

High— Tech

Serving
Student
Needs
at Scale

**Digital Learning Report
and Workbook**

2017 Edition
Produced by Intentional Futures

High —Touch

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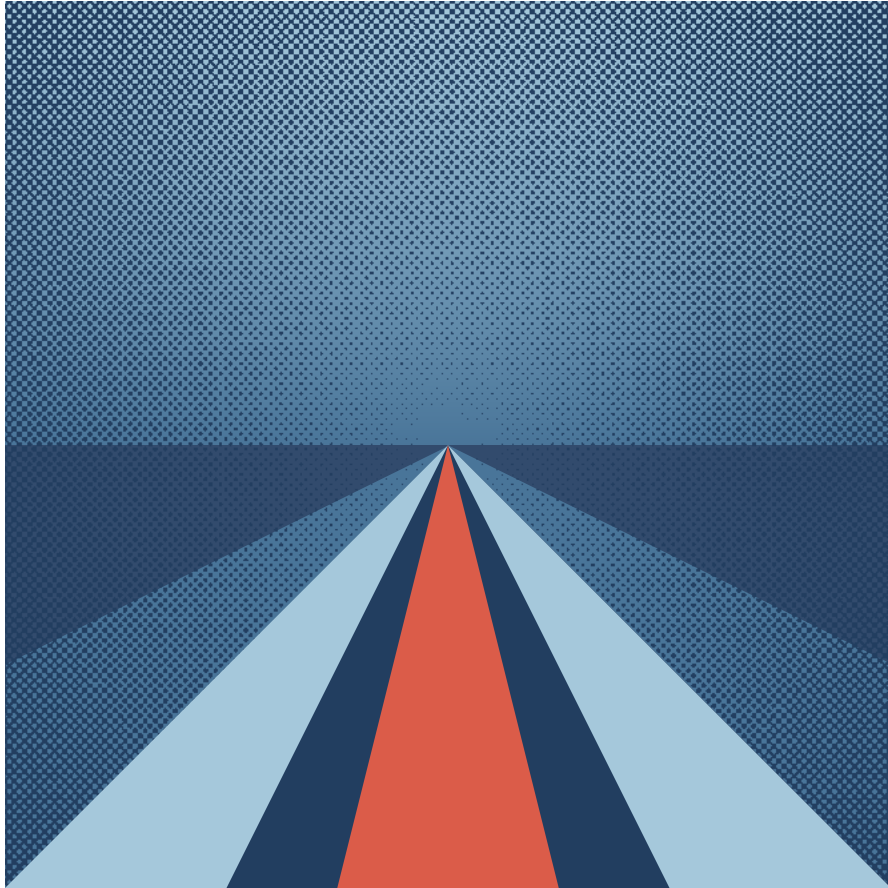
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Build a foundation that will help you process this report. Use the framing and context setting provided to inform your journey through this document.

Learn about the five primary strategies identified in this research that promote high-tech and high-touch digital learning. Hear from institutions who have found success employing these strategies.

Read about institutions who have employed other strategies in their approach towards digital learning. Use the definitions and workbook to ensure a comprehensive experience with this report.

Foreword



ACKNOWLEDGEMENTS

Special thanks to the [Bill & Melinda Gates Foundation](#) for funding and encouraging further exploration into digital learning.

For their continued support and expertise throughout the process, we would like to thank the following individuals and organizations: Dr. Maria H. Andersen, Dr. Nori Barajas-Murphy, [Tyton Partners](#), [SRI International](#), [EdSurge](#), [New Media Consortium](#), [Online Learning Consortium](#) and [The Association of Public and Land-grant Universities](#).

Furthermore, this work would not be possible without the institutional faculty who have dedicated their time and efforts to inform this research. We would like to recognize the following institutions for their contribution to this work: The American Woman's College at Bay Path University, Austin Community College, Cedar Valley College, College for America at Southern New Hampshire University, Colorado Technical University, Northern Arizona University, Rowan-Cabarrus Community College, St. Petersburg College, Seattle University, University of Illinois-Springfield, University of Mississippi, Virginia State University, Dartmouth College and Hampton University.

ABOUT INTENTIONAL FUTURES

[Intentional Futures](#) is a modern consultancy. We solve hard problems that matter by combining actionable insights with imaginative solutions. Courageous leaders work with us to turn their vision into reality. We help organizations get a handle on fast-changing markets, envision their options, conceptualize novel experiences, express inspiring stories and take action. We go deep on education, technology, health-care and the social sector, and go broad on innovation, storytelling and product design. You may have heard of us from our past explorations into instructional design, courseware and digital learning.

This work was funded by The Bill & Melinda Gates Foundation whose vision is “a U.S. higher education system that propels social mobility and economic development.”

For more information on their Postsecondary initiatives, [click here](#).

Executive Summary



Institutions of higher education have increasingly diverse student demographics and leaders are looking for new, scalable ways to serve their students. As the cost of digital technology goes down, more programs are looking to digital learning tools (e.g., courseware, analytics platforms) to improve learning outcomes and increase accessibility and flexibility. This report covers successful cases of digital implementation at scale to inform other institutional leaders about the tools and methods being used in the sector. We hope that the insights from these institutions' experiences will aid in the design and development of digital programs at other institutions.

High-tech, or digital, learning can provide flexible, accessible content that meets students' individual needs and enables online learning communities where students can support one another. Institutions can make the most of high-tech solutions by pairing them with high-touch, or student-centered, solutions. As we gathered examples of successful digital learning programs at higher education institutions, we discovered that these two approaches, when used in tandem, catalyze digital learning initiatives aimed at improving student outcomes such as retention and knowledge acquisition.

Our work also uncovered that the success of an institution's implementation of digital courseware relies heavily on the level of intentionality when deciding how to deliver course content. We did not explicitly research the efficacy of different digital learning modalities (fully-online, fully-online flex, hybrid or flipped) in improving student learning outcomes. However, we did see the importance of selecting a modality based on student needs and demographics. Institutions should take the following factors into account when selecting a modality:

- The needs of their students based on their demographics (including age, level of technological literacy and job or academic experience)
- The institution or program's motivation(s) for implementation
- The infrastructure available and institutional capacity for implementing digital courseware (including IT support, resources and faculty experience with digital learning)

Looking Beyond Modality



Customizing Through Technology



Leveraging Adaptive Courseware



Adopting Cost-Efficient Resources



Centralizing Course Development



Making Data-Driven Decisions

The use cases in this report have been segmented by these five strategies. At the top of each use case you will find a red strategy icon underlined and other icons highlighted, which indicates the primary and secondary strategies that the institution has employed.

The success of an institution's implementation of digital courseware relies heavily on the level of intentionality when deciding how to deliver course content.

As institutional leaders make their way through this document, they should watch for strategies that target challenges similar to those they hope to solve. Reading the corresponding case studies will unpack how institutions employed these strategies effectively.

Definition Courseware

Courseware, as defined by [Tyton Partners](#), is “instructional content that is scoped and sequenced to support delivery of an entire course through software that is built specifically for educational purposes (e.g., YouTube is not considered courseware). Courseware includes assessments to inform personalization of instruction and is equipped for adoption across a range of institutional types and learning environments (face-to-face, online, and blended/hybrid). Courseware is not a learning management system.”

[Learn more here.](#)

Our work uncovered five high-tech strategies employed by institutions that have successfully implemented digital learning at scale across a range of modalities. The strategies that underscore the high-tech, high-touch connection are customizing through technology, leveraging adaptive courseware, adopting cost-efficient resources, centralizing course development and making data-driven decisions.

Although many of the institutions we studied are employing more than one of these strategies, in this report we have grouped the institutional use cases according to the strategy that has been most critical to achieving digital learning at scale. As institutional leaders make their way through this document, they should watch for strategies that target challenges similar to those they hope to solve. Reading the corresponding case studies will unpack how institutions employed these strategies effectively.



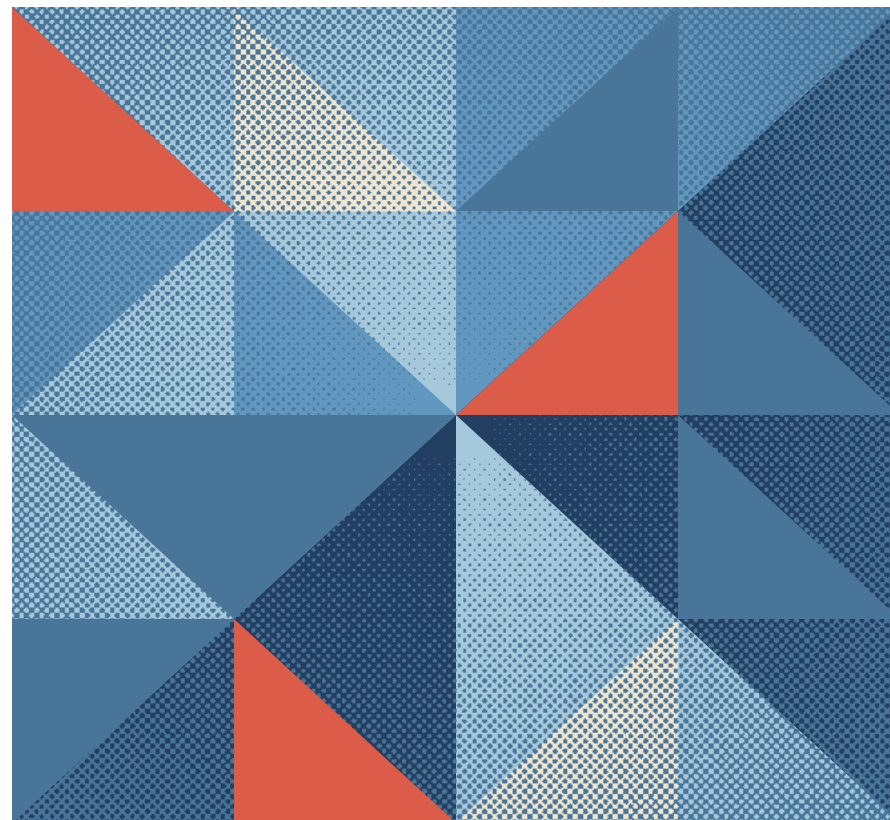
CUSTOMIZING THROUGH TECHNOLOGY

Scaled digital learning requires a new approach to student support services that focuses on the needs of each individual student. Institutions with primarily adult student populations use a high degree of personalization through customized support, tailored curriculum and targeted interventions to help students develop tangible competencies and advance their careers. The American Women’s College at Bay Path, for instance, is a four-year nonprofit college that serves adult women learners online. As part of its program, The American Women’s College provides individualized support for each student based on their background, barriers and insights gathered from their progress on the adaptive course platform. To take another example, College for America at Southern New Hampshire University lets students hold synchronous webinar sessions with a faculty member who offers personalized support and functions as a subject matter expert.



LEVERAGING ADAPTIVE COURSEWARE

A key challenge in higher education is serving students who arrive with a range of academic and professional skills and vastly different knowledge levels. Adaptive courseware products (e.g. McGraw-Hill’s

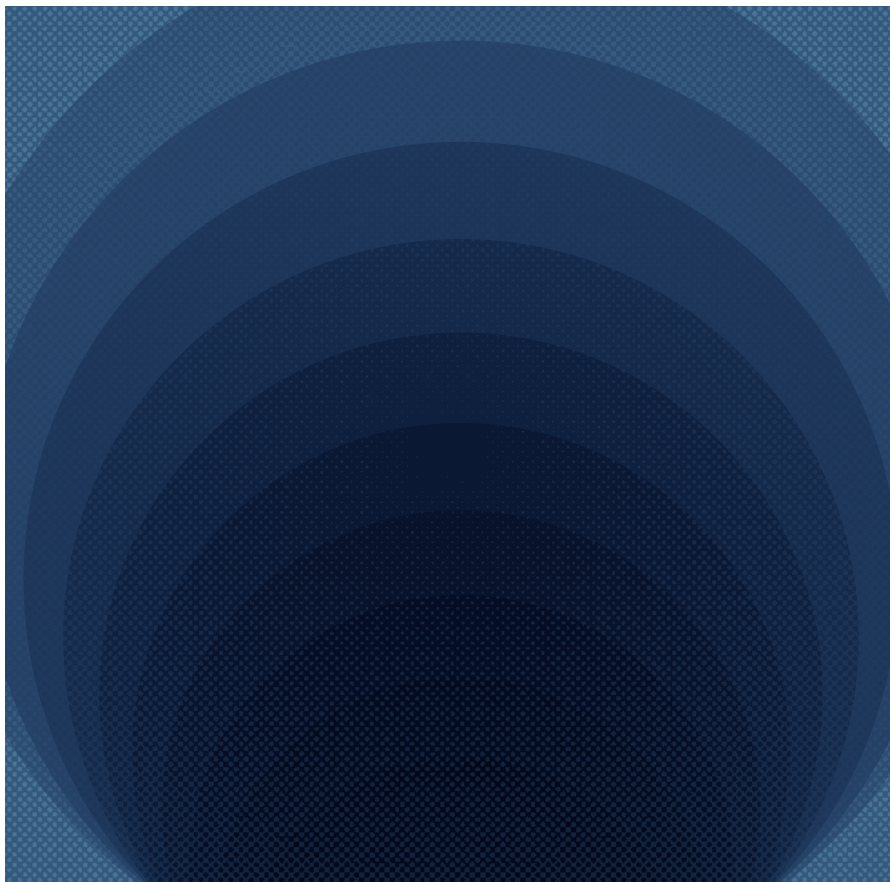


ALEKS) have emerged as essential tools that help schools identify and address knowledge gaps. “Adaptive courseware” refers to educational software that modifies its material, presentation medium (text, video, audio, etc.) and/or level of depth based on a student’s pace and mastery in the course. Austin Community College (ACC), for example, has implemented ALEKS across its developmental math courses to provide the appropriate amount of individualization, material and coursework so each student can learn at their own pace. This adaptive and personalized approach has helped ACC lower withdrawal rates in developmental math courses.



ADOPTING COST-EFFICIENT RESOURCES

Due to the increasing cost of higher education materials, many institutions want to make these resources more accessible to students. Digital learning allows institutions to provide more cost-ef-



efficient resources for students with Open Educational Resources (OER) and other digital instruction resources. One example is Rowan-Cabarrus Community College, which partnered with Cengage Learning to roll out e-textbooks across 30 of its liberal arts courses. In tandem with this high-tech initiative, the community college provided a complementary high-touch counterpart: training to teach students how to use the digital materials and get the most out of them. The initiative has saved students an average of 25% to 50% on material costs.



CENTRALIZING COURSE DEVELOPMENT

Centralized course development can help institutions implement effective online learning initiatives at scale while providing students a more uniform experience focused on the learning objectives

of the course. Many of the institutions interviewed have established digital learning centers to guide course development and provide resources such as instructional designers and coaches to help faculty designing courses. These digital learning centers give institutions a way to achieve scale efficiently without compromising quality. A number also use a master course approach that establishes a standard course model that is then used by all instructors. St. Petersburg College (SPC) is an example of an institution using the master course model to improve course quality through better oversight and course standardization. At SPC, an individual faculty member or course facilitator leads the master course design process with support from instructional designers, technologists, librarians and other staff. After receiving input from other faculty members, the redesigned course is designated as a master course model for both fully online and in-person courses.

A data-driven implementation allows institutions to make calculated improvements to their digital learning initiatives.



MAKING DATA-DRIVEN DECISIONS

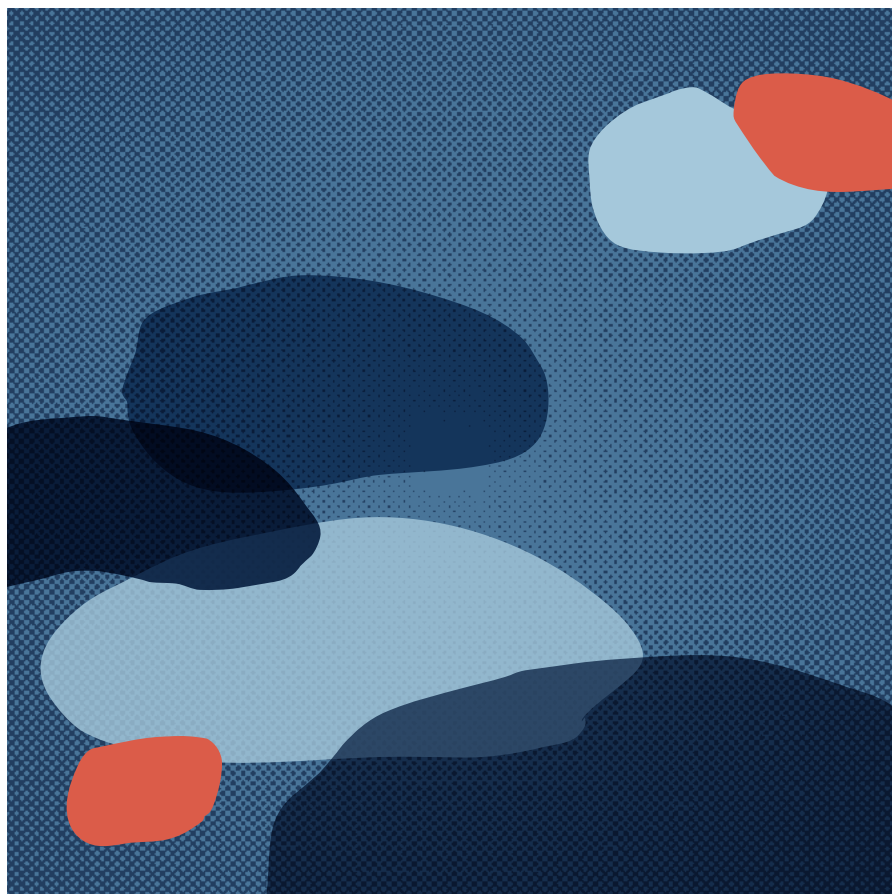
Perhaps the most powerful asset unlocked by a high-tech, high-touch approach is the data generated by courseware. Armed with evidence-based insights from the courseware, faculty can focus their efforts on students needing extra support. Data from courseware also help institutions make calculated improvements to their digital learning initiatives. Colorado Technical University has long used student data to improve learning outcomes. The institution launched its own adaptive learning platform, Intellipath, in 2012 and created a customized dashboard that tracks student use of course materials so that instructors can optimize courses for student engagement and success.

