Introduction to Accessible Education

Do students learn as much as they can from your teaching?

Accessible Education[i] is the process of designing courses and developing a teaching style to meet the needs of people from a variety of backgrounds, abilities and learning styles. Just as there is no single way to teach, people learn in a variety of ways; using different instructional methods will help meet the needs of the greatest number of learners [ii].

The Educators' Accessibility Toolkit provides guidelines and tips on how to make your courses and your teaching more accessible to students. These tips are in line with research on best practices in teaching and learning[iii] .

What are the characteristics of Accessible Education?

- Takes into account a variety of student characteristics, including ethnic background, race, abilities, disabilities, age, gender, language abilities and preferred learning style.

- Does not compromise academic rigour.

- Is a proactive and inclusive way of teaching and designing courses and curricula.

- Removes barriers to learning before they can affect anyone.

- Reduces the need for specialized accommodations.

- Identifies and clearly expresses the essential course content, while recognizing that students can express understanding of essential course content in multiple ways.

- Is consistent with universally recognized principles of good teaching[iv].

- Is consistent with the spirit of the Accessibility of Ontarians with Disabilities Act, 2005.

Advantages for educators

(e.g. faculty, teaching assistants, course instructors and developers)

- Often improves student learning.

- Reduces the work associated with arranging individual and specialized accommodations.

- May improve student engagement as it reaches a broader audience, which could lead to improved course evaluations.

Advantages for students

- Less time spent on figuring out individual accommodations and more time focusing on course content.

- Greater inclusion of students from a variety of backgrounds and abilities, which could lead to increased student retention.

- Students are not singled out for being different.

Accessible Education is based on the social model of disability, as opposed to the medical model[v].

Medical model versus the social model of disability

Medical model	Social model
Disability is a deficiency or abnormality.	Disability is a difference.
Being disabled is negative.	Being disabled, in itself, is neutral.
Disability resides in the individual.	Disability arises from interactions between the individual and society.
The remedy for disability-related problems is cure or normalization of the individual.	The remedy for disability-related problems is a change in the interactions between the individual and society.
The agent of remedy is the professional who affects the arrangements between the individual and society.	The agent of remedy can be the individual, an advocate, or anyone who affects the arrangements between the individual and society.
As an educator, you have no responsibility to ensure accessibility; that is the job of the experts.	As an educator, you are responsible for creating an accessible environment where all your students can learn.

Accessible Education aims to reduce dependence on the accommodation approach and move toward inclusion[vi].

Accommodation approach versus Accessible Education approach

Accommodation	Accessible Education
Access is a problem for the individual and should be addressed by that person and the disability service program.	Access issues stem from poorly designed environments and should be addressed by the designer.
Access is achieved through special accommodation and/or retrofitting existing requirements.	As much as possible, the system or environment is designed to be used by all.
Access is reactive.	Access is proactive.
Access is often provided in a separate location or through special treatment.	Access is inclusive.
Access must be reconsidered each time a new individual uses the system, i.e. is consumable.	Access, as part of the course design and curriculum, is sustainable.

http://cou.on.ca/accessibility

More resources on Accessible Education:

Center for Applied Special Technology (CAST): http://www.cast.org

Disabilities, Opportunities, Internetworking, and Technology (DO-IT Centre): http://www.washington.edu/doit/

National Center on Universal Design for Learning: http://www.udlcenter.org

University of Guelph, Teaching Support Services, Centre for Open Learning and Educational Support, Universal Instructional Design Project: http://www.tss.uoguelph.ca/uid/

UDL-Universe: http://enact.sonoma.edu/udl

To obtain this document in an alternative format, please contact:

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[i] The term Accessible Education has been adopted to capture the value of two frameworks in improving the accessibility of university education: Universal Instructional Design (UID) and Universal Design for Learning (UDL). Both were informed by the architectural concept of Universal Design, which is "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design." (Center for Universal Design, The Principles of Universal Design.

"UID is not just about accessibility for persons with a disability – it's about truly universal thinking – maximizing learning for students of all backgrounds and learner preferences while minimizing the need for special accommodations." (University of Guelph, UID Implementation Guide).

"UDL is a set of principles for curriculum development that give all individuals equal opportunities to learn. UDL provides a blueprint for creating instructional goals, methods, materials, and assessments that work for everyone – not a single, one-size-fits-all solution but rather flexible approaches that can be customized and adjusted for individual needs." (Center for Applied Special Technology (CAST), Universal Design for Learning).

[ii] Nilson, Linda B. (2010). *Teaching at Its Best: A Research-Based Resource for College Instructors* (3rd ed). John Wiley and Sons.

