Achieving the Dream™

A Faculty-Centered Approach to Successfully Implementing Adaptive Courseware

A CASE STUDY OF CUYAHOGA COMMUNITY COLLEGE

everylearner everywhere

JUNE 2021

ABOUT THIS CASE STUDY

Achieving the Dream (ATD) is one of 12 higher education and digital learning organizations that make up the Every Learner Everywhere (Every Learner) Network, whose mission is to help higher education institutions improve and ensure more equitable student outcomes through advances in digital learning, particularly among poverty-impacted, racially minoritized, and first-generation students. Every Learner partners are addressing high failure rates in foundational courses through the provision of scalable, high-quality support to colleges and universities seeking to implement adaptive courseware on their campuses. As part of its ongoing effort to help community colleges develop effective teaching and learning practices, ATD is working with seven community colleges in Florida, Ohio, and Texas on this initiative, providing coaching and direct support to the colleges, fostering collaboration within and among the participating institutions, and serving as a liaison to the Every Learner network.

The following case study is part of a series of studies conducted by ATD examining how adaptive courseware is implemented at those institutions as well as how courseware is used in particular disciplines to better serve students. Case studies are based on a series of interviews with college leaders, faculty, instructional designers, developers, technology specialists and students who were enrolled in classes using the courseware.

ACKNOWLEDGEMENTS

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Achieving the Dream would like to thank the students, faculty, staff and administrators at Cuyahoga Community College for their dedicated work on the Every Learner Everywhere initiative on adaptive courseware and for their time and participation in the focus groups that served as a basis for this case study.

We would also like to thank ATD Director of Program Development, Dr. Ruanda Garth-McCullough, for leading ATD's Every Learner Everywhere work with the support of ATD staff Susan Adams, Joanne C. Anderson, Francesca Carpenter, Jonathan Iuzzini, Sarah Kinnison, Dr. Richard Sebastian and Dr. Monica Parrish Trent as well as former ATD staff members, Shauna Davis and Shanah Taylor.

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OVERVIEW

Faculty at Cuyahoga Community College led efforts to implement and then scale adaptive courseware for gateway courses in more than a half-dozen disciplines. The institution supported faculty efforts by creating a collaborative learning community and providing other supporting resources, and faculty continue to take the lead in scaling adaptive courseware within their disciplines.

- The initiative was led by faculty, with instructors in multiple disciplines deciding whether to participate and determining which courseware to use in their courses — including the flexibility to shift platforms midstream.
- Adaptive courseware was part of intentional efforts to leverage technology to support institutional equity initiatives.
- Efforts were coordinated through a multidisciplinary faculty learning community (FLC), in which instructors collaborated in selecting courseware and then sharing lessons learned across multiple campuses and disciplines.
- Administrative supports included release time and service credits focused on learning communities, support from instructional designers, technologists, and staff from two college offices; a staff-developed guide listing adaptive courseware products by discipline; and a dedicated Blackboard site for collaboration.
- Ongoing efforts to scale adaptive learning adoption are also faculty led, with members of the learning community building master course shells in their disciplines to support adjunct faculty.

SUPPORTING INSTITUTIONAL REFORM

The Every Learner Everywhere initiative supports broader efforts to engage students with more active learning strategies. "We have already seen evidence of improved student success rates in some courses that use adaptive platforms, and it appears that these improvements are shared across demographic categories, including low-income students and students of color," says Dr. Alex Johnson, Tri-C's president. It also reflects the contexts in which broader institutional reform is taking place at community colleges throughout the ATD Network, including building a culture of excellence in teaching and learning and leveraging data and technology to support student success and equitable student outcomes. To learn more, see p. 8.

