without the Student Success Advocates, we did not have the personnel in place to optimize data analytics. We’ve learned that some combinations of courses in the first year are more and less likely to be associated with completion (e.g., advanced writing and chemistry are a “poison pair” for freshmen, associated with lower overall academic performance). And we’ve learned that we can better serve some students through a pathways program in partnership with a community college, as outlined above.

As we improve our analytic capabilities, we gain in our effectiveness in providing timely guidance to students. In parallel, we are learning about what matters most in persistence, whether financial assistance, academic guidance, or

creating a sense of community and belonging for students, and aligning our actions, interventions and resources accordingly. The potential to improve outcomes through analytics and innovative tools that move from data to information is significant.

4. Extend Innovation and Entrepreneurship to Undergraduates

Many public research universities identify technology transfer, entrepreneurship and economic development as a fourth element of their missions, in concert with scholarship, education and engagement. Yet the integration of this component of our work with the student experience, as a tool to promote student engagement through completion, has been relatively unexplored. We attract and serve many students with entrepreneurial interests and creativity. These students may major in any field but share an interest in using their university experience, while working toward their degrees, to make something new, create a technology, solve a problem, improve a service or launch a company. Can we extend the university mission of innovation and entrepreneurship to undergraduates, as a strategy to both attract creative and talented students, and to actively engage these students through the completion of their degrees?

We are exploring this possibility at the University of Utah, with the support of a lead donor and other investors, through the creation of a unique residence-maker-entrepreneur space. The Lassonde Studios will incorporate space for 400 student residences, in a variety of types from small individual “pods” to more traditional residence space, to large lofts for groups of students. The Studio

also houses a 20,000-square-foot “garage” for students from any major on campus to make prototypes, launch companies, or learn through presentations. The facility, particularly the garage, will be the hub for innovators, makers and entrepreneurs. The garage is located on the ground floor of the building, and will incorporate the tools necessary for student entrepreneurs to collaborate and begin their projects, including 3-D printers, co-work space, prototyping tools and more. The Lassonde Studios are part of a larger vision, the Lassonde Institute. The institute provides opportunities for undergraduates, graduate students, and faculty to learn about entrepreneurship, venture development and launching companies. See <http://lassonde.utah.edu/directory> for additional information.

As this vision progresses to reality, we plan to monitor the college trajectories of undergraduates who live in the Lassonde Studios, participate there in learning opportunities, and utilize the maker and entrepreneurial spaces in the garage. It is our hope that the type of engaged learning that will take place in this space will be associated with increased persistence and completion.

Summary

As public research universities, we continually seek balance between our responsibilities as the institutions charged with the generation and dissemination of knowledge and our duties in engaging

and educating individuals prepared for lives of impact as leaders and citizens. In the latter endeavor, we have the opportunity and the duty to leverage our strengths as research universities to extend our focus from access to our institutions to completion of the baccalaureate degree for every talented undergraduate student we recruit.

References:

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