Making Online Teaching Accessible

Making Online Teaching Accessible offers online teachers, instructional designers, and content developers a comprehensive resource for designing online courses and delivering course content that is accessible for all students including those with visual and audio disabilities.

Grounded in the theories of learner-centered teaching and successful course design, Making Online Teaching Accessible outlines the key legislation, decisions, and guidelines that govern online learning. The book also demystifies assistive technologies and includes step-by-step guidance for creating accessible online content using popular programs like Microsoft Office and Adobe Acrobat, as well as multimedia tools.

Including a wealth of helpful tips and suggestions for effectively communicating with disabled students, the book contains practical advice on purchasing accessible course management systems, developing solutions for inaccessibility issues, and creating training materials for faculty and staff to make online learning truly accessible.

“This valuable how-to book is a critical tool for all instructional designers and faculty who teach online. Coombs’ many years as a pioneer of online teaching show in his deep knowledge of the principles that can allow the reader to apply these lessons to any learning management system (LMS).”
— Sally M. Johnstone, provost and vice president academic affairs, Winona State University, Minnesota; former executive director of WCET at WICHE

“As more and more of our social and professional lives come to be mediated by technology, online accessibility is a fundamental right, not a luxury. This book is a must-read for anyone concerned with maximizing access to learning.”
— Richard N. Katz, former vice president and founding director, EDUCAUSE Center for Applied Research

“This valuable book reflects Coombs’ unique experience and commitment to the best teaching, learning, and accessibility options for all kinds of students and teachers.”
— Steven W. Gilbert, founder and president, The TLT Group-Teaching, Learning, and Technology Group

Norman Coombs is CEO of EASI (Equal Access to Software and Information), and professor emeritus at the Rochester Institute of Technology where he pioneered RIT’s distance learning program in the early 1980s. Coombs is coauthor of Information Access and Adaptive Technology.
Making Online Teaching Accessible

INCLUSIVE COURSE DESIGN FOR STUDENTS WITH DISABILITIES

Norman Coombs
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The explosion of online learning is one of the results of recent developments in information technology. Another is that, with the access provided by assistive applications, people with disabilities now have an exciting world of previously unavailable information at their fingertips. This specialized software and (sometimes) hardware, generally referred to as assistive or adaptive technologies, includes software that magnifies the onscreen image, reads aloud text from the computer or Internet, recognizes spoken commands and dictation, or provides an onscreen alternative to a physical keyboard.

People who were formerly labeled “print disabled” can now transcend that designation because today’s digitized content is display-independent: it can be presented in multiple modes, in whatever way works best for the particular user. As a result, online learning has the potential to provide a learning space that is fully accessible to the formerly print disabled without compromising its quality.

In my opinion, a major reason that more progress hasn’t been made toward providing better access to online learning for students with disabilities is because explanations of how to achieve this goal almost immediately become bogged down in arcane technical details. Administrators fear that the process will be unduly expensive. And faculty fear that providing for these students will mean that they have to become information technology experts.
This book endeavors to address these fears and shortcomings in part by showing that instead of having to understand the behind-the-scenes technology, everyday content-authoring applications that faculty are already familiar with—such as Microsoft Word—will do that for them. This means creating online content that is accessible to students with disabilities is much easier—and probably far less expensive—than people fear. The goal of this book is to demystify the processes and technology involved—to make them accessible to those of us who are “tech-impaired”—and to demonstrate both the benefits and necessity of learning these new skills.

WHAT DOES “ACCESSIBILITY” MEAN?
In the context of this book, the word accessibility means that online course content can be effectively used by people who fall into the following disability groups:

• Students who are blind, or who have severe visual impairments but are not legally blind
• Students with upper body motor impairments (those with other types of motor impairments should not have difficulties in an online context)
• Students with either visual or cognitive processing difficulties (commonly called learning disabilities)
• Students with hearing impairments

FOR WHOM IS THIS BOOK INTENDED?
This book is primarily intended for teachers and instructional design staff involved in creating course content. However, others will also find some or all of the chapters relevant, including information technology staff responsible for maintaining the learning management system (LMS) and the institution’s main Web site, student disability services staff, and administrators from all departments that are directly or indirectly involved in online learning.

