Inquiry Project

Inclusion for Students with Dyslexia at UCLA

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October 2019

Need

Dyslexia is one of the most common learning disabilities represented at UCLA according to data gathered at UCLA's Center for Accessible Education (CAE). In the year 2019 UCLA has 224 students enrolled who have been verified as dyslexic. According to Dyslexia International the actual number of Americans with dyslexia is closer to 5% to 10% of the population, so the actual number of UCLA students with dyslexia is likely much higher than the reported and verified cases. We may have as many as 4,000 students with dyslexia of the 45,000 total students. Many students with dyslexia struggle to keep up with reading and writing assignments.

My proposal is to design a teaching and learning framework that is more inclusive for students with dyslexia. The program will focus on the accessibility of online reading material, universal design for learning and a soft skills training. The main goal of the program will be to ensure that all documents are accessible to screen-readers and assistive technology that can export text to audio formats such as MP3 and designing classes that are inclusive for students with dyslexia.

As a student with dyslexia I know first hand the difficulty to complete reading assignments. One of the best tools that I have found are audiobooks and text to speech software. For assistive technology to work correctly the documents must be OCR (optical character recognition), this means the text can be highlighted, copied and pasted. I have encountered many PDFs in the CU Denver program that are not OCR, they are just PDFs with an image of text, likely scanned from a book and made into a course reader. For most students this is a minor inconvenience. For the nondisabled students it means they cannot do word searches and they cannot cut and paste citations and quotes. For a dyslexic student it might mean they are unable to complete the full reading due to reading speed and the inability to listen to the text. For a blind or low vision student it will be impossible for them to access the document at all. Document accessibility is one of the most important aspects of the program.

Guiding Questions

The questions below guided my inquiry.

- How can UCLA become more inclusive of students with dyslexia?
- What interventions are most effective and low cost for the institution?
- How can UCLA build a culture of accessibility?
- What tools, technology and interventions will be needed to implement the dyslexia program?
- How will we measure the success of the program?

Inquiry Method

I will use published literature to support the need for the program and the nature of the interventions. I used Google Scholar and the UCLA library database called Melvyl UC Catalog

for my research. Additionally I have interviewed UCLA students with dyslexia for other projects and have reviewed their testimonials. I will also reflect on my own education as a student with dyslexia, what worked for me and what did not, how did I feel excluded in my education and in what ways did faculty and teachers make me feel included and supported.

The UCLA Dyslexia program should also take into account soft skills training such as how to talk to a student about disability and not embarrass them.

The section below describes the data I collected to answer my guiding questions. It includes information from published literature as well as personal observations and conversations.

Interventions (Finding & Recommendations)