[iii] University of Guelph, UID Project, and the National Centre on UDL, Research Evidence.

[iv] Chickering and Gamson (1987). Seven Principles for Good Practice in Undergraduate Education.

[v] Table is adapted from Gill, C. (1994). *Two Models of Disability*. Chicago Institute of Disability, University of Chicago, cited in University of Ottawa, Access Service – Student Academic Success Service. (no date) *A guide for professors: Minimizing the impact of learning obstacles,*

[vi] Ibid.

Are you designing a new course or rethinking an existing one?

Designing your course with Accessible Education[i] in mind can have benefits for all your students, including people from a variety of backgrounds, abilities and learning styles.

Just as there is no single way to teach, people learn in a variety of ways; using different instructional methods will help meet the needs of the greatest number of learners [ii].

When you design your course to be accessible, you anticipate that people will have diverse needs, and so ensure that everyone in your class will be able to learn successfully.

What is Accessible Education?

Accessible Education is the process of designing courses and developing a teaching style to meet the needs of people from a variety of backgrounds, abilities and learning styles. It takes into account a range of student characteristics, including ethnic background, race, abilities, disabilities, age, gender, language abilities and preferred learning style.

You can apply Accessible Education to all aspects of instruction — for example, course delivery methods, physical spaces, information resources, technology, personal interactions with students, evaluation and assessment[iii].

What are some best practices in Accessible Education?

- Identify and clearly convey the essential course content.

- Recognize that students can express understanding of essential course content in multiple ways.

- Present core material through a variety of mediums; for instance, lectures, readings, hands-on activities and visuals.

- Choose course materials that all students can use. Digital textbooks may be selected and digital course packs created in easily convertible electronic formats, videos may be captioned, and transcripts made for audio files.

- Make course materials — notes, slides, descriptions of assignments, syllabi — available online in accessible formats for all students.

- Provide students with clear expectations of course requirements, as well as feedback on assignments.

- Design long-term course projects or assignments, so that students have the option of handing in components and getting feedback on them prior to delivering the final product.

- Consider having multiple methods of student evaluation, such as exams, presentations, papers, etc. There

may be more than one appropriate way to meet and measure learning objectives.

- Include an accessibility statement on your syllabus (see below).

- Promote interaction and collaboration among students. Help them form study groups or set up an accessible online forum where students can collaborate, share and evaluate one another's work, either formally or informally.

- Consult with colleagues and experts at your institution on best practices that you could adopt in your courses.

Sample course accessibility statement

Below is a sample accessibility statement from the University of Toronto[iv].

"The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University's courses and programs."

Getting Started

To get started, consider using an accessibility checklist, such as the one available through the Universal Design for Learning Universe as part of its [Faculty Development Guide](#) or the [University of Guelph Universal Instructional Design Project Checklist](#). You can also consult with a curriculum developer or education specialist at your university in the faculty development office or teaching and learning centre, as well as staff in the disability services office.

You should also refer to any related university senate policies at your institution.

More resources:

Center for Applied Special Technology (CAST): http://www.cast.org

Disabilities, Opportunities, Internetworking and Technology (DO-IT Center): http://www.washington.edu/doit/

National Center on Universal Design for Learning: http://www.udlcenter.org/

University of Guelph, Teaching Support Services, Centre for Open Learning and Educational Support, Universal Instructional Design Project: http://www.tss.uoguelph.ca/uid/

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"UID is not just about accessibility for persons with a disability – it's about truly universal thinking – maximizing learning for students of all backgrounds and learner preferences while minimizing the need for special accommodations." (University of Guelph, UID Implementation Guide)
"UDL is a set of principles for curriculum development that give all individuals equal opportunities to learn. UDL provides a blueprint for creating instructional goals, methods, materials, and assessments that work for everyone – not a single, one-size-fits-all solution but rather flexible approaches that can be customized and adjusted for individual needs." (Center for Applied Special Technology (CAST), Universal Design for Learning)

[ii] Nilson, Linda B. (2010). *Teaching at Its Best: A Research-Based Resource for College Instructors* (3rd ed). John Wiley and Sons.

[iii] Disabilities, Opportunities, Internetworking, and Technology (DO-IT) Centre at the University of Washington, Universal Design of Instruction (UDI): Definition, Principles, Guidelines, and Examples.

[iv] This sample accessibility statement is taken from the University of Toronto, Tip Sheet on Developing Course Syllabi.

Writing a Course Syllabus

Are you designing or revising a course syllabus?

