

Lost in Translation: Co-designed
Approaches to Implement Digital
Accessibility Initiatives

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Introduction

In the summer of 2025 students were interviewed about their experience with digital learning material.

Each student is (or was) registered with Langara's Accessibility Services office and are (or were) eligible for academic accommodations. Each student uses assistive technology (e.g., text-to-speech, audio recorders, screen reader software) to assist with functional limitations to interacting with digital content.

The interviews illuminated the following themes about the student experience with digital learning material:

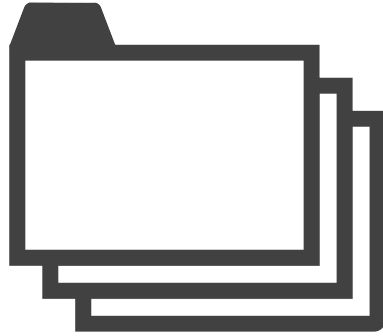
- Difficult File Formats
- Impact of Inaccessibility and Exclusion on the Student Experience
- The Additional Time Burden of Inaccessible Content
- Potential Solutions and Better Practice Suggested by Students

The following resource provides context, quotes, analogous demonstrations, and links to provocations, how-to guides, and other resources. Please use this resource to build a sense of understanding for the student experience and consider how your choices of digital learning material impact learners.

Move to the next page (by selecting the link or clicking **Next: Formats** in the bottom-right corner) to examine specific file formats that do (and do not) work for students.

Formats

Some file formats are more accessible than others. Your choice of file formats is incredibly important to inclusion and student success:



“You’re really **playing Russian roulette with what you’re getting and sometimes you have to drop the course on the first day ‘cause you see what format they’re using.**”

– Langara student

Participants expressed that inaccessible content is a direct barrier to success.

“A few where it’s been excellent, the **majority’s been really tough**, and some have been **really, really... hindering, um, my ability to participate.**”

– Langara student

“It’s really . . . been **prohibitive in taking multiple classes at Langara [and] really prohibitive to my education.**”

– Langara student

“I’ve taken **multiple courses where I couldn’t even do the course because they had many inaccessible sources.**”

– Langara student

“I dropped that course! I couldn’t pass it! I **dropped the course, and it changed my, um... education trajectory.**”

– Former Langara and current UBC student

Specific File Formats That Work for Students

While each learner is different, there are formats that generally work better with assistive technology.

“I ask that they produce it in like a **Word format. Umm, like a rich text or something other than PDF**, as JAWS [screen reader software] and PDFs I find are not the most compatible with one another . . . I wish [instructors] would be more willing to **convert things ... out of PDF.**”

– Former Langara and current SFU student

When asked ‘what does JAWS do with an inaccessible PDF?’, the student replied:

“It would say to me, oh **blank document.**”

– Former Langara and current SFU student

There are some materials that simply don’t work for any learner.

“I’ve had so many times where it’s just a scan of an article, **a scan of... you know, 3 pages of a book or something, and it’s freaking even sideways**, and it’s just so ***** annoying, and so that’s where I’ve had to go find my own technologies.”

– Langara student

The same student noted progress over time and some positive experiences:

“They **made sure that there was no textbooks that had to be purchased.** They were making sure that they had . . . yeah, basically that all their stuff was... as accessible, and the broad term of that . . . it was all, um . . . **digitally created, no scans.**”

– Langara student

Students want instructors to be deliberate and specific with their choice of learning materials.

“So I would [say to instructors] **please realize if you’re using a textbook, make sure it’s accessible . . . because they’re not only just . . . reading the textbook, they’re also converting it into an accessible format for them and a format that they can learn.**”

– Langara student

Some students were particularly critical of courses that over-rely on publisher platforms.

“**Instructors are being lazy** because they’re getting, **they’re getting a PDF full of, uh, lecture slides, notes, talking points, keywords, and an exam bank. So they have to do **** . . . Is that really their fault?** The instructor? No, because they’re in a world where they’re not paid enough to do what they’re doing. **They’re exploited... most of them.**”

– Former Langara and current UBC student

When asked who is most responsible for inaccessible content, one student replied:

“I would say it’s the teachers. **I don’t want to blame on them because they’re underpaid and they’re overworked.** But if, if they could just . . . put everything in the most simple... it doesn’t have to be super ’cause it has to be a Word document with everything that’s going to be on the, on the test.”

