

THE UNIVERSITY OF TEXAS AT EL PASO:

*Adaptive Courseware for Early
Success Case Study*

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The Association of Public and Land-grant Universities (APLU) is a research, policy, and advocacy organization dedicated to strengthening and advancing the work of public universities in the U.S., Canada, and Mexico. The association's membership consists more than 250 public research universities, land-grant institutions, state university systems, and affiliated organizations. APLU works with members to expand access and improve student success to deliver the innovative workforce of tomorrow; advance and promote research and discovery to improve society, foster economic growth, and address global challenges; and build healthy, prosperous, equitable, and vibrant communities locally and globally. The association's work is furthered by an active and effective advocacy arm that works with Congress and the administration as well as the media to advance federal policies that strengthen public universities and benefit the students they serve.

Every Learner Everywhere is a network of twelve partner organizations with expertise in evaluating, implementing, scaling, and measuring the efficacy of education technologies, curriculum and course design strategies, teaching practices, and support services that personalize instruction for students in blended and online learning environments. Our mission is to help institutions use new technology to innovate teaching and learning, with the ultimate goal of improving learning outcomes for Black, Latinx, and Indigenous students, poverty-affected students, and first-generation students. Our collaborative work aims to advance equity in higher education centers on the transformation of postsecondary teaching and learning. We build capacity in colleges and universities to improve student outcomes with digital learning through direct technical assistance, timely resources and toolkits, and ongoing analysis of institution practices and market trends. For more information about Every Learner Everywhere and its collaborative approach to equitize higher education through digital learning, visit everylearnereverywhere.org.



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As part of establishing a highly effective and engaged cross-functional team driven by faculty and supported by a dedicated administration, the University of Texas at El Paso (UTEP) assisted the biology department in redesigning their introductory course sequence by aligning student learning outcomes and improving instructional practices. From the start, the team was committed to identifying a technology that best met faculty and student needs. By integrating open education resources with an adaptive learning platform, the institution improved accessibility to course materials and significantly reduced costs to students taking Introductory Biology courses.

ADAPTIVE COURSEWARE FOR EARLY SUCCESS INITIATIVE

The Adaptive Courseware for Early Success (ACES) Initiative was a grant-funded initiative supported through the Every Learner Everywhere network and funded by the Bill and Melinda Gates Foundation. In total, thirteen colleges and universities from Ohio, Texas, and Florida participated in this initiative from 2019 through 2021. Six 4-year universities, which are members of the Association of Public Land-grant Universities (APLU) received direct guidance and support from the Personalized Learning Consortium (PLC), located in the Office of Digital Transformation for Student Success (DTSS). The ACES Initiative centered around two primary goals:

- To redesign critical gateway courses taught by faculty committed to integrating equity-centered, evidence-based teaching practices that are enhanced by adaptive courseware
- To create more equitable student outcomes by improving learning and educational experiences for poverty-impacted students, racially minoritized students, and first-generation students

Over the course of two and a half years, the PLC provided intensive coaching, peer-mentorship, collaborative learning and networking opportunities, and educational resources and training to cross-functional, institutional teams at select institutions. These institutions received further support and benefits from the Every Learner network partners, including Achieving the Dream and Digital Promise who offered collaborative learning with participating two-year institutions and program evaluation support, respectively.

Note. It is critical to acknowledge that this initiative took place at the onset and height of the COVID-19 global pandemic crisis. The COVID pandemic dramatically altered the higher education landscape in 2020, requiring colleges and universities to rapidly transition to remote instruction and to reprioritize the allocation of their resources and institutional capacities to appropriately respond to the crisis. Despite facing these challenges, each of the participating institutions carried on their work, adapting in real-time and focusing on how to best leverage newly adopted technologies and supporting students with quality teaching practices. For more information on the impact of COVID on these grantees and other institutions, please see our network partner Digital Promise's report, *Suddenly Online: A National Survey of Undergraduates During the COVID-19 Pandemic*.



The University of Texas at El Paso Demographics

21,000 undergraduate students and 3,700 graduate students



4-year public research institution near the U.S.-Mexico border



UTEP is one of the largest Hispanic-Serving Institutions (HSI) in the United States.

50%

of students come from families earning less than \$20,000 a year.

