AI and Video Resources Accessibility in Higher Education: A Private Hispanic-serving University Experience

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Online learning has become an increasingly dominant teaching approach in Higher Education, especially during and even after the Covid-19 pandemic, more students with diverse backgrounds are expected to attend online learning, there has been an urgency for ensuring online learning resources accessibility. Video as media resources have been commonly used in all classes for different purposes. Captioning and transcriptions are the two main methods to ensure students' equitable access to video resources, while not all universities are able to caption all their video resources. With the consideration of the recent advancement of Artificial Intelligence, this paper discusses potential solutions for the challenges on ensuring video resources accessibility based on experiences from a small and private Hispanic-Serving (teaching) university, we hope to provide some insights to address the online learning resources accessibility and further contribute to equitable access among students in Higher Education.

Introduction

The demand of online learning during the Covid-19 Pandemic has significantly expanded the use of video resources as an instructional medium; Videos are widely used in almost all learning modalities, such as face-to-face, virtual or online learning, hybrid/blended or hyflex learning, and mobile learning, in which there are learners with diverse backgrounds including special needs. Therefore, there has been an urgency to provide accessible online educational videos (McCarron, 2021) and for universities to conform to Web Content Accessibility Guidelines (WCAG).

This paper focuses on discussing online video resources accessibility, we review the past efforts in this respect, reflect on the challenges and concerns as well as propose potential solutions based on our practice experience as a private Hispanic-serving university. This work aims to offer insights into achieving equitable access to video resources in higher education.

Video accessibility benefits

To improve the accessibility and students' learning performance in a video driven learning context, captioning is one major practice. Captions provide access to the audio component of videos, and it allows the expansion of video content accessibility. Captions can help students reinforce video material, maintain focus, and enhance comprehension (Linder, 2016; Whitney & Dallas, 2019).

Different studies showed that captioned videos provide significantly better comprehension of the content or better learning experiences for students, regardless of if they are DHH or ESL students (Azizi & Azizi, 2020; Hsieh, 2020; Hong et al., 2010; Kent & Ellis, 2017; Linder, 2016; Whitney & Dallas, 2019). Improving the readability of the text and captions of videos is essential to make the content of videos accessible to the widest audience (Cross et al., 2019). In 2014, the Federal Communications Commission of the United States of America (FCC, 2021) approved a regulation on closed captioning quality. Closed captions for pre-recorded content that are time-synchronized text that reflects the audio track; they can be read while watching the visual content. Besides on-video captions, Kushalnagar, Lasecki, and Bigham (2013) suggest adding off-video transcripts to online education video resources would further benefit students.

Challenges ensuring video resources accessibility

Educational videos are usually not captioned due to the cost of captioning solutions, such costs include the high demand of human labor. According to a report by Kaltura (2019), only 27% of institutions automatically captioned all videos. For a small private Hispanic-serving universities, especially teaching universities, ensuring online video resources accessibility for all students can be even more challenging.

Providing caption and transcripts for all video resources across campus requires massive efforts at different levels, including university, school, department and individuals like learning specialists, instructional designers, and instructors. Traditionally, captions and transcripts are created with the support of media software such as Adobe Premiere and VidGrid, staff including student workers need to manually check the caption and transcripts to ensure the quality and accuracy. Meanwhile, it is hard to overlook a fact that speakers or lecturers might speak with a particular accent that is hard to recognize, which to some extent adds more challenge to the accessibility practice. Besides, some courses, by nature, require updates almost annually, the turnaround time for lecture video production also poses a challenge for our department.

Funding might not be sufficient for hiring enough helpers such as student workers to work on those projects while dealing with requests from different schools and departments. Compared to public schools, keeping private colleges/universities running relies primarily on tuition and endowments for funding streams. Funding usually would be the top concern when it comes to video resources accessibility through caption and transcripts, not to say accessible online courses (Huss & Eastep, 2016).

Also, instructors sometime provide external video resources or pre-recorded videos without notifying the school. Those instructors usually do not caption and transcribe those videos due to emotional resistance, time constraints and technology

challenges. First, not all faculty members or instructors see the value of captioning videos and providing transcripts. For example, in an investigation by Huss and Eastep (2016), faculty was confused about the ultimate responsibility for the compliance with accessibility laws and standards. Guilbaud, Martin, and Newton (2021) surveyed 182 faculty for online learning accessibility and revealed that although faculty or instructors might be aware of the institutional policies and terminology, they have low perceptions of accessibility laws and standards. Moreover, usually instructors have rare chances to be explicitly asked to provide ADA compliance by students, which leaves the instructors to believe that it is not worth the time to provide accessible courses since there is no evident need (Huss & Eastep, 2016). However, those instructors might overlook the fact that there have been hundreds of online accessibility lawsuits (Youngblood, Tirumala, & Galvez, 2018) or undermine the discomfort of help-seeking for some students (Bohns & Flynn, 2010). Asking for support on ADA compliance might make them feel less than others or appear not as capable as other classmates, even though they might perceive the caption beneficial (Dommett, et al., 2022; Whitney & Dallas, 2019). Besides, faculty see more obstacles to accessible online courses like the inability of providing captions and transcripts within time constraints (Huss & Eastep,2016). They believe it takes a lot of time to design accessible courses and they don't have time for accessibility training even if it is provided.

Overall, those key challenges for ensuring the accessibility to all online resources include, 1) limited funding, 2) labor-intensive processes, 3) diversity of accents and 4) faculty resistance. By reflecting on those challenges and concerns, with the consideration of the advancement of emerging technologies such as generative Artificial Intelligence (AI), there is potential that those challenges and concerns could be addressed with AI enabled solutions.

AI-enabled solutions

The advent of generative AI presents promising solutions to address those challenges. AI technologies can automate processes such as transcription, voice recognition, captioning and processing, making video resources more accessible and cost-effective. For instance, tools like Rask and Voxquebe offer AI-enabled transcription and voice recognition services, reducing manual efforts and increasing efficiency. Some other commercially applied AI video generators such as HourOne, Synthesia, and Invideo AI using AI-generated avatars and voices, addressing time constraints and tech challenges. There are studies that have experimented on using AI to generate multimedia teaching materials and revealed positive outcomes using AI for video production in terms of effectiveness and work efficiency (Chen & Wu, 2024; Kaur & Luu; 2024; Weerakoon, Leppänen, & Mäkilä, 2024). Also, for instructors who do not want to have a recording with particular accents, they can use AI voice generator such as llElevenLabs (https://elevenlabs.io/) to create an audio clip using an AI voice, alleviating concerns about accents or recording quality. Leiker et al. (2023) experimented on creating videos using AI-generated agent and AI voice and compared to the traditional recorded videos and revealed no difference in terms learning gain and subjective learning experience.

Conclusion

This article reviews and reflects on the challenges and issues based on experience as a private Hispanic-serving University. The common challenges and concerns for providing captions and transcripts include limited funding, intensive-labor processes, diversity of accents and faculty resistance due to time constraints, tech challenges and confusion about the accessibility compliance responsibility. With the recent advent of AI, especially generative AI, a large potential is seen for addressing the challenges and concerns and providing the convenience for instructors to ensure their online video resources accessibility. For the next step of this study, research could be carried out in establishing the process of providing captions and transcripts with AI-enabled solutions and examine its reliability, efficiency and effectiveness.

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