CUYAHOGA COMMUNITY COLLEGE
DATA SNAPHOT[1]

LOCATION Cleveland, OH

TYPE City

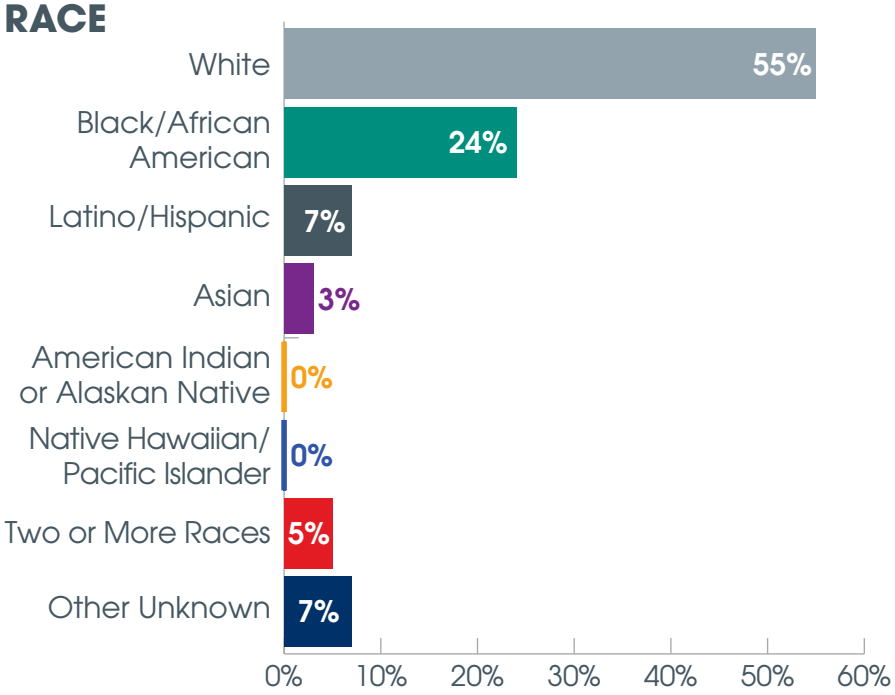
LOCATIONS (Campus/Centers) 8

ENROLLMENT
23,655

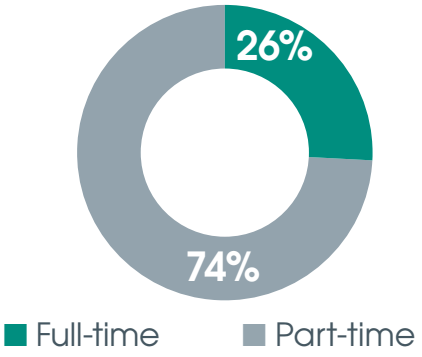
GENDER
FEMALE **57%**

MALE **43%**

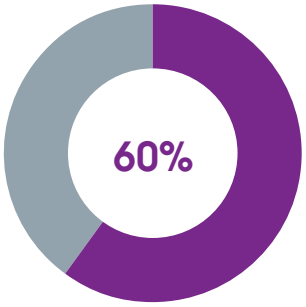
RACE



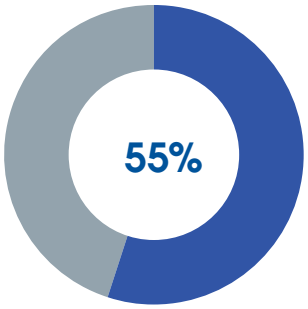
Full-time vs. Part-time



Pell-grant recipients



First-generation



(of students receiving financial aid)

ATD MEMBER STATUS

JOINED ATD
2005

ATD ACHIEVEMENTS
ATD Leader College (2009)

ATD Leader College with Distinction (2018)

1 The information contained in the Data Snapshot is based on data from the National Center for Education Statistics' College Navigator, data collected directly from the institution and information maintained by ATD.