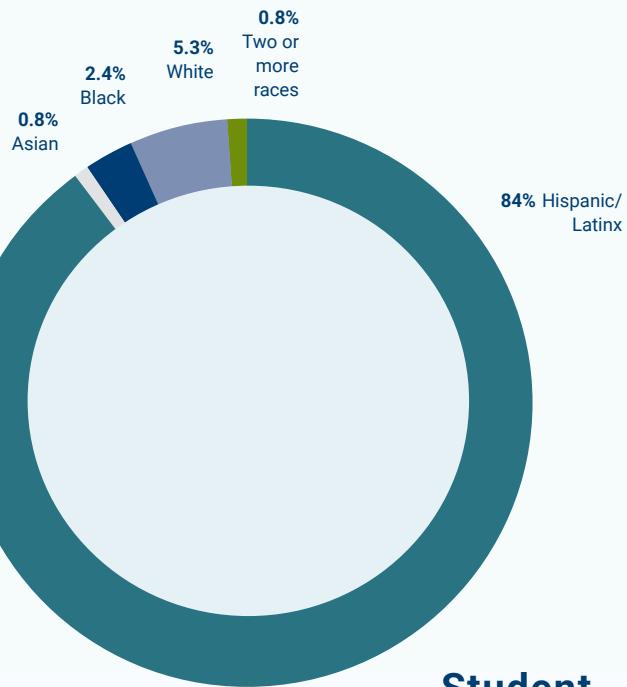
58%

of undergraduate students are eligible for a Pell Grant.

As of fall 2020,

97%

of undergraduate students were enrolled in at least one online course, with 87% enrolled exclusively online.



Institutional Background

Institutional leaders at UTEP found that students who earn 45 or more semester credit hours within two years are 80 percent more likely to graduate within six years (Acosta, 2022). As a result, the First 45 initiative was developed to support students at risk of stopping or dropping out within their first three semesters. UTEP focused on improving student success through multiple campus-wide changes as part of the First 45 initiative. Faculty were encouraged to use the Blackboard Retention Center through their courses' Learning Management System (LMS) to provide early academic support in courses with high drop, fail, and withdraw (DFW) rates. A course on effective teaching practices offered by the American Council on Education (ACE) was also offered to all faculty members annually. Additionally, the institution's Academic Advising Center implemented a cohort-based, holistic advising model that included support in the social and financial domains.

UTEP also created a student success framework called the UTEP Edge that prioritized the development of a shared culture and an understanding of student success across the institution and that established clear alignment and effectiveness between student success activities and their resultant outcomes (UTEP Edge, n.d.). The framework includes indicators for student success like retention, enhanced interactions between students and faculty, and student involvement in high-impact practices that have been carefully designed by UTEP faculty and staff to best support students in meeting their academic and professional goals. This holistic strategic approach to supporting student success within the first 45 credits has led to the development of the Entering Student Experience (ESE) at UTEP. ESE was established in 2020 for students in their first 45 semester credit hours, with a particular focus on first-generation students, students from economically disadvantaged backgrounds, and Hispanic/Latino students. ESE consists of courses, programs, and summer bridge programs designed to provide academic and personal support for new students.

Goals of Grant Participation

UTEP planned to build off their ongoing student success strategies and applications of adaptive courseware by participating in the ACES Initiative. Prior to joining the grant initiative, adaptive learning tools had already been integrated into several high-enrollment general education courses such as psychology, math, and political science. In addition, faculty members throughout the institution had been exploring the uses and applications of adaptive courseware on their own.

University leadership saw the ACES Initiative as an opportunity to increase and improve upon the quality and effectiveness of their implementation of adaptive learning courseware at the institution, prioritizing their focus on integration of courseware into a redesigned gateway course and scaling within a select academic program. By providing students with targeted quality information and instructing faculty with more data about student learning, they hoped to improve student performance and increase faculty efficiency in the delivery of high-enrollment gateway courses. Lastly, the UTEP team hoped to integrate adaptive courseware tools, open educational resources (OERs), and active learning within their planned course redesigns—viewing these combined resources and strategies to holistically support students enrolled in those courses.

Course Implementation

UTEP was strategic in its approach to securing an ideal academic department and faculty team to participate in the grant initiative. The project lead, Dr. William Robertson, served as a Provost Faculty Fellow and Professor of Teacher Education. He wanted to organically create an implementation team that had the experience, willingness, and connections to help make this process a success (Baker, 2020).