All students benefit from an organized, well-written and complete syllabus. They are also better equipped to plan their semester if they have a clear idea of their educators' expectations, the demands of their courses, and the due dates of their assignments. With these tips you can make your course and syllabus accessible to the greatest number of students.

General tips on writing an accessible course syllabus

- Communicate clearly the essential requirements of the course to all students, including learning outcomes.

- Include a course outline that covers the required readings, assignments and defined expectations.

- Encourage students to tell you about any accessibility concerns.

- Describe your teaching philosophy.

- Highlight any outings, labs and all deadlines. Specify any activity that might be out of the ordinary, such as changes in time or class location.

- Provide contact information and office hours for all instructors involved in the course (for example, professors and teaching assistants).

- Give students more than one option for getting in touch with you — via email, by phone or visits during designated office hours.

- Consider having multiple methods of student evaluation, such as exams, presentations, papers, etc. There may be more than one appropriate way to meet and measure learning objectives.

- Ensure ample time between assignments for students to receive feedback before the next assignment is due. Consider the time required for your students to complete assignments, and for you and your teaching assistants to mark and return assignments.

- Review your syllabus throughout the course. Send any updates to students, or post them where the class can receive them in an accessible format.

- Review your syllabus on an annual basis. What could be changed?

- Learn from your peers and discuss what works well.

- Your university offers services to help you create an accessible environment for learners. Consult the teaching and learning office and/or centre for students with disabilities for more tips and to find out about supports that are available.

http://cou.on.ca/accessibility

Make the document accessible

Some students use assistive technology to adapt information into a usable format for their learning needs. Some examples of assistive technology are:

Screen readers: These read aloud information on a computer screen, such as written text, or the description of an image provided through alternative text or Alt Text.

Screen enhancement software: This allows users to magnify the computer screen or change the contrast to make the content easier to see.

- Your syllabus will be one of the first contact points that students have with your class. Providing the document in an accessible format — one that can be read easily and used by an assistive technology such as a screen reader— will demonstrate that your course is inclusive.

- Make the syllabus available electronically to all students, and update it if there are revisions during the course; this could be done through a learning management system, such as Blackboard, Web CT, Desire2Learn, Moodle or Sakai; by email or on the course website.

List campus supports and policies

- Use the syllabus to inform students about other services on campus that could assist them — for example, the centre for students with disabilities, counselling services, writing centre,

library services, etc.

- Include relevant university policy statements on issues, such as academic integrity, student code of conduct and accessibility for people with disabilities.

Include an accessibility statement

Including an accessibility statement as part of your syllabus gives you an opportunity to demonstrate your willingness to provide reasonable accommodations in your class for students with disabilities.

Sample course accessibility statement

Below is a samples accessibility statement from the University of Toronto[i].

"The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University's courses and programs."

Choosing course materials

- Choose course materials early. If you are assigning a number of readings, this will allow you enough time to have the documents converted into alternative formats or for students to request the formats

they need from the bookstore.

- It's useful to cover core material through a variety of mediums — for instance, lectures, textbooks and/or visual presentations.

- If possible, choose accessible electronic versions of course readings. This will allow students the ability to convert the reading into the format required, whether they use a screen reader, an enlarger or other technology.

- Note that some PDFs (Portable Document Format files) are not accessible to students using a screen reader; when possible, choose tagged PDFs, which may be read by assistive technology. (Look for the related Tip Sheet: "Using Word documents and/or PDFs" for more information.)

- If you use video or audio files, consult with your disability services office. Captioning or transcripts must be provided on request for students with disabilities. They may also be beneficial for students whose first language is not English and for the entire class.

More resources:

University of Guelph, Teaching Support Services, Centre for Open Learning and Educational Support, Universal Instructional Design Project: Creating a Syllabus using the Principles of Universal Instructional Design.

UDL-Universe, A Comprehensive Faculty Development Guide: Syllabus Rubric.

The University of Toronto Centre for Teaching Support and Innovation has a Tip Sheet on Creating Syllabi.

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Creating Accessible Lectures

Are students getting the most out of your lectures?

How you prepare, organize and deliver your lecture affects its accessibility and how much students learn in your class.

Lecturing is an effective way of disseminating information and helping people to learn, especially in large classes. Enthusiasm, expressiveness, clarity and interaction are all characteristics of effective lecturing.[i] Other teaching strategies may be used in large or small classes to help you meet students' various learning styles. These include presentations by guest speakers, inviting a panel of experts, or scheduling short discussion breaks among smaller groups of students. Research on best practices in teaching and learning shows that people learn in a variety of ways[ii] – so mix it up and everyone can benefit!

