Demonstrating Impact: Evaluating Costs and Benefits of Instructional Change in Higher Education for Evidence-Based Fiscal Decision Making

Intended Audience

Higher education administrators, faculty involved in campus-based change efforts; change agents on a campus; directors of centers for teaching/STEM/etc.

Overview

Have you ever felt as if you were faced with an impossible decision regarding allocation of funding or resources? In higher education we are often called upon to improve educational outcomes with scarce institutional resources. We are asked to make difficult fiscal decisions without the tools we need to determine the possible fiscal and moral implications of supporting new initiatives and projects. If you have wondered whether it is possible to make modest changes that have a great impact, while also saving money and resources, the answer is yes.

The ASCN Costs, Benefits, and Demonstrating Impact Working Group created this resource list to share tools and examples that can help with evidence-based fiscal decision making. These resources demonstrate that it is possible to invest scarce institutional resources wisely to advance your priorities. They were gathered to address questions and issues you might be facing at your institution, such as:

- Increasing learning outcomes for all students;
- Adopting instructional practices to improve retention, increased enrollment, persistence, etc.;
- Articulating and communicating the benefits of institutional change to potentially skeptical decision-makers both inside and outside the university;
- Quantifying both the cost and return on investment of implementing instructional change during transitions and over the long-term;
- Determining how to best implement institutional change into institutional budgeting, planning, and decision-making.

We think you will find the resources particularly helpful if you are working to address these kinds of questions:

- What are some of the cost categories associated with implementing instructional change during transitions and long-term?
- Have the costs of instructional change initiatives been documented and has the return on investment been measured?
- Is there guidance about how to undertake such measurement at my institution?
- Are there any strategies in place for embedding considerations of potential benefits and associated costs into institutional budgeting, planning, and decision-making? What are some of these strategies?
- How can we make explicit increased learning outcomes for all students associated with instructional change?
- Other than typical benefits like improved learning outcomes and more satisfying teaching experiences, what other kinds of benefits are envisioned from improving instructional practices at the department, college or university level (e.g., retention, increased enrollment, persistence, etc.)?
- What are some ways of articulating and communicating various types of benefits to potentially skeptical decision-makers inside and outside the university?

List of Resources

Brown, J., & Kurzweil, M. (2017). **Instructional quality, student outcomes, and institutional finances.** American Council on Education.

A report from the American Council on Education exploring the question of whether improving instructional quality can increase an institution's revenue. Principal Conclusions (p.22): As the cost of college grows and sources of funding of decline, college and university leaders face mounting pressure to find effective and efficient ways to improve their core business: educating and graduating students. Numerous studies show that research-based pedagogical practices and participation in faculty development can help institutions achieve these goals by increasing student learning, engagement, persistence, and degree completion. There is also evidence that improvements in retention increase revenue and have a positive return on investment. Other interventions—including remedial course redesign, increased course-taking in the first year, and more comprehensive first-year curricular and co-curricular reforms—have been shown to improve cost per degree.

Carnevale, A.P., Cheah, B., & Van Der Werf, M. (2019). **A first try at ROI: Ranking 4,500 colleges**. Georgetown University Center on Education and the Workforce.

Principal findings: Community colleges and many certificate programs have the highest ROI in the short term. Colleges that primarily award bachelor's degrees have the highest ROI in the long term. Public colleges have higher ROI than private colleges in the short term. Degrees from private nonprofit colleges generally have a higher ROI in the long term than public universities.

CUNY Report. (2020). **New York State Open Educational Resources Funds: CUNY Year Two Report.**

As of Fall 2019, the growth of CUNY's OER programs, courses, and enrollments has skyrocketed as illustrated by the following numbers: 23,661 sections across CUNY have converted from expensive proprietary materials to open educational resources. IMPACT: 469,000 students have enrolled in courses with zero textbook cost. Students saved an estimated $46.9 million from Fall 2017 - Fall 2019. BENEFITS ANALYSIS: $5.86 in savings for every $1 of NYS Funding.

Desrochers, D., & Staisloff, R. (2016). **Competency-based education: A study of four new models and their implications for bending the higher education cost curve**. rpk Group.

In this report the authors assess CBE programs at four institutions by considering business models, costs, etc. and what is required from institutions to 'get to breakeven'. The four institutions anticipate breaking even with their programs by the fifth year, and they project that by the sixth year these programs will be operating at half the cost of the traditional academic programs. The article describes how an evaluation of the competency-based education business model must include considerations regarding price, efficiency (academic delivery structure, staff ratios, and compensation), and scale (student recruitment, enrollment, and retention).

EDUCAUSE & rpk Group. (2017). **Return on Investment Toolkit.**

This toolkit provides videos, webinars, articles, infographics, tools, and case studies focused on applying an ROI lens to innovation and investments to support student success.

Ellis, L. (2019, March 3). **How UT-Austin's Bold Plan for Reinvention Went Belly Up**. *Chronicle of Higher Ed*.

This article provides a cautionary tale about large institutional efforts to redesign undergraduate education and the challenges of measuring what works. In 2016, UT Austin pledged to revamp undergraduate education, adding state-of-the-art online classes, redesigned curricula, and short courses, among others, to produce less expensive degrees, teach practical skills and expand access via technology. Dubbed "Project 2021" it also committed to measure what worked and adjust accordingly. By 2019, the project was deemed too ambitious and lacked support to continue. Several lessons about the impact of changes in undergraduate teaching are useful. For example, implementing regular quizzes in large classes narrowed grade disparities between students from different socioeconomic groups. Massive online classes modeled after late-night talk shows were hailed as a national model for using technology to deliver remote instruction and billed as next-generation undergraduate programs. Yet, while students rated the online courses highly, evaluations of student learning showed no advantage to the course delivering mode, and the cost for the heavily produced studio quality courses was high. Key conclusions from the project evaluation is that it was very complicated and lacked direction, got caught in bureaucratic processes, and was expensive.