CUYAHOGA COMMUNITY COLLEGE

ELE INFORMATION						
Discipline	**Courses**	**Sections**	**Students**	**Full-time Faculty**	**Adjunct Faculty**	**Courseware**
Business	Intro to Business (BADM1020)	17	358	2	8	LearnSmart Connect (McGraw Hill)
	Business Law (BADM 2151)	2	52	1	1	LearnSmart Connect (McGraw Hill)
Biology	Introduction to Biological Chemistry (BIO 1100)	2	54	1	0	Mastering Biology (Pearson) MyLab (Pearson)
	Anatomy and Physiology (BIO2331)	3	61	1	0	Cogbooks Mastering A&P (Pearson)
Chemistry	Everyday Chemistry (CHEM1000	2	43	1	0	LearnSmart Connect (McGraw Hill)
	Introduction to Inorganic Chemistry (CHEM1010)	10	218	2	0	ALEKS (McGraw Hill)
	General Chemistry I (CHEM 1300)	8	121	3	0	LearnSmart Connect (McGraw Hill) ALEKS (McGraw Hill)
	General Chemistry II (CHEM 1310)	6	100	2	0	LearnSmart Connect (McGraw Hill) ALEKS (McGraw Hill)
Economics	Principles of Microeconomics (ECON2000)	8	206	2	1	LearnSmart Connect (McGraw Hill)
	Principles of Macroeconomics (ECON2010)	6	134	1	1	LearnSmart Connect (McGraw Hill)
Math	Basic Arithmetic/ Pre-Algebra (MATH0910)	2	30	1	0	MyLab Math (Pearson)
	Beginning Algebra I (MATH0955)	5	108	2	0	Knewton Alta (Wiley) MyLab Math (Pearson)
Physics	College Physics I (PHYS1210)	2	30	1	0	Mastering Physics (Pearson)
	General Physics I (PHYS2310)	2	49	1	0	Mastering Physics (Pearson)
Psychology	General Psychology (PSY1010)	24	586	3	6	Waymaker (Lumen)
	Child Growth and Development (PSY2010)	1	15	1	0	Waymaker (Lumen)
	Life Span Development (PSY2020)	4	91	1	1	Waymaker (Lumen)

INTRODUCTION

Dr. Prabhat Sharma holds no false illusions about the importance of his Introduction to Biological Chemistry course at Cuyahoga Community College in Ohio to the students who take it.

"It's the main gatekeeper course for the nursing program," says Sharma, an assistant professor of biology at Cuyahoga Community College (known locally as Tri-C). "It's a combination of chemistry and biology, a tough subject for everyone, and students generally don't do well."

When Sharma and other Tri-C faculty members in a wide range of disciplines led efforts to adopt courseware as part of the Every Learner Everywhere (Every Learner) initiative, the focus began not with the technology, but on pinpointing the courses where it could potentially have the most impact in helping students succeed.

"Because students couldn't get through the gateway courses, they couldn't go on to the other courses they wanted," says Dr. Anne Distler, a professor of chemistry at Tri-C's Westshore campus.

Along with efforts to redesign gateway courses, faculty saw adaptive courseware as one of several strategies to leverage technology to support Tri-C's equity initiatives, including adopting Open Educational Resources (OER) in many classes as a means of reducing student costs. Ultimately, more than a dozen Tri-C faculty members in disciplines ranging from chemistry and biology and psychology to math and economics collaboratively adopted and scaled adaptive learning solutions in the courses they believed were key to improving outcomes for all students.

That level of participation required intentional support from Tri-C's administration—and was crucial to the initiative's success. "I don't know if you can do this without achieving faculty buy-in on the front end," says Dwayne Keeney, interim associate dean for liberal arts who was one of Tri-C's Every Learner project leads.

BUILDING AND SUPPORTING A FACULTY COMMUNITY

For participating faculty members, the benefit of adaptive courseware was centered around "their interest in seeing students have additional resources at their disposal," says Keeney.

Once Tri-C was awarded the Every Learner grant, administrators issued an open call to faculty to see who was either using adaptive software or interested in the technology. Ultimately, 15 faculty members across more than a half-dozen disciplines joined a faculty learning community (FLC). Some, including business administration professor Dr. Michele Hampton, had previous experience using adaptive courseware and working with publishers. Others were motivated by the opportunity to find new low-cost tools that could improve outcomes for their students.

