

DESIGNING FOR DIFFERENCE

How ReadSpeaker Text to Speech Can Improve the
Quality & Success of Online Courses





CHANGING DEMOGRAPHICS IN HIGHER EDUCATION

Today's competitive workforce has driven the increasing need for credentials beyond high school diplomas. With 9 out of 10 American new jobs created in the last year going to those with a college degree¹, it's clear that there is a growing reliance on a trained workforce. These trends have put demand on existing workers to continue to enhance their skill set once they are part of the workforce.

Key to enabling workers to stay competitive and increase their marketability is access to flexible options for continuing education and professional development. With changing higher education student demographics, online education continues to gain popularity. The average age of an online student is 32 years old², which indicates that the online student population includes parents, professionals, and everyone in between. All of these students are looking to continue their education by earning their first post-secondary degree, pursuing their master's degree, certificate, or professional development program curricula.

Higher education institutions are increasingly restructuring their programs to cater to large, socioeconomically-, generationally-, technologically-diverse student populations.

1. <https://www.marketwatch.com/story/nine-out-of-10-new-jobs-are-going-to-those-with-a-college-degree-2018-06-04>




2. <https://www.utep.edu/extendeduniversity/utepconnect/blog/january-2018/the-who-what-when-and-why-behind-online-education.html>



HIGH-QUALITY ONLINE LEARNING CAN DELIVER RESULTS

Online learning has a great potential for contributing to worldwide mobility, allowing learners to access programs from anywhere and at any time. This helps to make continuing education more accessible to those that might not attend traditional brick and mortar programs for various reasons. With more than 6.3 million students in the US taking at least 1 online course in 2016³, it's clear that online learning is a viable option for a large population of learners.

Online learning can provide:

-  **Availability:** students are less bound by time and location.
-  **Affordability:** online education is often less expensive than traditional education, opening up learning opportunities to those people who could otherwise not afford the cost of a traditional degree course.
-  **Flexibility:** students are not constrained by a fixed schedule and can better balance personal and professional obligations.

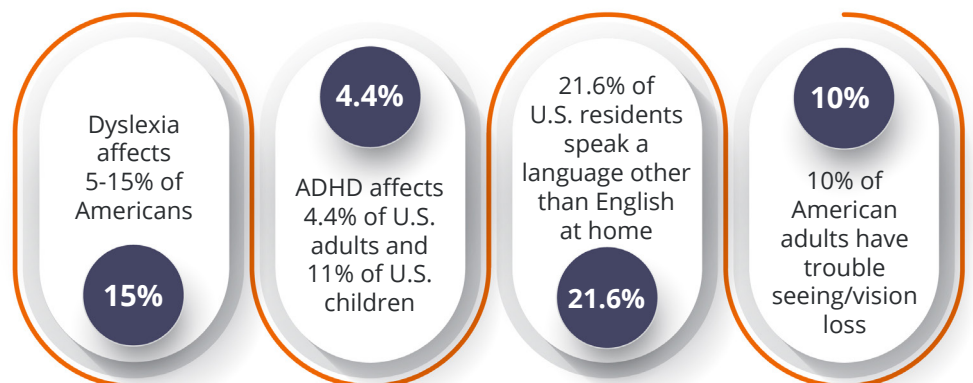
3. <https://www.utep.edu/extendeduniversity/utepconnect/blog/january-2018/the-who-what-when-and-why-behind-online-education.html>

But are online courses as effective as traditional programs? A recent study says “yes”. The study, Making Digital Learning Work⁴ conducted by The Boston Consulting Group and Arizona State University, noted that when colleges took a strategic approach to digital learning and invested in high-quality courses, they were able to achieve some critical objectives including:

- Delivered equivalent or even improved student learning outcomes. Students who took a portion of their degree program online found higher retention rates and graduation rates. They also obtained degrees faster.
- Improved access, particularly to disadvantaged students – including those who received Pell Grants, older students, and females.
- Improved financial picture by growing revenue while reducing operating costs.

ONLINE LEARNING CHALLENGES

Despite these apparent successes, there are still challenges to online learning programs that are unique. Learners can experience difficulties using course technology, can struggle with self motivation and discipline, and can have difficulty adapting to reduced engagement with other students and professors. Likewise, learners that have reading challenges, including Dyslexia, Attention Deficit Hyperactivity Disorder (ADHD), vision loss, or English-as-a-Second-Language learners can struggle with text-intensive online learning courses.