Tips on lecture structure

- Limit each lecture to one major topic. If this is not possible, state clearly when you are changing topics.

- Put the lecture in context. Give students the "big picture" of where it fits in to the overall course and how it relates to earlier material.

- The old adage – "Tell them what you're going to say, say it, then tell them what you've just said" – is especially true for lectures. Everyone benefits when you provide a clear outline, a well-structured and informative lecture, and a good summary of the key information conveyed[iii].

- Consider taking short "active breaks" in your lecture. Studies show that even highly motivated students have attention spans of only about 20-25 minutes. During active breaks, they could compare notes with a neighbour, discuss a question in small groups, solve a problem or write a reaction. (For more detail, see pages 117-120 in *Teaching at Its Best: A Research-Based Resource for College Instructors*.)

Tips on lecture delivery

- Face the students when you speak and make sure you're not in shadow. If you are backlit, it might be difficult for students to see your face.

- Pause frequently to allow students to keep up with their note-taking and to absorb information.

- Try not to move around too much. Besides being distracting, this can make it difficult for students who are trying to lip-read, and/or limit the effectiveness of a microphone if you're using one[iv].

- Give examples of key concepts.

- Provide definitions for new concepts or vocabulary.

- Share your enthusiasm for the topic. If your research touches on the lecture topic, share your successes and challenges[v].

- Verbally explain any visual aids, such as charts, graphs, images or tables. Describe what they show.

- Consider allowing students to audio-record lectures, or create audio podcasts of your lectures and make them available. While these may be especially helpful for students with disabilities and for students whose first language is not English, they could be a useful study aid for everyone.

- Mix it up: is there a video, audio clip, cartoon, graph, image or chart that sums up or illuminates what you're trying to say? Using multiple methods to convey information is one of the best ways to reach as many students as possible and keep them engaged. Make sure all the formats are accessible (for example, using captions, transcripts or alternative text).

- Encourage and support different ways for students to interact with you, the material and one another through hands-on activities, discussions or technology- / internet-based interactions including clickers, or using a learning management system.

- Consider incorporating other teaching methods, such as inviting guest speakers or a panel of experts, holding discussions, or using whiteboards, handouts, presentations, videos and audio clips. As always, ensure everything is available in accessible formats.

- Give students options for participating in activities and discussions; for instance, let them submit written questions or comments rather than speaking in class.

Large classes

- Use a microphone if one is available; there is always a risk that your voice will trail off, or that students at the back of the room cannot hear.

- If you allow questions or comments from the class, repeat each into the microphone so everyone can hear.

Mid-sized classes

- Use a variety of approaches for student engagement.

- Encourage students to ask questions and seek clarifications. You can do this verbally, online, by e-mail or through note cards; it's best to give a number of options for responses.

- Follow up with students who appear to be struggling, and suggest methods of support.

Small classes, seminars and tutorials

- Use open-ended questions to check whether students comprehend the material.

- Consider giving a participation grade for students who post their notes online for the entire class. Share information on how to do this

accessibly. This duty could be shared on a rotating basis.

- Get to know your students and understand what works best to meet their learning needs.

Other general tips

- At the beginning of term, make an announcement inviting students with disabilities to approach you to discuss any accessibility needs.

- Make your lecture notes, slides or other handouts accessible and available electronically to students before class. This can be done through a learning management system, such as Blackboard, WebCT, Desire2Learn, Moodle, Sakai, by e-mail or on a course website. Students may wish to take notes on your slides, and it can help them follow the flow of the class.

- If you make your lecture notes available for each class, students might not need a note-taker, and you can ensure they will receive high-quality information.

- If you make an important verbal announcement in class, such as a change in venue or time, consider sending it via e-mail or posting it on the course website as well.

- If you use video or audio files, consult with your disability services office. Captioning or transcripts must be provided on request, but could be beneficial for the entire class.

- Check out your classroom before the semester begins: is it accessible to students with mobility-related disabilities? Does the layout allow you to do what you need to in class? Are there distracting background noises? See what you can do to minimize barriers or distractions in the space that might make it difficult for students to hear, pay attention or take notes.

- Insist on professional, civil conduct between and among students to respect people's differences and create an inclusive environment.

More resources on lecturing:

See the University of Ohio's Fast Facts for Faculty for a list of teaching methods and their strengths and limitations.

The DO-IT Center at the University of Washington has suggestions on accessible delivery methods, as well as A Checklist for Inclusive Teaching.

For tips on varying your instructional method, see pages 117-120 of *Teaching at Its Best: A Research-Based Resource for College Instructors* (3rd ed.) by Linda B. Nilson. John Wiley and Sons, 2010.