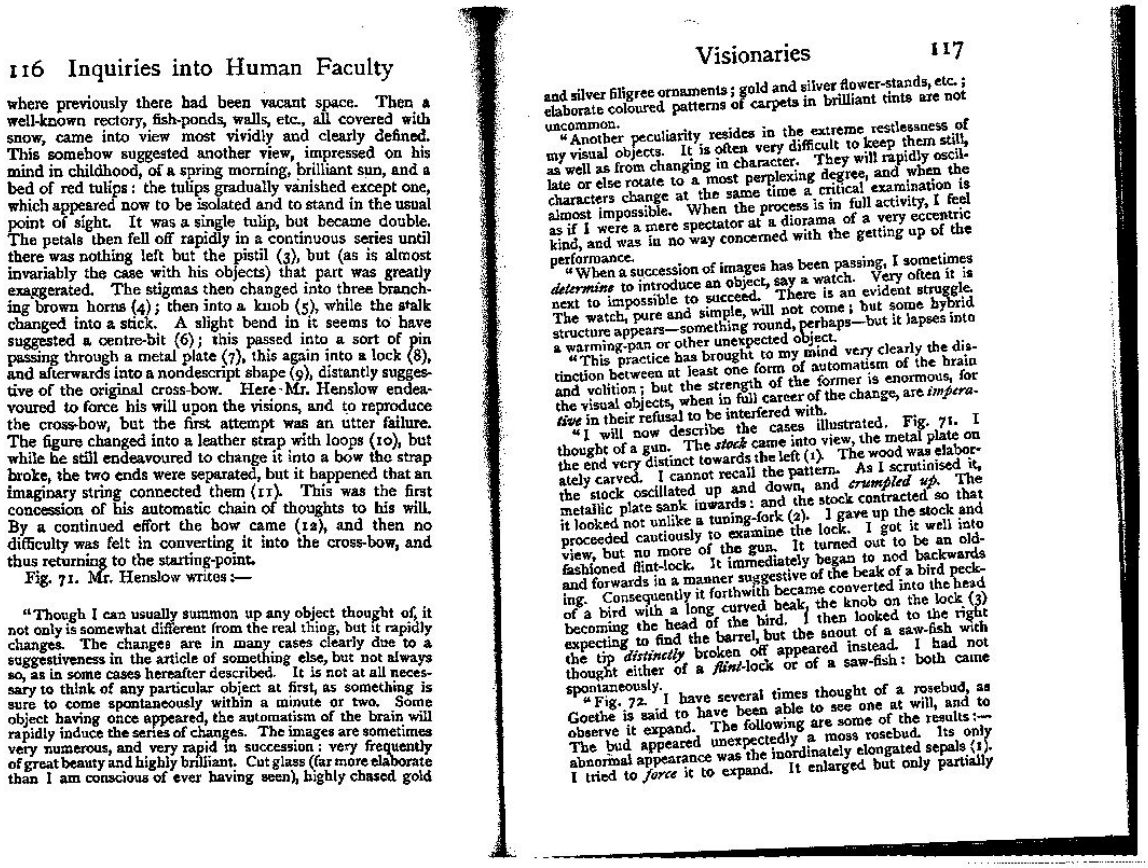
Document Accessibility

Document accessibility is often the low hanging fruit of accessibility. When a university is reviewing the accessibility of a class for accessibility and WCAG 2.0 AA compliance the course readings are often the first things reviewed. Based on interviews I have conducted at UCLA with students with disabilities document accessibility is one of the most important aspects to course completion and satisfaction.

Laura Vonessen's (2018) dyslexia study found the following:

> In previous work we conducted a study of dyslexic and non-dyslexic adults and found that dyslexic searchers award lower relevance scores on average than searchers who do not have dyslexia. Moreover, we also reported an association between document readability and document relevance, with hard-to-read documents tending to command lower relevance scores. In interviews, dyslexic searchers indicated that documents were often abandoned due to poor accessibility.

I have also found that I too would abandon and document if it had poor accessibility. The worst offenders at UCLA are scanned image PDFs. In student interviews at the UCLA disabilities and computing offer I often hear students with and without disabilities complaining about the quality and readability. Below is an example of a scanned image only PDF.



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where previously there had been vacant space. Then a well-known rectory, fish-ponds, walls, etc., all covered with snow, came into view most vividly and clearly defined. This somehow suggested another view, impressed on his mind in childhood, of a spring morning, brilliant sun, and a bed of red tulips: the tulips gradually vanished except one, which appeared now to be isolated and to stand in the usual point of sight. It was a single tulip, but became double. The petals then fell off rapidly in a continuous series until there was nothing left but the pistil (3), but (as is almost invariably the case with his objects) that part was greatly exaggerated. The stigmas then changed into three branching brown horns (4); then into a knob (5), while the stalk changed into a stick. A slight bend in it seems to have suggested a centre-bit (6); this passed into a sort of pin passing through a metal plate (7), this again into a lock (8), and afterwards into a nondescript shape (9), distantly suggestive of the original cross-bow. Here Mr. Henslow endeavoured to force his will upon the visions, and to reproduce the cross-bow, but the first attempt was an utter failure. The figure changed into a leather strap with loops (10), but while he still endeavoured to change it into a bow the strap broke, the two ends were separated, but it happened that an imaginary string connected them (11). This was the first concession of his automatic chain of thoughts to his will. By a continued effort the bow came (12), and then no difficulty was felt in converting it into the cross-bow, and thus returning to the starting-point.