Faculty and instructional design staff are already focused on taking subject matter content and adapting it for delivery online. Although some may have the technical expertise to learn and follow all the established standards and guidelines for making Web content accessible to students with disabilities, most have neither
the interest nor the time it would require. For these readers, the book will dem-onstrate how they can continue to use the authoring tools they already know and, by following a few tips and better practices, output content that will achieve functional accessibility.

Information technology staff have the background to understand the technical details of accessibility set forth in the Web Content Accessibility Guidelines by the Web Accessibility Initiative and the Section 508 standards established by the government. This book, however, will enable you to see the problems from the more human viewpoint of faculty and students.

Staff from departments for students with disabilities will have a background in understanding how various disabilities affect the learning experiences of different students and will have familiarity with the assistive technologies these students use. This book will familiarize you with the accessibility barriers and their solutions involved in online learning. In turn, this familiarity will enable you to bring your skills and knowledge to support both the faculty and the students.

Administrators will come to understand the importance of making online learning accessible for students with disabilities. The last chapter sets forth some ideas for administrators to empower online faculty and staff to enable students with disabilities to succeed in their online courses.

WHAT WILL YOU FIND IN THIS BOOK?

Chapters One and Two provide a high-level look at accessibility issues related to online learning: how people with disabilities use computers, an overview of universal design principles, a brief discussion of relevant legislation and internationally agreed-upon guidelines, the problems and benefits of online learning for students with disabilities, the accessibility of commercial learning management systems, and general recommendations for how best to ensure online content is accessible.

Chapters Three through Seven provide concrete tips on how to create online content that will fully include students with disabilities. Chapters Three through Five focus on using Microsoft Word, Excel, and PowerPoint in ways that enhance the accessibility of online content. Chapter Six specifically deals with the particular issue related to providing access to math and graphics content. Chapter Seven
focuses on the accessibility of multimedia presentations and how to use alternative modes of communication to ensure and enhance access to course content.

Chapter Eight deals with the broad issue of how to provide support for accessible online learning at the institutional level. This chapter focuses less on faculty concerns and more on staff and administration responsibilities.

**WHY DOES ACCESSIBILITY MATTER?**

As a society, we have decided that providing access to public buildings and transportation for people who are unable to walk is the right thing to do, and have incorporated that decision into building codes and other laws. Similarly, closed captioning is provided for most television programming and movies on DVD. Other examples are legion, but equal access to education has, for a host of reasons, lagged behind. That gap is rapidly being closed, thanks in no small part to advances in technology.

Because you have picked up this book, it is likely that you already have some interest in offering online learning experiences that will be more accessible for students with disabilities, but you may not yet have much understanding of how your investment of time and effort can pay off for others down the line. If so, perhaps the following story will illustrate.

I lost my sight in a play accident when I was eight years old and relied on Braille and tape recordings for my formal education from then on. In spite of having to use these cumbersome tools, I earned a Ph.D., taught history for twenty-five years, and published a book, *Black Experience in America.*

Finally, though, I caught a break. In the mid-1980s, a colleague nagged me to try the Apple computer in the psychology lab that was connected to a voice synthesizer. I resisted, wondering what a historian would do with a computer. Shortly after trying it, however, I found I was able to both write class handouts and proofread them. I discovered e-mail, and began to communicate with colleagues and friends on campus and across the country—and I didn’t have to find someone to read my messages to me: the computer and synthesizer did it instead.

But my real awakening came when I realized that if students sent me their papers in e-mail, I could read them by myself, at any time of the day or night. I wouldn’t have to set up an appointment with a reader to read them to me. Suddenly I had far more freedom and independence. I also made another discovery:
One of my students started a running e-mail exchange with me about the details of the paper she had sent and my grading. After a few messages back and forth she told me that, because she was deaf, this was the first time she had “talked” with a teacher without relying on an intermediary!