Editor's Note

Although the institutions featured in this report may employ multiple strategies, we chose to highlight a single strategy per institution in order to provide focused examples. We've included additional use cases in the appendix that we consider promising examples of implementation with strategies not outlined in this report.

Overview

Digital Learning in Higher Ed



Digital learning in higher education is becoming more ubiquitous as institutions realize its ability to support student success and empower faculty. Growing diversity in student demographics has brought related changes in student needs, prompting institutions to look to technology to better serve their students. Digital courseware gives institutions the ability to build personalized, accessible and engaging content. It enables educators to provide relevant content and interventions for individual students, improve instructional techniques based on data and distribute knowledge to a wider audience (MIT Office of Digital Learning, 2017).

PARTICIPATION IN DIGITAL LEARNING IS GROWING

Nationally, the number of students engaged in digital learning is growing rapidly. One driver of this growth is rising demand for distance learning, which often relies on digital learning environments. Distance learning programs saw enrollment increases of approximately 4% between 2015 and 2016, with nearly 30% of higher education students taking at least one digital distance learning course (Allen, 2017). Much of this growth is occurring at the undergraduate level (Allen, 2017). The number of students who take distance learning courses exclusively is growing as well. Between 2012 and 2015, both public and private nonprofit institutions saw an increase in students taking only distance courses, although private, for-profit institutions have seen a decrease (Allen, 2017).

STUDENT DEMOGRAPHICS ARE CHANGING

The expansion of digital learning may be a reflection of the changing demographics of postsecondary students. The number of college students age 22–39 is increasing and students across all age groups are more frequently working toward degrees via blended or fully online programs (Hall, 2016). Currently more than 60% of postsecondary students have part- or full-time jobs, 28% have families to support and 37% are enrolled part-time (60% at four-year institutions and 40% at two-year institutions) (Hall, 2016). Digital courseware benefits those students who have more extracurricular responsibilities (e.g. children, jobs) by giving them the flexibility to complete their coursework on their own schedule.

The post-secondary student population is becoming more diverse, suggesting a greater need for the accessibility and flexibility that digital learning environments can provide.

Note: Although our research is focused on digital learning, this section of the report refers to “distance learning” as we are citing a paper that uses these terms interchangeably.

“Students’ relationship with technology is complex. They recognize its value but still need guidance when it comes to using it for academics.”

Dahlstrom et al., 2013

The postsecondary student population is also becoming more diverse in terms of socioeconomic status, which has implications for degree completion rates given that low-income students often take longer to complete their degrees. In 2013, only 9% of low-income students completed their degree by the age of 24, compared with 77% of more affluent students (Cahalan, 2015). To better serve these students, institutions can use digital courseware to accelerate student progress through active engagement, rapid assessments and self-pacing (MIT Office of Digital Learning, 2017).

INNOVATIVE INSTITUTIONS EXPERIMENT

The adoption of digital learning often encourages greater experimentation. As the use cases included demonstrate, institutions experiment with a range of blended, flipped and hybrid modalities, frequently using digital tools to offset seat time while increasing student engagement with the course content and one another. In many online courses, students are more in control of their learning experience than they are in traditional courses. This has an impact on student success, as awareness of control over one’s learning affects student satisfaction and motivation (Vandewaetere, 2011). Teaching methods that incorporate interactive elements using a computer have also been shown to improve academic achievement (Tseng, 2008), though there is less evidence that it affects course completion (Yarnall, 2016).

Currently, the expansive approach to digital learning is being driven by a relatively small group of institutions who have a disproportionately large number of students enrolled in digital courses. One survey of nearly 5,000 institutions found that 23% of all distance enrollments were concentrated among only 50 of those institutions. Experimentation with different digital learning methods and modalities is largely limited to these pioneering institutions. They possess an innovative mindset and have the ability to expand the reach of digital learning and influence where the sector goes in the future. Our work focuses on exemplars in this space in order to give more institutions the tools and knowledge needed to implement their own digital courseware programs at scale.

CHALLENGES REMAIN

Institution-wide adoption of digital learning is not without challenges. Many educators are not aware of the proven benefits to students and the breadth of exploration happening in the field. In some cases, concerns about additional time required to develop digital courses and, in the case of two-year institutions, perceived increased costs to students increase instructors’ reluctance to adopt digital courseware (Lammers, 2015). In other cases, lack of faculty training and support inhibits the production of quality courseware and makes it difficult to get the most out of digital tools (Keengwe, 2010). By giving faculty the tools to produce and run courseware programs, institutions are able to overcome this hurdle.

As faculty learn more about digital courseware as a teaching tool and engage in the process of implementing these tools in their courses, they typically become supporters and champions. They find they are able to engage a greater number of students in part because they have better insight into how students engage with the material (Yarnall, 2016) and can adapt their instructional approaches based on how specific students learn best (MIT Office of Digital Learning, 2017). The resulting student-instructor relationship reinforces digital courseware’s positive impact on student learning (Hall, 2016).

At the student level, hurdles persist as well. It is easy to assume that all students have access to technology and some degree of digital literacy, but technological access and understanding is uneven across demographics, which can ultimately impact student success. In one sense, the challenge of broad adoption of digital learning solutions is coupled with larger challenges facing higher education: “catering to all learners’ needs [and] aligning college programs with deeper learning outcomes and the acquisition of 21st century skills that lead to personal goal achievement and gainful employment” (Hall, 2016).

While there are challenges to implementing digital learning at scale, the benefits speak for themselves. Digital courseware gives students greater flexibility in how and when they access course content in a way that cannot be achieved in the traditional classroom. This report highlights successful implementations of digital learning so other institutions can understand the barriers, solutions and benefits to establishing digital learning programs at scale.

It is easy to assume that all students have access have to technology and some degree of digital literacy, but technological access and understanding is uneven across demographics, which can ultimately impact student success.

Defining Modalities Nuances of Delivery

As institutions continue to find new and innovative ways to deliver instruction, there is a need to level set the sector by defining the landscape of modalities in the field. The table to the right explains the modalities in more depth, from least to most digital.

Insight

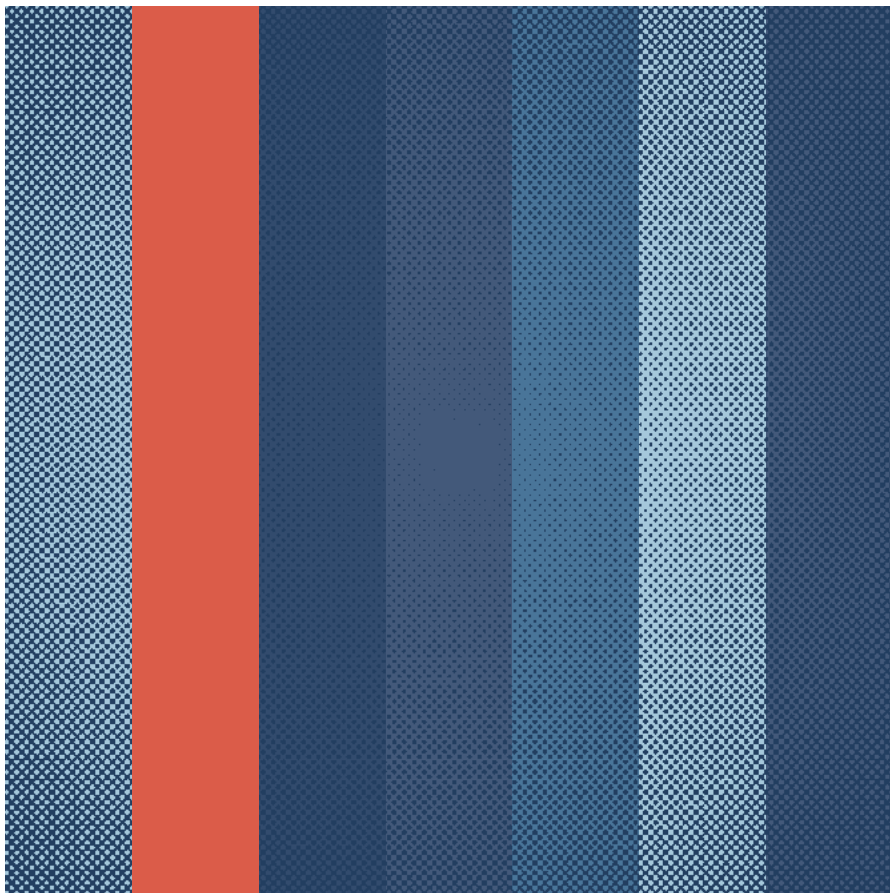
During our interviews we asked institutions to select a modality based on various factors including student needs, financial considerations and IT infrastructure. In these conversations we found that physical space is a factor in the move towards online courses, given the cost of adding new buildings. Thus, classes that meet in-person less frequently help institutions manage enrollments when physical space is limited.

Suggestion

When choosing a modality, institutional leaders should talk with students, faculty and community members to learn more about their needs. For example, St. Petersburg College created a fully online dental program because of a demand in the community for more dental technicians and instructors who could teach related courses. Most students do not live close to the SPC campus, so fully online courses best serve their students.

	Modality	Sample Practices	Example Case Studies
FACE-TO-FACE	Face-to-face In person instruction with no digital learning components. The syllabus and final grade may be provided to students through a learning management system (LMS). These “traditional” courses are often lecture-based, where instructors present to students in a classroom.	<ul style="list-style-type: none"> • Lectures • Synchronous assessments • Coursework done outside of class 	
	Tech-enabled face-to-face Instruction that is supported by technology but does not replace class time (e.g. use of online texts or videos). Tech-enabled face-to-face courses supplement “traditional” lecture courses with digital content that can be accessed outside of the classroom.	<ul style="list-style-type: none"> • Digital version of textbook • Discussion boards via LMS • Content-relevant videos 	
MIXED	Blended Courses that combine in-class and online learning where less than 25% of the traditional face-to-face time is replaced with digital content. Instructors may assign additional coursework to be completed outside of the classroom.	<ul style="list-style-type: none"> • Adaptive courseware • Online simulations • Discussion boards 	<ul style="list-style-type: none"> • Northern Arizona University
	Hybrid Courses that combine in-class and online learning where 25%–75% of traditional face-to-face time is replaced by digital instruction. While similar to blended courses, the replacement of in-class instruction allows for the incorporation of more active learning in class.	<ul style="list-style-type: none"> • Courseware used for coursework and assessment • Online discussion boards • Teaching assistants or tutors used in class • Classes meet in person once or twice a week 	
	Flipped Courses where students receive all instruction content via online materials (often through courseware) outside of class and instructors use class time for active learning, application, and individual student support.	<ul style="list-style-type: none"> • Team projects and problem sets in class • One-on-one instructional support • Instructor acts as a facilitator instead of lecturer 	<ul style="list-style-type: none"> • Austin Community College • Virginia State University • University of Mississippi • Cedar Valley College
FULLY ONLINE	Fully online flex All instruction and coursework is conducted online, but students are given the option to receive in-person support. These courses are often taken by students who live in the area and want faculty support but need the increased flexibility of online learning.	<ul style="list-style-type: none"> • Support centers for online students • Personalized support • Office hours 	
	Fully online These courses do not have required face-to-face meetings. The course and all learning activities exist in a fully digital space. Fully online courses are typically chosen for distance students or those who need increased flexibility.	<ul style="list-style-type: none"> • Faculty members as coaches • All material delivered and coursework assessed in courseware • Online discussions and forums 	<ul style="list-style-type: none"> • The American Women's College • College for America • Rowan-Cabarrus Community College • St. Petersburg College • Colorado Technical University • Seattle University

Objectives and Methodology



This resource is intended as an inspiration and reference tool for leaders at academic institutions who are looking to scale digital learning efforts.

Institutions included in this report were chosen based on the following criteria:

- They are conducting digital learning at scale
- Their approach has seen success backed by data
- Their implementation seeks to serve primarily low-income and first-generation students as well as students of color
- Together they represent a range of institution types (i.e., small/large, private/public, 2-year/4-year)

When we refer to “digital learning at scale” in this report, we mean that a digital approach is used for every offering or section of a particular course (e.g. every Biology 101 section). The case studies included were informed by a qualifying survey conducted with a collection of 28 institutions suggested by Online Learning Consortium, APLU, the Bill & Melinda Gates Foundation, Tyton Partners and SRI International. We used the results of these surveys to select a faculty member and administrator at each institution whose digital courses would represent the breadth of approaches being taken. We completed a total of 26 interviews, each lasting an hour. In addition, we had each interviewee map their initiative to nine digital learning characteristics (or “spectrums”) that we had identified. To better understand how digital learning is evaluated, discussed and implemented, we also conducted site visits to five institutions for additional interviews and tours of relevant environments. We used these site visits to evaluate prototypes of the work and get a closer look at the exemplar institutions.

Overview Research Participants

The first phase of this work involved interviews that helped shape our understanding of the digital learning space. The second phase focused on identifying institutional use cases and gathering insights.

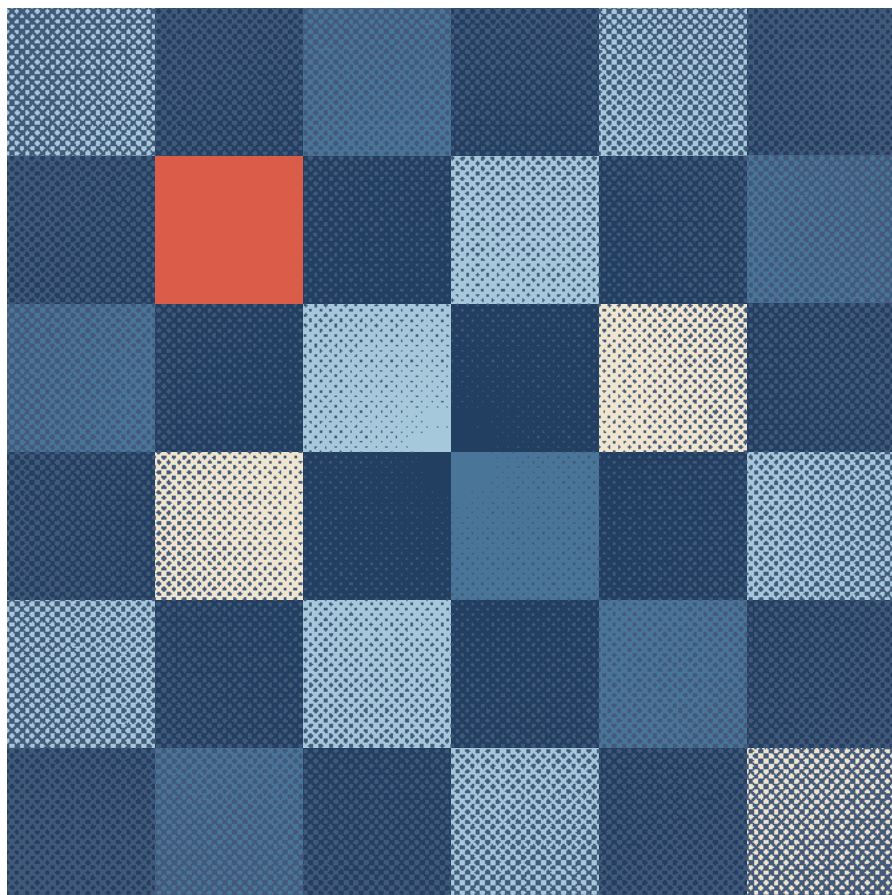
Phase 1

- 25 interviews
- 22 institutions

Phase 2

- 28 qualifying surveys
- 26 institution interviews (13 faculty, 13 administrators)
- 34 spectrum responses

Laying the Groundwork



Successful digital learning models rely on careful consideration of certain key elements, including efforts to bolster educational quality by balancing student and faculty needs with the goals of the institution. The elements detailed below highlight critical considerations for institutions looking to adopt digital learning. Although each institution featured in this report used a slightly different approach when implementing digital learning, all incorporated these elements in some fashion.

CONSIDERATION 1 Culture Shift

Shifting the prevailing culture to embrace digital learning represents a key challenge for many institutions. Faculty, staff and students may have preconceptions about and initial opposition to digital learning that can impede adoption if not addressed. To foster the necessary culture shift, institutions should strive to create an experimental, iterative attitude towards digital learning implementation.

Strategies

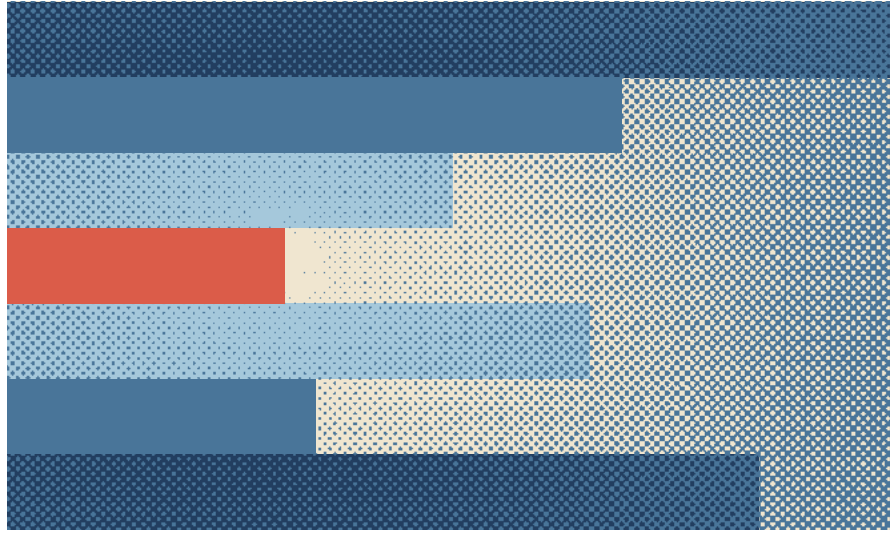
- **Involve stakeholders:** Reach out to stakeholders early in the planning process and engage a wide variety of stakeholders to ensure institution-wide buy-in.
- **Give it time:** Remember that shifting culture will take time, regardless of your institution's relationship with digital learning.
- **Communicate:** Develop a messaging strategy for digital learning implementation that invites active engagement from all affected.
- **Common language:** Create a shared lexicon for talking about digital learning so that everyone is on the same page.