Fig. 71. Mr. Henslow writes:—

"Though I can usually summon up any object thought of, it not only is somewhat different from the real thing, but it rapidly changes. The changes are in many cases clearly due to a suggestiveness in the article of something else, but not always so, as in some cases hereafter described. It is not at all necessary to think of any particular object at first, as something is sure to come spontaneously within a minute or two. Some object having once appeared, the automatism of the brain will rapidly induce the series of changes. The images are sometimes very numerous, and very rapid in succession: very frequently of great beauty and highly brilliant. Cut glass (far more elaborate than I am conscious of ever having seen), highly chased gold

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and silver filigree ornaments; gold and silver flower-stands, etc.; elaborate coloured patterns of carpets in brilliant tints are not uncommon.

"Another peculiarity resides in the extreme restlessness of my visual objects. It is often very difficult to keep them still, as well as from changing in character. They will rapidly oscillate or else rotate to a most perplexing degree, and when the characters change at the same time a critical examination is almost impossible. When the process is in full activity, I feel as if I were a mere spectator at a diorama of a very eccentric kind, and was in no way concerned with the getting up of the performance.

"When a succession of images has been passing, I sometimes *determine* to introduce an object, say a watch. Very often it is next to impossible to succeed. There is an evident struggle. The watch, pure and simple, will not come; but some hybrid structure appears—something round, perhaps—but it lapses into a warming-pan or other unexpected object.

"This practice has brought to my mind very clearly the distinction between at least one form of automatism of the brain and volition; but the strength of the former is enormous, for the visual objects, when in full career of the change, are *imperative* in their refusal to be interfered with.

"I will now describe the cases illustrated. Fig. 71. I thought of a gun. The *stock* came into view, the metal plate on the end very distinct towards the left (1). The wood was elaborately carved. I cannot recall the pattern. As I scrutinised it, the stock oscillated up and down, and *crumpled up*. The metallic plate sank inwards: and the stock contracted so that it looked not unlike a tuning-fork (2). I gave up the stock and proceeded cautiously to examine the lock. I got it well into view, but no more of the gun. It turned out to be an old-fashioned flint-lock. It immediately began to nod backwards and forwards in a manner suggestive of the beak of a bird pecking. Consequently it forthwith became converted into the head of a bird with a long curved beak, the knob on the lock (3) becoming the head of the bird. I then looked to the right expecting to find the barrel, but the snout of a saw-fish with the tip *distinctly* broken off appeared instead. I had not thought either of a *flint*-lock or of a saw-fish: both came spontaneously.

"Fig. 72. I have several times thought of a rosebud, as Goethe is said to have been able to see one at will, and to observe it expand. The following are some of the results:—The bud appeared unexpectedly a moss rosebud. Its only abnormal appearance was the inordinately elongated sepals (1). I tried to *force* it to expand. It enlarged but only partially

The intervention I would propose to UCLA would be full PDF training for all TAs and faculty who upload PDFs to the UCLA LMS. Most faculty already have the full version of Adobe Acrobat however TAs and grad students do not have access. The UCLA faculty have historically been resistant to accessibility training opting to use our CAE to do an accommodation for students with disabilities. Most students with disabilities do not disclose or seek accommodations meaning unless the document is accessible from the start, many students will not read the document at all. According to Krupnick (2014), "Just a quarter of students who received help for their disabilities in high school acknowledge in college that they need the same assistance, according to the National Center for Learning Disabilities. And while 94 percent of high school students with learning disabilities get some kind of help, just 17 percent of learning-disabled college students do (p. 1)".

TAs will also need to be trained in PDF accessibility. The answer to document accessibility is training and a willingness of the document creators to think about all students as they upload readings. The other option would be to encourage the use of HTML and .Doc formats for readings, these formats are natively more accessible than PDF. This latter option is very unlikely given the penetration that PDF has in the higher education market.

Universal Design for Learning

One of the most important aspects within Universal Design for Learning (UDL) is allowing students to learn using a diversity of modalities. Within the UDL framework this is called multiple means of representation. According to Rose's journal article (2010), "There is no perfect way to present information to all users. Any means of representing information creates obstacles for some and differential benefits for others. The key to universal design for learning is to provide alternatives rather than a "one-size-fits-all" solution (p. 2)

As Rose states above there is no one size fits all solution for learning and presenting. This is especially true for students with dyslexia. Dyslexia is a complex disorder that is often comorbid with other disabilities. Very often dyslexics are also diagnosed with ADHD and other attention disorders.