– Langara student

While only speaking for herself, one student wanted to remind instructors to focus on what really matters, access:

“You can **call me whatever you want . . . you can say whatever you want to me as long as you actually make an effort to give the accessible format and you don’t have to be perfect.**”

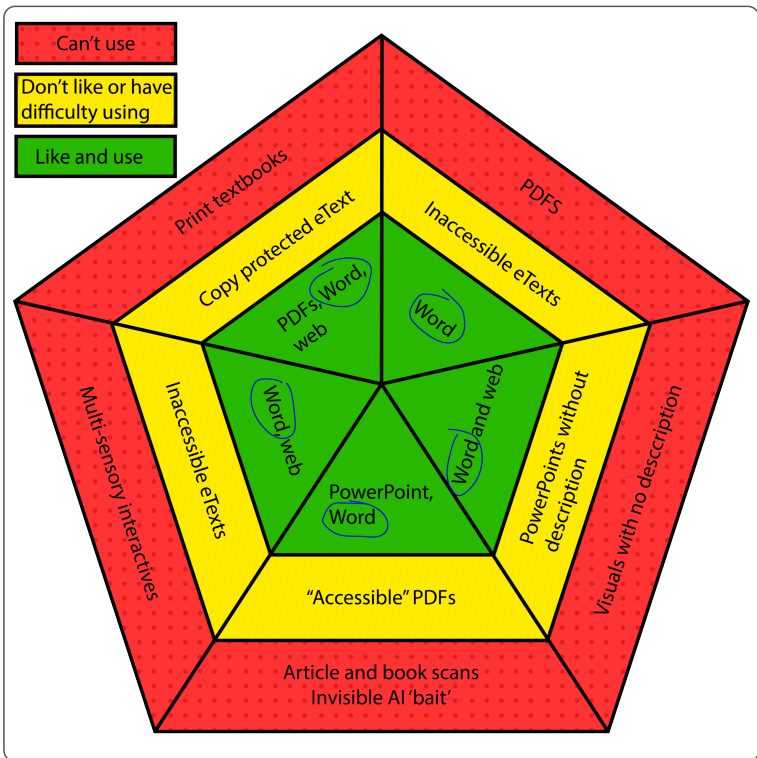
– Langara student

How Your Choices Impact Learner Success

While discussing file formats, each participant was asked about file formats they:

1. Can't use
2. Don't like or have difficulty using
3. Like and use

By combining the responses, we can reveal patterns, particular of file formats that work for all learners.



Expand to view the above data in a table

Student	Can't use	Don't like or have difficulty using	Like and use
Former Langara and current UBC student	Print textbooks	Copy protected eTextbooks; Publisher platforms that don't work with assistive technology	PDFs, even if they aren't perfect; Pirated content; Word and web content
Former Langara and current SFU student	PDFs (must be sent for remediation); Sometimes read some text but often nonsense and out order, worst case is 'blank document'	Many eTextbooks don't work well with needed software	Word (works with JAWS) for reading, writing, and formatting
Former Langara and current SFU student	Videos without transcripts; slides without description	PowerPoints without visual description; content with poor/non-existent image descriptions	Word and web content for text heavy; PDF ok when created properly; Prefers plain text documents with essential information.
Langara student	Article and book scans; Invisible bait text (to 'catch' AI use)	"Accessible" PDFs to split into digestible pieces (too large crashes software)	PowerPoint, Word documents, plain text
Langara student	Multi-sensory interactives that are incompatible with assistive technology	Inaccessible eTextbooks	Word, web content with essential information in text.

As we move from the outer ring toward the centre, Word documents (and web content) are useable by all. Where possible, prefer those formats as they are more accessible and usable.

Choose the Best Format

PDFs are problematic for learners. They are cumbersome, offer no reader customization, and are often incompatible with assistive technology. Prefer Word (and web) content as it is the most consistently usable. If the use of a PDF is unavoidable, offer a more accessible format like Word or web content alongside that includes any essential information (even if formatting is lost).

Expand the accordions below to view the same content in different formats to determine which format works best with assistive technology and learner needs.

PDF

Universal Declaration of Human Rights

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Preamble

Whereas recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world,

Whereas disregard and contempt for human rights have resulted in barbarous acts which have outraged the conscience of mankind, and the advent of a world in which human beings shall enjoy freedom of speech and belief and freedom from fear and want has been proclaimed as the highest aspiration of the common people,

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Whereas a common understanding of these rights and freedoms is of the greatest importance for the full realization of this pledge,

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Articles

Article 1

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While this document may be readable for some, it is grainy, cannot be resized, the links are not selectable, and the text cannot be read aloud by assistive technology.