CONSIDERATION 2 Pedagogy

Because digital learning changes the way that students and teachers interact, delivering a course with a significant digital component presents unique pedagogical challenges. The most noticeable difference in pedagogy involves how instructors engage

Getting Started Considerations

- 1 Culture shift
- 2 Pedagogy
- 3 Role of faculty
- 4 Faculty Training and support
- 5 Student support services
- 6 Academic resources
- 7 Data infrastructure
- 8 Course design



“I’ve talked to faculty [...] who were relieved to stop lecturing because they felt it was wasting their expertise lecturing on topics they felt like students should already know.”

Patricia O’Sullivan,
Program Manager
of Personalized
Learning and
Adaptive Technologies
Opportunities at the
University of Mississippi

students online. Designing choices for students and developing a formal feedback loop, both elements that occur naturally in a traditional classroom, must be purposefully implemented in the digital classroom.

Strategies

- Competency-based: Use competency-based approaches for fully-online courses in order to ensure appropriate scaffolding of learning.
- Contextualize: When feasible and appropriate, use coursework that is in the context of students’ career and personal interests so they can better connect and engage with the material.
- Create for collaboration: Be intentional about creating a collaborative peer-learning environment for students so that they feel “present” despite being online.

CONSIDERATION 3 **Role of Faculty**

Digital tools allow faculty to be more than lecturers and enable them to create experiences that strengthen student learning in new ways. With a centralized course development system, faculty can focus on helping their students learn without needing to worry about course design or curriculum development.

Strategies

- Disaggregate the role of faculty: Allow faculty to use their subject matter expertise by helping students work through the content. Explore how they can support students in their digital learning course (i.e. coaches, mentors, etc.)
- Include adjuncts: Pay attention to the potential impact that adjuncts can have on digital learning implementation. Give them the support to succeed in teaching digital courseware.

CONSIDERATION 4 **Faculty Support & Training**

Faculty will need support and training to make the shift to digital learning. Although faculty do not need to be technological experts, developing greater faculty with technology will build instructor confidence over time. Institutions should also consider how faculty are compensated for training or development of digital courses.

Strategies

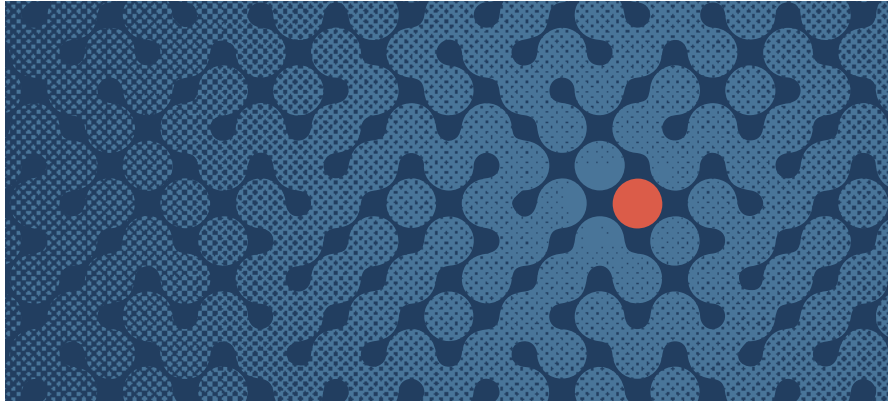
- Targeted training: Meet faculty where they are. Support instructors based on their specific needs and skillsets instead of throwing them into the deep end.
- Communities of practice: Encourage cohort and community learning among faculty to ensure that effective methods and lessons learned are shared.
- Incentivize: Consider incentives that encourage continued participation rather than one-off engagements.

CONSIDERATION 5 **Student Support Services**

According to the faculty we interviewed, students in digital learning environments often struggle with non-cognitive skills (i.e., motivation, growth mindset, time management) more than the actual course content. Furthermore, disability services must be integrated into the development of the digital learning environment so that all students can learn successfully.

“Students are used to using technology but not for learning. Teaching them how to use the technology the way it was designed to be used is the challenge I think for any instructor.”

Leslie Whiteman,
General Biology
Coordinator at Virginia
State University



In the digital learning environment, students struggle with non-cognitive skills (i.e., motivation, growth mindset, time management) more often than learning the actual content.

Strategies

- Readiness assessment: Conduct a student readiness assessment to determine if a student is well-suited for a digital learning environment. This process can be used to nudge students toward a modality that will work best for them.
- Communities of practice: Develop communities that let students discuss their experiences and struggles. Social media pages offer one ready approach to creating such communities.
- Guide: Provide a “coach” or “mentor” who aids students in the digital learning environment.

CONSIDERATION 6 Academic Resources

When appropriate, digital courseware should take the place of physical textbooks in order to increase accessibility and constrain costs for students. In addition, on-campus tutoring centers need to be prepared to support distance students, whether physically or via a digital component.

Strategies:

- Digital courseware: Begin a conversation with your bookstore to think through digital offerings.
- Tutoring access: Ensure tutoring centers on campus can provide support for students in fully-online or hybrid courses.

CONSIDERATION 7 Data Infrastructure

Digital learning initiatives give institutions more opportunities to collect detailed data and use them to enhance the overall program. For example, schools track persistence data to understand where they are losing students between courses. Institutions are also collecting more demographic data, such as identifying first-generation students, and looking for ways to use that information to improve access and reduce barriers to student success.

Strategies

- Seize the opportunity: Use digital learning implementation as an opportunity to expand and enhance how you collect student data.
- Institutional culture: When possible, encourage an institutional culture of data-driven decision making by using tools and services that give faculty and staff insight into how to use student data.

CONSIDERATION 8 Course Design

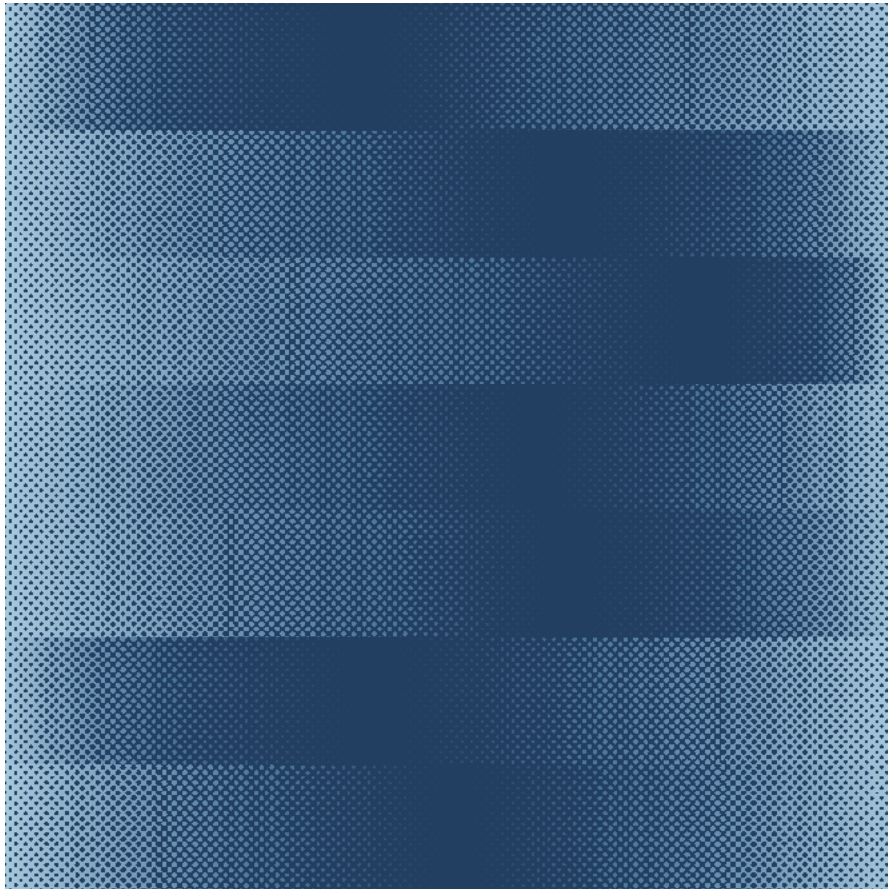
Instructional designers confirm that traditional course design does not translate directly to digital courses. In the online environment, learning works best when presented in digestible chunks of content that build on one another. That said, iteration, intentionality, and imaginative approaches are all part of developing a traditional course and have relevance for digital learning. Despite the temptation to create a course and regard it as complete, digital learning offers continual opportunities to enhance student success through targeted course improvements.

Strategies

- Use experts: Always involve instructional designers in course design if they are a resource.
- Centralized model: Establish a standard course model to ensure that what works is used in all future courses. This approach also results in a cohesive experience for students.

In the online environment, learning works best when presented in digestible chunks of content that build on one another.

Spectrums



TYPES OF DIGITAL LEARNING

Defining digital learning modalities is complex in this diverse and ever-changing space, which can create confusion among practitioners. However, despite the fact that no two implementations of digital learning look the same and models are constantly evolving to better meet the needs of students and institutions, a few common themes arise which we will explore here.

At the most basic level, digital learning deliveries fall under one of three labels: face-to-face, mixed modality or fully online. Institutions use a variety of terms when talking about these broad categories, some of which are outlined in the box on the right.

Institutions have struggled to define modalities and often use various metrics to make the distinction. Some of these include: the percentage of in-person instruction versus online, student time spent in-person versus online and diversity in teaching pedagogy required by the new modalities. Few institutions report the modalities they use, but, in some cases, these may be identified in the code structure of their respective institution's course catalogues or cost.

The lines between these modalities are blurry. Consider a course that meets face-to-face using an adaptive online learning platform for content delivery and assessment. Students meet in class four hours a week but perform eight hours a week of learning in a digital environment. On the other hand, consider a hybrid course that meets in-person two hours a week with another two hours a week of online activities and uses a physical textbook that the students have to read for another six hours a week. Which of these courses is more online?

To unpack the differences between these institutional practices we developed a set of nine spectrums that helped those we interviewed articulate their institution's approach to digital learning implementation. The following page provides an elaboration on the spectrums.

Few institutions report the modalities they use, but, in some cases, these may be identified in the code structure of their respective institution's course catalogues or cost.

Digital Learning Elements

Function of the Spectrums

In order to capture the nuances of digital learning initiatives, we developed the following set of spectrums. These spectrums serve as a mechanism for identifying an initiative's unique structure and include methods of development, levels of synchronicity and instructor presence. It is important to note there is no 'wrong' end of the spectrum; rather the spectrums help capture the breadth of digital learning approaches.

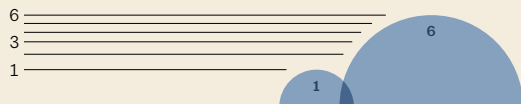
As digital learning is new for many institutions, they continue to experiment with different approaches to find what works best for students and faculty. For that reason, digital learning is still too young to be constrained by frameworks and categorizations at this time. The spectrums offer a way to organize these iterations of digital learning and, although larger circles on each spectrum range may show emerging trends, this organization should not limit your view of what is possible for digital learning.

The responses mapped on the right are the aggregated responses from the faculty we interviewed. Each interviewee offered their take on the courses and programs that are outlined in the use cases. For each institution, we collected spectrum responses from a faculty member and an administrator to discern if perspectives differed depending on role. Although there were few discrepancies between the pairs at most institutions, administrator-level interviewees tended to call out **adaptivity and personalization** and the **development team** as the two spectrums that have the most impact on student success, while faculty tended to emphasize **instructor presence** and **student collaboration**.

The development of these spectrums was informed by our exploration into the field of digital learning and the insights of Dr. Maria H. Andersen, an instructional designer and contributor to this work. The spectrums were then vetted with interview participants and experts in the field.

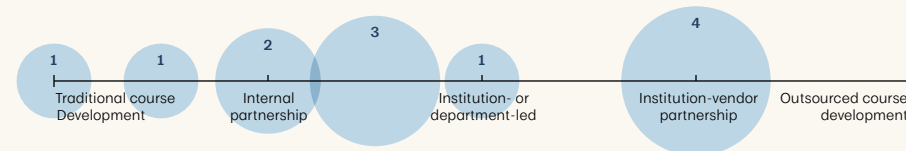
Key

Circle size indicates number of responses.
Exact number is inset for clarity.



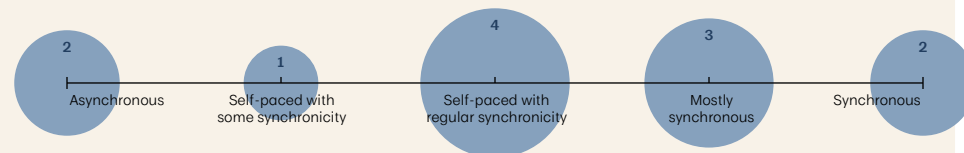
Development Team

Shows differences in course development, ranging from traditional faculty-driven approach to fully outsourced efforts.



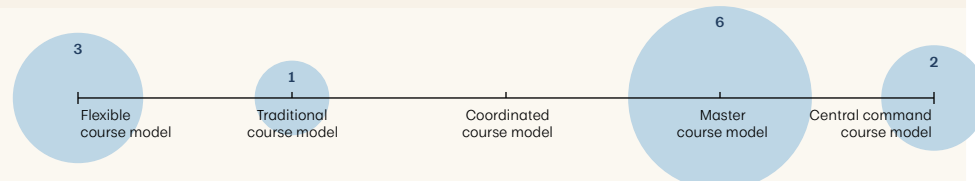
Synchronous

Ranges from courses that are fully in-sync with similar due dates and course start and end dates to ones that are entirely self-paced.



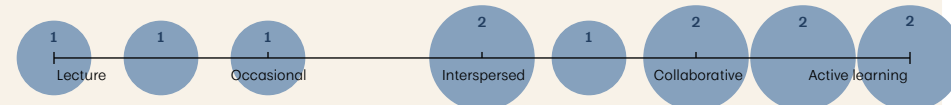
Instructor Modification Ability

Outlines the range of an instructor's ability to develop and edit course design and curriculum.



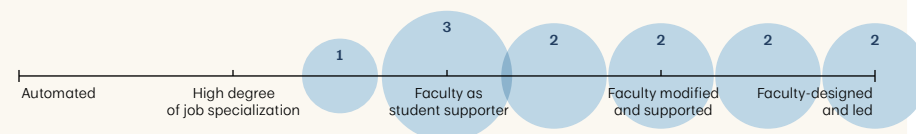
Designed Student Collaboration

Articulates the level of intended interaction among students in the course.



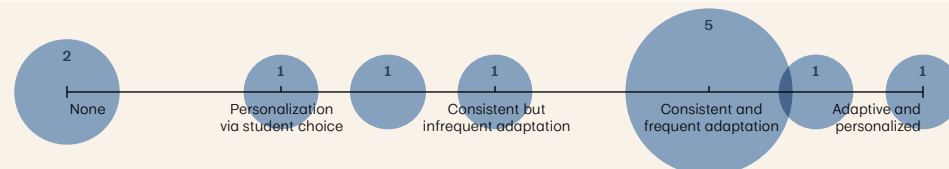
Instructor Presence

Outlines the range of roles faculty can play in a course.



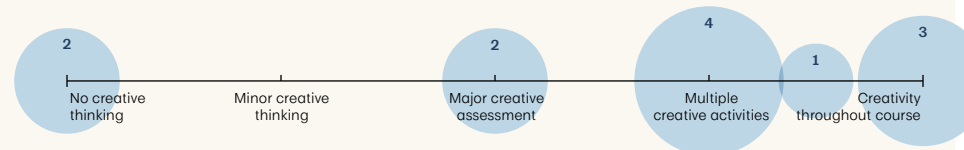
Adaptivity and Personalization

Demonstrates the level of personalization a course can deliver to students.



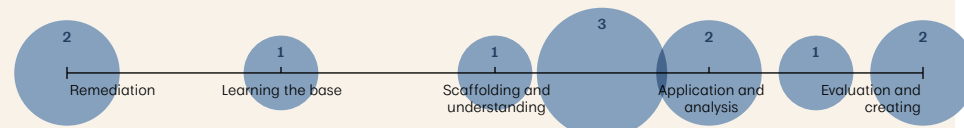
Student Creative Thinking

Shows the extent to which students are expected to engage in creative activities throughout the learning experience.



Cognitive Level of Course

Shows the range of intended outcomes of the course based on [Bloom's Taxonomy](#).

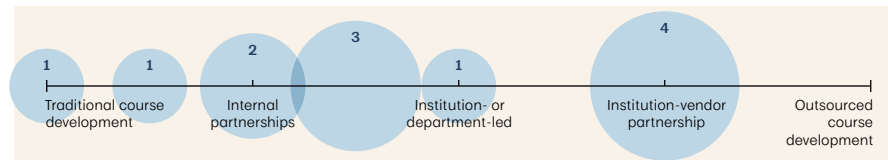


Spectrum Definitions

These eight spectrums serve as a map to better articulate the range of manifestations that digital learning can take. During our exploration, institutions used these spectrums to denote where their current iteration of digital learning is and where they aspire to be in the future.

SPECTRUM

Development Team



DEFINITIONS

1. Traditional course development

The course is developed by one faculty member working alone. They may incorporate elements of a vendor product or open educational resource (OER), but these elements are chosen, modified and organized by the faculty member.