Hollands, F., Pan, Y., & Escueta, M. (2019). **What Is the Potential for Applying Cost-Utility Analysis to Facilitate Evidence-Based Decision Making in Schools?** *Educational Researcher, 48*(5), 287–295.

The authors investigated the feasibility of applying a decision-making framework based on cost-utility analysis to facilitate decision-making. A key challenge was guiding decision makers to find suitable evidence.

Koropeckyj, S., Lafakis, C., & Ozimek, A. (2017). **The Economic Impact of Increasing College Completion.** American Academy of Arts & Sciences.

While this report does not include institutional-level guidance on measuring costs and benefits of instructional improvement, it does offer helpful context for broader economic effects of student success and degree completion. Many institutions are working to be responsive to demands by the public and policy-makers that they articulate their economic impact. Arguments and data included in this report can be helpful in that messaging, and can help change leaders tie program improvement to broader outcomes, which may help to garner leadership support.

Plecki, M. L., & Castaneda, T. A. (2017). **Whether and how money matters in K-12 education**. *Handbook of Education Policy Research*, p. 453-463

The authors review the research on the allocation of resources to support improvement of student learning in public K-12 education, including policies, methodological issues, and availability of data.

Theobald, E. J., Hill, M. J., Tran, E., Agrawal, S., Arroyo, E. N., Behling, S., Chambwe, N., Cintron, D. L., Cooper, J. D., Dunster, G., Grummer, J. A., Hennessey, K., Hsiao, J., Iranon, N., Jones II, L., Jordt, H., Keller, M., Lacey, M. E., Littlefield, C. E., Lowe, A., Newman, S., Okolo, V., Olroyd, S., Peecook, B. R., Pickett, S. B., Slager, D. L., Caviedes-Solis, I. W., Stanchak, K. E., Sundaravardan, V., Valdebenito, C., Williams, C. R., Zinsli, K., & Freeman, S. (2020). **Active learning narrows achievement gaps for underrepresented students in undergraduate science, technology, engineering, and math**. *Proceedings of the National Academy of Sciences, 117*(12), 6476-6483.

This study is a comprehensive meta-analysis of research on the influence of active and traditional learning approaches on STEM course outcomes (exam scores and course failure rates) for underrepresented students. Time-intensive active learning experiences contributed to reduced achievement gaps in exam scores and pass rates. Researchers concluded that deliberate active-learning course designs and inclusive teaching contribute to increasing equity in STEM. Although this study does not discuss cost-benefits, it affirms the value of investing in pedagogical enhancements to increase student retention and success. In this case, the benefits are continuous tuition revenue through student retention and the moral imperative of reducing equity gaps.

Walcott, R. L., Corso, P. S., Rodenbusch, S. E., & Dolan, E. L. (2018). **Benefit–Cost Analysis of Undergraduate Education Programs: An Example Analysis of the Freshman Research Initiative**. *CBE—Life Sciences Education, 17*(1).

The authors comprehensively describe how to conduct a cost-benefit analysis of an undergraduate education program, using a detailed real-life example to illustrate the process. Principal conclusion: the university's investment in Freshman Research Initiative generates a positive return for students in the form of increased future earning potential (p. 1).

A Tool for Estimating ROI

Rossman, D., Alamuddin, R., & Kurzweil, M. (2019). **Estimating the Return on Investment (ROI) for Instructional Improvement Efforts: An Overview of the ROI Tool.** American Council on Education.

Rossman, D., Alamuddin, R., & Kurzweil, M. (2019). **Estimating the Return on Investment (ROI) for Instructional Improvement Efforts Step-By-Step Tool Walk-Through.** American Council on Education.

These reports provide an overview and walkthrough of the tool, presented by ACE and Ithaka S+R, for estimating ROI, which draws on research and evidence from instructional improvement efforts.

Additional Suggested Resources

Blagg, K., & Blom, E. (2018). **Evaluating the Return on Investment in Higher Education An Assessment of Individual- and State-Level Returns.** Urban Institute.

Craciun, D., & Orosz, K. (2018). **Benefits and costs of transnational collaborative partnerships in higher education**. European Expert Network on Economics of Education Analytical Report No. 36.

Haras, C., Taylor, S. C., Sorcinelli, M. D., & von Hoene, L. (2017). **Institutional commitment to teaching excellence: Assessing the impacts and outcomes of faculty development.** American Council on Education.

National Research Council. (2012). **A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas.** Washington, DC: The National Academies Press.

National Research Council. (2012). **Discipline-Based Education Research: Understanding and Improving Learning in Undergraduate Science and Engineering.** Washington, DC: The National Academies Press.

National Research Council. (2012). **Improving Measurement of Productivity in Higher Education.** Washington, DC: The National Academies Press.

Swing, R. L., & Coogan, C. S. (2010). **Valuing Assessment: Cost-Benefit Considerations**. NILOA Occasional Paper #5.

Twigg, C. A. (2015). **Improving Learning and Reducing Costs: Fifteen Years of Course Redesign**. *Change: The Magazine of Higher Learning 47*(6), p. 6-13.

Wellman, J. and Brusi, R. (2013). **Investing in Success: Cost-Effective Strategies to Increase Student Success.** Association of American Colleges & Universities.