"As an institution, we had already identified gaps and specific programming to look at how to close them," says psychology professor Stacey Souther. "This work fit into that existing framework."

Grant funds were used to provide release time for faculty as they researched and identified courseware for their disciplines. The FLC also was supported by professional staff from Tri-C's Academic Professional Development office and its campus-based Centers for Learning Excellence.[2]

Faculty in each discipline were paired with a dedicated instructional designer and technologist who helped them identify adaptive courseware. Staff in Tri-C's Centers for Learning Excellence also developed an adaptive courseware guide for faculty, "a one-stop shop" which listed available courseware by discipline and outlined their key features, including the level of tech support, integration with existing learning management systems, capacity for ADA compliance, pricing, and overall ratings from the EdSurge-sponsored index (a website which aggregates reviews of education technology products). Since participating faculty were spread out across four campuses, a common Blackboard site was used to coordinate efforts and distribute resources like the courseware guide, which was regularly updated based on the experiences of faculty in the learning community.

2 For more, see p. 141 of ATD's Teaching & Learning Toolkit, available at https://www.achievingthedream.org/resource/18241/teaching-learning-toolkit-a-research-based-guide-to-building-a-culture-of-teaching-learning-excellence.

BUILDING ON ATD'S CORNERSTONES OF EXCELLENCE

Like other community colleges participating in the Every Learner Everywhere grant which are part of the ATD Network, Tri-C has committed to engaging in bold, holistic, and sustainable institutional change across multiple institutional areas and priorities. The institution's efforts to implement adaptive courseware in more than a half-dozen disciplines reflect the importance of several key cornerstones of institutional change, including building a culture of excellence in teaching and learning and leveraging data and technology to support student success and equitable student outcomes. These efforts, says Dr. Alex Johnson, the college's president, are "fully in line with one of Tri-C's strategic plan focus areas: improving the student experience."

ATD's Institutional Capacity Framework and Institutional Change Assessment Tool (ICAT) outlines seven essential institutional capacities required to create a student-focused culture that promotes student success. One focuses specifically on teaching and learning and the commitment to engaging full-time and adjunct faculty in examinations of pedagogy, meaningful professional development, and a central role for faculty as change agents within the institution. Building capacity in this area is crucial because, as ATD President Karen A. Stout recently argued, "focusing on teaching and learning is still not central to the field's overall theory of change. We still have much more to do to build a deep focus on pedagogy and to support our colleges in building a culture of teaching and learning excellence."

To foster this culture of teaching and learning excellence, *ATD's Teaching & Learning Toolkit: A Research-Based Guide to Building a Culture of Teaching & Learning Excellence* is centered on four cornerstones of excellence that provide a forward-looking vision that campuses can use to inform their work.

Every Learner not only provides important resources and supports to community colleges and the chance to explore innovative pedagogical approaches to improving student learning and outcomes, they also offer sustained opportunities to build on these cornerstones of excellence.

Tri-C's work with Every Learner exemplifies the importance of institutional efforts to empower faculty to consider, adapt, test, and refine new approaches to fit their campus context and the needs of their students, in this case ensuring more equitable outcomes for students struggling to succeed in gateway courses. Faculty-led efforts to identify evidence-based instructional practices that fostered student learning, were centered in the Faculty Learning Community, which also provided a structure for professional learning and continuous improvement that will continue beyond the life of the grant.

The FLC was "incredibly supportive and informative," noted Dr. Anne Distler, a professor of chemistry at Tri-C's Westshore campus. "You can take your perspective of evaluating your course, but getting feedback from other disciplines and courseware give you a better understanding of what the pros and cons are."

Engaging students in the process of identifying and improving courseware also was vital in identifying practices that supported them in their learning. Several faculty members tried multiple products so they could determine which product "was giving them the most benefit in the classroom," Distler said.