Sources:

- <http://www.ldonline.org/article/10784/>
- <https://www.additudemag.com/statistics-of-adhd/>
- <https://www.census.gov/newsroom/press-releases/2017/acs-single-year.html?CID=CBSM+ACS16>
- <https://www.afb.org/research-and-initiatives/statistics>

4. https://edplus.asu.edu/sites/default/files/BCG-Making-Digital-Learning-Work-Apr-2018%20.pdf?utm_source=e-Literate+Newsletter&utm_campaign=8c8941cecb-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_deab6fbf84-8c8941cecb-40289253



Some research appears to show that online courses may not be working as well as traditional courses, particularly at the community college level. A recent UC-Davis community college study⁵ looked at the entire universe of online courses offered at 112 public community colleges throughout California, comparing student outcomes for classes that offered the same course in both online and face-to-face formats. The researchers found that those who took the online version were less likely to complete a course, pass it, or get an A or B grade than students with a similar academic and financial background who took the traditional class.

Retention is also a challenge for online courses. With 40% to 80% of online students dropping out of online classes⁶, it's clear that in order to create successful digital learning programs, certain key design components must be in place in order to ensure effectiveness, achieve learning goals, and have optimal student outcomes.

5. <https://www.ppic.org/press-release/online-courses-in-community-colleges-see-major-growth-but-student-success-rates-lag/>

6. https://journals.sagepub.com/doi/full/10.1177/2158244015621777?utm_campaign=elearningindustry.com&utm_source=%2Fdropout-rates-of-online-courses-cut-high&utm_medium=link

A recent study by Foothill De Anza CCD⁷ showed that rubric-reviewed and redesigned Online Education Initiative courses had better success rates compared to other online courses.

STRATEGIES FOR IMPROVEMENT

A primary method to scale online course quality is through the use of rubrics. Rubrics help to provide a standard set of criteria to ensure course quality for all students, regardless of whether they take a traditional course, blended course, or digital course. These standards have become increasingly important as more and more institutions offer course sharing systems where they share available seats in their online courses with other institutions.

Likewise, with higher education funding models now focusing on student performance and not just enrollment, rubrics will continue to be an important asset for institutions not only to create a consistent method to create quality online courses, but also because there is evidence that rubrics actually do help to improve success rates.

There are various online course design rubrics available, some developed by institutions themselves, some developed by organizations like Quality Matters or EduCause. A recent e-Literate article⁸ written by education consultant, Kevin Kelly, showcased a comparison of popular rubrics for online course development, broken down by category and listing the number of criteria included in each rubric under the respective category.

RUBRIC COMPARISON CATEGORY	OEI CDR	BB ECPR	SUNY OSCQR	CSU QLT	QM HE CDR	ION QOCI	UWL OCE
Course Overview and Information	5	8	10	9	9	10	4
Learning Objectives	4	3	1	1	5	2	2
Instructional Design & Course Materials	4	9	5	7	6	12	10
Individual Learning Activities	1	2	2	0	0	1	0
Collaboration and Interaction	3	10	4	6	4	13	7
Facilitation	1	0	0	7	0	0	12
Assessment	9	12	9	7	7	23	7
Learner Support	3	1	1	5	3	3	2
Accessibility, Usability, Universal Design, & Inclusivity	17	9	13	6	6	6	5
Course Summary	0	1	0	3	0	0	4
Course Evaluation	0	0	0	0	0	0	3
Course Technology	2	6	4	4	4	7	4
Web Design or Course Layout	0	0	4	0	0	7	1
Mobile Platform Readiness	0	0	0	4	0	0	0

Source:

- <https://mfeldstein.com/online-course-design-rubrics-part-1-what-are-they/>

7. <https://mfeldstein.com/online-course-design-rubrics-part-2-so-what/>

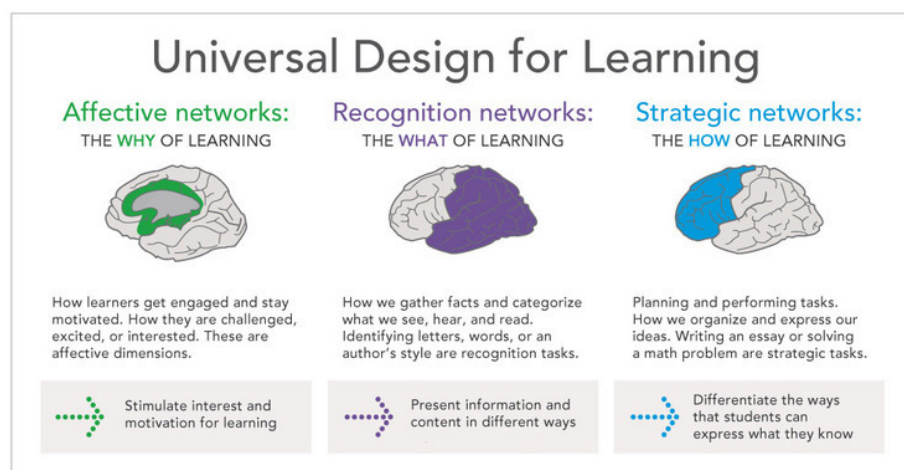
8. <https://mfeldstein.com/online-course-design-rubrics-part-1-what-are-they/>

Universal Design, Accessibility, and Inclusivity are key focuses for all of the rubrics noted in this comparison - and rightfully so. Implementing the principles of universal design in online learning can greatly enhance access and usability of content.

In this white paper, we'll focus on how ReadSpeaker suite of learning tools align to online course design rubrics in an effort to make content available - and more usable - to as many learners as possible.

WHY CHECKING THE BOX FOR ACCESSIBILITY IS NOT ENOUGH

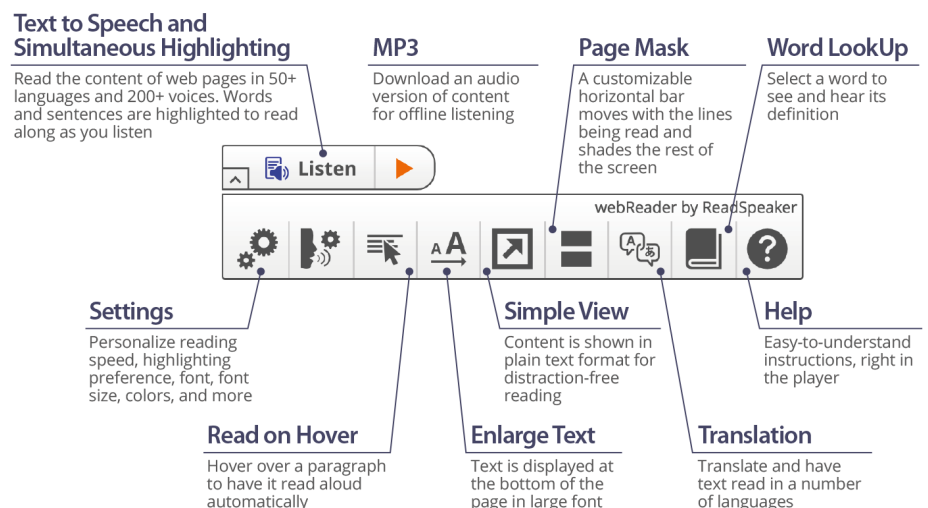
The Universal Design for Learning (UDL) is a set of principles that provides an instructional framework for a flexible approach to individual learning needs. It provides students with multiple means of accessing the course based on three overarching principles: presentation; action and expression; and engagement and interaction. Taking the approach of UDL to online learning allows for students with disabilities to access courses without adaptation and also allows the coursework to be available in a variety of formats for the non-disabled, making it easier for everyone to access. UDL is a plan for teaching which, through the use of technology and adaptable lesson plans, aims to help the maximum number of learners.



This differs from assistive technology (AT). AT is specifically about tools and devices that can help students with communication disabilities complete complex tasks and interact better with others. While assistive technologies are effective, UDL flips the model by offering these benefits to all students, allowing them to choose which tools fit them best, even customizing their learning in different paths depending on whether they are trying to write an essay or solve a trigonometry problem.

