

DIGITAL LEARNING IN ACTION

How Georgia State University Uses Adaptive Courseware to Deliver Improved Outcomes for Students

GSU Has a Strong Record of Using Data for Student Success

Georgia State University was an early pioneer in the use of data to build new approaches to serve students better. The institution monitors over 800 academic risk factors, which are used to inform advising interventions. When it introduced predictive analytics in 2012, GSU hired more advisors, bringing the student-to-advisor ratio from 700-to-1 to almost 300-to-1. Multiple efforts on campus have raised 6-year graduation rates from 48 percent in 2010 to over 55 percent in 2018 and have eliminated achievement gaps based on race, ethnicity and income level. Tim Renick, senior vice president for student success at GSU, estimates that 75 percent of the institution's improvement in graduation rates can be attributed to the implementation of initiatives based on predictive analytics.¹

Transitioning from a Targeted Intervention to a Strategic Initiative

In the early 2000s, introductory-level math courses—pre-calculus, college algebra and elementary statistics—were major hurdles to success for many GSU students. With the percentage of students earning a D grade, failing or withdrawing from these classes regularly topping 40 percent, these three courses caused many students to lose scholarships or drop out altogether.

In 2005, GSU launched a course redesign project to improve student success in these courses. With the move to an emporium model, students now attend class in a computer lab environment where they learn content and complete practice, receiving personalized feedback through adaptive courseware. Non-pass rates across the three math courses have dropped from an average of 31 percent in 2007 to 23 percent in 2014.²

With its success in math, GSU in 2014 pursued more adoptions of adaptive courseware in other redesigned gateway courses, including psychology, English and economics. In 2016, GSU was awarded a grant from the Association of Public and Land-grant Universities to support the implementation and scaling of adaptive

AT A GLANCE



- Total enrollment of over 53,000, with 46,000 undergraduates and 7,000 graduate students
- GSU serves a diverse undergraduate population:
 - 60% female, 40% male
 - 39% black / African American
 - 26% white
 - 13% Asian
 - 11% Hispanic
- 54% of first-time freshmen are Pell Grant eligible
- 38% of undergraduate students take at least some courses online

FALL 2017 STATISTICS

courseware in high-enrollment general education courses. The implementation launched in fall 2017 with 28 sections of four courses. By fall 2018, the implementation had grown to reach over 7,500 enrollments across five courses, and it is expected to scale to reach at least 15 percent of total general education course enrollments by 2020.

GSU also took a step to formalize its commitment to using technology solutions like adaptive courseware by including technology use in its strategic plan. In its 2016 update to the [2011 strategic plan](#), GSU recommitted to the 2011 goals, tracked progress to date and listed new initiatives planned to help the institution achieve its goals. The use of adaptive courseware fits squarely into goal 1 from the strategic plan and a new related initiative:

Goal 1: Become a national model for undergraduate education by demonstrating that students from all backgrounds can achieve academic and career success at high rates.

Initiative: Find the balance between technology and human interaction in instruction so that education and student success outcomes are greatly enhanced.

Georgia State is committed to using new technologies to create an academic environment that enhances teaching and learning for all students. Our use of analytics and adaptive learning systems will allow us to individualize the students' experiences in their coursework just as it has improved and focused our advisement. The use of analytics allows us to customize students' learning experiences, allowing us to deliver individualized instruction at scale.³

By including the use of technology in instruction in the strategic plan, GSU communicates to faculty, administrators, students and other stakeholders that instructional technologies are core to the institution's strategy for student achievement. Furthermore, by pointing to success using data and analytics to improve student outcomes through advising, GSU is demonstrating that it is building on knowledge and success as it seeks to improve the student experience in its courses through thoughtful integration of technology and human interaction.

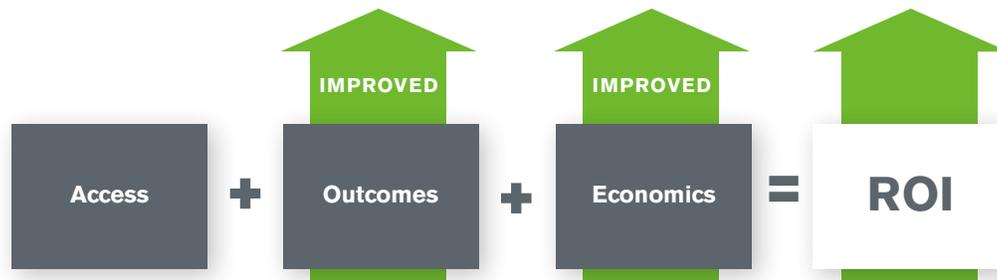
How Adaptive Courseware Can Boost Return on Investment in Digital Learning

In 2018, Arizona State University and Boston Consulting Group released "Making Digital Learning Work," a report based on over two years of analysis on the return on investment from digital learning initiatives in six institutional contexts. The report identifies three components of the return realized from an institution's investments in digital learning: impacts on student access to higher education, impacts on student learning outcomes, and impacts on institutional and student economics.

Use of adaptive courseware has the potential to impact these three components in many ways, including:

- **Improving student learning outcomes.** GSU has a record of improved student outcomes in its introductory math classes through course redesign that incorporated adaptive courseware. Prior to the redesign, these courses acted as gatekeepers to student success, with the potential to entirely derail a student's postsecondary experience. By bringing down barriers in introductory math, GSU not only enabled improved course outcomes but also set students down a path toward better achieving their program and degree goals. Outside of GSU, separate studies have found small but statistically significant improvements in students' grades in course sections that are using adaptive courseware compared with sections that are not.⁴
- **Reducing instructional costs over time.** Costs to the institution are likely to grow during the first term of implementation due to investments in infrastructure and faculty training. However, studies suggest that overall per-student costs to the institution may decline over time, and that students may also see cost savings in sections that are using adaptive courseware compared with sections that are not.⁵

More research and analysis are needed to further explore the effects of adopting adaptive courseware. However, data collected so far suggests that the impacts of implementing adaptive courseware as part of a course redesign may translate to a boost in return on investment for an institution implementing digital learning.



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 2. <https://success.gsu.edu/initiatives/adaptive-learning-tools/>
 3. <https://strategic.gsu.edu/preamble-2/goal-1/>
 4. https://www.sri.com/sites/default/files/publications/next_generation_courseware_challenge_evaluation_final_report_dec_2018.pdf
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