Format that works with screen readers

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Format that works with text to speech

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Format that works with magnification software

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Format that allows readers to change the font size, colour contrast, and style

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If the above examples weren't clear, web and Word content work with all assistive technologies and allow

for reader customization. Avoid PDFs; create content in Brightspace, PebblePad, or other web platforms.

How to Improve the Learner Experience

Avoid using PDFs.

Use Reading Lists and collaborate with the Langara library to ensure your course resources are high-quality and accessible.

Provide content in accessible formats (Brightspace pages, Word, and PowerPoint not PDF).

Consult your students about what file formats they need (or prefer).

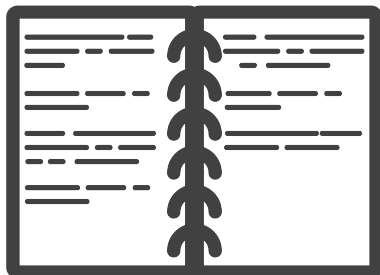
Read the Accessibility Handbook for Teaching and Learning.

Contact assistivetech@langara.ca for direct support.

Move to the next page (select the **Next: Student Experience** button at the bottom-right of page) to learn more about the impact of inaccessibility and exclusion on the student experience.

Student Experience

In addition to inaccessible formats there are others factors that can negatively impact students. The following explores some of the common experiences students noted as being significant hindrances to their learning.



The barriers experienced by students with disabilities, especially ‘invisible’ disabilities, can be difficult for others to understand.

“They did not take me seriously until I literally sat down [redacted] and showed them what I needed and how I accessed the world.”

– Former Langara and current UBC student

Inaccessible content and other barriers are tangible impediments to student success:

“I just got an e-mail from [school] saying, hey, your GPA is below 2.00. If you don’t get your GPA back up for the fall term, you’re gonna be on academic probation for a year. And I’m just sitting there going ‘not again.’ This is like the second time this has happened, right? It’s not really my fault. The material was just not accessible.”

– Former Langara and current SFU student

“That is so important when you think about cognitive load when writing an exam. What do I need to be attending to when I write that exam? It’s not calibrating. Try again. It’s writing the exam.”

– Former Langara and current UBC student

“The consequence of [inaccessible content is] . . . immense . . . **I will misunderstand deadlines or not fully understand something.**”

– Former Langara and current UBC student

One student pointed to a specific instance when deliberate choices actively excluded her, noting that the instructor:

“**invented a barrier.**”

Which lead to

“So much **self-doubt** . . . What did I do wrong? What did I miss? How did I **** that up? What did I, you know, like, where did I . . . **It was so gross** . . . being, like **am I going crazy.**”

– Langara student

The emotional response caused by negative experiences was explicitly named by several students:

“**It’s me holding emotional space for institutions**”

– Former Langara and current UBC student

“There’s a fatigue over the many, many, many different . . . **microaggressions** that that person experiences.”

– Former Langara and current UBC student

“It’s infuriating . . . **your blood pressure goes up.**”

– Former Langara and current UBC student

“It was really **upsetting and frustrating.**”

– Former Langara and current SFU student

“It was all **exceptionally overwhelming** because I didn’t understand how I was gonna access this content, and so **having that added barrier . . . adds a a ton of emotional labour and work** to just the process of school.”

– Former Langara and current UBC student

Lack of Support

Several students noted the lack of technical support and the technical barriers that often felt needless.

“Where is every . . . where is all the . . . people to support or interact with?”

– Former Langara and current UBC student

“These **hoops that we’re talking about, they’re actually part of the course, because if you can’t do it you can’t actually complete the course.**”

– Former Langara and current UBC student

“And the other thing is **it’s lying. I feel like what happens is it’s all lies . . . it’s like... Come to Langara! We’re supporting you!** We have all these things, da-da-da-da! But... but then . . . **nobody there to actually... um, connect with and help you do that,** and the only reason I connected with you is because I was in the accessibility department.”

– Former Langara and current UBC student

Even students that have developed a patchwork of tools to get the access they need note that it’s not perfect.

“A lot is really **had to be self-taught . . . educating myself, googling everything, Reddit, how do you do it, figure it out,** and so then I have that for the next time . . . and more often than not, I spend time just trying to figure workarounds or get it to work, and it inevitably doesn’t really.”

