

CHANGE PROJECT

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Improving Accessibility in University of California Online Courses

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THE ORGANIZATION

The University of California (UC) is one of the largest public university systems in the country. We have over 250,000 students currently enrolled. According to a recent survey, over half of the graduating seniors in 2017 had taken at least one online or hybrid course during their undergraduate education. The UC also prides itself on being a progressive and inclusive learning community. There are a large number of undergraduates who have disabilities: physical, learning, emotional and mental. I am working on a subcommittee here at the UC that is promoting accessibility with technology. My specific role in this group is to promote and improve accessibility in fully online courses.



THE PROBLEM

Although the UC is committed to accessibility and inclusion, it does not always understand the scope of work it takes to make online content accessible to people with disabilities. Sometimes it is because of lack of knowledge and sometimes it is because of lack of budget. One recent example of this was with UC Berkeley (Cal) being sued by the Department of Justice for the lack of captions on their steaming online lectures which were being used for MOOCs (Larimer, 2017). Cal did caption using the YouTube automatic (AI) captions to save money, but they were not accurate enough for the deaf and hard-of-hearing communities.



There are also cultural reasons why accessibility of online courses is poor in the UC system. The UC is strongly federated and does not believe in the top-down approach to management and change implementation. Each of the 10 campuses has their own culture, Learning Management System (LMS), and own instructional designers (ID) with varying degrees of understanding around accessibility.

For simplicity this report and case study, I will focus only on the 80 courses offered through UC Online, which is the platform used for cross-campus enrollment (meaning students from all the UC campuses can take these courses and earn credit). This is the group that I work in and can have an immediate impact.

We have six Instructional Designers spread throughout the system at different campuses, and we have a single umbrella of UC Online. The main problems with accessibility are as follows:

- Captioning of all videos and the costs involved
- Uploading scanned documents as PDFs that are not Optical Character Recognition (OCR)
- Not alt-tagging images for blind users
- Not testing online learning products with screen readers
- Purchasing learning products that are not accessible
- Using colors on webpages that are not accessible for colorblind users
- Not using heading tags correctly or consistently
- Not using descriptive links



THE PROPOSED INTERVENTION

Building a new website or online course requires significant amount of work. Just the collection of course assets, shooting lecture videos, and pasting in the content is a challenge. Oftentimes instructional designers and faculty are rushing at the last minute to get the content propped up for week 1 of the class. Accessibility is the last thing on their mind as they scramble to make the final touches to the course. Once a website is built, the amount of time to go back and make the course accessible is far too costly and time consuming for it to be feasible to meet the [WCAG 2.0 AA](#) standard that the UC has committed to. According the UCLA Office of Students with Disabilities, to fix an existing website to make it accessible takes about 5 times as much time as just building an accessible website to start with (Burgstahler, 2017).



Intervention 1: Create Budget for Accessibility



The first intervention I am proposing to UC Online management is to include accessibility in the proposal and budgeting phase of a project. For example, in the proposal a faculty might state that s/he will: shoot 1.5 hours of lecture per week, need a budget to rent studio time, need a budget for post production, and need a 3-D artist. The proposal should also include a line item for 1.5 hours of captions per week. This is probably the most important intervention since creating accessible content often comes with costs; for example, captions cost about \$1.50 per minute, hiring a blind person to scan a site course site will cost about \$150 per hour, and rescanning documents to become OCR will cost anywhere from \$15-50 per hour, depending on who is doing the scanning. The costs will add up so it is important that whoever negotiates price of the online course is aware early in the scoping phase to make online content accessible. As an instructional designer, I am not part of this process, but would like to make this proposal to the management team.

Intervention 2: Create Checklist



The second proposal is to create an easy-to-use checklist for instructional designers to use before they start developing the course. Below is a link to an example of the checklist that I would use for instructional designers. The checklist is be aligned to the WCAG 2.0 AA standard.

[Checklist Link](#)

Intervention 3: Use Student Testers

The third intervention will be to budget time with testers. I believe that the only way to truly know if a site or a course is accessible is to have a live person test (Rottmann, 2017). Not only will our learning be improved, we could also employ students with disabilities who might find it difficult to find work on campus. The tester will come from the local disabilities offices at each campus. Having disabled students check a course for quality assurance (QA) is probably the best way to ensure that the course is accessible. I have worked with our local disability office and the students I have worked with are eager to help and are very excited that faculty and staff are interested in making content more accessible. By working with students with disabilities, we can test for more than



THE PROPOSED INTERVENTION *continued*

just physical disabilities such as blindness and deafness; we could also test with students with learning disabilities, emotional and personality disorders, and students on the autism spectrum. We will also need to budget this testing time in the proposal stage of the project.