Many people learn best by hearing information, which is why for some, online learning may pose some challenges when there is no inclusion of alternative means for text-based content. As with texts being accompanied by pictures, graphs, and interactive features in order to make information easier to comprehend and retain, the ideal online learning course will present information in multiple ways at the same time.

ReadSpeaker's suite of learning tools align with the Universal Design for Learning in that we provide the ability for learners to engage with and absorb content in multiple ways. We enable courses, lessons, tests, quizzes, assessments, reading assignments, and any other text-based content to be read aloud while students follow along with highlighted text. Our solutions can be easily integrated into institution's learning management systems so it can be available for everyone to use and require no downloads by students.



We also offer reading, writing, and study tools that enable students to personalize the way in which they interact with content according to their particular learning preferences. This includes using word lookups to assist with vocabulary, using a page mask or reading ruler to better focus on specific text, using simple view of a course that is clutter-free, using read on hover to have specific text read aloud automatically, enlarging text for easier reading, using translation tools to translate content into other languages, or downloading an MP3 audio file to listen to while on the go.

The concept of having text-based materials read aloud for students had been typically used for special education students who had trouble reading. However today, educators are finding that offering this service to all students is leading to more use than expected and higher comprehension rates.

"Quality Matters professional development participants really appreciate ReadSpeaker. It provides an additional layer of content presentation that we as an organization wouldn't otherwise be able to provide."

Brenda Boyd
QM Senior
Academic Director,
Program Services

When offered the chance to use this tool, some students whose profiles don't suggest they need text to speech or don't self-identify with having a learning disability, have discovered that it helps them retain information, either by replacing reading dense texts or by reinforcing what is learned through reading. Some students even combine the two, allowing text to speech to run while they read along, referred to as bimodal learning.

A internationally-recognized organization, Quality Matters offers quality assurance guidance for improving the quality of online learning. ReadSpeaker is proud to partner with Quality Matters to speech-enable their professional development workshops and courses, which are designed to help educators deliver the promise of quality online learning opportunities to every level of learner. A Quality Matters participant noted, "The ReadSpeaker feature in the QM SoftChalk lessons was very beneficial because I have limited vision. I used it to read me the information and also used the "enhanced text" feature to enlarge the text at the bottom of the screen so I could see it too".

The Quality Matters Rubric for Higher Education, Sixth Edition has a heavy focus on functional accessibility so that all users have equal access to information. Some learners access content visually, while others use a screen reader. Some learners use a mouse; others use the keyboard to navigate. Some learners use their mobile phones to access course content. As such, online learning courses need to be structured in such a way that accounts for how students may be *accessing* content.

However, just as important are the ways in which learners are *engaging* with content. As noted previously, learners have different preferences and abilities that allow them to comprehend and retain information more easily and become more successful students. And these students might not fall into traditional categories for needing assistive technology or special accommodations. Therefore, structuring online programs that accommodate varying learning preferences, aligning to UDL, are key criteria for online instruction.

Taking from the Quality Matters Higher Education Rubric, you can see the ways in which ReadSpeaker aligns in order to facilitate usability of course content.

Instructional Materials	ReadSpeaker Alignment
<p>4.5 A variety of instructional materials is used in the course.</p>	<ul style="list-style-type: none"> • Text to speech - Reads web content out loud, assisting learners who require or prefer an alternative to text-based content. • Download MP3 - Download an audio version of content for convenient offline listening.
Learning Activities and Learner Interaction	ReadSpeaker Alignment
<p>5.2 Learning activities provide opportunities for interaction that support active learning.</p>	<ul style="list-style-type: none"> • Text to speech - Reads web content out loud, assisting learners who require or prefer an alternative to text-based content. • Simultaneous Highlighting - Words and sentences can be highlighted in separate colors, making it easy to read along as a student listens. • Read on Hover - Hovers over a paragraph of text and reads it aloud automatically. • Simple View and Text Mode - Presents a clutter-free version of web content with text in preferred font, size and colors as it is read aloud and highlighted. • Reading Ruler - Focuses on one line at a time with a ruler, allowing for easier reading. • Screen/Page Mask - Presents a horizontal bar that can be moved along with the reading to bring out the lines being read and shading the rest of the screen; aids in reducing distractions. • Enlarge Text - Substantially increases the size of the displayed font for easier reading; draws the eye to the enlarged font cutting down on distraction. • Image to Text - Allows images to be converted to text and read aloud, providing convenience and saving time. • Word Prediction and Auto Completion - Learns from each individual user to predict and complete words. • Dictation - Speech is converted into text, assisting learners who have difficulty typing or getting their thoughts onto paper. • Highlighting Tools - Customize highlighting, helping students learn to focus on key points in documents; form summaries; mark items on which they are unclear and need follow-up.