2. Internal partnerships

The course is developed by a team of two to four people consisting of faculty and possibly assistance from an instructional designer. Elements of a vendor product or OER may be included in the course, but these elements are chosen, modified and organized by the team members.

3. Institution- or department-led

The institution or department owns the development of the course. Collaboration is required for such projects and the team is larger, typically 10-20 stakeholders. Elements of a vendor product or OER may be included in the course, but these elements are chosen, modified and organized by the department or institution team.

4. Institution-vendor partnership

The vendor and the institution work together to develop a course. The vendor contributes expert authors or existing content and relies on the institution for subject matter experts and any supplemental material.

5. Outsourced course development

The institution hires a vendor to design and produce 100% of a course. In these cases, institutional resources are only used in the form of advisors and reviewers.

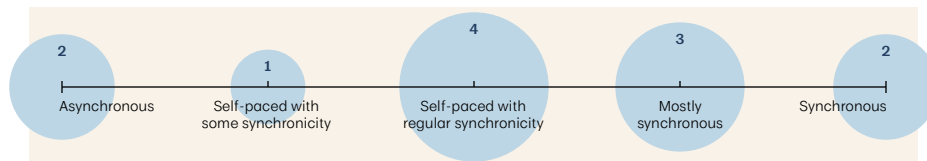
Insight

A shift towards master course models makes course development more modular and template-based, with greater emphasis on teams and less on individual faculty members. Many institutions with more digital learning experience aim to move from the “cobbling together what works” stage to a centralized, process-driven development cycle.

Suggestion

Several factors contribute to an institution's ability to develop courses quickly at scale. First, using a master course model allows for the reuse of the course material create. Second, making content modular connects it to relevant skills. Third, developing a centralized digital learning organization serves all stakeholder needs. Lastly, using librarians or content finding services ensures the quality of OER and courseware adopted.

Synchronous



Insight

Few courses or programs discussed in the interviews were fully synchronous. In lower division courses and developmental education, students usually had some synchronous time to interact with an instructor or common due dates for assignments. In upper division courses, less synchronicity was required because students in those courses had greater fluency in the topic.

Suggestion

The level of synchronicity that best suits a course varies depending on content and student needs. Generally, students in a digital environment seek more self-paced engagement with their learning, live discussion forums and optional in-person time. This combination of some self-paced with some synchronous sessions can help students feel more connected to the course and builds a sense of community.

DEFINITIONS

1. Asynchronous

The course is completely self-paced with no common start/end dates. There are no synchronous activities and at any given time, there are students at various points in the course, learning at different paces.

2. Self-paced with some synchronicity

The course is self-paced, but students have access to synchronous activities with other students (group projects or attending a live discussion.) Students mainly participate in asynchronous discussions online.

3. Self-paced with regular synchronicity

The course has a start and end date but students work at their own pace in between. There are some regular synchronous activities (virtual discussions, face-to-face lab sessions, etc.) Students participate in asynchronous discussions.

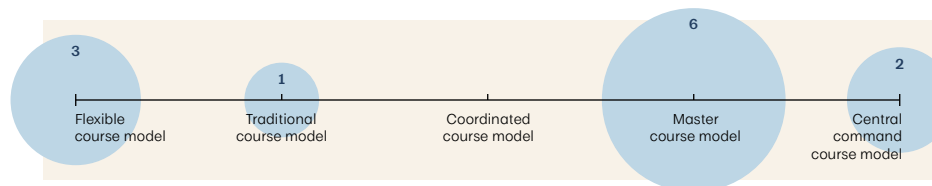
4. Mostly synchronous

The course starts and ends on specific dates and has common due dates. Students have some synchronous activities with the instructor and/or other students, but fewer than in a traditional face-to-face or single-instructor online course.

5. Synchronous

The course starts and ends on specific dates. Students have many synchronous activities with the instructor and/or other students. These may consist of several in-person sessions a week, virtual discussions, or group projects.

Instructor Modification Ability



DEFINITIONS

1. Flexible course model

Instructor has full capacity to modify the content and pedagogy of the course. Seminar-style courses fall into this category.

2. Traditional course model

Instructor has control over pedagogy, schedule and assessment activities, but cannot modify most content covered in the course.

3. Coordinated course model

Instructor can choose pedagogy and format but must follow an established syllabus that sets the content for the course. Instructors of the course may coordinate the timing and content of student assessments.

4. Master course model

The department creates a master course that includes all learning resources, schedule and assessments. This master course is distributed to each instructor, who can make some modifications if they choose.

5. Central command course model

The institution develops and controls the entire course. All the instructors teach from this single course and are only able to modify the course through collaboration with the design team.

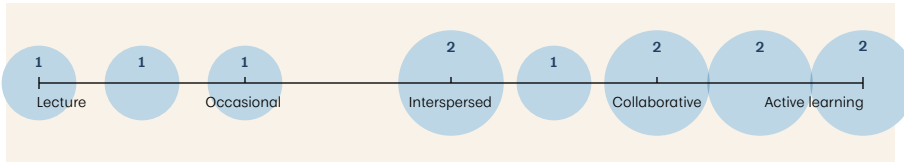
Insight

Most of the instructors interviewed taught courses using a master course model that standardizes content and assessments. This model ensures that, regardless of instructor, students have consistent learning objectives that can be built upon in subsequent courses. One benefit of this approach is the ability to gather and compare data across course sections. Once a standard model exists, data can be used to improve the course over time and track how students perform.

Suggestion

When designing or revising a course, create a team that includes faculty, instructional designers, subject matter experts and media experts. Inviting faculty to learn about course design helps them understand and cultivates buy-in for these new models.

Designed Student Collaboration



Insight

Faculty report that student collaboration often bolsters student success. Collaboration, however, often requires courses to use active learning which provides more opportunities to create student engagement.

Suggestion

It is difficult to design for student collaboration in a completely asynchronous course because students aren't expected to be on a similar schedule. Instructors suggest employing online tools that allow for collaboration between students or develop peer communities and mentors to connect students to each other for support.

DEFINITIONS

1. Lecture

Students have no designed interactions with other students. Students might ask questions in class, but it is expected that these are answered by the instructor.

2. Occasional

Pedagogy includes at least one learning activity per week where students interact with other students. An example would be a full-group discussion where students react to the statements of other students.

3. Interspersed

Pedagogy includes several activities each week where students interact with other students at regular intervals, such as one collaborative activity per hour of instruction. Less than 25% of learning time is spent on collaborative student activities.

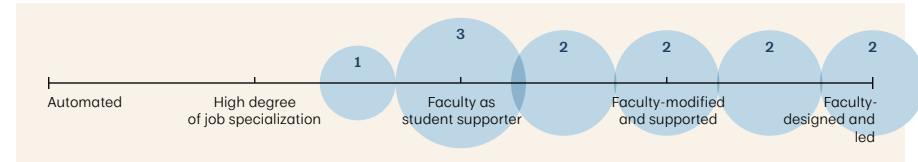
4. Collaborative

Students spend 25% to 50% of learning time interacting with other students in partner or group learning activities.

5. Active learning

Students spend a high proportion of class/online time (50-100%) interacting with other students in partner or group learning activities.

Instructor Presence



DEFINITIONS

1. Automated

The course is designed to run without an instructor. Even student assessments are peer- or machine-graded.

2. High degree of job specialization

The course is largely designed to run on its own, with an instructor to perform one major function in the course, typically either evaluation of student assessments or answering student questions.

3. Faculty as student supporter

The instructor's purpose in the course is to answer questions, coach students who need motivation and grade assessments. The instructor has little or no presence in the delivery of course content.

4. Faculty-modified and supported

Some of the learning activities are selected or designed by the instructor. The instructor has influence over activities such as discussion boards or in-class activities, though the central course materials cannot be modified.

5. Faculty-designed and led

The instructor has control over the entire course. Student assessments and learning activities are designed or chosen by the instructor.

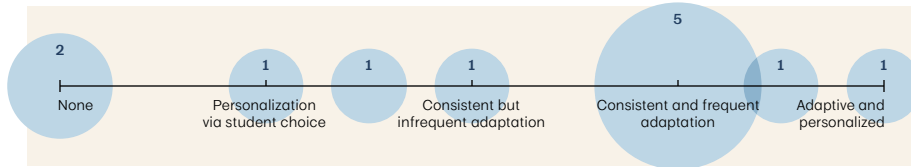
Insight

As instructors adopt digital tools to automate time-consuming administrative tasks, their time for interactions with students increases. Self-paced courses let instructors act as interventionists, while humanities courses tend to require a more hands-on approach, such as prompting questions and facilitating discussion.

Suggestion

Before designing a course, assess how much the instructor's involvement is required for the success of the student in that specific context. In the course design, develop ways an instructor can contribute their teaching skills and expertise, whether by participating in discussion boards, mentoring students, or delivering content.

Adaptivity and Personalization



Insight

This spectrum encompasses technology-driven customization, such as adaptive platforms, as well as instructor-driven personalization, such as project choices and content relevant to students' goals and interests.

Suggestion

Adaptive technology is not for all disciplines and courses. For example, courses with significant writing components can be harder to make adaptive. For these types of courses, include content that aligns with students' career interests and increase relevance and engagement. If instructors are employing project-based learning, consider options that give students choice and allow them to make projects their own.

DEFINITIONS

1. None

Every student has access to the same learning resources and completes the same assessments.

2. Personalization via student choice

Personalization is achieved through concrete choices made by the student. For example, courses may have more than one grading option so that the student can choose which they prefer.

3. Consistent but infrequent

There is a consistent element of adaptation or personalization, but it appears infrequently. For example, the student takes a pretest for each unit, with the learning resources and quiz questions delivered to the student informed by their pretest results.

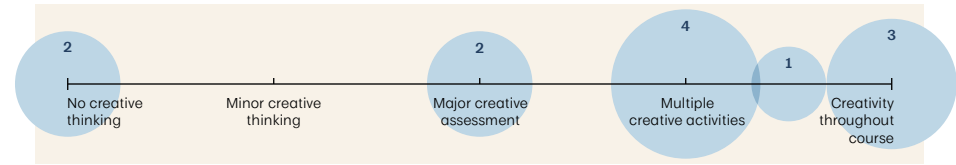
4. Consistent and frequent adaptation

The software used for learning and assessment adapts frequently (even continuously) based on actions taken by the student. This adaptation determines the learning resources seen by the student and the assessment questions the student receives.

5. Adaptive and personalized

The software adapts to actions and skills of the student frequently or continuously. The software is also personalized for the career or learning preferences of the student. For example, the course delivers health examples if the student has indicated an interest in health professions.

Student Creative Thinking



DEFINITIONS

1. No creative thinking

Every student has access to the same learning resources and is expected to complete objective assessments that are computer-graded. No interaction with other students or instructor is expected.

2. Minor creative thinking

Every student has access to the same learning resources and is expected to complete mostly objective assessments that are computer-graded. Some independent student thought is designed through structured activities like discussion boards.

3. Major creative assessment

Students are expected to complete at least one major assessment that requires independent and creative thinking (e.g., a paper or project). Alternately, some learning activities emphasize students' diversity of thinking (collaborative or active learning).

4. Multiple creative activities

Students are expected to complete a few major assessments or a combination of major assessments and learning activities that require independent creative thinking (e.g., a paper, reports from hands-on labs, a project, a presentation).

5. Creativity throughout course

The diversity of student thinking and student experiences is woven seamlessly into the learning, materials and assessment experiences. Activities give students an opportunity to show creativity and think in innovative ways.

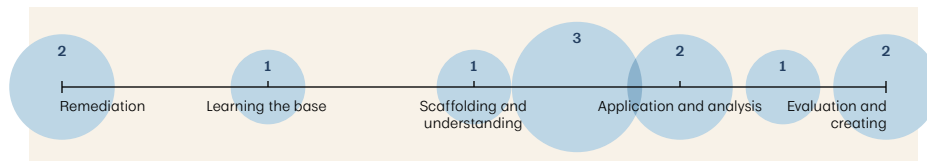
Insight

Faculty and administrators rated this spectrum as one of the most critical for student success. Faculty spoke hopefully about their desire to add more creativity to their students' work which is often in the form of student collaboration or active learning. Faculty found this spectrum to be more difficult to incorporate in some courses, such as developmental math.

Suggestion

Consider the discipline and cognitive level of a course in order to ensure that courses with a high degree of student creative thinking also have significant instructor presence in order to help the student move from learning to understanding and application.

Cognitive Level of Course



Insight

Courses and programs closer to the remediation side of this spectrum often have the hardest time designing for student creative thinking. Still, faculty affirmed that even in remedial courses you can design for student creativity via contextualization of content and peer collaboration.

Suggestion

Consider how adaptive tools can fill knowledge gaps and help instructors incorporate their teaching style and expertise into remedial courses. Instructors may also harness these tools to develop a clear path for students to advance from remedial knowledge of a subject towards application of their knowledge.

DEFINITIONS

1. Remediation

Students do not yet have a complete grasp of the subject and are working to fill knowledge gaps. Common examples are developmental math and English.

2. Learning the base

The course covers a broad set of learning objectives or topics at a shallow level. These are typically first-year courses (e.g., Intro to Chemistry, Intro to Literature) and tend to focus on acquisition of knowledge.

3. Scaffolding and understanding

The course builds on the base knowledge established in a previous course(s). Students achieve deeper levels of understanding by making use of prior knowledge and newly learned content.

4. Application and analysis

The course connects knowledge and understanding from several courses together through activities that involve application and/or analysis.

5. Evaluation and creating

The purpose of the course is a non-content-specific outcome such as technical writing or capstone research. Students must have broad knowledge in the content area to be successful.



CUSTOMIZING THROUGH TECHNOLOGY

A critical component of many successful digital programs is a high degree of customization—whether through customized support, career-focused curriculum or targeted interventions. Digital tools and technologies let schools provide personalized experiences that help students achieve their personal and professional goals. The following use case demonstrates how student-centered course design, faculty support and personalized content are key elements in achieving high-touch digital learning implementation at scale.



Wrap-Around Support

Institution

The American Women's College at Bay Path University

Type

Online, 4-year nonprofit university

Location

Longmeadow, MA

Enrollment

1,300

Demographics

95% age 25+
46% students of color
100% female
75% of adult students are first-generation

Reimagining the role of faculty to improve student success with personalized instruction and analytics-informed advising.

CHALLENGE

The American Women's College at Bay Path University (TAWC) started in 1999 as an all-day Saturday college designed for women whose work and family responsibilities ruled out a traditional college schedule. When TAWC moved coursework online in 2013 to further broaden student access, they knew they wanted to keep the community and peer support components that had been successful in-person. Additionally, they sought an affordable solution to maintain the program's financial accessibility.

SOLUTION

By examining digital learning at the degree level rather than the course level, TAWC was able to optimize its use of the adaptive content for courses that build upon each other. Adaptive courseware helps students address knowledge gaps and lets them advance as they show mastery of each concept. The new program has been highly successful, with a 93% overall satisfaction rate from graduates (May 2016) and a retention rate nearly 10% higher than the national average.

APPROACH

The American Women's College started with a pilot focused on 10 general education courses they saw as well-suited for adaptive technology, including English, Biology and Philosophy.

They began by disaggregating the existing faculty-driven model for course design and delivery. The shift to a centralized course model and adaptive courseware opened up time for faculty to reach out and advise students during the learning moment as they encounter challenges. The adaptive system provides content and assesses students to identify gaps in their knowledge. Instructors are asked to use data generated on individual students' progress to create targeted interventions that address these gaps and support students on their path to mastery.

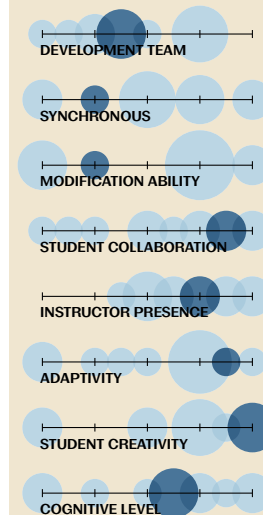
Course Development

In focusing on degree completion rather than the development of a single course, The American Women's College has taken an activity-approach, called 'nodes', to course development. To do this, they consider learning

Course Modality
Fully online

TAWC Developmental English Spectrum Responses

TAWC's developmental English courses combine adaptive technology (5) and instructor presence (4.5) to address student learning gaps and help them achieve mastery.



“When you think about all the gaps you have to fill, technology just makes so much sense as a tool to help build a lot of those bridges.”

Amanda Gould, Chief Administrative Officer

objectives across an entire degree program and then divide those goals into individual courses. A department chair works with an instructional designer, a course builder and a team of subject matter experts to create a master course in KnowledgePath, the school’s white-label adaptive platform. This process takes several months and involves assessing existing courses, identifying desired learning outcomes and key concepts and developing learning maps that show how students will use the concepts to achieve those outcomes. The team then secures accessible, affordable content by incorporating OER materials and e-Texts, which they align with course goals before rolling the master course out to the department. This approach lets students see how each activity contributes to their learning experience.

At present, TAWC offers 21 adaptive courses and aims to complete 30-40 additional master courses in the next year. In selecting courses for redesign, the institution has prioritized high-enrollment general educational courses with content and outcomes that are suited to an adaptive approach. Currently, they are focused on their business and psychology programs as these majors have the highest enrollment.

Faculty Training and Support

The adaptive model requires instructors to move away from content delivery and focus on learning facilitation and student coaching. Eleni Hinis, an adjunct professor of English, reflects that “it really frees you to do other work with the students. It’s a lot of work to put a syllabus together, especially online, choosing the texts and creating the discussion questions and the assessments.” Instructors, all of whom are adjuncts, are expected to use data generated by the adaptive system to determine when and how best to support individual student learning. To support this shift in roles, TAWC provides instructor training on making student data actionable in the classroom, with scripts for reaching out to students who need additional support. Faculty members teaching in the adaptive environment are also required to take advanced online training to develop their skills and expertise in the context of adaptive learning. They also have opportunities to work one-on-one with faculty development staff. TAWC faculty complete approximately 15 hours of general orientation to online instruction as well as 10

The American Women’s College at Bay Path University Initiative Profile

At the American Women’s College, the course re-development for their undergraduate accelerated delivery model combines adaptive technology, digital courseware, OER, and an intricate support network for the 40+ courses offered across multiple majors.



