Mighty Guides

EXPANDING EDUCATIONAL OPPORTUNITY

Instructional Design

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FOREWORD

Blackboard understands that the way people learn is dynamic and that the education landscape is continuously evolving. Our mission is to partner with the global education community to enable student and institutional success, leveraging innovative technologies and services. And one of the things that technology can do is to help "Expand Educational Opportunity."

Whether it is providing anytime / anywhere access to learning, expanding the availability of courses to all students regardless of location, fostering additional faculty and student engagement, enabling personalized learning, or making online learning more accessible to students with disabilities, Blackboard is at the forefront of working with institutions to provide technology and services that focus on the learner and improve student outcomes.

As a leader in enabling technology to help learners, educators, institutions and companies thrive in a complex and changing environment, we help our clients see the possibilities to come. We have the experience and expertise to make a positive difference throughout the world.

We're proud to sponsor this eBook. We hope these essays help you open more doors for students and expand educational opportunity for everyone, wherever they are, whatever their needs, and however they learn.

Regards,
Katie Blot
Chief Strategy Officer

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At Blackboard, we're shaping the future of education with big ideas that are transforming the landscape. Every day we help millions of people around the world find new ways to learn, connect and advance. With innovative technologies and solutions we bring them closer to the knowledge they seek and the potential they can achieve. Blackboard is the leading provider of learner success-focused technology solutions and services to the education market. We help our clients overcome diverse and complex challenges through our broad portfolio of solutions and services that make education more accessible, engaging and relevant to the modern day learner.

INTRODUCTION

We've spoken with 20 educational leaders to learn more about how institutions tap technology to improve education and make it available for all students, including those with differing abilities. We asked them the following question:

Please share a specific story (or perspective) about how you or your institution used technology to provide greater access to students with specific needs (e.g., physical disability, location, or inability to get to campus.) What key piece of advice can you offer to someone else trying to implement your approach?

A generous partnership with Blackboard makes it possible for us to share with you experiences that institutions have had implementing these technologies, how they've worked to overcome problems, and the outcomes they've seen from those efforts.

These experts offer their perspectives on challenges, successes, and lessons learned. They discuss everything from design and development strategies to the changing role of higher education and educators. Most of these professionals agree that when you expand availability to education by using accessible technology, whether it is video captioning, text to speech, or more advanced technologies, even students who don't identify as having disabilities use these services and that they increase student success rates and improve learning overall.

I trust you'll find these experts' successes and advice useful and that after reading this, you'll have solid strategies to help advance your use of technology to broaden access to education for all students.

All the best,
David Rogelberg
Publisher

Mighty Guides

Mighty Guides make you stronger.

These authoritative and diverse guides provide a full view of a topic. They help you explore, compare, and contrast a variety of viewpoints so that you can determine what will work best for you. Reading a Mighty Guide is kind of like having your own team of experts. Each heartfelt and sincere piece of advice in this guide sits right next to the contributor's name, biography, and links so that you can learn more about their work. This background information gives you the proper context for each expert's independent perspective.

Credible advice from top experts helps you make strong decisions. Strong decisions make you mighty.

Instructional Design

APPLY UNIVERSAL DESIGN TO INCREASE ACCESSIBILITY

SHERYL BURGSTAHLER

Director of Accessible Technology Services,
University of Washington

Dr. Sheryl Burgstahler founded and directs the Disabilities, Opportunities, Internetworking, and Technology Center and the Access Technology Center at University of Washington. These centers promote the use of technology and other interventions to support the success of students with disabilities in postsecondary education and careers and the development of facilities, software, websites, multimedia, and online learning programs that are welcoming and accessible to individuals with disabilities. Sheryl is the editor and lead author of the book *Universal Design in Higher Education: From Principles to Practice.*

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"Many students with disabilities don't take online courses right now," says Sheryl Burgstahler, director of Accessible Technology Services at the University of Washington. "But they don't always expect that those courses are going to be accessible." Burgstahler says that this is the crux of an issue she spends a lot of her time dealing with. "I work with students who have disabilities and help people who work with students who have disabilities. For that student population, there are sometimes reasons they can't be on campus on a certain day. Online courses can be empowering, but a lot of technology isn't accessible to students who have disabilities, so it actually creates a barrier."