Teachability Project at the University of Strathclyde. Scottish Higher Education Funding Council. Resource for Academic Staff on Accessible Curriculum For Students With Disabilities: Creating Accessible Lectures for Disabled Students.

University of Guelph, Teaching Support Services, Centre for Open Learning and Educational Support, Universal Instructional Design Project: UID Quick-Start Checklist and the UID Workbook

University of Oxford, Equality and Diversity Office: Creating Accessible Lectures.

University of Waterloo, Centre for Teaching Excellence, Teaching Tips: Lecturing Effectively in the University Classroom.

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[i] Murray in Perry and Smart in the Centre for Teaching Excellence, Lecturing Effectively in the University Classroom, Teaching Tips.

[ii] Nilson, Linda B. (2010) Teaching at Its Best: A Research-Based Resource for College Instructors (3rd ed.) John Wiley and Sons.

[iii] Centre for Teaching Excellence, University of Waterloo, Lecturing Effectively in the University Classroom.

[iv] University of Oxford, Equality and Diversity Office, Creating Accessible Lectures.

[v] University of Guelph, Teaching Support Services, Centre for Open Learning and Educational Support, UID Quick-Start Checklist.

Using PowerPoint

Do you use PowerPoint slides in your lectures for students?

All students benefit from an organized, clear, concise and well laid-out PowerPoint presentation. These tips will help you make your presentations accessible to the greatest number of people and limit the amount of work you need to do to accommodate students with disabilities.

What makes a PowerPoint presentation accessible?

An accessible PowerPoint presentation is one that can be followed and understood by any student. Additionally, it can be easily read by a screen reader, has effective alternative text (Alt Text), and contains captioning or transcripts for any embedded audio or video.

Some students use assistive technology to adapt information into a usable format for their learning needs. Some examples of assistive technology are:

Screen readers: These read aloud information on a computer screen, such as written text, or the description of an image provided through alternative text or Alt Text.

Screen enhancement software: This allows users to magnify the computer screen or change the contrast to make the content easier to see.

Mac users should be aware that many versions of PowerPoint for Mac have serious accessibility limitations. For example, you cannot assign Alt Text to images or export the presentation as an accessible PDF file in the versions until and including 2008. Similarly, Apple's

Keynote presentation software is not recommended if you need to create an accessible presentation.

General tips

- Ensure that the type is large enough to read easily. If your presentation will be viewed via projector, the type should be larger than on printed handouts; 30-point type is recommended.

- Make sure there is a high contrast between the background and the text. If your presentation will be viewed via projector, the contrast often needs to be more pronounced than on printed material.

- If you use colours, use ones that are highly contrasting.

- Make sure the content can be interpreted in grey-scale, in case someone prints it in black and white.

- Use the slide layout templates provided by PowerPoint. They have been designed to be accessible.

- Use titles on each slide, so the flow of the presentation is easy to

navigate.

- Use simple slide transitions or avoid animation-like effects altogether. Complex transitions, such as checkerboards, can be distracting during presentations; they may also cause problems with screen readers or other assistive technologies if someone views the presentation electronically.

- Use simple language.

- Don't overcrowd slides with text. Three to seven bullet points per slide is a good rule of thumb.

- If you embed video, make sure it is captioned and that the player controls — start, pause, stop — are accessible.

- If you embed audio, make sure a transcript is available.

- If your slides contain animations, make sure they are brief and do not distract from the most important content on the page.

- Use hyperlinks, and insert a descriptive title for the link rather than a long web address (see resource below).

- Use Alt Text to explain pictures, images, graphics, graphs, tables and flowcharts, so that a screen reader can access them.

- Use the notes pane to insert your lecture notes.

- Make the slides available electronically to your students on a

learning management system, such as Blackboard, WebCT, Desire 2 Learn, Sakai or Moodle, on the course website or by e-mail.

Not everyone will have the software required to view PowerPoint presentations on their computer, so it is best to convert your file to an accessible PDF before sharing via email. (See "Using Word documents and/or PDFs".)

What is alternative text?

Alternative text describes an image so that the user's assistive technology may convey what information is being provided. It appears when you move your cursor over a picture or object. In situations where the reader cannot see the image, Alt Text ensures that no information is lost. For lecture presentations to be accessible, Alt Text must be assigned to all photos, images, multimedia, graphs, charts, text boxes, ClipArt, SmartArt, AutoShapes, etc.

Effective Alt Text:

- Communicates the purpose of the image accurately and succinctly.

- Contains a short description of the image that is important to the user's understanding of the information conveyed and a longer description for complex or detailed diagrams and images.