Learning Activities and Learner Interaction	ReadSpeaker Alignment
	<ul style="list-style-type: none"> • Translation - Translate text and listen to the translation, or revert back to the original language. Translation check and pronunciation of foreign words and phrases. • Word Lookup - Look up selected word or text on Wikipedia, or perform a web search on Google, assisting with strengthening vocabulary. • Annotations - Draw or write text directly on any uploaded document, helping to organize information. • Personalization Tools - Choose reading speed as well as font color, size, and typeface, including fonts such as OpenDyslexic. • Download MP3 - Download an audio version of content for convenient offline listening.
Course Technology	ReadSpeaker Alignment
<p>6.3 A variety of technology is used in the course.</p>	<ul style="list-style-type: none"> • Text to speech - Reads web content out loud, assisting learners who require or prefer an alternative to text-based content. • Simultaneous Highlighting - Words and sentences can be highlighted in separate colors, making it easy to read along as a student listens. • Read on Hover - Hovers over a paragraph of text and reads it aloud automatically. • Simple View and Text Mode - Presents a clutter-free version of web content with text in preferred font, size and colors as it is read aloud and highlighted. • Reading Ruler - Focuses on one line at a time with a ruler, allowing for easier reading. • Screen/Page Mask - Presents a horizontal bar that can be moved along with the reading to bring out the lines being read and shading the rest of the screen; aids in reducing distractions. • Enlarge Text - Substantially increases the size of the displayed font for easier reading; draws the eye to the enlarged font cutting down on distraction. • Image to Text - Allows images to be converted to text and read aloud, providing convenience and saving time.

Course Technology	ReadSpeaker Alignment
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Accessibility* and Usability	ReadSpeaker Alignment
8.2 The course design facilitates readability.	<ul style="list-style-type: none"> • Simple View and Text Mode - Presents a clutter-free version of web content with text in preferred font, size and colors as it is read aloud and highlighted. • Enlarge Text - Substantially increases the size of the displayed font for easier reading; draws the eye to the enlarged font cutting down on distraction.
8.3 The course provides accessible text and images in files, documents, LMS pages, and web pages to meet the needs of diverse learners.	<p>When content is designed with accessibility in mind, ReadSpeaker is able to assist readers with the following features:</p> <ul style="list-style-type: none"> • Text to speech - Reads web content out loud including alt tags, assisting learners who require or prefer an alternative to text-based content.

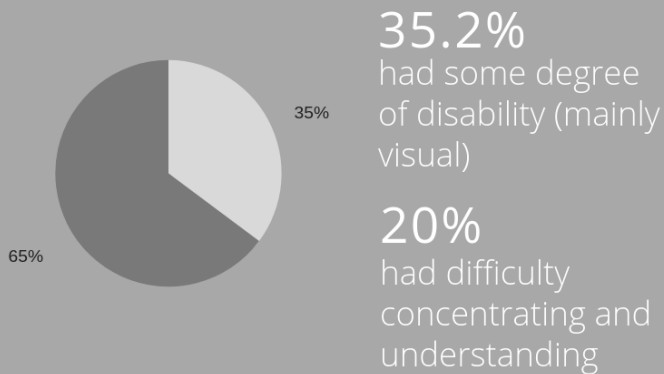
* Meeting QM Specific Review Standards regarding accessibility does not guarantee or imply that the specific accessibility regulations of any country are met. Consult with an accessibility specialist to ensure that accessibility regulations are met.