One way Burgstahler suggests adapting offerings so that all students have the same opportunities is to use universal design strategies. "I apply UD strategies to make the courses accessible to people who have disabilities. Even if I don't have any of those students in my class, I'm ready for them. My biggest piece of advice is to be proactive about making your course welcoming and accessible to a student with a disability."

> *"I apply UD (universal design) strategies to make the courses accessible to people who have disabilities. Even if I don't have any of those students in my class, I'm ready for them."*

KEY LESSONS

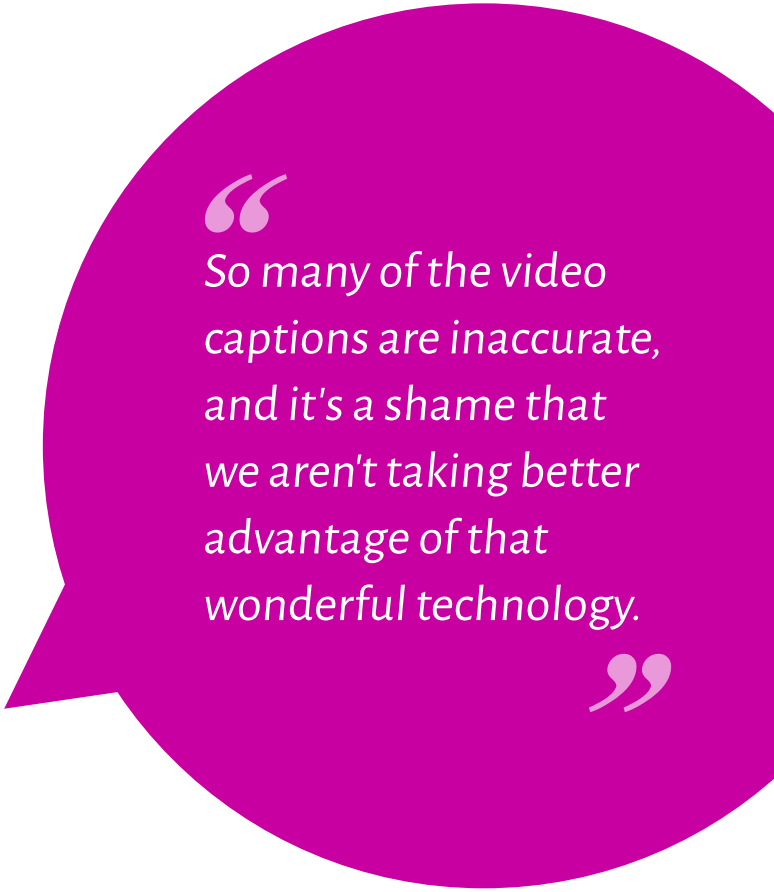
1. **Institutions must plan for and consider all students when implementing accessibility technologies.**
2. **UD strategies can help institutions build learning capabilities to make courses accessible to all students, regardless of location or technological capabilities.**

APPLY UNIVERSAL DESIGN TO INCREASE ACCESSIBILITY

Burgstahler points to the example of captioning videos. Some video players (e.g. YouTube) automatically add captioning, but Burgstahler explains that those captions are often incorrect. "The computer gives you a draft of the captions, and then you edit those drafts," she says. "It's important that the person who owns the video does that because no one else can. So many of the video captions are inaccurate, and it's a shame that we aren't taking better advantage of that wonderful technology."