- Does **not** repeat the text of an adjacent caption. Screen readers read both the caption and the Alt Text, so avoid having the same details in both.

- Does **not** contain the words "Image of" at the start of the Alt Text. Screen

readers tell the user that there is an image and then read the Alt Text.

- Does indicate "Screen shot of..." if it is an image taken from a computer screen.

- Does indicate "Photo of..." if it is a photo.

- Requires no text if an image is purely decorative. Simply provide two quotation marks (" ") as the Alt Text.

- Uses punctuation for full sentences.

The method for adding Alt Text varies from version to version of PowerPoint, but typically you will start by right-clicking on the image and then making a selection from the menu that appears (for instance, "**Format Picture**" or "**Size and Position**"). Earlier versions of PowerPoint for Mac don't have an option for adding Alt Text to images. Consult your software manual for detailed instructions.

More resources:

The WebAIM (Web Accessibility in Mind) site offers detailed information on how to create accessible PowerPoint presentations and effective use of fonts. We used the article PowerPoint Accessibility to compile the "General tips" section of this document.

The Teaching Commons at California State University has guidelines as well as a series of videos on creating accessible PowerPoint presentations. These explain how to add Alt Text and hyperlinks, use the notes pane, and how to format tables and charts.

The Accessible Digital Office Documents project (ADOD), part of the Inclusive Design Research Centre at OCADU, has a number of resources, including step-by-step instructions for Microsoft Office programs such as Word, Excel and PowerPoint. This resource includes information on adding hyperlinks, Alt Text and using other accessibility features.

Microsoft has an online guide, Creating accessible PowerPoint presentations.

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Do you distribute information to students using Microsoft Word documents or PDFs?

Everyone benefits from organized, clear, concise and well laid-out assignments, syllabi and handouts. These tips can help you make your Word documents and PDFs accessible to the greatest number of students.

What makes a Word document accessible?

An accessible Word document is one that can be followed and understood by any student. Additionally, it can be read by a screen reader, has effective alternative text (Alt Text) and contains captioning or transcripts for any embedded audio or video.

Some students use assistive technology to adapt information into a usable format for their learning needs. Some examples of assistive technology are:

Screen readers: These read aloud information on a computer screen such as written text, or the description of an image provided through alternative text or Alt Text.

Screen enhancement software: This allows users to magnify the computer screen or change the contrast to make the content easier to see.

What makes a PDF accessible?

PDF stands for portable file document, a format that looks the same on the screen as it does in print, regardless of the software program used to create it or on which computer system it is being viewed. The free Adobe Reader software is used to view and print PDFs.

To create an accessible PDF, you should start by creating an accessible Word document. Step 2 is to convert the Word document to a properly tagged PDF, and Step 3 is to check the PDF's accessibility and fix any problems.

Step 1: Create an accessible Word document

General tips

- Text should be at least 12-point type; fonts should be simple and sans serif (e.g. Arial, Comic Sans MS, Georgia, Courier New, Tahoma, Trebuchet MS or Verdana).

- Maintain a high contrast; black text on a white background, or white text on a black background are easiest to read.

- If you use colours, select those that are highly contrasting.

- Make sure the content can still be interpreted in grey-scale if someone prints the document in black and white.

- Use a bold font to show emphasis. Italics or upper-case letters is not recommended.

- Avoid using the "Enter" or "Return" key to create space between paragraphs. To change the spacing, select the paragraphs and change their spacing-before and spacing-after settings. Newer editions of Word add a blank line after each paragraph, and insert space before headings by default, so this may not be required.

- Avoid using Word text boxes. Screen readers cannot see inside them.

- Use hyperlinks, and insert a descriptive title for the link rather than a long web address (see resource below).

- Avoid using watermarks or other background images that obscure the text. If the information is important, include it elsewhere in the document.

Use Word styles and headings

Visual cues, such as headings, make it easier for all readers to use your document. Also, screen readers can interpret Word styles and headings when they are applied properly, and help the user navigate your document.

- Design your document by using Word's "Styles" menu, rather than by applying formats to the text directly. For example, if you enlarge a font and make it bold, a screen reader will not see it as a heading; but if you apply a heading style to the text, the screen reader will recognize it.

- Use "Styles" to create a logical hierarchy that makes your document easy to navigate: "Title", "Heading 1", "Heading 2", etc.

Tables, columns and lists

- Avoid nested tables, merged or split cells inside tables.

- Ensure that the tab order within a table is logical. To test the navigation, select the first cell of the table, then press the "Tab" key repeatedly to ensure that the focus moves across the row and then down to the first cell of the next row.