Accessibility and Usability	ReadSpeaker Alignment
	<ul style="list-style-type: none"> • Download MP3 - Download an audio version of content for convenient offline listening. • Enlarge Text - Substantially increases the size of the displayed font for easier reading; draws the eye to the enlarged font cutting down on distraction.
8.5 Course multimedia facilitate ease of use.	<ul style="list-style-type: none"> • ReadSpeaker Listen button positioned in a standard place and floats with the material. • ReadSpeaker requires no downloads by the students and easily integrates into any LMS.
8.6 Vendor accessibility statements are provided for all technologies required in the course.	<ul style="list-style-type: none"> • <u>ReadSpeaker webReader satisfies all Level A and Level AA success criteria</u> of the Web Content Accessibility Guidelines (WCAG) 2.0 specification. • <u>VPAT (Voluntary Product Accessibility Template) v2.2 for ReadSpeaker webReader</u> details the full accessibility compliance level of webReader.

MULTIMODAL CAMPUS PROJECT

ReadSpeaker

RESULTS SHOW A NEED, AND THE USEFULNESS OF READING ASSISTANCE TOOLS IN A UNIVERSITY CONTEXT, NOT ONLY FOR STUDENTS WITH SPECIAL NEEDS OR WITH DISABILITIES, BUT FOR ALL STUDENTS.



25.2%
had significant improvements
in memorization

24.5%
had significant improvements
in comprehension



More than a half of the interviewees stated they would keep using the reading assistance programs if they were available.

53.2%
users perceived
ReadSpeaker very
positively and no
change was required



WWW.READSPEAKER.COM

ReadSpeaker has been a proven investment at many higher education institutions across the world, assisting them in supporting diverse learners and helping their students to succeed.

A recent study entitled the Multimodal Campus Project⁹ conducted by Barcelona University evaluated the need and added value of incorporating reading-aids, which were integrated into the university's Moodle Learning Management System. ReadSpeaker was one of the reading aids evaluated in the research, which included 1,200 freshmen students taken from different disciplines and different classes in order to ensure that the research stretched across a range of diverse student profiles. Not all of the students studied had disclosed special needs, however,

- 35.2% had some degree of disability diagnosed (mainly visual problems), followed by dysorthography or dysgraphia, ADHD and dyslexia or dyscalculia, with the most common reading and understanding problems being attention deficits, followed by difficulties in numerical operations and vision problems.
- 20% admitted that they had issues concentrating while reading or understanding long written texts.
- More than 60% of Spanish-speaking students stated that they had issues knowing how some English words were pronounced.

With ReadSpeaker, results showed that users experienced significant improvements in memorization (25.2%) and reading comprehension (24.5%). ReadSpeaker was viewed as an easy-to-use program, with a good integration of functions and a small learning curve, and was able to be used without expert support. ReadSpeaker was also viewed very positively by respondents, with a driving factor being that no change was required to use ReadSpeaker. Overall results of the study show both a need for and the usefulness of reading assistance tools in a university context, not only for students with special needs or with disabilities, but for all students.

According to the Multimodal Campus Project report, *“ReadSpeaker is a suitable program to solve deficits in web and learning management systems, as well as in homework learning resources.”*

ReadSpeaker is committed to making content more inclusive so no learner gets left behind. We help institutions in supporting students, campus-wide and on an individual level, for all types of coursework, improving literacy and learning results, attracting and retaining a more diverse student population, and increasing course completion.

Want to learn more?


Get in touch with us on:


[www.readspeaker.com/
contact/](http://www.readspeaker.com/contact/)

ReadSpeaker


pioneering voice technology


ReadSpeaker is a global voice specialist providing dozens of languages and lifelike voices. Using its own industry-leading technology, the company delivers some of the most natural-sounding synthesized voices on the market. ReadSpeaker uses next-generation Deep Neural Network (DNN) technology to structurally improve voice quality at all levels. ReadSpeaker is a subsidiary of the Memory Disk Division (MD) of the HOYA Corporation, with offices in 15 countries, and over 10,000 customers in 65 countries, providing a complete text-to-speech (TTS) offering, both as Software-as-a-Service (SaaS) and as licensed solutions. A fully integrated TTS provider, ReadSpeaker encompasses all of HOYA's state-of-the-art technologies (NeoSpeech, Voiceware, VoiceText and rSpeak), providing a wide variety of applications for varying channels and devices in multiple industries. ReadSpeaker gives a voice to businesses and organizations for online, embedded, server or desktop needs, apps, speech production, custom voices and more. With more than 20 years' experience, the ReadSpeaker team of experts is leading the way in text to speech. ReadSpeaker is "Pioneering Voice Technology".

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