Other examples of reduced access include documents not properly formatted for screen readers. Burgstahler says that documents "need to be formatted so that the text is available to the screen reader technology that a person who is blind is using. The same is true for people with dyslexia and other disabilities that affect their ability to read. The text has to be available to their device so that it can read the text to them because people with those conditions can benefit from both seeing and hearing the text." In contrast, online instructors often post scanned images as PDF files, where the text is not available to a screen reader in a form it can translate into speech. "And it goes on and on," she says. "The idea is that you need to think ahead about what somebody might need. Then, you just do it proactively."

Thinking ahead and being prepared for students of all abilities is a goal for technology used in education says Burgstahler. "I think that UD provides a framework for making technology and other offerings available to people who have disabilities. UD encourages us to think proactively, and we think of all students as part of our diversity on campus. We expect that they'll come, and so we prepare ahead of time."



APPLY UNIVERSAL DESIGN TO INCREASE ACCESSIBILITY

The outcome of viewing technology and pedagogy through a UD lens is significant. She says, "It's going to make programs more welcoming to people with disabilities. The better job we do of making a course accessible, the more these students will benefit from that course, whether it's a hybrid course so they're onsite some of the time or strictly an online course. Accessibility minimizes the legal vulnerability of institutions, as well."

Legal requirements such as the Americans with Disabilities Act of 1990 (ADA), the 2008 amendments to ADA, and Section 504 of the Rehabilitation Act of 1973 require access to education and other services for individuals with disabilities. "Our universities (private or public), our community colleges, and kindergarten through grade 12 schools must comply with those laws. When a course is not accessible to a student with a disability, the institution has to scurry around to provide accommodations or it falls out of compliance," she says. However, she points out that it is easier and can be ultimately less expensive to improve access by applying UD principles when a course is being designed. The result is more than just improved student success rates. "I think accessibility technologies improve learning for all students, and students with disabilities benefit in the same way."

ACCESSIBILITY STARTS IN PROCUREMENT

KARA ZIRKLE

Accessible Technology Specialist,
Miami University

Kara Zirkle has worked in accessibility for more than 16 years through positions in nonprofit, government, and higher education organizations. She has focused on assistive technology assessments; training (specifically, on Section 508 and WCAG 2.0 compliance); and developing accessibility infrastructure, including procurement, course accessibility (distance learning), and document and web accessibility. Kara has focused on higher education for the past 10 years, working at George Mason University before moving to Miami University in Ohio.

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Kara Zirkle, Accessible Technology Specialist for Miami University, says accessibility considerations should start at the procurement stage. "A new study stated that by incorporating accessible technologies, organizations increased production by 80 percent," she says. "From that perspective, if we can incorporate accessible technology on the front end, imagine how those technologies can help those students who don't disclose that they have a disability or even those students who don't have a disability but are struggling to make the transition to college. It's usability as well as accessibility."

It is not always easy to start with accessibility in mind. "Time, resource, and budget constraints can make building accessibility into courses difficult," says Zirkle. "Working with instructional designers is key. As an accessibility specialist, it is sometimes difficult to determine what type of training or education individuals need. You can best spend your time finding the largest gaps and training areas that can increase accessibility immediately."

> *Time, resource, and budget constraints can make building accessibility into courses difficult.*

KEY LESSONS

1. **Accessibility is more than just including alternative forms or documents or captioning videos in existing content. Instead, accessible technology should be instituted from the beginning of course design and creation to ensure true accessibility.**

2. **Building accessibility into the planning and infrastructure of an organization can reduce long-term costs and result in not only better accessibility within the institution but also better accessibility within education as a whole.**

ACCESSIBILITY STARTS IN PROCUREMENT

One area that Zirkle points to as a good area to start building accessibility is the mobile responsiveness for websites and applications on which so many students rely. "Mobile design guidelines and accessibility guidelines overlap by about 75 percent. If vendors or faculty want to design for a more mobile perspective so that students can bring whatever technology they want into the learning environment, then they are already incorporating accessibility," she says. "It plays into so many hands that everyone benefits. There's no way someone *cannot* benefit. Just showing captioning is great." For example, Zirkle says that captioning, when done well, can help students who are learning English as a second language.