Modality
• Fully online



Characteristics
• Adaptive
• Self-paced and synchronous
• In-house and outsourced content



Tools/Software
• Realizeit
• Canvas (LMS)

hours of targeted orientation to teaching and learning in the adaptive platform prior to teaching their first course.

Student Support

Supporting students is central to TAWC’s mission. When prospective students apply, they talk with an admissions advisor to learn more about the skills and technological requirements involved in online learning. Students also take a SmarterMeasure online readiness assessment to surface challenges they may face in an online learning environment. TAWC also uses peer-to-peer mentoring to strengthen the online community and encourage proactive problem solving among students.

TAWC students tend to be older and have extracurricular responsibilities that can present challenges as they work toward their degree. Social Online Universal Learning (SOUL), a term TAWC developed to describe the ecosystem of support, aims to help these students overcome any obstacles with the ongoing support of their coaches and instructors. Once enrolled, students meet their assigned educator coach and participate in an online orientation on SOUL. SOUL helps students create a more personalized postsecondary experience, complete with proactive educator coaching, peer learning communities and a Facebook community where they can share their experiences, provide encouragement and problem-solve with one another. SOUL uses predictive analytics from student demographic, financial, enroll-

“Our brainstorming for this transition wasn’t just simply throwing courses online, but it was really thinking about, what is it that they need in order to build that community online?”

Amanda Gould, Chief Administrative Officer

The American Women's College at Bay Path University
Social Online Universal Learning (SOUL)

SOUL is a model intended to make a student's college experience more personal and supportive.



ment and academic data, as well as learning analytics from KnowledgePath to determine when students might benefit from additional support. This data-driven approach lets instructors and educator coaches tailor their approaches to the specific needs of each student.

Data and Performance Measurement

TAWC uses a wide range of data to personalize the student experience. Data generated by KnowledgePath, Canvas (LMS), Jenzabar (student information system or SIS) and other resources help instructors and educator coaches stay informed about each student's progress. Insights from these data trigger alerts so that educator coaches can take appropriate action in a timely fashion.

The institution is also conducting a randomized control trial as part of its Department of Education Fund for the Improvement of Postsecondary Education (FIPSE) grant. This study, which concludes in October 2018, will provide insight into the effectiveness of its adaptive approach relative to traditional online courses.

LESSONS LEARNED

Trained adjuncts can quickly scale master course implementation.

TAWC relies almost exclusively on adjunct faculty to deliver their online adaptive coursework. Because adjuncts are not working towards tenure, they can focus their attention exclusively on teaching. There are pros and cons to this approach, but adjuncts trained to teach

and support students online can help institutions achieve scale more rapidly. The challenge can be keeping the instruction consistent for students according to the policies and approaches that the college relies on. Adopting new technologies can be overwhelming, but as TAWC has shown, properly trained adjuncts can adopt and implement courseware to serve their students.

Program outcomes that drive course-level outcomes can support student mastery.

Though digital learning is a different delivery mode, it should be grounded in sound curriculum development that is designed to achieve specific learning objectives. In the case of TAWC, course-level objectives are determined by the overarching goals of the program. By focusing on desired program learning outcomes, courses can be designed to reinforce mastery of knowledge and competencies that builds upon earlier learnings.

Adaptive approaches work best in conjunction with personalized support.

Part of the promise of adaptive courseware is its ability to provide student support in real time. Colleges can make the most of this technology by proactively using the generated data to identify and reach out to students who need additional help.

“I think that’s the hardest part of this particular journey is you have to dig and dive so deep into, what are the learning outcomes? What are we hoping the students will achieve?”

Amanda Gould, Chief Administrative Officer

“Our number one priority from the get-go has been messaging the fact that the technology is not intended in any way to replace the human element of the learning experience, only to augment it, to optimize it.”

Amanda Gould, Chief Administrative Officer



Making Learning Count

Institution

College for America
at Southern New
Hampshire University

Type

4-year private university

Location

Manchester, NH

Enrollment

5,000

Demographics

Majority work full- or
part-time
Average age is late 30s
77% female

Competency-based online programs with one-on-one faculty support for students help improve career readiness.

CHALLENGE

College for America (CfA) at Southern New Hampshire University (SNHU) wanted to improve access and affordability for adult learners who might otherwise find postsecondary education out of reach. They began the initiative in 2012 with a General Studies AA program and launched a BA program two years later. CfA adopted a more holistic approach that focuses on overarching program outcomes. Each program is composed of competency 'goals' that are then translated into courses to create a pathway to a degree.

SOLUTION

College for America implemented a fully online, self-paced competency-based program in order to help students earn their degrees in a timely fashion. The program uses a flat-rate, all-you-can-learn model that costs \$3,000 per year. As a result, 70% of students graduate debt-free. Within the program, students interact with a faculty learning coach who helps them move toward their educational and professional goals as well as a faculty reviewer who provides detailed feedback on all assignments. At present, six CfA degree programs use this model.

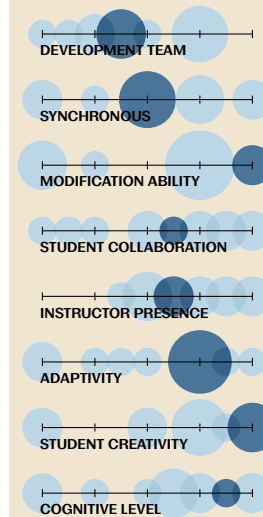
APPROACH

Coursework relevance and high-touch support are central to CfA's approach. Emphasis on competencies needed for the workplace and real-world application of what students learn makes, subject matter relevant to working adults, who comprise a sizable proportion of CfA's student body. The institution combines online instruction with support from an assigned faculty learning coach and an expert reviewer. The learning coach works to build a deeper relationship with the student and provide services such as mentoring and soft skill support. The reviewer is a subject matter expert, typically a faculty member with expertise in the field, who assesses whether the student has mastered the subject matter at hand. If not, the reviewer returns the assignment with a "not yet" grade and extensive feedback to help the student achieve mastery the next time around. CfA found that this disaggregated approach provides strong support for students because faculty can focus exclusively on their assigned role.

Course Modality
Fully online

CfA Management Program Spectrum Responses

A faculty member in the management program said that the development team and adaptivity and personalization have the greatest impact on student success.



“When you’re working with a student who has an ‘aha moment’ and then start to articulate how that came about and really share that with other coaches, everybody benefits. It’s building a culture of learning.”

Yvonne Simon, Chief Learning Architect

Course Development

CfA uses a competency-based model that makes extensive use of project-based learning. Instead of taking individual courses, students complete assessment projects to show their mastery of particular competencies. An internal curriculum assessment team works with subject matter experts to build the curriculum and identify the projects that students must complete. Whenever possible, these projects address challenges that students could confront in the workplace. This real-world relevance motivates students and provides a way for them to demonstrate their competencies to employers. The design team also curates the program’s OER, which is used exclusively in order to keep costs down for students.

The curriculum assessment team stays in regular contact with learning coaches and faculty reviewers in order to understand the effectiveness of curricula and assessments. This ongoing dialogue helps the team identify problem areas and refine the curriculum as needed.

Faculty Training and Support

CfA trains learning coaches and reviewers on how best to support students as they move toward their degrees. This training helps ensure a consistent learning experience across the institution while also providing opportunities for coaches and reviewers to develop competencies needed for their roles.

The role of a learning coach differs from that of a traditional faculty member. Learning coaches provide big-picture academic advising and serve as “life coaches” who are trained to help students develop work skills, set goals and cultivate the mindset necessary for success in postsecondary and beyond. They help students turn faculty reviewer feedback into actionable plans and encourage them as they work toward mastering competencies. This more holistic approach ensures that each CfA student receives regular support throughout their postsecondary careers.

Training for faculty reviewers has a similar emphasis on student support. The curriculum assessment team trains reviewers to provide constructive, encouraging and actionable feedback that highlights what the student did well before delving into areas needing improvement. It also trains reviewers to use a standardized rubric to determine whether

the student has achieved mastery. Students receive their results and detailed feedback within 48 hours of submitting their project.

Student Support

The success of CfA’s zero failure model hinges on extensive student support and a culture that encourages diligence and resilience until mastery is achieved. Students who get a “not yet” on an assessment project receive extensive feedback that helps students understand not only why they didn’t meet the competency benchmark but also what they need to do to demonstrate that competency in their next submission. Learning coaches use reviewer feedback to help students chart a path forward.

CfA also has an active online student learning community that is overseen by 40 student volunteers located throughout the country. These “student ambassadors” maintain an online space for students to ask questions and get strategic and moral support. They actively engage with their peers online, sharing their experiences and helping peers problem solve their way through difficulties.

CfA provides training for its student ambassadors, who play an active role in cultivating a strong student learning community. This training resembles that of

College for America at SNHU Institutional Profile

The College for America’s motivation for implementing digital courseware was a desire to provide accessible and flexible degrees. Students come to the program through an employer or community partner. The competency-based learning model aims to help students become self-directed learners.



Modality
• Fully online



Characteristics
• All in-house developed content
• Self-paced
• Project-based learning
• Student collaboration
• Career competency programs



Tools/Software
• LMS developed in-house

“We believe that all students can achieve mastery, and we will work with them for as long as it takes.”

Heidi Wilkes, Senior Director of Curriculum and Assessment Development

coaches, with added emphasis on being a strong role model and setting positive examples in peer-to-peer interactions.

Data and Performance Measurement

CfA regularly gathers data on student progress. This information gives coaches insight into how individual students are doing so that they can intervene as appropriate. At the macro level, the curricular assessment team uses these data to assess the success of its programs. Through its data analysis, CfA has found that students who are actively involved in the online learning community progress toward their degrees at more than twice the rate of students who do not.

LESSONS LEARNED

Disaggregated faculty roles benefit students and instructors.

CfA has moved away from the traditional faculty role, which requires subject matter expertise as well as competence in curriculum design, student advising and grading. With CfA's disaggregated model, faculty instead get to focus on being content experts.

Heidi Wilkes, the Chief Academic Officer of SNHU said, “the approach we’ve taken with College for America is to ... have people that are experts in each one of those areas only do that aspect of the work, and do so very efficiently and very expertly.”



LEVERAGING ADAPTIVE COURSEWARE

As student demographics continue to shift, postsecondary institutions must learn how best to support an increasingly diverse student body that includes working students, students who have children or are caretakers, first-generation students and adult students returning to school. Part of this challenge involves identifying and addressing gaps in student knowledge. Adaptive technology can help institutions meet this challenge by getting students up to speed using diagnostic data and targeted instruction. As the following case study shows, one promising approach involves mixed modality (blended, hybrid, flipped) instruction that incorporates digital learning. Equipped with the insights from the adaptive platform, faculty are able to offer direct feedback for individual students online and can address misconceptions shared by multiple students.



Waging War on DFW Rates

Institution

Austin Community College

Type

2-year public community college

Location

Austin, TX

Enrollment

40,000

Demographics

80% part-time
32% students of color
52% age 22+

Student-centered adaptive technology and a flipped classroom together support developmental math completion.

CHALLENGE

Austin Community College (ACC) needed to better prepare first-year students for college-level math. The institution found that newly accepted students who were able to pass or get an exemption from the state math test were unable to pass college algebra, which led to high drop, fail and withdrawal (DFW) rates. Given the broader range of math skill levels and the growing diversity of student demographics, they wanted to create an environment that made it easier for students to get the help they needed.

SOLUTION

In 2009, ACC created Developing Mathematical Thinking. This course emphasizes reasoning, problem solving and communicating math in everyday scenarios. Students who pass this course move on to a college-level quantitative literacy or statistics course. In 2014, the ACC math department adopted McGraw-Hill's ALEKS, an adaptive learning system that tailors instruction to the academic needs of each student. ALEKS provides the digital learning component of the course's flipped model. Students access course content online and then come to class to get one-on-one help with their coursework. To date, 4,788 different ACC students have worked in ALEKS. To provide additional student support, the institution rolled out an ACCelerator lab at their Highland Campus, a 32,000 square-foot tech-enabled learning lab with more than 600 computer stations for individualized learning and small group sessions. The ACCelerator is home to a support network of faculty members, counselors, advisors, tutors, librarians and other staff. So far, 6,000 students have been served by the ACCelerator.

APPROACH

Implementing ALEKS allowed ACC to move to a master course model, where all course sections are the same regardless of instructor, with readiness diagnostics, varied content and targeted practice to support student learning.

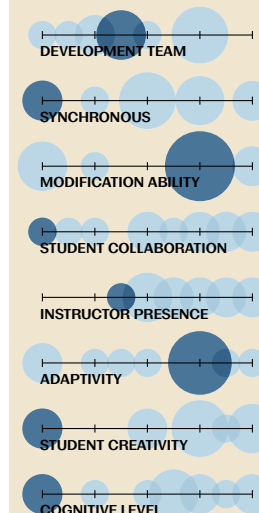
Course Development

ALEKS handles much of the course development process by providing instructional content and assessments tailored to each student's knowledge level. A

Course Modality
Mixed: Flipped

ACC Developmental Math Spectrum Responses

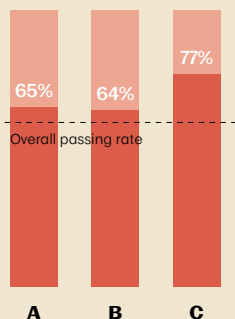
A completely asynchronous course (1) makes it hard to have designed student collaboration (1). Targeted support comes from the new instructor role and the adaptive software.



College Algebra Success Rates

Students who took one semester of developmental math before enrolling in College Algebra (group C) passed at a higher rate than those in traditional intermediate algebra (group A) and those who spent 1-3 semesters in ACCelerator Math (group B), before taking College Algebra.

(Data collected from Fall 2014-Summer 2016)



small team at ACC worked with McGraw-Hill to select content, learn about implementations at other institutions and develop an approach that would work well for ACC. The resulting flipped-model course combined three developmental math courses into a single curriculum sequence that allows students to move ahead at their own pace.

Faculty Training and Support

Implementing the ALEKS program's flipped model meant that faculty had to shift from delivering content via lecture to working one-on-one with students in the classroom. This new approach initially met some resistance but faculty soon discovered that the flipped model allowed them to devote their time and expertise to helping students grasp more difficult aspects of the course material. Training helped smooth this transition. All faculty who teach ALEKS courses go through a 4-hour software orientation and training on relevant ACC policies. Faculty have other opportunities for professional development as well, including a required workshop each semester. Using ALEKS has also inspired instructors to share experiences and collaborate more than they had previously.

Student Support

ALEKS provides an instructional path for each student based on initial placement assessments and students' ongoing interactions with the program. Faculty find that this approach allows them to get to know their students more than in a traditional course. Faculty often take on an advising role as well, providing moral support and helping students develop the skills and mindset they'll need to succeed. Students also receive support from an academic advisor who meets with them at the start, middle and end of each semester. The ACCelerator, where many of the developmental courses are taught, is open seven days a week and has 15 study rooms and three classrooms.

Data and Performance Measurement

ACC found that the withdrawal rate for ALEKS developmental math has been far lower than expected, with black and Latino male students in particular having greater success than they do in traditional

Austin Community College Initiative Profile

The withdrawal rate for a traditional 3-course STEM developmental sequence at ACC hovers near 27%. By contrast, in spring 2016, developmental math courses taught with ALEKS saw a 19.9% withdrawal rate for new students and 16.5% for returning students.



Modality

- Flipped



Characteristics

- Adaptive
- One-on-one instruction
- Asynchronous
- Self-paced
- Data-driven decision making



Tools/Software

- ALEKS

courses. The self-paced nature of the ALEKS course, paired with one-on-one faculty help contribute to these stronger outcomes. In addition, data on student progress indicate that those who move through ALEKS more quickly are more likely to succeed in the courses that follow.

Faculty find that this approach allows them to get to know their students more than in a traditional course.

LESSONS LEARNED

Flipped models make time for teaching.

ALEKS lets faculty devote their time to what they do best: sharing their expertise and helping students grapple with difficult concepts. Although it took time to dispel faculty concerns about being replaced a computer, the ALEKS approach soon earned support from instructors as student outcomes improved.

Individualized faculty support makes a difference.

The flipped approach promotes retention and student success by giving faculty regular opportunities to forge strong connections with their students. One-on-one interactions with faculty can be especially important for first-generation college students, who often lack sufficient support systems and mentors. ACC's high-touch approach to support keeps developmental math students from feeling isolated or lost and encourages persistence and resilience.



ADOPTING COST- EFFICIENT RESOURCES

The cost of course materials can pose a significant barrier for students from lower-income households. The Bureau of Labor Statistics reports that the cost of college textbooks has risen faster than tuition, medical services, new home prices and inflation (Bureau of Labor Statistics, 2017). Digital content delivery options can help institutions keep the cost to students low, which in turn improves access and retention in postsecondary programs, as the next use case underscores.



e-Text That Works

Institution

Rowan-Cabarrus
Community College

Type

2-year public
community college

Location

Concord, NC
Salisbury, NC

Students

20,000

Demographics

47% age 25+
23% in high school taking
courses for college credit
37% students of color
63% female

Creative partnerships
and changing norms can
save students money and
improve retention rates.

CHALLENGE

Many students at Rowan-Cabarrus Community College were not purchasing the required materials due to cost constraints. As a result, these students avoided courses with costly materials, dropped courses that were too expensive or attempted the course without the materials. Many of these students were working full-time and had limited financial resources. Data collected by RCCC revealed that more than a third of students went without a textbook and nearly 20% had skipped or deferred a class because of cost. The prohibitive cost of textbooks undermined RCCC's affordability and accessibility. RCCC sought a way to lower the cost of materials and ensure that students had access to what they needed from the very first day of class, regardless of their financial situation.