The administration employed a top-down approach in the course identification process. Relying on institutional data metrics, the leadership identified a set of courses with higher DFW rates and invited faculty and departmental leadership to learn more about the initiative and opt in based on interest, capacity, and alignment between departmental and project goals. They discovered that a group of six faculty members in biology were looking to redesign and create more alignment between their introductory courses. Dr. Robertson went to these faculty members and asked if they would like to take part in the ACES Initiative. The biology department had long wanted to engage in collaborative course design and to align their introductory courses. This approach ensured that participating faculty were both interested in and committed to the process from the beginning of the project. Dr. Robertson described this combined top-down and bottom-up approach:



They were a grassroots group who wanted to achieve something (that aligned with the initiative). I came in with the data and the understanding and I was in a role with the grant, but also as the facilitator of the process, meeting them from the ground-up was really important. It's much better when a group says we need help, how can you help us? Rather than coming from the other way (top-down) saying you have a problem, let us fix you, and here's the guy that's going to do it."

The UTEP team was a cross-functional group composed of biology faculty, instructional designers, and colleagues from the Office of the Provost. A high priority for the faculty team was ensuring that they selected an adaptive courseware tool that would align with their needs and those of their students. Ensuring that they had the right tool to meet their needs and to support the individual and departmental goals for the course redesign was paramount. For this reason, the UTEP team allocated the time required to sufficiently survey the market, identify and evaluate potential courseware options, and select the tool that would best suit their needs. Because of this extensive research, Dr. Robertson felt that faculty members *"really [understood] what adaptive courseware is and how it works."* To further support the team at this stage, APLU leadership and coaches with subject matter expertise and experience in adaptive technology use, met with the biology faculty to review options and discuss effective courseware evaluation strategies. The adaptive courseware market is vast and sifting through the noise can be challenging. APLU provided the team with courseware evaluation rubrics and online tools to support faculty as they narrowed their choices (Every Learner Everywhere, 2019).

In fall 2019, five adaptive products were reviewed, and the team decided to use textbooks from Macmillan Learning and the adaptive product LearnSmart, hosted by McGraw Hill in their spring 2020 implementation. In subsequent semesters, the biology faculty transitioned from Macmillan Learning to CogBooks with OpenStax. Throughout the process, the team focused on making sure that adaptive integration best fits the teaching needs of faculty members and the accessibility and cost needs of students. Moving to an adaptive program that uses OERs reduced the cost of using adaptive courseware from \$90 to \$40 for biology students.

In APLU's experience of leading cohorts of universities in courseware adoption, integration, and scaling efforts, it is common for institutions to switch products as they learn more about the tools and how best to integrate adaptive technologies into their courses and curricula. Ultimately, the leadership at APLU advises institutions to make sure that the technology they choose is the best fit for their students, faculty, and institution. As institutions continuously improve upon the implementation of courseware in selected courses, changes in technology, pedagogy, and resourcing should be accommodated.

For the ACES Initiative, UTEP focused their efforts on the redesign of and integration of adaptive products into two high-enrollment biology courses (Table 1). In summer 2019, the UTEP team redesigned Introductory Biology I and II, including the refinement and alignment of student learning outcomes. Activities such as clickers and small group work were integrated into class lectures to enhance student engagement, while adaptive courseware was used for homework assignments, including EdPuzzle, which integrated questions into video clips. One activity used was an Immediate Feedback Assessment Technique (IF-AT) in which students were grouped into teams and took review quizzes in class before exams. In their analysis of the grant initiative across institutions, Digital Promise (2022) found that participating faculty reported an increase in the adoption of evidence-based instructional practices, such as the use of data analytics and active learning exercises, in order to increase student engagement.

Table 1.

Course Implementation of Adaptive Products at UTEP

Discipline	Course Name	Adaptive Product	Students	Faculty
Biology	Introductory Biology I	CogBooks with OpenStax Learnsmart Connect (McGraw Hill)	1,047	3
	Introductory Biology II	CogBooks with OpenStax Learnsmart Connect (McGraw Hill)	246	1
Totals	2	2	1,293	4

Note: Final data as reported by the university in fall 2019, spring 2020, fall 2020, and spring 2021.

Course Implementation

The biology faculty team regularly met to coordinate their course redesign efforts and to align adaptive courseware integration. They used a backward design approach to first identify the student learning outcomes and develop a common syllabus across the Introductory Biology course sequence. Faculty lead, Dr. Jeffery Olimpo, described how *“this pilot was a golden opportunity to attain alignment, not just in our courses but alignment for us as instructors”* (Baker, 2020, para. 16). By participating in the ACES Initiative, the biology faculty were able to focus on and achieve the goals of course redesign and alignment that they had long been interested in. APLU leadership has found that an effective practice, when considering which departments or faculty to engage for adaptive course redesign initiatives, is to work with those whose goals are well-aligned, and allocating project and institutional resources to effectively support faculty in achieving those goals.