– Langara student

Ultimately, when learning material isn’t accessible, students are unable to fully demonstrate their learning and succeed.

“They’re the tragedies. They are what people think about when they think about someone that dropped out of university in because like I know people here that **couldn’t access the institution the way that . . . the institution need[ed] to be negotiated and they just they just drop out.**”

– Former Langara and current UBC student

“I was so upset with this process of continually not feeling I can get the content in the way I needed it . . . It’s more emotion, it’s more it cognitively. You... **you’re demanding more effort just to get to what I’m supposed to be accessing** and which is **taking away from my the amount of cognitive energy and effortful attention I have to just do the work itself.** Like so like in and of its that right there is **more cumbersome and demanding than if it was accessible in a way that made sense.**”

– Former Langara and current UBC student

“**I wasn’t able to access as much . . . information. And confidence, as I feel like I am capable of.**”

– Former Langara and current UBC student

What is Assistive Technology?

While the technology they use is only a small part of the student experience, it is essential the technology students need works with the learning materials provided. Below are videos of assistive technology interacting with inaccessible content. Consider what is missed when material isn’t accessible.

Screen reader and alt text

The following recording demonstrates screen reader software reading three examples of alt text: one with no description, one with poorly written alt text, and one example of effectively written alt text.



One or more interactive elements has been

excluded from this version of the text. You can view them online here: <https://pressbooks.bccampus.ca/lostintranslation/?p=33#oembed-1>

Closed captions for videos

Consider the following video as an illustration of why captions are important. Note: ensure captions are turned on and do not adjust the volume on your device.

https://mediaspace.langara.ca/media/t/0_qq60y53t

Screen reader reading URLs

Consider the following demonstration comparing screen reader software reading bare URLs, informative hyperlinks, and useless hyperlinks.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.bccampus.ca/lostintranslation/?p=33#oembed-2>

Hard to read fonts

The following animation shows what dyslexia may look like to some individuals. Accessible font choices can minimize the effect.

"Dyslexia, puorlveisy kowwn as word bdnihness, is a leninrag disibatliy ('Inenriag dfuitigfly' in etb UK) tabt aeffes eitebr reindag or witrng.

Druñeifet ppoloe era affecefá to deeffrint dergees. Peborlus mya iuncále duffeçtútes in slnlipeg woárs, rdaenig glicuiky, witrng words, "sdinnuog atu" wrdos in the bead, puncornoing wdors webn reaidng aould nad uasnrndi-etang what noe rades. Offen these duffeçtútes ear first nitoced at sobocl. beT defúiltiufcs are ilrnouatmy, ána ppoloe with this dorleisr buae a normal dsreie to lrean."

[Dyslexia – Wikipedia](#)

"Teb eno armugnet rof acelsstbiacy tabt dsoen't get made neraly otefn eugnob is wob ectoanrdúrlraiy better it makes smoe polepe's lives. Hwo many onpittuoirpes do we have to drlmaíactay irmpvoe pelpoe's heis just by dmiog ruo jbo a litte betetr?"

Steve Krug, [Don't Make Me Think](#), [Rsieetud](#)

Poor colour contrast

The following video demonstrates why colour contrast and use of colour is important.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.bccampus.ca/lostintranslation/?p=33#oembed-3>

How to Improve the Learner Experience

Review the Academic Accommodation Fact Sheets to understand the basics of academic accommodations.

Contact the Accessibility Services Office.

Make deliberate choices about the technology tools you

require students to use and understand that students may not have access to the same tools you do.

Offer links to student technology support.

Be open and inviting to meeting students where they are at.

Read the Accessibility Handbook for Teaching and Learning.

Move to the next page to examine the extra time students need to spend navigating inaccessible content.

Time

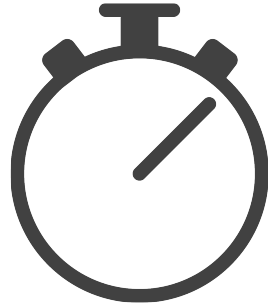
There are 24 hours in a day. We all have a finite amount of time to get things done. What eats that time is different for everyone.

Commuting takes more time than working from home.

Ordering food takes less time than cooking.

Putting in 40 screws with a screwdriver takes more time and energy than using a drill.

Engaging with inaccessible learning materials takes significantly more time than content that works for everyone.