Intervention 4: Improve VPAT



The fourth intervention I would like to use is an improved [VPAT](#). This is a document that vendors and publishers use to help organizations understand the accessibility of an online tool or product. Learning tools are historically of poor quality for accessibility, specifically with screen readers for the blind. The VPATs are also historically inaccurate and are difficult for program managers to understand. An accessibility consultant hired by the vendor for a one-time job often writes VPATs. This leads to a lack of understanding of the product from the person writing the VPAT, and gives the company a false sense of their product. I propose that we simplify the VPAT to just 15 yes or no questions that anyone can understand, and will not require a consultant to fill in. This will be driven by the WCAG 2.0 guidelines.

Here is a link to an example form that I have built in Google Forms that has been used by our department to better understand the accessibility of a product. It is an alternative to the VPAT.

[Example Form Link](#)

THE EVALUATION

We can begin to evaluate the interventions after one cycle of classes (6-9 months). We can test the newly built online courses that used the interventions against our legacy courses. A professional accessibility tester will mainly do this evaluation, and if that becomes cost prohibitive we can also use accessibility AI such as the [AMP](#).

The average score we are receiving on the AMP is about 85% accessible; our goal should be 98% or higher. The AMP cannot test as well as a person, so my first evaluation plan will include a live person testing.

I would also like a peer review within the Instructional Design team. We can each be given a checklist that includes items that should be tested, such as, all lectures should have accurate captions, <h> tags are used correctly, all images are alt-tagged, etc. Each ID will evaluate another person's course using the checklist to evaluate the accessibility.

The checklist will be in progressively higher levels of accessibility starting with level single "A" all the way through "AAA," the highest level of accessibility. These checklists will be created using the current web standard of WCAG 2.0.

In the last 3 months I was able to partially or fully implement 3 of the 4 interventions to improve accessibility in the courses offered through UC Online. The management team and my coworkers were open to implementing the instructional design checklist for accessibility, the student testing, and the improved VPAT for purchasing products. I will go through each of the interventions and the outcomes in the section below.

Intervention 1: Create Budget for Accessibility - Narrative and Conclusion

This was the only intervention that I was not able to implement mainly because of the way the department is set up. Unfortunately, the budgets for creating online courses are created and determined at the upper management level, and is evaluated by a panel that does not include accessibility specialists. After speaking to management about this issue, I was told that accessibility was already part of the budgeting process. Although they do not always budget correctly for accessibility, it was difficult for me to convince them that they needed to improve the budgeting process to include more detailed line items for accessibility.



I then spoke to the system-wide Accessibility Office at the [University of California Electronic Accessibility Committee](#) (EAC) about this issue, and they agreed that most people responsible for budgets have the best intentions about accessibility, but lack the knowledge to budget correctly for accessibility needs, such as captions, video description, and testing.

The leadership team at the EAC including myself have decided to promote an optional system-wide training for management and instructional designers on accessibility offered through a company called [Site Improve](#).

Although management did not adopt my initial intervention of creating a bigger budget for accessibility, I believe that my involvement with the University of California Electronic Accessibility Committee offered an even more profound change at the UC through the system-wide training effort. The training will begin January 2018, and my hope is that through the training, not only will budgets for online courses be improved, but also general awareness of accessibility will be taken to the forefront.

The next steps will focus on the training of management and instructional designers within the UC. Chair of the EAC, Lucy Grecco, from Cal, has appointed me to lead in promoting the training within online education. I will be reaching out to instructional designers in all nine undergraduate campuses to promote the accessibility training. My goal is to have all instructional designers and managers of instructional design trained by the end of the calendar year 2018.

Intervention 2: Create Checklist - Narrative and Conclusion

The checklist for instructional designers was implemented in September 2017. The checklist was offered to four of my colleagues as something they could fill in or just print to have at their desks. I had previously done a live training with them in the Spring of 2017, so most were familiar with the accessibility. One of my coworkers printed and posted it on her cubical wall as a self-reminder to check for those most basic elements of accessibility. Although I do not have hard data to back up if the other IDs in the group are now following these best practices, it is my belief that having this simple checklist at their desks while they design is a huge improvement, even if they only passively take a look at it from time to time. Unlike

myself who work specifically with accessibility, most of the other IDs do not think about accessibility on a regular basis. The checklist is an unobtrusive reminder that accessibility is important. It was non-controversial and was well received by the ID team.