Zirkle says that starting to build accessibility during the procurement process makes the most sense. "The procurement perspective is a good line in the sand. It gives you a timeframe to start ensuring capabilities for accessibility or working accessibility into contracts. You can then build yourself up within about a year and a half to two years because you have to look at all the renewals and everything else that comes in."

"If we can build it into the infrastructure and the planning, we reduce the cost to everyone," she points out, "whether it's the university or the vendor. Working accessibility in from the beginning is going to be the easiest course, whether it's online courses or captioning or whatever else." Zirkle also suggests that beginning to implement accessibility during the procurement process can reduce the demands on educators' time. "There is always a need for resources and support. The more faculty are asked to add to their plate the less likely they are able to complete everything to the level they would like to achieve."

ACCESSIBILITY STARTS IN PROCUREMENT

Approaching accessibility early and holistically can have huge returns according to Zirkle, "The return on investment is much larger than just the university that's incorporating accessible technology," she says. "When you're talking about procurement and accessibility testing from a university perspective, you sometimes get into a larger question of 'how does one university ensure quality assurance of testing versus another university?'" These questions push accessibility technologists like Zirkle to look at education as a whole and ask what more can be done to improve accessibility. That question often leads to greater results than anyone might have imagined at the onset of creating accessible education.

DEVRIM OZDEMIR

Instructional Design Coordinator,
Des Moines University

Dr. Devrim Ozdemir is an experienced scholar in the field of instructional design and technology. His work focuses on the development and improvement of competency-based graduate professional degree programs. He works one on one and collectively with faculty to develop courses, using learning analytics and big data to help the degree programs assess student learning and competency.

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As an experienced academic who has more than a decade of instructional design and technology experience, Dr. Devrim Ozdemir takes a scholarly view of how technology is improving access. His many published works have solidified his views that innovative learning strategies to improve access are ideally placed at the beginning of the learning process, not tacked on at the end. This holistic view of instructional design means that better access and the better results that follow are more completely embraced by a wider variety of students, including many who might not have sought out specific help but who benefit from greater access when exposed to best practices. "A good example," says Dr. Ozdemir, "is captioning and subtitles for videos (or other multimedia formats)."

"Perhaps the primary audience for subtitles, considering accessibility issues, is those who have hearing disabilities," says Dr. Ozdemir, "but what I realized was that if we're talking about technical concepts that half the audience has never heard of, subtitles help everyone. If we're talking about teaching a course to six or seven countries in which the primary language is not English, it helps there. It also helps our adult students who might have a sleeping baby in the house to follow the video without having to listen to the audio as closely."

"[Good instructional design] doesn't only help those who have disabilities but is also a win–win situation for the instructor."

KEY LESSONS

1. **Thinking about accessibility throughout the course design process results in tools that help more students, including those who may not fit the typical profiles of students who need additional accessibility.**

2. **Each institution has to build a process and structure that works for its unique environment, but fostering a team approach in which subject matter experts, skilled technicians, and those who understand instructional and universal design come together to build courses should be the ultimate goal.**

In addition, says Dr. Ozdemir, although some instructors may look at the process of adding captions and subtitles as an additional burden, he suggests that they, too, will benefit from the process of making their material more accessible. "I think it helps the instructor, too," he says. "When I create subtitles, I make the task easier by starting with a good video script before shooting the video. When I start with a video script—a typed document—I can synthesize my ideas more clearly. It allows me to become a more organized instructor. That way, I can create or provide better-quality material. So, it doesn't only help those who have disabilities but is also a win–win situation for the instructor."

When accessible technology like captions and transcripts are available to all students, not just those with identified disabilities, each student can determine what works best for him or her. "Individual students will make the decision as to what is going to work for them," says Dr. Ozdemir. "I think some will prefer seeing the whole transcript, to read it first, because that way they have control over the pace of the presentation. Some will have more familiarity with the topic, will be comfortable with the pace that the presenter provides. Some of them will just speed up the video if the instructor is speaking too slowly."