SOLUTION

In autumn 2014, RCCC partnered with Cengage Learning and began using Cengage's CourseMate and MindTap platforms to deliver e-textbooks in 11 of its liberal arts courses. RCCC was the first community college in North Carolina to partner with Cengage in this way. Since initial implementation nearly three years ago, over 30 courses now participate in the e-Text initiative, which has improved student access to learning materials while reducing the cost of attendance. So far approximately 3,350 students have benefited from this initiative. Due to the success of this approach, RCCC plans to have the e-Text initiative in a total of 50 courses by Fall 2017.

APPROACH

RCCC and Cengage partnered to develop a customized platform using Cengage's CourseMate tool. This platform was integrated into Blackboard and became the primary way that students accessed course information and content. RCCC then chose 11 courses for the initial e-Text pilot. The selected courses were spread across RCCC's liberal arts program in order to introduce and secure feedback from a wide range of departments, instructors and students. In 2015, the CourseMate platform was replaced by Cengage's MindTap platform, one of Cengage's courseware solutions.

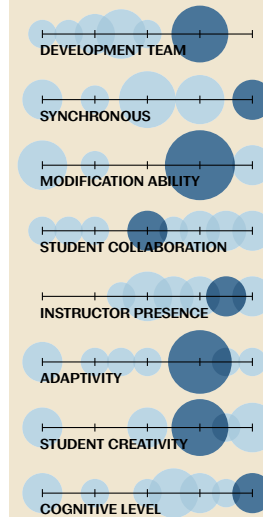
Course Development

Each department votes to select a digital textbook

Course Modality
Fully online

RCCC Language Arts Spectrum Responses

RCCC partners with Cengage Learning to develop master courses (4). This approach limits faculty's ability to modify courses (4), but still allows for deep instructor presence (4.5).



“We needed to provide e-Text trainings for our students to empower them to know what to look for and how to use it.”

Dr. Jenny Billings,
English Instructor,
Chair of English,
Developmental
Reading & English

that RCCC then purchases from Cengage or another publisher at a discounted price. This approach ensures digital access for each student that is paid for through their course registration fee. In addition, RCCC invited faculty to develop master courses using e-Texts. Participating faculty received a stipend and other resources to support them in their efforts. They designed courses within the Blackboard environment using their own content and material from e-Text publishers and North Carolina’s Virtual Learning Community (a statewide eLearning initiative). Once developed, some master courses went through Quality Matters certification before adoption.

Faculty Training and Support

All faculty receive training on the Blackboard LMS and are recertified every two years to teach online and hybrid courses. Each May, RCCC provides paid professional development for full-time and part-time faculty, which in the past has included training on Blackboard, e-Texts, technology in the classroom and course development. The institution also provides drop-in e-Text trainings at the start of each semester so that faculty can receive one-on-one help to get their courses off the ground. Adjuncts receive training as well and have the option to use RCCC’s Quality Matters certified master courses.

Rowan-Cabarrus Community College Initiative Profile

RCCC is a multi-campus, 2-county community college serving a diverse student body. The Liberal Arts program launched the e-Text initiative to address cost concerns and encourage technological growth.



Modality

- Fully online



Characteristics

- In-house developed content
- Synchronous
- Master course model
- Emporium
- Quality Matters



Tools/Software

- Cengage MindTap
- Blackboard (LMS)

Student Support

Over the course of the initial roll-out, RCCC found that some students were resistant to using online materials, preferring to instead stick with printed textbooks. To overcome this barrier, the institution began offering training to familiarize students with the technology.

Both Blackboard and e-Text track student progress so that instructors can provide the support needed to do well in their course. Blackboard’s Retention Center and the e-Text app let instructors keep an eye on student engagement, including assignments submitted, grades and time spent with online course materials. Some faculty also use Google Hangouts, text messaging and phone calls to reach out to those who may be struggling.

Data and Performance Measurement

RCCC gathers data for its accreditation process, which is conducted by the Southern Association of Colleges and Schools Commission on Colleges. This semester-end data collection tracks course retention and student grades and monitors the performance of the various modalities in use (face-to-face, hybrid, online). Over the past four years, RCCC’s online instruction has ranked highest for retention and overall student success.

At the start of the e-Text initiative, RCCC used data to confirm that e-Texts would reduce costs for students while providing access to a wide range of supplementary digital learning materials. Compared to traditional textbooks, students save 25% to 50% on course materials.

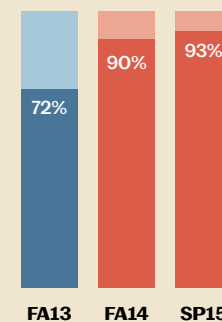
RCCC used course data from their Developmental Reading and English course (DRE-098) to analyze its pilot program and found the following:

- Fall 2013: 72.6% retention (pre-implementation)
- Fall 2014: 89.4% retention (post-implementation)
- Spring 2015: 93.5% retention (with 84% of students earning 80% or better on their final grade)

English 111 (ENG 111) saw the same success after implementation. Before the initiative, the course’s retention rate was 76%, with 77% of students earning a C or better. One year after implementation, ENG 111 had a retention rate of 83%, with 86% of students finishing with a C or better.

Retention Rates DRE-098

To analyze the pilot program, RCCC tracked retention rates for the DRE-098 course. Using Fall 2013 term data as the baseline, RCCC found a significant increase in student retention in years 2 and 3 of implementation.



Over the past four years, RCCC’s online instruction has ranked highest for retention and overall student success.

“We need to give students good choices. Allowing someone not to buy their material is malpractice on our part.”

Dr. Michael Quillen,
Vice President of
Academic Programs

LESSONS LEARNED

Change the institution-publisher dynamic.

RCCC had a relationship with Cengage in place prior to the e-Text initiative but it took the institution several years to navigate the partnership effectively. Ultimately RCCC found that a healthy partnership involves negotiation, transparency and trusted representatives.

Do not make opting-out an option.

RCCC leader and initiative lead Jenny Billings knew that given the choice, many students would opt out of e-Texts. However, because access to class materials is critical for student success, RCCC decided that students who enrolled in an e-Text course would automatically receive access to the course material. To ease concerns among students who preferred physical textbooks, the bookstore offers loose-leaf copies for \$7–\$21.45. Discounted devices to access e-Text content are also available and can be purchased using financial aid funds.

Make the roll-out process inclusive.

Participants in the pilot contributed to the success of the initiative by communicating with the initiative’s design and implementation teams regularly. This approach engaged a number of departments across multiple campuses.

Rowan-Cabarrus Community College e-Text Initiative Stakeholder Involvement

Rowan-Cabarrus Community College worked with Cengage and departments on multiple campuses to secure buy-in from a wide variety of stakeholders.

Approach	RCCC Partners	Cengage Partners
Idea	Jenny Billings	
Is this possible?	Instructors/Chair Dean RCCC IT	Representative Cengage IT
How will this work?	Business office Bookstore Student services Disability services	Regional Director Inclusive Access Director ADA Personnel
Initiative plan review	Vice President Student Government	
Plan presentation	President and Cabinet	

“Other colleges told us: ‘you set a precedent. You have publishers working for you. Not the other way around.’”

Dr. Michael Quillen, Vice President of Academic Programs



CENTRALIZING COURSE DEVELOPMENT

Another strategy institutions can use to scale digital learning and ensure course quality is centralized design and development. The development teams who create these courses can include instructional designers, information technology experts, subject matter experts and other design and development specialists. This team coordinates the course creation and updating process. Using a master course model ensures that students of all abilities receive the same quality content and assessments and have a more uniform experience across courses. Most importantly, use of Quality Matters standards to guide course design can lead to more efficient paths to scale while supporting students' desire for flexibility and consistency, as demonstrated by the following use case.



Solving for Consistency

Institution
St. Petersburg College

Type
4-year public
community college

Location
St. Petersburg, FL

Enrollment
65,000 students

Demographics
12,000 take online
courses
70.1% attend part-time
49.7% age 24+

Master courses with increased faculty collaboration can transform an inconsistent student experience.

CHALLENGE

St. Petersburg College (SPC) has been active in online learning when it moved its veterinary tech associate in science (AS) degree program online in 1994. In 2005, SPC added the veterinary tech bachelor of applied science (BAS) courses to its online offerings. However, difficulty with inconsistent online course content and design led them to launch a new initiative. When they refreshed their online veterinary tech programs in 2015, they sought to centralize course development, ensure consistency across courses, offer flexibility for students and maintain ADA compliance.

SOLUTION

In 2013, SPC embarked on an institution-wide refresh process to improve course quality by instituting greater oversight as well as Quality Matters training and design. Creation of master courses standardized course offerings and increased faculty collaboration on course design and delivery. To date, this online program has served 537 students.

APPROACH

As part of its revitalization effort, SPC established a new department and administrative position tasked with overseeing online learning. The institution also adopted Quality Matters as its standard for all online courses. SPC undertook an extensive review of all online course offerings and enlisted faculty and instructional design staff to develop standardized online courses. Initially SPC focused on courses with high enrollment but it later expanded the initiative's reach to include other courses and the fully online veterinary technology AS and BAS degree programs.

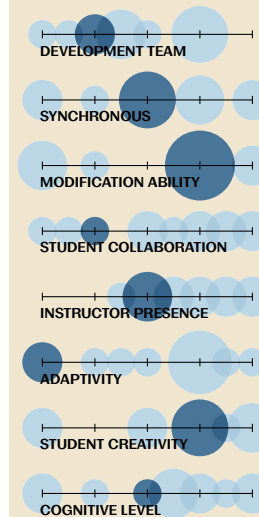
Course Development

SPC develops courses using a standardized approach, commonly referred to as a master course model. For each redesigned course, an individual faculty member—known as the course facilitator—leads the process with support from instructional designers, technologists, librarians and other staff from the centralized development team. This team identified learning objectives, selected and/or created content and designed student activities and assessments. The course facilitator invited input from

Course Modality
Fully online

SPC Developmental Math Spectrum Responses

SPC developmental math courses are designed in master courses (4) and allow students to engage in creative activities (4) throughout the course.



“We don’t expect faculty members to be experts in technological implementation.”

Susan Colaric, Associate Vice President for Online Learning

other faculty members in order to ensure that the process is truly collaborative. Faculty are also encouraged to provide ongoing feedback as they teach the course so that it can be continuously improved.

Once a standard course has been developed, all faculty adopt the new model. Full-time faculty do have the ability to create their own courses if they prefer not to use the standardized course, but these must go through the same approval process used for standardized courses.

Faculty Training and Support

Because of SPC’s longstanding involvement in online learning, most faculty have had an online course as part of their teaching load. All faculty complete training on SPC’s learning management system (D2L), which is led by a faculty member. Faculty can also receive training for teaching online and developing online courses. Approximately 254 faculty members have completed the Quality Matters Applying the QM Rubric course, which is a prerequisite for developing an online course. SPC also provides professional development opportunities on specific tools and optional training using discussion

boards. All instructors—including adjuncts—have access to these resources.

SPC has instructional designers and instructional technologists who work with faculty members one-on-one to develop courses. This approach lowers the barrier to participation for faculty who lack the technical skills to bring their courses online themselves.

Faculty also get the opportunity to learn from each other at an internal teaching and learning conference that is attended by 150 faculty members on average. At this conference faculty present best practices to foster an environment of improvement.

Student Support

SPC students go through an orientation course that provides computer basics and introduces them to the LMS, which is used for all classes (face-to-face and on-line). Students also complete a readiness survey to guide students into appropriate courses and modalities. For example, a student who ranks herself low on technology and time management skills would be advised to take an intro computer course and hold off on taking online courses until at least her third semester so that she has time to develop the skills she will need to do well.

Some faculty members embrace a high-touch approach with students that extends beyond the classroom.

St. Petersburg College Initiative Profile

SPC chose to review and revitalize all of its online course offerings in order to provide students with engaging, accessible content. This institution-wide initiative also sought to improve learning outcomes and instructional quality.



Modality
• Fully online



Characteristics
• Weekly self-paced
• Project-based learning
• Master course model
• Quality Matters
• Synchronous
• In-house developed content



Tools/Software
• ALEKS
• Pearson My-MathLab
• D2L (LMS)

St. Petersburg College Spring 2017 Withdrawal Reasons Week 11

In a survey administered to students who withdrew from a course in Spring 2017, 'work schedule' was the top reason for withdrawing. Working students appreciate the scheduling flexibility that fully online courses offer.

Reason for Withdrawal	# of responses	% of Total
Work schedule	850	19%
Personal	613	14%
Academic performance	505	12%
Family	482	11%
Medical	334	8%
Too many courses	326	7%
Other	306	7%
Change in academic/career goals	289	7%
Course type (online, length, etc.)	257	6%
Instructor	206	5%
Finances	204	5%
Total	4372	100%

Weekly emails with progress updates and proactive outreach to students who are having difficulty help ensure that students can get the support they need.

To meet the veterinary program's hands-on technical experience requirement, fully online students must spend 20 hours a week with a designated mentor at a nearby vet clinic. Students submit video clips of themselves performing specific practices to instructors for feedback. Students are allowed to resubmit assignments multiple times until the end of the semester.

Data and Performance Measurement

SPC is a data-driven institution that tracks a wide range of student success indicators. All departments use a Business Intelligence (BI) system that has dashboards to track current and historical data on key indicators, including enrollments, withdrawal rates, course completion and graduation rates. BI enables SPC to disaggregate data by modality, campus, age, ethnicity, and other factors. These data are used to ensure a standard level of quality across all courses regardless of modality. This information is used in conjunction with student survey responses to further refine courses as needed. SPC also hosts a weekly virtual Recruitment and Retention webi-

nar to provide a clear understanding of the data collected and acted upon across all colleges and modalities. These webinars are open to anyone at SPC.

LESSONS LEARNED

Involve faculty in course creation, provide training.

Getting faculty members on board with digital instruction can be a tough sell. SPC addressed this challenge by including faculty in the course development process and regularly seeking their input on course content and activities. This inclusive approach brought faculty into the process and fostered a sense of shared ownership over the final product. Instructor training reinforced this by familiarizing faculty with new teaching methods that could be put to use in the digital classroom.

Language matters.

SPC paid careful attention to the words they used when describing the course revitalization process. Faculty leads were referred to as "developing facilitators" in order to underscore the collaborative nature of the course development process. Similarly, when describing the courses created, SPC rejected the traditional "master course" terminology in favor of the more neutral "standard course." This subtle shift in phrasing implicitly conveyed that the new courses aimed to standardize instruction without undermining faculty autonomy.

Think creatively about assessments.

SPC added fully online programs that traditionally are overlooked because they require labs or other hands-on components. Videos, mentor hours and student cohorts give students a variety of ways to practice and show their mastery. Faculty members appreciate being able to pause and comment on videos in order to give deeper, more contextual feedback to students online.

SPC uses data to ensure a standard level of quality across all courses regardless of modality.



One valuable aspect of digital courseware is the ability to make data-driven decisions and instructional improvements. As the next use case exemplifies, existing tools and platforms can provide metrics on programs, courses and instructional efficacy. With these new insights in hand, institutions can then put their data to work.

MAKING DATA-DRIVEN DECISIONS



DIY Adaptive Learning

Institution

Colorado Technical University

Type

For-profit university

Location

Colorado Springs, CO

Enrollment

22,000 online
2,000 on campus

Demographics

92% fully online
Majority age 30+

A culture of innovation and training on digital learning helps maximize the impact of online education tools on student outcomes.

CHALLENGE

Colorado Technical University (CTU) has used technology to improve learning outcomes for a number of years. They saw rising interest in online courses and piloted an adaptive digital platform to increase retention and perseverance in open enrollment online classes. Initially, CTU noticed that students engaged with course materials more frequently if the course used adaptive courseware and showed a preference for assignments that were adaptive. They hoped implementing an adaptive digital platform at scale would personalize learning for CTU's 10,000+ business and management students while also providing additional support for faculty.

SOLUTION

CTU launched its adaptive learning platform pilot with three courses in 2013. Today, Intellipath, CTU's proprietary adaptive learning platform, is used in over 120 courses. CTU continues to run course pilots that compare baseline student performance before the introduction of adaptive courses against that of the adaptive pilot in order to refine the course before moving it to all sections. The platform lets faculty assess students, define outcomes and tailor content on a course-by-course basis. Over 35,000 students have used the technology since 2013. CTU has found that some courses and competency-based programs, such as its nursing program, are well suited to a fully adaptive approach while others, like its writing composition courses, are not. CTU continues to explore whether to and how to integrate its adaptive platform for each course and program.

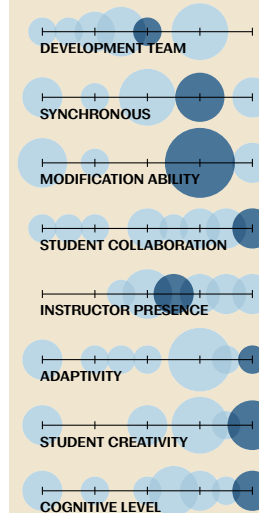
APPROACH

CTU's reputation as an innovator in online learning led it to develop and launch its own adaptive platform. David Gliddon, lead faculty member in the College of Business and Management, explained the choice to build an adaptive platform: "It provides a great learning tool and from a logical perspective. It gives us something different that we can give to students who may learn better that way... rather than using audio visual learning or using papers or literary learning, it gives us the opportunity to really get hands-on where they are actually going and really doing a lot of work with the topic." CTU had seen how personalized learning can inspire student engagement, improve

Course Modality
Fully online

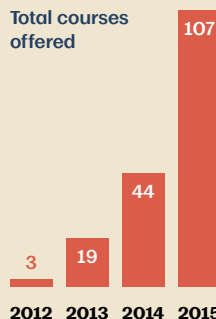
CTU Business Management Spectrum Responses

A faculty member of the business management program reflected that student creative thinking and instructor presence have the greatest impact on student success.