The next steps for the checklist are a redesign to make it more visually interesting and distribution to the other IDs in the UC. I also plan to run data analytics to see if there has been improvement to the accessibility of the UC courses. I will scan the accessibility of new courses using a new native Canvas tool that reviews pages for accessibility issues such as missing alt-tags. This tool can give me some amount of data to back up if my interventions, such as the checklist, have made a positive impact on the accessibility of the UC courses. By scanning a course designed in 2016 to the same course redesigned in 2017, the data will show if a course has been improved for accessibility. By having data to back up the improvement, I can say definitively that our department is taking steps to create more accessible learning products.

Intervention 3: Use Student Testers - Narrative and Conclusion

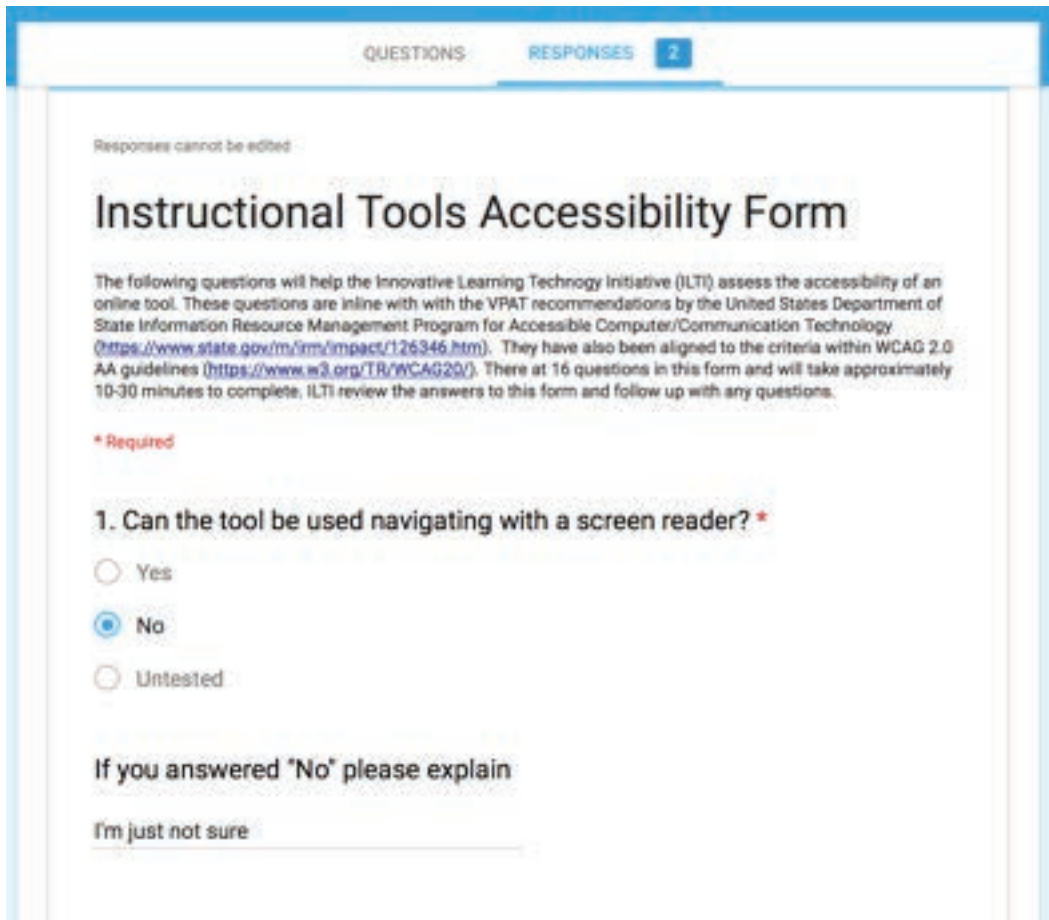
This is the one intervention that I am most proud of implementing because through it I formed a friendship and a working relationship with a blind student worker at UCLA. Shortly after this course began, I reached out to the UCLA Center for Accessible Education (CAE) I met with the director and explained that I was interested in working with a disabled student to test online education. He agreed that it was a good idea, and put me in touch with Laura Nuñez, a 4th year Communications major. She tested my online Physics course for accessibility. Specifically, she was testing an interactive video quiz tool created by Panopto, using the screen reader JAWS. She also tested for accessibility using her iPhone. She later explained to me that there is a division among the blind community. Most young blind people prefer Voice Over, a screen reader tool, built into the iPhone, whereas most older blind users use PC and a screen reader application called JAWS. Had I not spoken to her, I would not have known about this division, and because of this, I now know that we should focus on the mobile platform for young blind students.