According to Eva Germano and Paulo Curatolo (2009):

> Over 80% of children with ADHD and 60% of children with RD meet the criteria for at least one additional diagnosis. RD, commonly referred to as dyslexia, is defined as an unexpected, specific, and persistent failure to acquire efficient reading skills despite conventional instruction, adequate intelligence, and sociocultural opportunity (APA, 2000). ADHD is one of the most prevalent developmental disorders, characterized by excessive activity, short attention span, and impulsivity (APA, 2000). Recent advances from neuroimaging and molecular genetics have improved our understanding of the neurobiology of ADHD.

This means that when educating students with dyslexia we should also consider attention disorders. The current framework for teaching at UCLA is very traditional, often readings are assigned, lectures are presented and many of our assessments are multiple choice.

The intervention I would propose to UCLA online teaching and hybrid classes would be to offer more lecture chunked into 5 minute captioned lectures similar to micro learning that is happening in the private sector. The ability for students with disabilities to rewind and read the captions for spelling will help not only dyslexic students but also our 20% Engish language learners. Allowing student with dyslexia the option to also listen to instructional content such as a podcast would also help keep them engaged. Although reading is an important skill in higher education when it comes to learning it is more important that we engage these learners than to setting up a class in such a way that is unnecessary exclusive of the dyslexic learning style.

Soft Skills Training

People with dyslexia from an early age feel excluded in a society that does not value their learning style or distinct way of thinking. The life outcomes for people with dyslexia are often poor and include a much higher rate of incarceration. According to Moody (2008), "While the prevalence of dyslexia in the general population is about 20%, the prevalence of dyslexia in prisoners is more than twice that, or 48% according to a scientific study my colleagues and I conducted at the University of Texas Medical Branch in conjunction with the Texas Department of Criminal Justice (p.1)".

The rejection of students with dyslexia and other learning disabilities has created a direct pipeline for students from special education to incarceration. The goal of a soft skills training program at UCLA would be the destigmatization of dyslexia. In this training directed at faculty, TAs and undergrads we would cover the data around dyslexia, how to engage the dyslexic learners and how to talk about disability to young students.

I can remember as a freshman in 1998 at UCSD when my lecturer called me out by name and was told to stay after class. It was a room of over 300 people and there were about 15 students with accommodations for testing. It was humiliating to be outed like that in front of all my friends and girls I was trying to impress. This is not an uncommon experience for students with disabilities. The soft skills training can cover topics like being discreet about talking to students with disabilities. After a few experiences like that I made a commitment to myself that I would no longer identify as a person with a disability and I would no longer seek accommodations for my dyslexia.

Soft skills training would include the following topics:

- What is dyslexia
- Data around dyslexia
- Personal testimonials by a student with dyslexia
- How can I include students with dyslexia in my lessons
- How to better assess the learning for students with dyslexia

These soft skills training can be workshop based and might include redesigning curriculum to include some aspects of UDL and accessibility.

Conclusion

This inquiry argued the need for inclusion for students with dyslexia. Dyslexia has been part of the human experience since the beginning, it is only recently (since the industrial revolution) that reading and writing has been integral for success in modern life. Dyslexia was first discovered in the 1870s by German physicians Adolf Kussmaul and Oswald Berkhan who called it word

blindness. Today dyslexia is a strong predictor of poor academic outcomes. At UCLA my department would like to change this through a dyslexia inclusion program that focuses on: document accessibility, Universal Design for Learning and soft skills training. This project has outlined the justification for the interventions and also provided evidence for the need of the proposal. The dropout rate for students with dyslexia continues to be much higher than the general population, especially among high school students. I believe that these students with dyslexia at UCLA have proven that they have the intelligence and grit to make it into a school as competitive at UCLA therefore we should give back to this community by making small adjustments to our teaching and content practices.

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