

WHITE PAPER

BUILDING OUT BLENDED LEARNING ENVIRONMENTS FOR HIGHER EDUCATION

Deployed effectively, modern technology solutions can help colleges and universities enable flexible learning environments under challenging circumstances.



EXECUTIVE SUMMARY

Blended learning represents a new approach to pedagogy that combines the best attributes of both in-person and online instruction. Well-planned blended learning curricula empower students to take ownership in their learning, increase flexibility for students and faculty, and allow institutions to deliver high-quality instruction at a lower cost.

Successful blended learning depends on integration. On the instructional side, blended learning should integrate online and face-to-face elements thoughtfully, using meaningful classroom interactions to complement students' virtual work and interactions. On the technology side, software solutions, together with hardware components, should be tightly integrated for ease of use and quality of content, both of which are essential to a seamless user experience.

Skillful instructional design and high-quality technology are the foundation of effective blended learning. These are the

conduits that allow faculty to effectively share their pedagogical and subject matter expertise and enable students to have meaningful learning experiences as they progress through a course, online and in the classroom.

Blended learning programs are more than a short-term solution; in fact, they are likely to become one of the primary ways that individuals pursue a college education in the years to come. Colleges seeking to deliver an exceptional blended learning program will focus on strong support for instructors, proactive policies and procedures, and the potential adoption of partners that can provide valuable guidance and services.

As colleges pursue student success and digital transformation initiatives, they will find blended learning to be a valuable part of their strategic plans, elevating instruction and improving academic outcomes.

The Value of Blended Learning Environments

In 2020, the pandemic forced higher education institutions to pivot to remote instruction faster and further than many had anticipated or planned for. [One midyear survey found that](#) 87 percent of institutions planned to use blended learning in the fall, a move that represented, for many colleges, a departure from previous instructional models.

Blended learning, also called hybrid learning, combines face-to-face and online instruction to deliver engaging, robust learning experiences. When institutions turned to online learning as an emergency solution in the pandemic, many were unprepared, and the quality of instruction often reflected that. But there is an important distinction between the rapid-response remote learning that colleges deployed in crisis mode and the well-planned, high-quality pedagogy of intentional blended learning.

Done well, blended learning supports current thinking on pedagogical best practices and aligns with institutional goals for digital transformation. By skillfully combining online and face-to-face instruction, this approach uses technology to deliver new ways to learn, create and collaborate. It facilitates students' agency and ownership in their own learning, particularly compared with "sage on the stage" lectures.

It can dramatically increase flexibility and personalization in learning, while expanding the palette of teaching tools available to instructors.

During the pandemic, faculty have delivered much of their online instruction asynchronously, teaching from their homes or campus offices to students who are in their homes or residence halls. Blended learning may also include situations in which an instructor simultaneously teaches students in a classroom and students who

are remote, along with synchronous sessions in which everyone is online at the same time.

To support these programs, colleges rely on versatile, feature-rich software platforms that, ideally, integrate with a learning management system (LMS). A seamless experience supports virtual meetings, breakout sessions, document sharing, and recording and streaming of video and other multimedia content. Whiteboards, monitors, cameras and audio equipment serve to connect learners in a virtual space and allow faculty to record lectures and video for asynchronous sessions.

Benefits of Blended Learning

A [meta-analysis of 94 research articles](#) about blended learning notes several benefits: flexibility for students and instructors, improved personalization and academic outcomes, increased autonomy and self-directed learning, lower costs and more opportunities for communication among students and instructors. Blended learning makes it possible for many students to continue their studies without the hurdles that can often make it difficult, such as commuting, arranging childcare or scheduling around employment. Asynchronous sessions

allow students to choose when to access course materials and to go at their own pace.

For many learners, being able to record an educational session can make it easier to transfer information. Students no longer need tape recorders because they can access automated transcriptions. Many students appreciate the convenience of having all their materials online and easily accessible. As colleges face decreased enrollment and tighter budgets, anything that promotes student enrollment and retention is valuable, and blended learning certainly fits that description.

54%

The percentage of higher education institutions that have increased their spending on online learning systems, including online learning program management services¹

Blended learning also increases flexibility for institutions. Classroom spaces that can serve both in-person and remote students have allowed institutions to pivot in response to the pandemic. This flexibility has made it easier to retain international students, an important population from a funding perspective because they typically pay a higher tuition rate. A [survey by the Institute of International Education](#) found that 58 percent of institutions offered online classes to international students in 2020 to allow them to continue their studies.

In addition, blended learning can help colleges curb their brick-and-mortar spending, while at the same time increasing the variety of courses and schedules they can offer to students. Moreover, as colleges continue to mature and deepen their pursuit of data-driven decision-making and academic interventions, online platforms yield a wealth of data with which to improve student outcomes.