A short time later, when the college was searching for a teacher to experiment with adding computer communication to enrich a telecourse, I realized that although I’d thought I had no interest in distance learning, I already had that experience—I had been using computer communications as a teaching tool. The distance learning department never imagined that their one volunteer would be a historian and not a technology person, and they certainly never imagined the volunteer would be blind. This is the only time in my life that blindness was an advantage. For me, the computer was already a communication tool, whereas others still saw it as just a computational device.

In 1987, I delivered a presentation at a conference on distance education at the Open University at Milton Keynes, England. In 1990, New York State honored me with the Teacher of the Year Award for this distance education work.

Besides helping to pioneer the distance learning program at the Rochester Institute of Technology, I have taught online for the New York School for Social Research, San Diego State University, the University of Southern Maine, and the University of Washington. Since retiring in 1997, I have been the CEO of EASI: Equal Access to Software and Information (http://easi.cc). EASI provides a number of online courses to inform faculty and staff about accessible information technology, and also provides regular Webinars so that busy faculty and staff can participate live while working at their desks.

Several years after I began traveling and presenting on accessible learning, the colleague who had originally pressured me to try a computer told me that I had changed: I was more poised and self-confident, he said.

I believe that creating accessible online learning experiences for students with disabilities can do even more than give them a quality education—it can empower them to become stronger, more self-reliant people.
ACKNOWLEDGMENTS

This book is dedicated in memory of my close friends and working colleagues, Richard Banks and George Buys, who were instrumental in introducing a history professor to the world of accessible information technology. I still miss their friendship and support. I also owe a debt of gratitude to Erin Null, Associate Editor at Jossey-Bass, for encouraging me to tackle this book as a way to move beyond this loss. I also want to thank Alison Knowles and Cathy Mallon, Jossey-Bass editors, for their patient attention to the process of preparing the document for publication.

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I also thank my wife, Jean, for encouraging me when I became discouraged and ran low on enthusiasm.
Norman Coombs earned his Ph.D. in history from the University of Wisconsin in 1961 and taught history at the Rochester Institute of Technology for almost forty years. Currently, Coombs is the CEO of EASI (Equal Access to Software and Information, http://easi.cc). EASI uses Webinar and online courses to assist universities, schools, and businesses in making their information technology accessible to people with disabilities. Coombs’ goal is to take the jargon out of accessible information technology enabling nontechnical faculty to create course content that removes barriers to learning for students with disabilities.

Coombs was awarded a Fulbright scholarship to study in England in 1959 and was awarded a National Endowment for the Humanities grant in 1969. He was the key investigator for three National Science Foundation grants to disseminate information on accessible information technology. In 1990, he was nominated as the Council for Advancement and Support of Education (CASE) Teacher of the Year in New York state for his work in distance learning. He has received several other national awards for his work in advocating for the accessibility of online learning for students with disabilities. (Coombs himself has been blind since he was eight years old.) He has presented on the topic at conferences in the U.S., Canada, Mexico, and half a dozen European countries.

His publications include Black Experience in America (1972) and Information Access and Adaptive Technology, coauthored with Carmela Cunningham in 1997.

He and his wife Jean now live in Laguna Hills, California. They have two daughters and two grandchildren. He can be contacted at norm.coombs@gmail.com.
Making Online Teaching Accessible
Creating a Level Learning Space

The emergence of information technology has changed the education process for everyone, and it has transformed most people’s personal lives as well. This truth is even more important for people with what, for the purposes of this book, I will call print and audio disabilities. Those with print disabilities need special help to surmount the obstacle posed by books and other printed materials. Lectures and other audio content present a similar barrier for those with hearing impairments.

Digitized information has been a major breakthrough for these people. Because it is display independent, it can be rendered in different modes for various purposes. In the past, traditional textbooks froze information in a single format: it was stored as print and a human intermediary or translator was needed to output it into any other form. Digitized information, however, is stored as numbers and this allows it to be printed out, displayed on a computer monitor, or even projected onto a screen so that it can be seen from the rear of a lecture hall. Specialized assistive software can render the same information in even more formats, thus providing students who have disabilities with timely and effective access to the information and creating the potential for a more level learning space for all.

This chapter has three main topics: assistive technologies, universal design, and laws and guidelines relevant to online instruction. People with disabilities often use special software—generally called assistive technology or adaptive