It's critical that institutional leaders provide support for faculty efforts to improve teaching and learning, as Tri-C did with the FLC, as well as through release time and service credits, support from instructional designers and staff, and other resources. "You need to make sure faculty have time and support to build this out," said Kara DePaul, program manager of academic professional development and co-lead of Tri-C's Every Learner work. You need support from instructional designers and technologists to develop the course the right way."

CONTINUED SUPPORT AND COLLABORATION

By August 2019, participating faculty members in each discipline had selected courseware to use in their classes. "Some had a smooth and easy transition, but others had a few bumps along the way, but everyone was able to implement in the fall and the spring," says Sarah Goode, an instructional technologist at Tri-C's Western Campus.

Faculty implemented adaptive courseware in different ways. Some used a flipped model in which students watched videos before class and used the adaptive courseware for homework and assessments following in-class discussion. Others had students complete work in the adaptive courseware as homework to prepare for discussions in class; while in other courses, the emphasis was on preparing for assessments.

At the same time, members of the FLC evaluated and made adjustments to courseware as the semester progressed. Distler tested two adaptive products to compare "whether the student experience and ease of use was giving them the most benefit in the classroom." Hampton had one of her classes evaluate two courseware products, with students ultimately choosing the same product that she preferred. Others wound up shifting platforms after confronting technical problems and deciding that the courseware "promised more than it could deliver," as Souther puts it.

All the while, the learning community continued collaborating throughout the year, with scheduled monthly in-person check-ins during which participating faculty discussed what they were learning with peers across different disciplines and campuses. The learning community was "incredibly supportive and informative," says Distler. "You can take the

perspective of evaluating your course, but getting feedback from other disciplines and courseware gives you a better understanding of what the pros and cons are."

"For me, the faculty learning community was the most valuable part of the project," says Hampton. "We can individually design a class and figure out what textbook to use, but the highlight was getting to know my colleagues better and understand their experience with the process."

Even though she used different courseware than her peers in other disciplines, Hampton found a clear benefit to gaining "an understanding of the experiences" of other faculty," she says.

Some members of the learning community also participated in site visits on other campuses. These collaborations with the broader Every Learner network "helped give me perspective and kept me from getting lost in the minutiae," says Hampton.

THE STUDENT EXPERIENCE

As a nondegree student taking prerequisite courses for a physical therapy program, Sinem Balta Beylergil took chemistry courses with and without adaptive courseware. In the adaptive course, she says, the workload was significantly greater—"it was intense because in addition to the material we usually study for exams, you also had a lot of assignments in the courseware," she says. At the same time, however, the reinforcement of skills over time helped with retaining information, she says. "A month later, you remembered what you had trouble with… I gained a more comprehensive understanding," Beylergil adds. "It makes you learn—that's the pain associated with it."

Other students stressed the importance of integrating adaptive assignments fully into the class so that work in the courseware aligns with in-person (or online) classroom activities. "I felt like I was taking two different classes—the one the professor was teaching, and (the one) what I was learning from (the courseware). I felt the disconnect a lot," says former Tri-C student Jordan Kadas, who graduated with an associate degree in 2019 and is now pursuing a nursing degree at a four-year institution.

Like Beylergil, Kadas had taken courses with and without adaptive software while at Tri-C, and while she said the technology matched her learning style, she added that it was used in very different ways in different classes. "What I got out of the software was dependent on each professor," she says, arguing that students would benefit from more consistent practices across courses and subjects.

ADAPTIVE COURSEWARE IN PRACTICE: SUCCESSES AND CHALLENGES

What Worked Well:

Engagement: Faculty said the adaptive components of courseware both made homework a better learning experience and made engaging with the textbook and other learning materials more meaningful. "It reinforced the idea that you should be reading the material," says Dr. Anne Distler, a professor of chemistry at Tri-C's Westshore campus. "I heard some of my students say they were reading the course materials for the first time." Students added that the technology helped with the process of reading course materials. "It would highlight the most important things in textbook you need to know," said Katelyn Roback, a second-year student who plans to attend mortuary college after receiving her associate degree.