Future Outlook

In 2020, the biggest challenge to blended learning was many instructors' lack of readiness — from both a pedagogical and technological perspective — to teach online. A successful blended learning course requires more than simply transferring a traditional course online. When equipped with the right tools

and skills, however, instructors often find that blended learning lends itself to a greater variety of pedagogical approaches and more meaningful interactions with students, via online chats and discussion forums, than they may have experienced in the classroom.

Far from being a stop-gap measure limited to crises such as the pandemic, blended learning may well become the dominant educational model for the future — delivering, as it does, the best of both traditional and online modes. In fact, [a global survey](#) by the World Economic Forum found that 72 percent of adults in 29 countries believe that by 2025, higher education will be conducted online at least as much as, if not more than, in person.

Elements of Blended Learning

Technologies that support blended learning connect members of a learning community virtually and facilitate a variety of learning modalities. When deployed and integrated effectively, they establish an engaging environment delivered through seamlessly interconnected hardware and software.

Connected Devices

Devices such as tablets, laptops and phones are the primary delivery mode for online components of the blended learning course. Although many colleges have taken a BYOD approach to devices in the past, the expected expansion of online learning may lead them to take a more prescriptive approach in the future. This is partly an issue of digital equity: As students have attempted to work online during the pandemic, many have struggled with a lack of access to high-quality devices or difficulty in using their own devices to meet the demands of online instruction.

To ensure that all students receive the same quality of educational experience, some colleges have responded with loaner programs for devices or Wi-Fi hotspots. Others are moving to a structured choice model, establishing the minimum specifications that students will need for a specific program and designating, for example, three devices from which to choose. Still others may adopt the one-to-one model used in K–12 education, particularly as Generation Z students begin college and bring with them years of experience with one-to-one programs.

Whichever route colleges take, they need to ensure that students' devices are robust enough to support the additional demands of remote learning, including downloading and streaming videos, participating in synchronous class sessions, running specialized software and collaboration platforms, and maintaining security. If deploying devices to students or faculty, colleges need to consider what supports they will provide, such as prepackaged software, step-by-step setup instructions and support guides.

Colleges also need to consider the specific demands of individual departments or academic disciplines. As students move into advanced studies or compute-intensive programs, such as engineering, they may require devices that can handle specialized software or facilitate access through application or desktop virtualization.



Blended Learning: The Best of Both Worlds

For IT teams to provide the best technological support for blended learning, it is important to understand what blended learning is. A common misconception is that blended learning is a face-to-face class augmented with online activities, or an online course that periodically meets in person.

In fact, blended learning is a distinct model that is more than the sum of its parts. The most effective courses are designed fully and specifically for the online environment, while also incorporating strategic, meaningful face-to-face experiences. For example, instructors might use classroom time for activities that are difficult to replicate online, such as group work. They may also take their own teaching strengths into account when organizing a course.

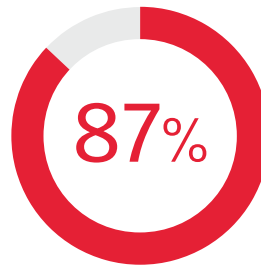
The hallmark of high-quality blended learning is that the learning experiences are integrated. Online and in-person elements must complement each other and, largely via technology, be seamless while doing so. From a pedagogical perspective, this integration might occur when students start a discussion in the classroom, for example, and then advance the conversation through online forums.

Accordingly, although the elements of each blended learning course may be unique, they should be interconnected, leveraging the best aspects of both online and in-person instruction.

Audiovisual Tools

Monitors, interactive whiteboards, cameras and audio equipment transform online instruction from a content-focused activity to an engaging, interactive experience. The ability for students and instructors to see, hear and speak with one another adds richness and connection that elevates the quality of instruction and creates a sense of community. [In an EDUCAUSE survey](#), 70 percent of institutions said that most or all of their blended learning courses would support downloading and streaming of recorded classroom sessions, livestreaming and video capture of lectures and discussions, integration of classroom microphones and video screens to show remote students.

In classrooms, high-quality cameras and microphones enable remote students to see and hear what's happening. Cameras are typically placed at the back of the room, so as not to obstruct the views of in-person students. On devices, web cameras bring students and instructors together in the virtual space.



The percentage of higher education institutions that offered hybrid instruction in the fall of 2020²

For instructors who rely heavily on whiteboards, special cameras that attach to a whiteboard can capture, save and share images in real time through a videoconferencing or collaboration platform. Automated image enhancement allows viewers to see what the instructor is writing on the whiteboard without the instructor blocking the view.