Energy, Effort, and Hours

When asked how long it takes to find content in formats that work with his assistive technology, a former Langara and current UBC student stated:

“Maybe **10 minutes now, right? And just in contrast to 15 seconds** if it were in a format that were accessible.”

40x longer

Other students also expressed how much time inaccessible content costs them:

“And like as a **sighted student could take maybe one or two hours. I take up to 4-5 hours** to do 1 assignment or read a chapter.”

– Former Langara and current SFU student

+4-5 hours

Students often noted how time spent finding accessible content or converting inaccessible content ate into the time needed to do the actual work:

“The time and stress involved with accessing and using the technological aspects of the courses was actually very huge. Like, it was like . . . you know, **almost 50-50.**”

– Former Langara and current UBC student

50-50

“It **took me two hours for something that it would take a student without accessibility needs 15 minutes** because I had to relisten to my teachers saying it over and over again so I could draw it out and put into an accessible format. And then I had to figure out how I put that into an accessible format.”

– Langara student

+2 hours

“[Another student], it takes 2 hours. Okay, you're someone with a disability, it already **will maybe take you a bit longer just because of that, and then you're having to add on another hour or two just to try to access it.**”

– Langara Student

+1-2 hours

When asked “Do you think people know [how long things take]?”, a former Langara student replied:

“No, no one. **No one has a clue.**”

Choosing and creating inaccessible learning places an unfair burden of additional time, stress, and labour on students with disabilities. On top of life, school, and other demands students have on their time, inaccessible content forces students with disabilities to commit extra hours every week to finding or converting material. Or they may just end up being excluded.

Workarounds and Wasted Time

Several students noted the time needed to develop a system to effectively operate in an inaccessible system.

“So I’m literally, like, it’s hours upon hours of trying to, like, learn **how to . . . use workarounds**, background, blah blah blah. And so it’s like, oh, maybe the next semester it’ll be a little bit better, because I’ve learned that, but **then there’s inevitably kind of another issue.**”

– Langara Student

“Two years at Langara before I figured this out . . . it took me **two years of . . . banging my head and . . . ended up not accessing the content** at all and just **figuring it out through other ways of how I’ve navigated the entire world.**”

– Former Langara and current UBC student

However, the same student noted the positive outcome of that process:

“If I had not had this **learning process here of like developing the competency and the mechanisms of like how to just like get my needs met** and do it all for a couple years, **UBC would not have been approachable.**”

– Former Langara and current UBC student

Ultimately, all the extra time needed to consume inaccessible content means students have less time and energy for learning.

“I spent a lot of hours in a lot of stress. **All that time could have actually been used absorbing the knowledge and feeling confident.**”

– Former Langara and current UBC student

The formats you choose have a huge impact on learner success.

Activity

Consider sorting data as an example of how difficult tasks are when you don't have right format.

Please sort the following by last name, A – Z.

First Name	Last Name
Olivia	Bennett
Marcus	Patel
Zoe	Thompson
Ethan	Ramirez
Lily	Nguyen
Caleb	Brooks
Ava	Robinson
Jackson	Kim
Mia	Carter
Noah	Sullivan

Potential solution:

1. Manually copy the data to a new document.
 - a. Or download the image and use optical character recognition software to convert image to text.
2. Copy text to Word or Excel.
3. Use Sort tools to sort column.

In contrast, please sort the following by last name, A – Z.

Marcus	Patel
Olivia	Bennett
Zoe	Thompson
Lily	Nguyen
Ethan	Ramirez

When you have the right format, tasks take less time.

How to Improve the Learner Experience

Be explicit about instructions and expectations.

Provide content in accessible formats (Brightspace pages, Word, and PowerPoint not PDF).

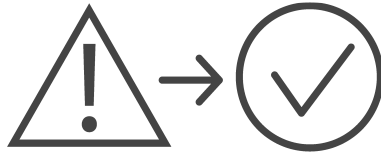
Read the Accessibility Handbook for Teaching and Learning.

Contact assistivetech@langara.ca for direct support.

Move to the next page to consider potential solutions and better practice suggested by students.

Solutions

People often know what they need to succeed. All participants offered suggestions and solutions that would help improve their experience.



Openness

Students noted that being asked what would help them lead to better experiences:

“I know for me . . . it’s **asking me what I need** . . . because it invites me to feel like I can . . . at least have a conversation . . . I’ve only ever had **one instructor who explicitly named, ‘I want to meet you where you are,** whether it becomes access, inclusiveness, whatever that looks like for you, I want to do that for you. **I just need you to tell me what you need so I can help give it to you.’**”

– Former Langara and current UBC student
Students appreciate instructors being open and inviting. This welcoming attitude helps students get the access they need.