> *"I really do not see curriculum design as a siloed approach, where instructors create their own content—alone—and then a separate special unit takes care of adding the accessibility component for the development of new course content. I see it as teamwork."*

Dr. Ozdemir acknowledges that it's not realistic to expect instructors to become accessibility experts following every best practice and to necessarily do the work of adding captions and subtitles for every pre-recorded multimedia from external resources (though he is quick to suggest this can be an easy task if proper planning and training occurs first). Instead, he sees the process of good instructional design as a shared responsibility. "I think that these things are not the duty or task of one individual," says Dr. Ozdemir, "but rather that every party has some level of responsibility. I believe that learning-management system administrators have some responsibility to make sure that the system-wide applications are accessible (the right colors have been selected, Web Content Accessibility Guidelines have been met, etc.) and that instructional designers add value, too, and not just for physical disabilities but also cognitive disabilities. Then, there are areas that require subject-matter expertise that neither the technical staff nor the instructional designers will have a good grasp of such as developing, selecting, sequencing and segmenting the content; I think that that is the part that instructors need to take care of."

"I really do not see curriculum design as a siloed approach," says Dr. Ozdemir, "where instructors create their own content—alone—and then a separate special unit takes care of adding the accessibility component for the development of new course content. I see it as teamwork where every party works together during the creation of new instructional content."

KEVIN DALIN

Consultant and Rehabilitation Technology Specialist,
Tech4Impact

Kevin Dalin founded Tech4Impact, an Iowa Targeted Small Business, to provide services that make life accessible, such as assistive technology, training, and digital presence. He earned a master's degree in rehabilitation counseling at Drake University and a bachelor's degree in mechanical engineering at Milwaukee School of Engineering. He is a Certified Rehabilitation Counselor and active in the advocacy community, participating on Iowa's Statewide Independent Living Council and the Iowa Olmstead Consumer Taskforce.

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"Being inclusive is an important and challenging facet of integrating technology, especially when including individuals with disabilities," says Kevin Dalin, a consultant and rehabilitation technology specialist for Tech4Impact. As more individuals with disabilities seek higher education, providing coursework in as many different modalities and in the most accessible way possible becomes even more important. This includes integrating technology and/or assistive technology into the classroom as well as integrating ideas from Universal Design.

The challenges, Dalin explains, often lie within the solutions. "Today's technology holds incredible potential in making life accessible. Assistive technology can be added to make usable what was once impossible to use. However devices often have built-in accessibility features that go unused. Technology features and hardware are perpetually being updated. It is increasingly more difficult to keep up with these changes, which can leave disability resource staff pinched. Therefore, a plan for continuing education through conferences and/or webinars should be developed for key staff."

"Technology features and hardware are perpetually being updated... Therefore, a plan for continuing education through conferences and/or webinars should be developed for key staff."

KEY LESSONS

1. **Universal Design applies to more than just assistive technologies, and all staff members should be trained in Universal Design principals so that they can help expand education access.**

2. **Keep "simple and intuitive use" in mind to pick the most universal platform, and develop a plan to support students with technical questions at times they are most likely to need the support, such as when they are completing homework.**

Dalin points out that one of the easiest but sometimes overlooked aspects of providing greater access to students is remembering the principles of Universal Design. For example, considering screen levels and seating arrangements, describing images of presentations, implementing levered door knobs are all basic examples of being inclusive. A plan should be in place to ensure training of all educational staff from building maintenance to educators and support staff on the seven principles of Universal Design: Equitable Use, Flexibility in Use, Simple and Intuitive Use, Perceptible Information, Tolerance for Error, Low Physical Effort, and Size and Space for Approach and Use.