Although instructors may be teaching in a classroom, they often create content for asynchronous sessions from their offices. Here, too, they require high-quality recording equipment, particularly as video has become a primary source of course

content. Students must be able to see and hear the instructor easily. Recordings also must be easy for faculty to incorporate into the learning management system or collaboration platform, and simple for students to access.

Software

Software for blended learning encompasses learning management systems, videoconferencing and collaboration platforms, video recording software and institution-specific software. Integration among these solutions, particularly between an LMS and a meeting platform, is a critical task for IT.

Learning management systems are feature-rich solutions that serve as the administrative hub for a course. Instructors post schedules, assignments and grades here, and students submit assignments and post in forums with classmates. Often, the LMS supports third-party integrations — the better the integration between the meeting platform and the LMS, the better the user experience will be, and the less work for students and instructors.

To optimize integration, colleges should review and streamline the collaboration tools in use on campus, with the goal of increasing consistency where it makes sense to do so. In 2020, particularly as colleges hastily stood up platforms in the spring, users may have created ad hoc solutions that do not integrate well with a school's LMS or are not used consistently across departments. The more disparate the systems in use, the greater the burden on faculty, students and IT staff.

Finally, some colleges may incorporate adaptive learning software into blended learning curricula, personalizing the learning experience for each student by customizing content according to their individual progress through a course.

Infrastructure

Colleges must have adequate infrastructure to support blended learning: networking, compute, storage and security. With more students accessing systems remotely, IT staff should evaluate network size and use to determine whether they need to increase bandwidth — or, perhaps, decrease it. Institutions should also clarify the storage parameters governing cloud-based resources, such as virtual meetings and online materials.



Remote Operations and New Security Risks

Security has long been a priority in higher education, but the pandemic pushed those concerns into overdrive. [In an EDUCAUSE poll](#), 40 percent of respondents said security awareness training and outreach, email filtering, data loss prevention and vulnerability scanning have become more important in the pandemic.

The extension of the learning environment into students' and instructors' homes — and, in the process, onto potentially unprotected endpoints and networks — has expanded the threat landscape. Just as quickly as institutions pivoted to remote operations, hackers adapted their attack strategies accordingly.

Cloud computing has been a major boon to remote work and learning, but it also warrants a closer examination from a security perspective. Blended learning initiatives may warrant cloud-specific solutions, such as cloud access security brokers and cloud security posture management. These tools can help IT staff ensure, for example, that misconfigurations, one of the most common causes of data breaches in cloud environments, are identified and corrected.

Remote operations also have increased the likelihood of shadow IT, as users find their own technologies that may not comply with security policies. Finally, institutions need to be mindful of data privacy, vetting any new systems and procedures against a potential compromise of students' personal information.

Source: ²Institute of International Education, "[COVID-19 Effects on U.S. Higher Education Campuses](#)," July 2020

As a cost-saving strategy, many colleges are reassessing their Software as a Service agreements to increase standardization, eliminate redundancies and ensure that users are fully leveraging all the features of available licenses. On the back end, Platform as a Service and Infrastructure as a Service solutions have proved to be valuable for many institutions, making it much easier to shift to and manage large-scale remote instruction.

Colleges should also evaluate their endpoint management and security strategies, together with network security, through the lens of remote learning, ensuring that students and faculty have the access they need without compromising sensitive data.

Strategies and Services That Build Effective Blended Learning Environments

Even its most ardent proponents acknowledge that while blended learning may not be difficult to do, it can be difficult to do well. Understanding common challenges and key considerations can help colleges ensure that blended learning delivers the desired results.

Colleges must bear in mind, too, that blended learning, perhaps more than traditional forms of instruction, benefits from iteration. As institutions and instructors become more skilled and experienced in blended learning, they will continuously refine and optimize their methods. As they do, technology will evolve in tandem, empowering online communities with newer and better ways to learn and collaborate.



Elevate Course Quality with Instructional Design Expertise

Not surprisingly, instructional design quickly became an in-demand specialty as colleges shifted to remote operations. In 2020, [EDUCAUSE found](#) 81 percent of institutions increased their use of instructional and learning designers to improve the quality of online instruction.

These experts are valuable partners for faculty and IT departments, particularly in the selection and deployment of blended learning tools. In general, instructional designers help to support course design and development, train faculty, and troubleshoot issues related to technology or pedagogy in the online environment. They can be an effective liaison between IT and faculty, sharing information about cybersecurity and updates in software and cloud-based systems.

Instructional designers also have an important role to play as colleges seek to improve digital equity and expand accessibility among online learners. They can evaluate blended learning curricula to identify potential issues (for example, activities that may be problematic without a certain level of bandwidth or access to specific devices) and to help faculty develop alternative activities or modes of instruction. They can also ensure that all online courses meet best practices for accessibility and universal learning design.