Feedback: Faculty and students appreciated the targeted feedback some—but not all—adaptive courseware provides based on individual performance, including praise after a job well done or messages identifying specific areas of improvement. Adding these features to platforms lacking them "would help improve student performance," says Dr. Prabhat Sharma, an assistant professor of biology. Beylergil agrees: "If there's nothing to follow and it's just a textbook and exams to be taken down the line, I feel a little lost," she says. "Courseware gives me some sort of schedule and more frequent deadlines. Rewards, reminders—that kind of feedback is really helpful."

Cost and timing. The low costs of courseware—between $25 and $70 depending on the class and discipline—encouraged students to purchase course materials in a timely manner. In some cases, adaptive courseware was included through a collaboration with the bookstore and publishers through the college's "first-day program," which allows students to automatically prepay for course materials when they enroll in selected courses. "The First-Day Program was great because they start the first day with source material," says Dr. Distler. "In the past, it would take them weeks to get the books, and this way they don't start behind."

Ongoing Challenges:

Onboarding: Dr. Distler shifted adaptive platforms because the first one she tried "was not user-friendly," and several students said that signing up and learning how to navigate the courseware was challenging. Faculty responded by creating video tutorials and interactive demonstrations of the learning tools. Psychology professor Stacey Souther and a colleague in the psychiatry department, Melissa Resnick, collaborated to create an interactive quiz to help ensure students understood their courseware's introductory module.

Tiered learning objectives: Attempts to scaffold concepts could lead to added workloads and frustration in some—but not all—adaptive products. "If you had one skill that built on another, students couldn't move forward,"Dr. Distler says. "There was no way to bypass this, and a level of frustration that could make students drop the course or quit."

Differing levels of adaptive practice: Professors reported that the extent assignments were adjusted based on how individual students fared in pretests or other diagnostic activities varied from product to product.

Pacing and visibility: Students said that concepts and assignments didn't always match up with what was being taught by faculty (see sidebar, p. 10); faculty said it was difficult to see what questions were being assigned students. "I don't know if they're getting the right level of questions," says Dr. Sharma. "I should be able to see what they are getting."

Variable results. Some faculty reported that less prepared students "never got to the final point you wanted to get to… while others were breezing through the course," as Dr. Distler puts it. For their part, students agreed that the courseware provided an uneven experience in gateway courses which enroll students with differing levels of knowledge and skills in the subject area. "It made each of our experiences very different," Kadas says.

Integration: Promises of "seamless integration" with learning management systems (LMSes) like Blackboard, didn't always translate into reality, resulting in implementation challenges. Some faculty complained that vendors overpromised on ease of integration.

Mobile access. While most courseware is designed to support mobile devices, the real-world experience on the small screens of smartphones "isn't the best," says Dr. Distler.

ADAPTING AND SCALING

Participating faculty have used the courseware in a variety of in-person, fully online, and hybrid classes. "You can place it wherever you want in the continuum of learning, so the modality doesn't matter," Hampton says.

That capability became even more important when the COVID-19 pandemic caused the institution to abruptly shift all courses online in spring 2020. The transition, says Distler, was "relatively smooth because students were already used to the online platforms, and their experience didn't change."

The shift to online learning disrupted efforts to track the effectiveness of programs, but members of Tri-C's faculty learning community said that completion rates in their gateway courses improved and that students were more engaged in the course.

"It changed the way students are learning," says Souther. "They're learning more about how to learn and how to study."

One reason, says Dr. Distler, is the intentional efforts members of the FLC made to embrace the adaptive courseware, which in most cases supplemented previous textbooks or course materials. "How you incorporate it into your courses and make it intrinsic to the delivery of the course is important so students understand it's an important tool for their learning and take it seriously," she says. "It wasn't just treated as an add-on, because it was a part of the course."

KEYS TO TRI-C'S IMPLEMENTATION OF ADAPTIVE COURSEWARE:

Framing the initiative as part of broader institutional objectives. Administrators opted to participate in Every Learner because the initiative aligned with ongoing efforts to improve student outcomes and reduce costs. "As an institution, we're focused on equity," says psychology professor Stacey Souther. The grant, she says, "was right in line with institutional goals."