Dalin recalls participating in an online educational platform to discuss class concepts: "Just being able to access coursework through my mobile phone app as well as on my computer and have all that information downloadable and accessible was really critical," he says. "I also found that students were having a more meaningful conversation online versus in class. One of the interesting dynamics in a classroom is that people like myself may have concerns about saying the wrong thing or not being able to finish their thought. By providing a discussion online, there was an opportunity for me to read and process what another student posted. I felt my responses were more thought out and meaningful - it really deepened that conversation." Not all students found the experience the same, as they encountered technology issues that can be frustrating. As powerful as technology can be, integrating the many different pieces of hardware and software that we use today can lead to time spent troubleshooting when things go wrong. Keeping "simple and intuitive use" in mind to pick the most universal platform, a plan should be developed to support students with their technical questions during the times they would likely need the support, such as when they are completing homework.

"Being able to access coursework through my mobile phone app as well as on my computer and have all that information downloadable and accessible was really critical."

Developing plans to provide continuing education on current technology, ongoing training in Universal Design for all educational staff, and support to students when technology issues occur are key elements in integrating technology into the classroom.

ACTIVE LEARNING CLASSROOMS INCREASE STUDENT ENGAGEMENT

MICHAEL LAMPE

Instructional Design Specialist,
University of South Carolina Upstate

Michael Lampe is an instructional design specialist at USC Upstate's Department of Learning Technologies where he has worked on projects that encourage active learning classroom design, redesign online teaching certification courses and initiate discussion on gaming in higher education. He is also an adjunct faculty member for USC Upstate's School of Education, teaching an educational technology course. Michael has a Master's in Education from Marquette University and is currently pursuing his Doctorate of Education at USC focusing on Educational Technology.

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Michael Lampe believes that higher education today has exciting opportunities to increase accessibility for learners of all types while integrating technology into the classroom. The University of South Carolina Upstate, where Lampe is an instructional design specialist, has made great strides in this direction through its development of active learning classrooms. The traditional classroom design assumes that an instructor will be lecturing at a podium while occasionally displaying slides on a single projector to students seated silently in desks facing the podium. An active learning classroom, in contrast, encourages students to interact with each other throughout the class and empowers them to display their content directly from their own personal devices onto monitors placed throughout the classroom.

This display capability is one of the most important elements of an active learning classroom from a technology and accessibility perspective. "We've created a philosophy of display anywhere at any time, whether it's a faculty member or a student," Lampe says. His institution's active learning classrooms typically have four to eight displays circling the edges of the classroom.

> *"We've created a philosophy of display anywhere at any time, whether it's a faculty member or a student."*

KEY LESSONS

1. **Colleges and universities that are designing active learning classrooms have an opportunity to take advantage of educational technology that benefits learners of all types.**

2. **Active learning classrooms allow students to take greater ownership of the educational process by supporting their close participation in class.**

Students sit at tables known as *pods*, and each pod can accommodate four to eight students. Students are asked to bring their personal devices to class, which they can then plug into their respective pods. "During class, the faculty member can say, 'OK Tom, you did a great job on this assignment. Could you plug your iPhone in and project the work on Apple TV to show the class what you did?'"

From there, the instructor can tap **Display All** on his or her touchpad to broadcast Tom's screen to all the displays in the classroom, sharing his work with his peers. Students get greater ownership over the educational process, says Lampe. "When you allow students to display their own device to share what they did in a real-time setting, students become more personally invested in the class and are more likely to hold themselves accountable." Unlike the technology used in traditional, static classrooms, the devices used in these active classroom settings offer accessibility enhancements such as voice-over features and contrast settings that may be beneficial to students of differing abilities.

Lampe has a few words of advice to offer colleges and universities planning to use educational technology in active learning classrooms. First, it's important to identify key stakeholders for the project and bring them together in a committee for a preliminary conversation to uncover opportunities and constraints before the project begins. He also strongly recommends that universities use assessments to measure the success of their active learning classroom implementations. "Assessments help you make informed decisions so that you can create a better classroom the next time around," Lampe says. Finally, it's important to keep in mind the unique needs of students and faculty rather than simply following the latest trends. In this way, colleges can take advantage of innovations in educational technology while providing the best possible learning opportunities for all their students.

"Assessments help you make informed decisions so that you can create a better classroom the next time around."

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