- Do not use tabs or the spacebar to create columns of text with space between them. To create multi-column documents, always use Word's "Columns" layout feature.

Add Alt Text to images

Alternative text (Alt Text) describes an image so that the user's assistive technology may convey what information is being provided. It appears when you move your cursor over a picture or object. In situations where the reader cannot see the image, Alt Text ensures that no information is lost. For websites, documents and lecture presentations to be accessible, Alt Text must be assigned to all photos, images, multimedia, graphs, charts, text boxes, ClipArt, SmartArt, AutoShapes, etc.

Effective Alt Text:

- Communicates the purpose of the image accurately and succinctly.

- Contains a short description of the image that is important to the user's

understanding of the information conveyed and a longer description for complex or detailed diagrams and images.

- Does **not** repeat the text of an adjacent caption. Screen readers read both the caption and the Alt Text, so avoid having the same details in both.

- Does **not** contain the words "Image of" at the start of the Alt Text. Screen readers tell the user that there is an image and then read the Alt Text.

- Does indicate "Screen shot of..." if it is an image taken from a computer screen.

- Does indicate "Photo of..." if it is a photo.

- Requires no text if an image is purely decorative. Simply provide two quotation marks (" ") as the Alt Text.

- Uses punctuation for full sentences.

How to add Alt Text

Remember, you must provide Alt Text for all graphics, images and multimedia content.

1. Right click on the image. (Control+click if using a Mac.)

2. Depending on the edition of Word you're using, select "**Size**", "**Format**" or "**Format picture**". For tables, click "**Table properties**".

3. Select "**Alt Text**" and type in the text that describes the image (e.g. "Logo of Council of Ontario Universities"). Use clear but concise descriptions.

There is no option for adding Alt Text to images, charts or graphs using Word for Mac 2004 or 2008.

Step 2: Convert to PDF

Once you have prepared your Word document with accessibility in mind, you are ready to convert it to a PDF. For assistive technologies to be able to read it properly, the PDF must be tagged with an additional layer of information that allows the devices to determine how to navigate the file, and how to identify images, headings and paragraphs, among other items.

If you are working with Microsoft Word 2007 or 2010, this tagging will be done automatically when you save a file as PDF format. (Under "**Options**", make sure that the "**Document structure tags for accessibility**" box is checked.) However, on the Mac operating system and in earlier versions of Word, using this method will create an untagged, and therefore inaccessible PDF. In this case, to create a tagged PDF you will need to use the plug-in that is available within Word if Adobe Acrobat is installed:

1. In the top toolbar, click the "**Acrobat"** tab.

2. Select "**Create PDF**".

3. In the "**Save**" box, select the "**Options**" button. Select the "**Enable Accessibility**" and "**Reflow with Tagged Adobe PDF**" options.

4. Name the file as desired, select a destination folder, and click "**Save**".

Step 3: Check and fix accessibility

If you have followed all of the above guidelines for creating your Word document, the resulting PDF has a basic level of accessibility. However, it is important to note that this document might not be fully accessible to all screen readers or assistive technologies; you may need to provide additional information using Adobe Acrobat software. For detailed information about creating accessible PDFs, see the Adobe Acrobat Accessibility Training Resources.

Recent versions of Word (after 2010) have an Accessibility Checker that operates much as a spellchecker does. It can be found under "**File**", "**Info**", "**Check for Issues**", and then "**Check Accessibility**". It inspects your file and alerts you to issues that could make it difficult for a user with a disability to access.[i]

More resources:

The WebAIM (Web Accessibility in Mind) site offers more information, including how to create accessible Microsoft Word documents for PC and Mac users and effective use of fonts.

The Accessible Digital Office Documents project (ADOD), part of the Inclusive Design Research Centre at OCADU, has a number of resources including step-by-step instructions on many word processing programs. This resource includes information on adding hyperlinks, Alt Text and using other accessibility features.

Microsoft's guide, Create Accessible Word Documents, offers online video tutorials and a reference sheet that may be used offline.

California State University offers a number of online tutorials on making accessible documents.

The CNIB Clear Print Accessibility Guidelines provide useful tips on print documents.

Chronicle of Higher Education blog post: How to Create Accessible Documents.

To obtain this document in an alternative format, please contact:

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[i] Microsoft Corporation, Check for Accessibility Issues.

Evaluating Students and Giving Feedback

Do you grade students on their performance and offer feedback on how they can improve?

What you choose to evaluate in your courses and how you critique students' work can have an impact on their learning, as well as their long-term learning practices and study and work habits[i].