CTU Adaptive Course Iterative process

CTU offered over 100 adaptive courses as of 2015. After each course pilot, CTU compares pre- and post-student performance to determine any course revisions needed.



results and increase long-term learning. It started small with pilots in math and English courses and adjusted the pilot approach twice before rolling out the full program.

During the initial launch CTU prioritized two elements: conducting a needs assessment and identifying which courses they should tackle first. CTU addressed the needs of their instructors and students by developing trainings on teaching and learning in an adaptive learning environment. Another way they eased into their rollout of adaptive learning was by choosing to implement it in general education courses first and later expanded the program to include business, statistics and accounting courses.

Course Development

After faculty determined which courses were suitable for adaptive technology, faculty teams started designing. An instructional design team helped pull relevant OER and suggested other tools to assist faculty in content creation. All of the content was fed into the adaptive engine and can include digital books as well as other resources. Student progress and performance is tracked through a dashboard on the platform that identifies where students might need help. Through the LMS they access the course and integrate the course content.

Once a faculty member or team creates the master course, other faculty members can personalize it for their

Colorado Technical University Initiative Profile

In the future, CTU hopes to bring adaptive technologies into other programs. The nursing program has seen success scaling adaptive learning and CTU expects to integrate this technology into its master's of engineering program in the near future.



Modality
• Fully online



Characteristics

- Adaptive
- Mix of in-house and vendor-created content
- Master Course model
- Asynchronous



Tools/Software

- Intellipath
- Virtual Campus (LMS)
- Adobe Connect

Colorado Technical University Adaptive Learning Rollout Model

Colorado Technical University divided its adaptive platform rollout into several stages. By prioritizing analysis at key intervals of the process, the team was able to make the necessary modifications before expanding the program further.



class. Instructors customize the master course with their own virtual lecture sessions and facilitate the content. Afterwards instructors are welcome to provide feedback on and revisions for the master course based on what they learn while running the class. Checks are in place to make sure faculty members create content based on the course's scope rather than their own preferences. The process is a collaboration between lead faculty members, adjuncts, program directors, vendors and instructional designers.

Faculty Training and Support

CTU has trained over 800 faculty members (82%) on its adaptive learning platform. Faculty must complete an orientation course that runs two to three weeks before they can teach an online course. A separate adaptive learning training course must be completed before a faculty member can teach using the adaptive platform. Supplementary training is available along with one-on-one consultations. CTU also encourages adjunct faculty to complete four faculty development activities each year.

Student Support

For each unit, students are provided a learning map based on an assessment of their initial knowledge on a topic. Once students complete an Intellipath assignment, they can continue on through the entire course or go back

“It takes a lot of time to develop a course effectively...It's a lot of mapping, and what we learned is that we needed to provide faculty a template.”

Connie Johnson,
Chief Academic Officer and Provost

“Faculty member engagement with the student is a strong motivator.”

Dr. David Gliddon,
Online Lead Faculty,
College of Business and
Management

to work on specific areas. The platform also encourages students and faculty to interact via chats, discussion boards and comments delivered during grading. Using the internal Adobe Connect messaging system, they can communicate with faculty during office hours. Additionally, the Intellipath platform is used to send reminders and guidance to students.

Data and Performance Measurement

CTU considers itself very data-driven and has created a customized dashboard that allows faculty to see how many students are engaged with the materials (e.g., how many are submitting discussion board comments, assignments, etc.). Faculty can also compare performance across sections of a course. Student input is also used to improve the course through a survey asking whether they enjoyed the course, what could be altered and what learning modalities could be changed to improve the course.

CTU collects baseline data before it creates a pilot and full rollout of a course, allowing CTU to better understand the evolution from pre-adaptive to adaptive.

CTU has seen a lot of improvement with the implementation of their Intellipath platform. One course that

showed a large improvement, Accounting I, saw a 27% increase in pass rates — from 54% to 81% since Intellipath was launched in October 2013. In that course, retention rose 9% (to 95%) and final grade average increased 10% (to 79%).

LESSONS LEARNED

Break online courses into skills or objectives.

When designing a course, CTU found that faculty often included too much content that was outside the scope of the course. Students would often see a learning map with all the content and become intimidated. CTU found that by asking some initial questions such as “what is truly necessary to meet the course objective?” and providing a template was helpful to keep faculty focused on the goal of the course and the scope manageable.

Courseware needs to be selected in context.

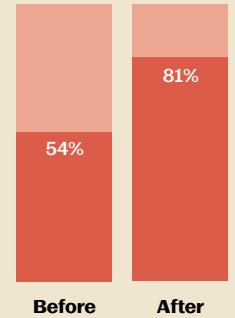
Not all types of courseware will be suited to every subject. For example, CTU found that doctoral courses, courses with writing components or high-level programming courses (IT, computer science), for example, were not appropriate for the adaptive technology. They tried to implement adaptive courseware for certain humanities courses only to receive feedback from faculty that the platform didn’t allow for proper engagement of the content. It is important for other institutions to identify the type of courseware that would best meet the needs of each program or course and its students.

Faculty engagement leads to student engagement.

CTU has strong engagement expectations of their faculty members and has built a culture where student interaction is valued. The path to success as an online faculty member and the best practices involved are often discussed by lead and adjunct faculty as they build rapport. Training activities go far to solidify this culture as well.

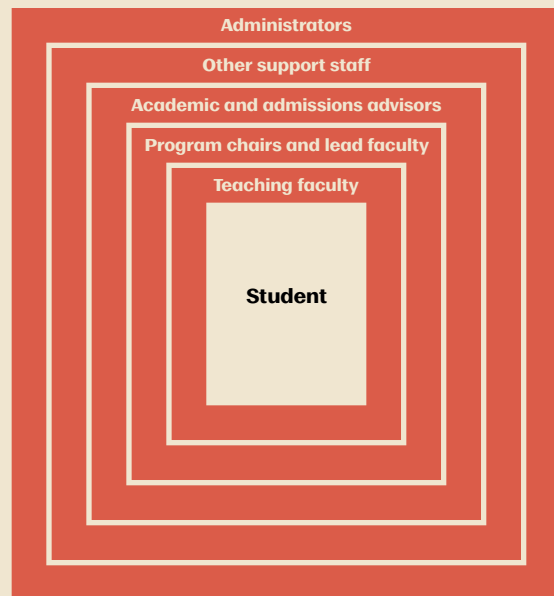
**Pass Rates
Accounting I**

Accounting I course launched on the Intellipath platform in October 2013. The pass rate rose 27% from that of the previous year.



**CTU
Technology
Training Program**

At CTU, everyone from students to faculty to administrators are trained to navigate the adaptive platform. This approach reflects CTU's belief that the success of any initiative hinges on integrated training for all stakeholders.





Thank you for reading this report. We hope you have encountered institutions, methods and strategies that have encouraged you to develop or grow a high-tech, high-touch digital learning experience for your students. We applaud your efforts to build solutions intentionally with a focus on student success.

We spoke to a number of institutions doing innovative work in digital learning—far more than we could include in our report. We invite you to explore the appendix, which features additional examples of successful digital learning implementation to inspire and inform conversations at your institution. You will also find a decision making guide to help you spark change on your campus.

APPENDIX



Seat-Time Shuffle

Institution

Northern Arizona University

Type

4-year public university

Location

Flagstaff, AZ

Enrollment

30,368 students

Demographics

5,644 online
48% first-generation freshmen
41% students of color
60.3% female

Blended courses increase active learning and enhance student classroom time.

CHALLENGE

Northern Arizona University (NAU) wanted to enhance learning outcomes and reduce costs by sharing resources (saving classroom space, sharing materials among instructors), all while serving a diverse student population. NAU began funding the initiative about five years ago, which entailed redesigning about 35 high-enrollment general education classes around e-learning.

SOLUTION

In 2014, NAU began redesigning courses to increase online learning and reduce classroom time. Since that time, their course redesigns evolved. In the first iteration of the redesigned Introduction to Sociology, all sections were required to replace traditional seat-time with hybrid delivery, which reduced classroom time by 33% (moving content learning online and thereby “flipping” the classroom). Surveys of general education students suggested that this percentage was too high and argued that students needed more in-class time. The next iteration moved 25% of classroom time to a digital format to address these concerns. With this model, students can work at their own pace because class components such as readings and homework are online. Over 500 students experience the products of this initiative every year.

APPROACH

NAU’s curricular redesign sought to reduce lecture time through innovation and the adoption of emerging technologies. In redesigning its courses, NAU encouraged faculty members to collaborate with curriculum committees and instructional designers to ensure that each course’s goals and assessments align with program goals.

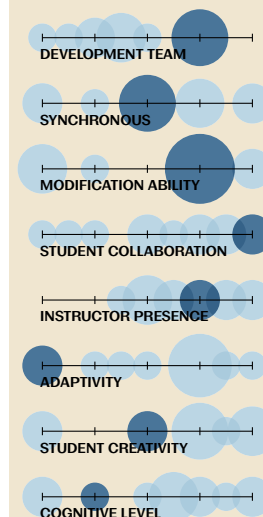
Course Development

In the fall of 2014, a faculty member in charge of teaching Introduction to Sociology decided to redesign the course. This effort was supported by a grant in conjunction with the President’s Technology Initiative. She piloted one section of the class as a flipped class while teaching another section of the class in a traditional lecture format. For the blended learning section, students had additional responsibilities outside of class, including on-

Course Modality
Mixed: Blended

NAU Sociology Course Spectrum Responses

Blended sociology courses (3.5) that teach students baseline knowledge (2) support students through student collaboration (5) and instructor presence (4) as opposed to adaptive tools (1).



“The way I would put it is, the ‘e’ in e-learning is effective, engaging and efficient.”

Don Carter, Director of the eLearning Center

line learning assignments. In addition, students were in class for 100 minutes each week instead of 150 minutes and class time was devoted to applying course material.

After the initial pilot, this instructor created a master class on Blackboard Learn, complete with a repository of class materials for each topic that other instructors could use. Now in the third year of the redesign, other sociology instructors have adopted the model she created in order to decrease lecture time and focus on active learning. As a next step, NAU plans to implement adaptive courseware.

Faculty Training and Support

NAU has offered online courses since the 1990s and established an e-Learning Center in 2001. The Center works with faculty to redesign courses and implement technology. It has roughly 20 staff consisting of instructional designers, creative designers and a help desk. The Center works with about 20% of the faculty each year. In addition, 150 faculty members have been trained to apply the Quality Matters rubric to their online courses.

Other professional development efforts take place outside the e-Learning Center. A group of faculty called the President’s Teaching Scholars actively mentor new faculty and offer workshops and seminars to encourage adoption of effective practices. Additionally, more than a dozen learning communities for faculty meet regularly during the semester, each with a specific focus, such as adaptive courseware, first-generation students or blended pedagogy.

Student Support

After initially focusing on faculty training, NAU is now putting more effort toward using online environments to offer additional mentorship and guidance. Student Learning Centers, which are technology-based support centers for students, include tutors who work with faculty to ensure they understand what students need to know. NAU also offers an online program for freshman who may need extra help in a STEM-related program. If students do not test where they need to be in mathematics in order to start the STEM program they prefer, they can enroll in a free summer course where they work online with a peer mentor and a coach to improve their proficiency in mathematics.

“The instructors who have implemented the model.... absolutely love it...[I]t’s less time-consuming than their other classes and it gives them a lot more time to focus on in-class activities, as opposed to preparing lectures.”

Yvonne Luna, Chair, Department of Sociology and Social Work

Northern Arizona University Initiative Profile

The motivation for NAU’s institution-wide course redesign was to increase retention and enhance learning outcomes. The first phase of the initiative focused on educating faculty in Backward Design and Blended Learning Pedagogy & Practice. The second phase helps faculty incorporate necessary technology.



Modality
• Blended



Characteristics
• Faculty-built master courses
• Synchronous
• Active learning



Tools/Software
• Blackboard (LMS)

“[Students] know how to download music and go on different social media, but actually navigating learning environment software is not as simple as it might be.”

Don Carter, Director of the eLearning Center

Data and Performance Measurement

Over the last five years, NAU has seen a 3% to 4% improvement in the success rates of its redesigned general education courses. When NAU compared the flipped Introduction to Sociology class to the traditional lecture course, it found that students of color tended to do better in the flipped class than in the lecture-based class. NAU is working to develop a report across different student groups in order to detect patterns that could indicate which teaching strategies might work best for different student populations.

LESSONS LEARNED

Faculty shouldn't go at it alone.

Generally speaking, NAU has found that an individual faculty member is less likely to lead a full implementation or ensure the model is sustainable. For this reason, NAU aims to pair an instructional designer with a team of faculty when redesigning a course. This approach also fosters greater department buy-in for the resulting course design.

Some faculty members may need to be persuaded that the flipped model works.

Asking faculty members to change what they've been doing remains a challenge. Cultivating buy-in and addressing faculty concerns before a redesign effort begins can help set the initiative up for success.



The Case for the Collective

Institution
Seattle University

Type
4-year private university

Location
Seattle, WA

Enrollment
7,480 students

Demographics
94.8% full-time
36% students of color

Cohort-based training in course design gives faculty the resources and community they need to deliver quality, standardized digital content.

CHALLENGE

Seattle University's (SU) 2013 strategic plan called for efforts to improve student access to education, with particular attention to continuing education for adult learners who have some college but have not earned a degree. SU recognized the potential of digital learning but worried that faculty lacked experience designing online or hybrid courses. In addition, as a Catholic Jesuit institution focused on developing the whole person, some faculty were skeptical that digitally delivered courses could produce high-touch experiences grounded in Jesuit principles for education.

SOLUTION

SU established a course design program that uses a cohort-based approach to guide faculty through the development process of online and hybrid courses. The cohort program is a 10-week session put on by the Center for Digital Learning and Innovation (CDLI). Class size is capped at 15. The course begins with the fundamentals of instructional design before delving into technology and the nuances of teaching online. This solution has empowered participating faculty and enabled students to exceed faculty expectations for online achievement.

APPROACH

SU digital learning work began in 2013, when the university hired staff to support the development and delivery of online and hybrid courses. That year SU launched a single hybrid course and two online courses. By the 2015-16 academic year, SU offered over 100 courses online—half of which were hybrid and half fully online. The institution has three degree programs that are entirely online and an additional seven degree programs that are hybrid.

In 2015, the digital learning team changed its name to the Center for Digital Learning and Innovation (CDLI) and took over administration of instructional technology from the university's IT department. The center now has a director, three instructional designers, an instructional technologist, a learning systems administrator and a support staff member.

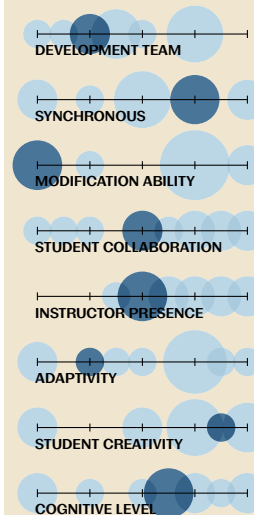
Course Development

SU developed a 10-week program that guides an inter-

Course Modality
Fully online

SU Women in Sports Leadership Course Spectrum Responses

Faculty agency in course design (1) is important in fully online courses (5) that structure content for application (3.5) and student creativity (4.5).



Seattle University Initiative Profile

The Center of Digital Learning and Innovation at SU provides a community where faculty can learn, experiment and share ideas for incorporating technology into their courses. The faculty cohort approach sought to encourage a culture of learning among faculty members who otherwise might be resistant to change.



Modality

- Fully online



Characteristics

- Mix of in-house and vendor-created content
- Online discussion
- Project-based learning
- Student collaboration



Tools/Software

- Canvas (LMS)

disciplinary cohort through the process of designing an online or hybrid course. This approach aims to foster a greater sense of faculty ownership over the curriculum while also cultivating a community for faculty interested in digital learning. All faculty members, including adjuncts, are welcome to participate. In addition to weekly cohort meetings, each cohort member is assigned a CDLI instructional designer who works with them one-on-one.

SU makes technology training secondary to the broader objective of course design. The core of Jesuit education is the development of courses that engage students through authentic assessments, cultivate a learning community and support student growth. For the first month of the program, faculty spend time identifying specific learning takeaways, designing assessments and activities and mapping a course outline with sticky notes before moving onto computers in the second month.

Faculty Training and Support

The course design program provides a clear infrastructure for course development and supports faculty as they expand their digital teaching expertise. CDLI also offers workshops on specific topics so that faculty can learn about different pedagogical approaches and tools available to them. CDLI also hosts faculty spotlight presentations during informal lunchtime forums where

“We’re strong believers that the design has to come first.”

Jane Snare, Associate Director at the Center for Digital Learning and Innovation

experienced online instructors share their course designs and lessons learned. Ongoing one-on-one support is another key component of SU’s approach. Faculty can go to CDLI for individual assistance, which can range from finding online content in Merlot or OER Commons to identifying free digital learning tools using CDLI’s online ‘Gadget Finder’ and learning how to use these tools in student-centered ways.

Student Support

Faculty teaching online and hybrid courses at SU have been able to provide a supportive, high-touch environment for students even without classroom time. Students and faculty interact through the Canvas LMS regularly throughout the term. Online course discussions facilitated by the instructor engage students in active learning and can make it easier for more reticent students to participate. Over time, these online conversations can build a sense of community based.

LESSONS LEARNED

Make instructional designers available for faculty.

CDLI lowers barriers to faculty buy-in and participation. The cohort-based course design program provides a time-limited framework for developing an online or hybrid class and lays the groundwork for ongoing interactions among cohort members, their assigned instructional designers and the rest of the CDLI staff. One-on-one assistance complements the course design program by providing faculty ongoing help as they develop and implement their plans.

Address misconceptions and apprehensions about online learning early.