Aligning courseware efforts with related initiatives. Since Tri-C's Every Learner work was placed within the broader context of equity and gateway course redesign efforts intended to improve outcomes and reduce costs for students, Tri-C made efforts to ensure that adaptive courseware didn't conflict with ongoing initiatives, including efforts to use OERs in new ways.

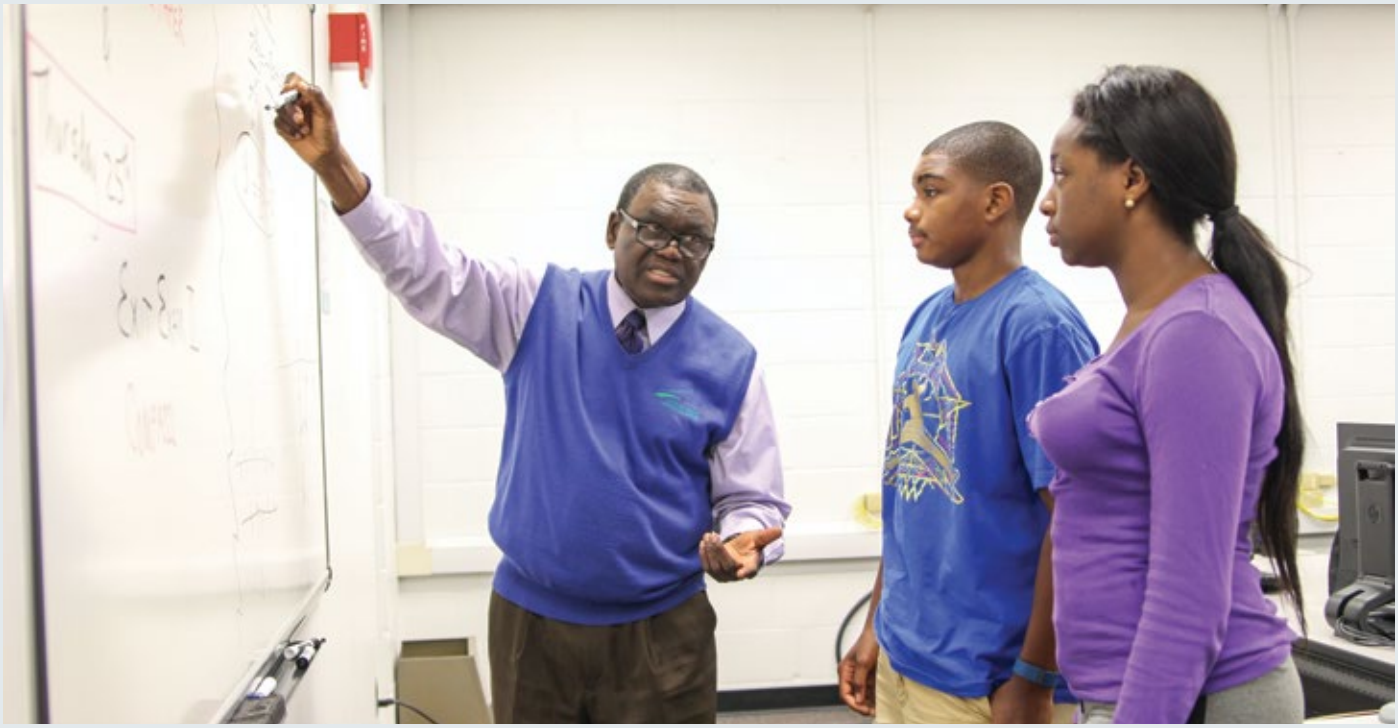
Supporting faculty in leading implementation efforts. Administrators sought out willing faculty members and then engaged them in leading the way. "If this had been proposed in a direction other than the faculty closest to the curriculum and actively engaged in teaching it, it would have died a very quick death," says Dwayne Keeney, interim associate dean for liberal arts.