Instructor Readiness

Instructors' lack of experience with online teaching has been a major hurdle to effective instruction during the pandemic. To address this, many institutions developed robust training programs in mid-2020 to equip faculty to deliver well-planned, high-quality instruction. This training, which continues to be a valuable source of professional development, advances an understanding of blended learning as a distinctive mode of instruction; fluency with cameras, audio recording tools, meeting platforms and LMS integration; community building and pedagogical strategies best suited to online environments; and the inclusion of values such as digital equity, accessibility, student ownership of learning and personalization. Colleges can provide ongoing support to faculty by facilitating the identification and dissemination of best practices and troubleshooting tips.

Instructors who struggle to engage students online may benefit from instructional design support or mentoring from experienced peers. For some instructors, simply finding new ways to connect with students virtually — for example, using a video to introduce oneself at the beginning of the semester or to elaborate on a tricky concept discussed in class — can be effective. Instructors may benefit from help with the nuts and bolts of online teaching, such as the need to provide clear communication to students about the timing of synchronous and asynchronous sessions, along with expectations and options about attendance. Instructors should also be familiar with any LMS features that are important for their specific courses.

These considerations are important because students expect a high-quality learning experience from their institution, regardless of how it is delivered. They are also important because instructors' ability to teach effectively online has a significant impact on students' engagement and their willingness to continue their academic studies. [Students who believe](#) their instructors work to engage them effectively, and whose institutions facilitate user-friendly platforms, are more likely to continue their education even when some or all of it happens online.

Given the probability that blended learning programs will continue to play a larger role in higher education in the long term, colleges should develop systems and supports accordingly. For example, many LMS and cloud-based collaboration platforms roll out new features on an ongoing basis. Establishing a routine, organized cadence for sharing these updates with instructors can equip them with new skills to enhance online classes and encourage the development of greater competence in online instruction.

Policies and Procedures

From cybersecurity to course attendance, blended learning creates a need for new policies and procedures. For example, a student may express concern about privacy in online learning and be reluctant to make his or her home visible to other students via video. Colleges can address some of these challenges by planning ahead and communicating with students to make them aware of options and expectations. For example, colleges can connect users with technology that can blur or block out backgrounds.

Colleges must recognize, too, that students and faculty are not the only stakeholders in a successful blended learning program. Departments such as IT, human resources, admissions and enrollment, together with individuals whose duties may include oversight of privacy issues, should be included in program planning and development.

Third-Party Partners

Whether institutions adopted blended learning for the first time in 2020, or they are seeking to grow and elevate an existing program, many colleges find value in partnering with an expert that can advise them on solutions, strategies and best practices. Colleges also look to external partners to provide logistical support, which allows their own staff to focus on academic curriculum and skills development.

The following services can help colleges optimize blended learning programs to ensure they deliver the best user experience to students and faculty:

- **Advisory services:** Colleges may need recommendations for the best equipment to support blended learning.
- **Adoption services:** Platforms are constantly evolving, and certain features are best suited for specific use cases. Once a solution has been deployed, a partner can work with instructional designers or educators to help them make the best use of tools and increase the institution's return on investment.
- **Configuration services:** A partner can configure devices with the correct software and security solutions so they are ready for use. Colleges may include preconfigured devices (and, where applicable, headsets) in onboarding packages for new instructors or students in specific programs. When paired with setup instructions, such packages improve the user experience and reduce the burden on IT help desk staff.
- **Implementation services:** Colleges that would benefit from more comprehensive support may use a partner to set up their blended learning systems to ensure they are optimized, secure and effective.

We Get Blended Learning

CDW has a large and experienced staff of educational technology experts to help optimize your blended learning environment. We understand that institutions strive to facilitate the success of all students by offering meaningful, flexible instruction that reflects best practices in pedagogy and learning innovation.

Our goal is to partner with institutions to help them create experiences that engage students with active, collaborative learning and keep them connected, no matter where they may be. We help institutions identify the right solutions and services to achieve their goals, and we provide the strategic support and insights to ensure optimal results.

CDW Amplified™ Services

CDW Amplified™ Workspace services employ a comprehensive approach that enables employees to work from anywhere, on any device.



DESIGN Platforms

Our design and planning workshops help you align your business goals and needs to create an outcome-based collaboration strategy based on end-user satisfaction.



ORCHESTRATE Connectivity

Our certified experts help you create an implementation plan, deploy your fully configured solutions and help ensure adoption success among employees.



MANAGE Collaboration

Our certified experts provide 24/7/365 support and routinely track, measure and optimize your digital workspace solutions to help you exceed business goals.

Sponsors



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