“And whenever it came to description, like her slides or **PowerPoints or even a video, she would describe it in full detail for me** to know this is what’s going on. Even if she couldn’t describe the the video in class, she would later call me and we set up a Zoom session. And she would go through the movie, the video with me over Zoom . . . **She just offered it. I don’t have to even ask her for anything.**”

– Former Langara and current SFU student

“I think it depends on the professor. Some are approachable and I feel comfortable approaching them and asking them for stuff. Others I just feel like I’m intimidated . . . because **some professors are like, OK, yes, if you have any questions, concerns, feel free to come up to me and talk to me or e-mail me or whatever.** And others are just like, uh, I don’t really give a darn, right?”

– Former Langara and current SFU student

“If I had any problem. Um, they were like. Okay, just photograph it and email to me, you know? Um, they were, you know, **they made allowances, even though they may have said no allowances,** they did. Like, I found anyone that I went to was like... and **I said, I’m having this problem, but I can prove to you it’s done. They were like, yep, okay.**”

– Former Langara and current UBC student

“They’re making the effort for that. They’re understanding . . . they’re trying to create an inclusive class. That **there is clearly an intention** with . . . their way of saying, you know, to talk through anything . . . Saying when office hours are, having different types of office hours, **being willing to change them if needed,** um... Yeah, you could just... I could tell there was intent.”

– Langara student

Broad Impact

Consider the value accessible content has for all learners, not just for the students who ‘need it.’

“It’s not just a benefit to . . . a specific student or . . . just the people in . . . with accessibility needs, because . . . **inclusivity . . . is an action, and it’s not just saying, hey, you’re all welcome.** It’s actually making . . . creating, **removing**

barriers so that you can participate, because we are very smart, and we have very important things to say.”

– Langara student

“Something that was **built to help someone else, but it also helps me . . . it benefits more than just who you’re assuming.”**

– Langara student

Areas for Improvement

“I would really like teachers to be **more educated on umm, confidentiality and what the actual standards are . . . [because] no one’s actually following the regulations . . .** instructors are obviously **not educated on proper protocol around disability”.**

– Langara student

“I know it’s very unfair to put the onus on students, but teachers just need to know that they don’t have to walk on eggshells and just that there’s other resources in the school for them to to consult and they really should consult their peers before consulting the students on what they should do. You know . . . if you could use your internal resources and **we have fantastic internal resources at Langara.** We have you guys, we have accessibility services who are very knowledgeable, but if there was just **more communication between the departments,** that would be fantastic.”

– Langara student

And, given their experience, some students wish the institution played a more significant role in ensuring content was accessible.

“A **system that doesn’t reinforce it enough in instructors and tell them how important this is,** and I don’t want there

to be consequences, but I really want there to be some type of oversight on what the resources that the instructors are using."

– Langara student

One student suggested people being unable to understand his experience limited their interest in providing accessible content.

"That is what's so challenging. Open their imagination to something that they otherwise aren't going to see . . . seeing something that is otherwise invisible for them."

– Former Langara and current UBC student

How to Improve the Learner Experience

Be open to understanding how students access content in different ways. Invite students to tell you what would best help them succeed.

Respect the confidentiality of students registered with Accessibility Services and approved for Academic Accommodations.

Engage with peers and the Accessibility Services office.

Learn about how assistive and adaptive technologies work.

Read the Accessibility Handbook for Teaching and Learning.

Summary

Reflect on how your format choices impact the student experience, particularly the energy, effort, and time required by students for workarounds and unnecessary barriers. Consider what students have offered up as solutions.

Remember to ask questions, be curious, and engage with support.

- Avoid using PDFs.
- Use Reading Lists and collaborate with the Langara library to ensure your course resources are high-quality and accessible.
- Provide content in accessible formats (Brightspace pages, Word, and PowerPoint not PDF).
- Offer links to student technology support.
- Learn about how assistive and adaptive technologies work.
- Review the Academic Accommodation Fact Sheets to understand the basics of academic accommodations.
- Engage with peers and the Accessibility Services office Accessibility Services.
- Read the Accessibility Handbook for Teaching and Learning.
- Contact assistivetech@langara.ca for direct support.