Importantly, this included faculty members driving the decision to opt out of adaptive in key areas—including developmental math, where faculty ultimately opted to pursue courseware without an adaptive component.

The overarching goal, Keeney says, was to "figure out the resources the administration can provide to support faculty and get out of the way."

Providing the right resources. Faculty needed time to explore courseware options, implement in their courses, and the opportunity to engage and learn from their faculty colleagues, says Kara DePaul, program manager of academic professional development and co-lead of Tri-C's Every Learner work.

To that end, administrators ensured that grant funding was allocated to provide release time for participating faculty to collaborate in the faculty learning community. That was critical to its success, according to business administration professor Dr. Michele Hampton: "Most of us are teaching



between five and seven sections per semester ," she says. "To additionally be asked to evaluate adaptive software and determine where it best fits in your courses is a heavy lift."

Tri-C also provided additional resources, including dedicated instructional technologists and designers for each participating discipline, and a courseware guide developed and updated based on feedback from faculty. "Faculty need support from instructional designers and technologists to explore courseware and implement in the courses the right way," DePaul says. The bookstore also collaborated on including selected courseware into its first-day program to ease student access to materials.

Sustaining the FLC beyond the selection and implementation phases. Administrators recognized that effective implementation of adaptive courseware would be an extended process, with a timeline consistent with the experience of implementing other new pedagogical practices. "It's not something they can just throw together in a couple of weeks," says DePaul. Accordingly, the FLC continued to meet regularly even after faculty selected and began using courseware.

One key, says Keeney, was the in-person (and later virtual) monthly meetings. "Requiring yourself and your colleagues to be physically present really goes a long way," he says. "Given the complexity of what was happening, it would really be a mistake to try otherwise."

Another was the multidisciplinary (and multicampus) composition of the FLC. "This was a unique opportunity to collaborate across six disciplines and our four regional campuses," says DePaul. " The FLC gave faculty the opportunity to share teaching strategies, experiences, and course feedback with each other.

Students echoed the value in providing faculty the time to engage with courseware in deeper ways. "I would encourage professors to spend time in the courseware themselves," says former Tri-C student Jordan Kadas, who like other Tri-C students at times identified disconnects between what was taught and the focus of adaptive coursework assignments.

Continuing the faculty-led approach in scaling. Participating faculty are working with their respective departments on plans to scale. "In the short-term, expansion will be collegial—peer to peer among faculty," says Keeney.

While FLC members have shown "strong support" for scaling, according to DePaul, and four have created master course shells for their classes that adjunct faculty can adopt for their courses, students identified another opportunity—integrating adaptive software across a discipline. "It would be really great to make sure sequenced courses use the same software," says Kadas.

CONCLUSION

As they began the 2020-21 academic year, Tri-C faculty continued to lead decisions about scaling adaptive courseware across participating courses. Faculty members in psychology and economics created course shells for adjunct faculty to enable them to easily use the adaptive courseware, while providing flexibility around the specifics of implementation.[3] "We told them the adaptive option had to be used, but they varied how they did things like discussion boards and assignments," Souther says.

Administrators say the Every Learner grant allowed Tri-C to develop the FLC and other supports that ensure that faculty will have the time and space to continue exploring adaptive products. The initiative also aligned well with Tri-C's ongoing efforts to leverage technology to close equity gaps, particularly in gateway courses. "It was right in line with our institutional goals and our strong focus on equity," says Souther.

In Introduction to Biological Chemistry, Dr. Sharma says that students still must grapple with challenging coursework, but that more are now passing the course. "Adaptive gave students three chances," he says. "In their first attempt, they were not getting good grades, but they knew what they had to work on and had more chances to work on weaknesses and deficiencies, and grades went up."

3 For more on engaging adjunct faculty as part of scaling adaptive courseware, visit https://www.everylearnereverywhere.org/blog/effectively-adding-adjunct-faculty-to-your-adaptive-learning-implementation/

Achieving the Dream™

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