Research shows that getting the right kind of feedback helps students stay engaged. Feedback is most constructive when it is relevant, accessible, consequential and timely[ii]. Furthermore, providing feedback that guides students toward mastery, rather than toward a fixed conception of performance, helps sustain motivation[iii].

Whether you are grading papers, lab reports, tests, exams or other assignments, all students can benefit from evaluation and feedback that is clearly communicated.

Tips on evaluation

(Selections taken from the University of Guelph's Universal Instructional Design project, A Faculty Workbook)

- Identify and clearly express the essential course content.

- Recognize that students can express understanding of essential course content in multiple ways.

- Clearly communicate all deadlines, assignments and expectations well in advance.

- Ensure ample time between assignments for students to receive feedback. Consider the time required for your students to complete assignments, and for you and your teaching assistants to mark and return them.

- Consider having multiple means of student evaluation, such as exams, presentations, papers, etc. There may be more than one appropriate way to meet and measure learning objectives.

- Design course assignments so they are integrated. Long-term projects that build skills and understanding through a series of smaller, cumulative assignments are most beneficial for student learning.

- If you use multi-part assignments, make sure students are required to build upon past work.

- Consider asking students to assess themselves and their peers on both learning processes and outcome. Use accessible online conferencing, e-mail or file exchange to organize peer review of assignments.

- When grading written work, use rubrics to ensure consistency of

assessment criteria and feedback.

- Consider using accessible, web-based practice exercises/quizzes with automated marking for students to self-assess their understanding. Give explanations for correct and incorrect responses.

- When selecting online quizzes, check if there is flexibility in the time limit in case a student requests an accommodation.

- Consider using an exam review game to demonstrate the type of questions that will be asked. Give students feedback on how well they have learned the material.

- Use e-mail or the course website to facilitate the submission and return of assignments.

- If you post grades, use a password-protected course website instead of a sheet of paper. Electronic and accessibly formatted documents will allow as many students as possible to obtain the information readily.

- Avoid allowing external factors such as penmanship to affect your grading.

Tips on giving feedback

(Selections taken directly from the University of Guelph's Universal Instructional Design project, [A Faculty Workbook](), the [National Center on Universal Design for Learning]() section on mastery-oriented feedback, and the University of Toronto Scarborough's [Universal Instructional Design: Creating an Accessible Curriculum]().)

- The most accessible and useful feedback is frequent, timely and specific.

- Allow students to contact you by more than one method — an office-hours visit, e-mail, a phone call during office hours — if they would like more in-depth feedback or want to discuss their performance.

- Feedback that is typed and delivered electronically in an accessible format, by e-mail or through a secure sign-in to a course website, is accessible to the majority of students.

- Provide clearly legible (i.e. typed), informative and prompt feedback on both the student's demonstrated strengths and areas for improvement. Ensure the privacy of this feedback.

- Encourage mastery of material and the use of specific supports and strategies in the face of a challenge. Provide information on resources and supports available on your campus.

- Provide feedback that is substantive and informative, rather than comparative or competitive.

- Identify patterns of errors and wrong answers, and demonstrate how to incorporate evaluation into positive strategies for future success.

- Consider allowing students to turn in components or drafts of large projects for feedback before the final project is due[iv].

- Give explanations for correct and incorrect responses if you're giving computer-generated feedback, or use accessible web-based practice exercises and quizzes with automated marking for students to self-assess their understanding.

- Help students form study groups or set up an accessible online forum where students can collaborate, share and evaluate one another's work, either formally or informally.

- Meet with students who don't do well on graded work to see if you can help them develop strategies to overcome the problems identified.

More resources:

National Center on Universal Design for Learning: Checkpoint 8.4: Mastery-Oriented Feedback.

Disabilities, Opportunities, Internetworking, and Technology (DO-IT) Center at the University of Washington: Universal Design of Instruction (UDI): Definition, Principles, Guidelines, and Examples.

University of Toronto at Scarborough: Universal Instructional Design: Creating an Accessible Curriculum.

To obtain this document in an alternative format, please contact:

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[i] National Center on Universal Design for Learning. Checkpoint 8.4: Mastery-Oriented Feedback.

[ii] National Center on Universal Design for Learning. Checkpoint 8.4: Mastery-Oriented Feedback.

[iii] National Center on Universal Design for Learning. Checkpoint 8.4: Mastery-Oriented Feedback.

[iv] Disabilities, Opportunities, Internetworking, and Technology (DO-IT) Center at the University of Washington. Universal Design of Instruction (UDI): Definition, Principles, Guidelines, and Examples.