The next steps will be to form a stronger working relationship with the UCLA Center for Accessible Education. If they lend student testers for free, this could be easily worked into the development phase of the course design process. However, as our catalog grows, I am not sure that CAE will be able to lend us student workers indefinitely. We may have to budget earlier in the scoping phase to include a line item to pay the student workers. My plan is to continue working with Nuñez until she graduates, and learn as much as I can from her about the millennial-aged blind community. I also plan to propose to management that we pay for the student workers eventually due to the value that they add to the review and testing process.

Intervention 4: Improve VPAT - Narrative and Conclusion

This was an intervention that I have been working on for over two years. I spoke specifically about this issue at an IMS Global Conference in 2016, outlining the weaknesses of VPAT and the misleading practices that vendors use to sell non-accessible products to educational institutions. By simplifying the VPAT into a Google Form, I was able to better assess the accessibility of the product, specifically what the UC was most interested in. In September 2017 the UC Online Tools Product Manager, Michael Wood, implemented the new VPAT alternative form to assess a tool called [GradeScope](#). The tool is used mainly in STEM courses and allows for more robust feedback and grade reporting. The feedback that we got from the vendor side was that it was easy to follow, but they did not see this as a legally binding document.



The screenshot shows a Google Form titled "Instructional Tools Accessibility Form". At the top, there are tabs for "QUESTIONS" and "RESPONSES" with a "2" in a blue box next to "RESPONSES". Below the tabs, it says "Responses cannot be edited". The main title is "Instructional Tools Accessibility Form". Below the title, there is a paragraph of text explaining the purpose of the form: "The following questions will help the Innovative Learning Technology Initiative (ILTI) assess the accessibility of an online tool. These questions are inline with with the VPAT recommendations by the United States Department of State Information Resource Management Program for Accessible Computer/Communication Technology (<https://www.state.gov/m/irm/impact/126346.htm>). They have also been aligned to the criteria within WCAG 2.0 AA guidelines (<https://www.w3.org/TR/WCAG20/>). There are 16 questions in this form and will take approximately 10-30 minutes to complete. ILTI review the answers to this form and follow up with any questions."

Below the text, there is a red asterisk and the word "Required". The first question is "1. Can the tool be used navigating with a screen reader? *". There are three radio button options: "Yes", "No", and "Untested". The "No" option is selected. Below the question, there is a text box with the prompt "If you answered 'No' please explain" and the text "I'm just not sure" entered in the box.

This form is now part of our formal review process at UC Online, and will continue to replace the VPAT as our main way to determine the accessibility of an outside product that we bring into our online learning ecosystem. The form has distilled a five-page document of often irrelevant information into 15 questions. This makes it much easier for Wood to make a quick assessment of the accessibility of the product and move onto other details of purchasing.

Accessibility is more than adhering to a set of standards. We as educators should commit ourselves to an inclusive classroom space. Many of the best practices for educating people with disabilities have been shown to improve the learning outcomes for the non-disabled student population. Best practices such as captions, chunking material into short segments, and offering content in multiple formats are making a significant impact on the learning of all college students. Although the UC has a long way to go before we hit our goal of WCAG AA level compliance, we are committed to making incremental changes to improve the accessibility of our online classes. I have used this course as a springboard to implement four major changes to improve accessibility in the UC:

1. A system-wide training effort to educate both management and IDs on accessibility
2. An easy-to-use checklist for IDs
3. A working relationship with disabled student workers to help test our learning products
4. A VPAT alternative form for assessing the accessibility of a learning product

Although none of these changes individually will make our courseware fully accessible, they are enormous steps in the right direction. In the future, I will continue to promote accessibility in the UC and will gather data to backup that these changes are making a positive impact on learning.

REFERENCES

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