The biology team also worked together to better understand the technology behind adaptive courseware and how to effectively use it to improve the student experience. There was an extensive process of evaluating adaptive platforms, including vendor demonstrations, discussions with peer institutions’ successful adaptive implementations, and the team’s own research (Baker, 2020). While this process took a long time, Dr. Robertson felt that the team was able to eventually choose an adaptive product they were confident in for the long term.

“ *The team didn’t stop just because they picked something. They worked with it but they said, ‘this doesn’t really do it.’ That’s the part I think has been most valuable because while [selecting courseware] took some time, in the end...even though we’re probably on our second or third choice now, we’ve identified something that I think they can move forward with. Rather than changing next year, now they’ve found a platform and resources that they can move forward with. I think this is part of the discovery process.”*

Dr. Robertson also described how integrating OERs into their implementation process would enhance the sustainability of their efforts because faculty had more agency over the course materials:

“ *They’ve discovered what adaptive is and how OERs can add to it, but also that they can supplement the learning delivered by their own materials. Now we’re using OERs and CogBooks for the adaptive component and we got there together, which makes it more sustainable for the future because the faculty own it rather than leadership recommending it and saying this is what we should do.”*

UTEP not only benefited from a collaborative team-based approach, but also strong leadership. Dr. Robertson was part of the Provost's Office and could identify and secure additional resources to support the grant implementation, such as technical support and bringing on subject matter experts (Baker, 2020). He also had close relationships with a diverse array of campus stakeholders and extensive experience with facilitating collaborative projects. He described how his institutional role helped the dynamic between him and participating faculty:

“The thing I always got from [faculty] was that it really helped having me with them because I keep facilitating the process and I'm objective and in one sense removed (from the college and department).”

Having the right project lead is critical to effectively supporting the management, implementation, and sustainability of course redesign initiatives (Vignare et al., 2020). A key component of successful leadership at UTEP was thoughtful partnership, collaboration, and advocacy on behalf of the faculty, staff, and students involved in the initiative. Faculty must also be brought into leadership and decision-making roles at all stages of a redesign initiative (Vignare et al., 2020). Dr. Olimpo served as the faculty lead, working both within the biology department and closely with university stakeholders to ensure that the design and implementation of the project was faculty driven.



Takeaways and Next Steps

UTEP had several takeaways and pieces of advice from participating in the ACES Initiative, including:

1. Integrating OERs into an adaptive program can have many benefits:

- UTEP's transition to OERs allowed faculty members to focus on introducing course content that promoted the engagement of their students while also reducing the financial burden of taking these classes with adaptive courseware.
- By reducing the cost of course materials, the biology department was able to increase student access and address affordability concerns.
- While quality of content is often a concern of faculty in relation to the adoption of OERs, when faculty can vet and refine content so that it aligns with their course materials and student learning needs, faculty feel more confident and are more inclined to support initiatives aimed at the adoption of OERs.

2. Combining a bottom-up (faculty) and top-down (administration and department chairs) approach is helpful in cultivating a healthy, engaged community of practitioners that can effectively lead student success initiatives.

- UTEP's implementation process was driven by faculty, with support from the Provost's Office. Having this buy-in and support from upper administration and instructors was critical for ensuring their participation in this initiative.
- Institutions considering this model should integrate department chairs into pivotal roles, perhaps serving as a Principal Investigator (PI) or co-PI to ensure that faculty have the support and resources required to effectively take on collaborative course redesign efforts leveraging adaptive courseware.

3. Flexibility and continuous improvement are key when it comes to courseware selection and adoption. It is okay to switch products when the chosen courseware does not serve you or your students as well as others might.

- Consider leveraging the courseware vendor to support faculty implementation and refinement. Vendors can serve as knowledgeable partners who can educate faculty on how to use courseware. Faculty should feel empowered to make requests of vendors to ensure quality of content and effective platform features.

Moving forward, UTEP hopes to receive support from additional department chairs as they move to integrate adaptive courseware further across disciplines at the institution. They would like to continue refining their adaptive courseware implementation, while also scaling the process to more biology faculty. UTEP hopes to secure more funding opportunities to expand technology applications within biology courses. Lastly, they also hope to expand the pairing of OERs, adaptive courseware, and active learning models to other departments.

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