When CDLI staff began their work, there were many false impressions of digital learning. A flawed roll-out of the institution’s first LMS years earlier soured many faculty on the idea of digital learning tools, while popular culture’s preoccupation with massive open online courses (MOOCs) obscured the fact that digital learning could take many forms. Dispelling these misconceptions proved a critical activity for CDLI staff. Institution-wide conversations about online learning opened up opportunities for greater buy-in and eventual adoption of digital learning approaches. Now cohorts begin with faculty openly sharing their concerns so

“Faculty will have a greater sense of ownership in a course that they have designed.”

Jane Snare, Associate Director of the Center for Digital Learning and Innovation

A flawed roll-out of the institution's first LMS years earlier soured many faculty on the idea of digital learning.

that CDLI can address preconceived notions and encourage faculty to think of online instruction as an opportunity for more student-centered instruction.

Create a community of practice.

Staff at CDLI repeatedly highlighted the importance of a community that met faculty where they were. The course design program sets the stage for this community by encouraging peer-to-peer interactions through its cohort-based approach. Faculty forge working relationships with colleagues from different departments and exchange insights on effective strategies and potential pitfalls. When combined with ongoing support and training from CDLI, this community inspires collaboration and ensures that faculty feel supported as they move into the world of digital learning. Many faculty remarked that they felt the cohort model gave them a safe space to propose and try new methods without the fear of failure. They also cited the ability to get constructive feedback from their colleagues as a highlight of the course.

Physical spaces matter.

CDLI is located in an inviting space that is full of light, robots and Legos. It aims to be less intimidating for those new to digital learning who might be put off by the conventional computer lab with its rows of monitors. All the furniture is on wheels so that it can be easily rearranged for whatever activity is taking place and faculty often visit the center to do work between classes. This welcoming space makes digital education more approachable, thereby reducing another common barrier to faculty buy-in.



Flipped and Focused

Institution

Cedar Valley College

Type

2-year public community college

Location

Lancaster, TX

Enrollment

6,700 students

Demographics

77% part-time
80% students of color
45% age 24+

Combined adaptive instruction with one-to-one faculty support results in higher success rates for developmental math students.

CHALLENGE

In an effort to minimize the levels of developmental math at community colleges across the state, Texas implemented the Texas Success Initiative in 2015. This initiative replaced the previous college math placement exam and made it easier for incoming students to place into college-level math. The math department at Cedar Valley College (CVC) found that students were coming in at varying levels of math proficiency and overall were less prepared for college-level math. They needed a solution that would help them serve all students in developmental math while accounting for their range of proficiencies.

SOLUTION

CVC implemented an adaptive ALEKS master course for developmental math paired with classroom-based one-on-one instructor support in order to help students move through math courses more efficiently and effectively. They also flipped the course and used a modified emporium approach so that students could get help from faculty and other students while working at their own pace. About 1,000 students take the personalized math courses each semester.

APPROACH

CVC paired its online ALEKS course with seat time in a classroom staffed by both an instructor and a tutor. This approach created a personalized high-touch learning environment that led to greater student success.

Course Development

The ALEKS program gave CVC's mathematics coordinator a clear process for developing the course. Based on topics selected by the course coordinator, ALEKS generated a list of prerequisites necessary for student success. Once the coordinator reviews and revises the list as needed, the ALEKS program constructs an adaptive master course, complete with instructional content and assessments.

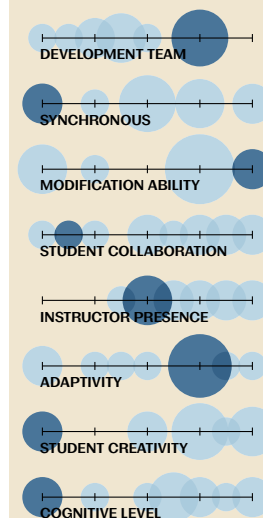
Faculty Training and Support

The adaptive nature of the ALEKS course allows students to move through content as they gain mastery. Because students progress at different speeds, the instructor must be prepared to help students with any element of the curriculum at any time. CVC's mathe-

Course Modality
Mixed: Flipped

CVC Developmental Math Spectrum Responses

At CVC, developmental math courses are self-paced (1) and heavily lean on adaptive tools (4) to remediate knowledge. This is feasible because of the department's master course model (5).



Cedar Valley College Initiative Profile

The on-campus developmental math and college algebra courses at CVC follow a modified emporium model that offers mini-lectures based on students' mastery level. This model shifts the role of the instructor from delivering information to serving as content expert and learning facilitator.



Modality
• Flipped



Characteristics
• Asynchronous
• Modified emporium
• Vendor-supported in-house developed content



Tools/Software
• ALEKS
• Blackboard (LMS)

mathematics coordinator screens instructors and tutors to ensure they have the required expertise before they enter the classroom.

Student Support

Students begin the course with an initial assessment so that ALEKS knows what content each student needs to learn. Students can skip sections of the curriculum that they have already mastered. ALEKS guides them through the remaining course objectives, adapting as the student progresses. Because content is delivered online, instructors can focus on working with students in the classroom.

During each class session, an instructor and a tutor are available to help students with their coursework. The instructor typically talks to each student at least once per course period. As a result, students and faculty develop a strong rapport over the course of the term.

Instructors also communicate with students outside the classroom. For example, one faculty member sends a weekly class email as well as regular progress report emails specific to each student. This high-touch approach creates opportunities for proactive outreach when students seem to be struggling in class.

Data and Performance Measurement

CVC found that ALEKS made a difference in its developmental math courses. They saw sizable

increases in success rates in the two years following implementation of ALEKS — 12% for elementary algebra, 15.3% for intermediate algebra, and 6.9% for college algebra. These increases affirmed the value of the new platform and the one-on-one support that students receive during the term.

LESSONS LEARNED

Wholesale adoption can ease implementation.

When CVC decided to move its developmental math program to the ALEKS platform, it made an ALEKS master course for each developmental math class that all sections are required to use. Eliminating competing course models and implementing ALEKS across the board affirmed the math department's faith in this platform and its potential value to students. Adopting ALEKS in this fashion also helped ensure a consistent learning experience for all students enrolled in developmental math.

Courseware is not one-size-fits-all.

CVC found that some of their students don't do well with the ALEKS courseware because they lack the proper study skills and mindset to complete the course. ALEKS is great for most students because they can move at their own pace, spending more time on trickier subject matter and receiving credit for what they already know. A subset of students, however, lack the persistence and resilience required to keep working in this environment. An initial pre-test to gauge student readiness for online learning can help address this challenge by sorting out which students will likely need additional support.



Anatomy of Flipped Learning

Institution
Virginia State University

Type
4-year public university

Location
Petersburg, VA

Enrollment
5,200 students

Demographics
70% of freshman are Pell Grant recipients

Improving biology pass rates through online instruction and dedicated classroom time for applied activities and peer learning.

CHALLENGE

In 2013, Virginia State University (VSU) was worried about its low pass rate in STEM courses. They looked to a digital solution, but ran into difficulties integrating digital content into their LMS. As a result, the biology department saw little improvement after the first year of implementation.

SOLUTION

After a year-long struggle to integrate digital content, VSU went back to the drawing board and redesigned its courses. It flipped its biology courses by putting all lectures online. In each week's 90-minute class meeting, faculty reviewed the lecture for 10 minutes and then facilitated in-class activities designed to help students actively learn from one another. This new solution has benefitted nearly 60 students each semester since 2014.

APPROACH

When the biology course was redesigned in 2013, VSU didn't have a formal mandate to improve their use of digital learning tools. Rather, a handful of faculty members decided to focus on a few of the courses where students were struggling and pass rates were low. The ad hoc team got together frequently, bringing back information from conferences and trying new ideas. Their digital initiatives focused on both success and affordability—they wanted to improve student learning outcomes in the most cost-effective way possible.

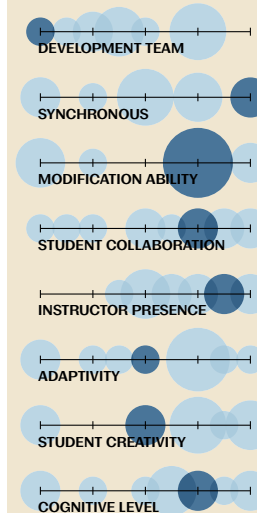
Course Development

The biology faculty decided to flip the introductory course and turn lectures into bite-sized online lessons. They also started using McGraw-Hill's LearnSmart to create pre-lecture assignments that were due on Sundays. Faculty designed a template in Blackboard using "Connect" that has assignments, syllabi and assessments already in place. Because content is now delivered primarily through digital tools, class time has been repurposed for project work and student collaboration. In addition, they offer a companion course that emphasizes non-cognitive skills such as resilience and good study habits.

Course Modality
Mixed: Flipped

VSU Biology Courses Spectrum Responses

Faculty for the flipped biology course ranked designed student collaboration (4) and cognitive level (4) as the two spectrums that make the most impact on student success.



“We didn’t have buy-in from all the faculty when we first started making these changes ... but after about a year or so of showing improvements on students’ performance on these exams, we got more faculty going, ‘okay, it’s worth the time.’”

Leslie Whiteman,
General Biology
Coordinator

Faculty Training and Support

Although there was no centralized school-wide initiative, a handful of faculty took it upon themselves to develop a master course. They asked key questions in their weekly meetings like: How do we teach this concept? What are the activities we want to assign? How do we implement them? Instructional designers were also available to help faculty members as they designed their courses.

Student Support

In order to help students acclimate to the flipped classroom approach, VSU places its biology majors in dedicated cohorts. Students stay in the same cohort with the same instructor for three semesters. To encourage an active learning environment, students are encouraged to seek help from classmates before asking an instructor. Faculty also teach students how to use the technology employed in the course.

Data and Performance Measurement

Over the last three years, VSU has seen a 17% increase in pass rates for biology majors. The faculty is now tracking a variety of metrics including how much time students spend on any given assignment and how many times they return to it. They also design and field their own student feedback surveys to help improve courses going forward.

LESSONS LEARNED

Be intentional about how tools are used.

In the first year of implementation, VSU analyzed the data and decided that the initiative wasn’t meeting expectations. The college went back to the drawing board and reassessed how the tools and features were being used. Now every aspect of the course builds on the student’s foundation of learning in order to improve student success.

Set clear expectations for students.

VSU believes one source of its success is the fact that faculty set expectations up front. By making assignments due Sunday and explicitly stating that students should expect 6 to 9 hours of work outside of class, it was clear to students how much effort would be required.

“We were tired of these low pass rates. We needed to do something.”

Leslie Whiteman, General Biology Coordinator

Virginia State University Initiative Profile

VSU flipped its biology courses in order to create a more active learning environment with student interaction and collaboration during class time. Faculty develop courses with help from instructional designers by importing content into a master course template.



Modality
• Flipped



Characteristics
• Vendor-provided content
• Pioneer/experimenter
• Adaptive platform



Tools/Software
• Lumen Learning
• Candela
• LearnSmart
• Blackboard (LMS)



Prescription for Active Learning

Institution
University of Mississippi

Type
4-year public university

Location
Oxford, MS

Enrollment
18,785 undergraduate students
24,248 total students

Demographics
56% from Mississippi
14% first-generation

A problem-based learning approach to a subject where adaptive learning is not often applied increased class attendance and student satisfaction.

CHALLENGE

University of Mississippi wanted to implement an adaptive courseware program to address students' need for flexibility and their lack of engagement in the school's lecture-based pharmacy ethics course. The faculty member in charge of the course also wanted to develop a hybrid course that got students in her 150-person course to participate more in class.

SOLUTION

The school began with a flipped classroom approach for its pharmacy ethics course in fall 2016. The faculty member partnered with RealizeIt to adapt all the original content for the class. The new format allowed faculty to focus on team-led problem solving that promotes discussion, active learning and collaboration. So far, 150 students have been gone through this new course format.

APPROACH

This concept-based course now breaks the larger course into smaller sections and assigns out-of-class modules and writing assignments that take the place of traditional in-class lectures. As a result, faculty spend more time helping students engage in active, in-class learning.

Course Development

The development process took several months. The faculty member who teaches this ethics course partnered with RealizeIt and an instructional designer to adapt her original content, including PowerPoint slides and lecture notes, so that it was suitable for the adaptive courseware platform. The team began working in January, finished integrating content into the platform in August, and launched the pilot that fall. Some of the heaviest lifting came in the form of writing narratives for the modules and balancing out modules that had less content. Students complete modules outside of class and then attend class once a week. While in class, the students have to solve an ethical scenario in teams and use Google Drive for collaboration.

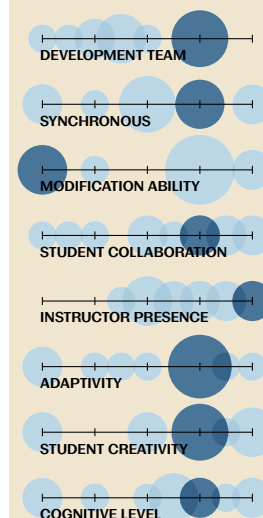
Faculty Training and Support

Innovative course design is generally supported at the University of Mississippi. There is a pervasive attitude that faculty are the masters of their class-

Course Modality
Mixed: Flipped

UMiss Pharmacy Ethics Course Spectrum Responses

Faculty for the pharmacy ethics course attribute the level of synchronicity (4) and the amount of designed student creative thinking (4) as most influential on student success.



University of Mississippi

Flipping the pharmacy ethics course

With the integration of adaptive courseware and Google Apps, the pharmacy ethics course shifted from a large lecture and discussion approach to a more collaborative learning experience.

	High Stakes Exams	Lecture	Hybrid	Adaptive Learning	Active Learning
FA 2014	x	x			
SP 2015	x	x			
FA 2015	x	x	x		
SP 2016		x	x		
FA 2016		x	x	x	
SP 2017			x	x	x

rooms and should be able to determine how they teach. Faculty have access to grants if they adopt a hybrid model or implement adaptive courseware. University of Mississippi also offers a six-week training course on how to design and teach an online course.

Student Support

The pharmacy ethics course has a teaching assistant to provide additional support. Both the faculty member and teaching assistant regularly check in with students during the active learning in-class time. In addition, students have some flexibility in how they complete assignments based on their own learning preferences.

Data and Performance Measurement

Because most students who enroll in pharmacy ethics plan to apply to pharmacy school, grades in the course have tended to be high, regardless of modality. Attendance, however, has improved dramatically following implementation of the flipped model, averaging 92% or above (prior to the switch, attendance sometimes dipped below 70%).

LESSONS LEARNED

In a flipped classroom, environment matters.

The faculty member in charge of the course redesign remarked that in traditional classes students

have an expectation they'll be passively listening to a lecture. As a result, setting student expectations for the flipped classroom environment is critical. In addition, because in-class technological capabilities are critical for flipped courses, the college is building more Technology Enhanced Active Learning rooms.

Grades don't always tell the full story.

Grades are not always the best measurement of student success or the success of a course design. Many of the students enrolled in pharmacy ethics plan to apply to pharmacy school and therefore focus on getting A's no matter how the class is taught. As a result, attendance has proven a better measurement of how valuable students find their in-class time. Additionally, flipped classes lead to deeper learning since they are able to spend their class time devoted to higher levels of cognitive work with the support of classmates and teachers (Brame, 2013).

“By [the attendance] measure, I feel like the students are valuing the class time much more than they were when it was a lecture-based class.”

Patricia O'Sullivan,
Program Manager
of Personalized
Learning and
Adaptive Technologies
Opportunities

University of Mississippi

Initiative Profile

The faculty of the pharmacy ethics course found that the course's large enrollment made it difficult to design group discussions. Flipping the classroom made it easier for students to engage with course content and one another.



Modality
• Flipped



Characteristics
• Problem-based learning
• Active learning
• In-house content
• In-class discussions
• Adaptive



Tools/Software
• Realizeit
• Blackboard (LMS)

Definitions

Term	Definition
Active learning	Activities assigned to students that require analysis, synthesis and evaluation of content
Adaptive courseware	Technology platforms that adapt teaching methods and materials to each student's level and pace
Blended	Teaching modality that combines in-class and online learning, with less than 25% of course content delivered online
Business intelligence (BI)	Technologies, applications and practices for the collection, integration, analysis and presentation of business data
Competency-based education (CBE)	Systems of instruction, assessment, grading or reporting based on students' mastery of knowledge and skills
DFW rates	Drop-out, fail and withdrawal rates
Digital courseware	Software that delivers an entire learning experience from content delivery to assessment
e-Text	Course materials in a digital form
Emporium model	Learning resource model that pairs software with on-demand personalized assistance
Face-to-face	Instruction conducted in-person synchronously
First-generation students	Students who are first in their family to attend college
Flex model	Teaching modality that straddles the line between hybrid and fully online. Students receive online instruction and targeted in-person help
Flipped	Teaching modality where students receive traditional lecture material outside of class and use class time for active learning, such as team or project-based learning
Fully online	Teaching modality with materials, instruction and coursework that are delivered to student entirely online

Definitions

Continued

Term	Definition
High-enrollment courses	Large introductory courses that serve as prerequisites for specific majors
Hybrid	Teaching modality that combines in-class and online learning, with 25-75% of course content delivered online
Master course model	A course design strategy where one master course template is made to be replicated into multiple, consistent and repeatable courses
Modality	Mode of instructional delivery. Examples include fully online, hybrid, blended, web-based or face-to-face
MOOCs	Web-based, massive open online course
Open educational resource (OER)	Free online educational material that is licensed for public use
Project-based learning	Approach that uses hands-on projects as central strategy for teaching students
Quality Matters	A standards organization that provides measurement standards and quality certification of online courses
Self-paced	Programs or courses that allow students to determine the speed at which they progress
STEM	Material related to science, technology, engineering and mathematics
Synchronous	When all students engage in the same learning activities with the same deadlines
Tech-enabled	Instruction supported by technology that does not replace class time (e.g., use of online texts or videos)

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