

F^xA Empowering Learners with Dyslexia to Reach Their Potential in STEM



Presented by:
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HELLO!

I am Erin Kline

I'm inspired to help learners of all ages
achieve their potential.

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Shape of the Day

- ▶ Dyslexia: What is it and how does it impact learning?
 - ▷ Q&A
- ▶ Teaching practices: Empower learners through applying inclusive strategies.
 - ▷ Q&A
- ▶ Assessment Practices: Empower learners with dyslexia to demonstrate strengths and knowledge.
 - ▷ Q&A

What Do These People Have in Common?



Dyslexia is a specific learning disability that is **neurobiological** in origin. It is characterized by **difficulties** with accurate and/or fluent **word recognition** and by poor **spelling** and **decoding** abilities. These difficulties typically result from a deficit in the phonological component of language that is often **unexpected in relation to other cognitive abilities and the provision of effective classroom instruction**. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.

IDA Board of Directors, 2002

**Approximately
1 in 5 people have dyslexia.**

20% of these people go on to
post-secondary.

Why is this?

Challenges of Dyslexia

- ▶ Reading extensively when accessibility options are limited
- ▶ Skim reading
- ▶ Writing labs, research papers and essays
- ▶ Note-taking in class and in the field, particularly by hand
- ▶ Following complex instructions without clear step-by-step instructions/models
- ▶ Recalling independent facts out of context during examinations (for example fill in the blank or multiple choice questions)

STEM Superpowers of Dyslexia

Harness the dyslexic advantage to:

- ▶ Think big picture



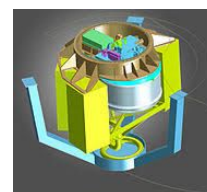
- ▶ Interconnect ideas in novel ways



- ▶ Solve problems with creativity



- ▶ Apply complex spatial reasoning





“Imagine a dyslexic from London meeting the queen of England. It’s mind-boggling stuff, but that shows how much potential you have.”

– Maggie Aderin-Pocock on receiving the MBE



DR MAGGIE ADERIN-POCOCK
Space Scientist

Looking back at my school days it was quite a chequered story

Myths Surrounding Dyslexia

Dyslexia is **not** associated with the following:

- ▶ Low IQ
- ▶ Laziness
- ▶ Indifference
- ▶ Carelessness



Superpowers of Dyslexia

- ▶ Big picture thinking
- ▶ Interconnected thinking
- ▶ Lateral thinking
- ▶ Creative problem solvers
- ▶ Brilliant spatial reasoning
- ▶ Observant of surroundings
- ▶ Highly empathic
- ▶ Communication and storytelling

Teaching Practices: Empower Learners with Dyslexia

Beyond student advocacy; applying inclusive practices.

Shake off the “dysteachia”!

Support learners through
accommodations and
adaptations.

Let's Talk-

Accommodations and Adaptations

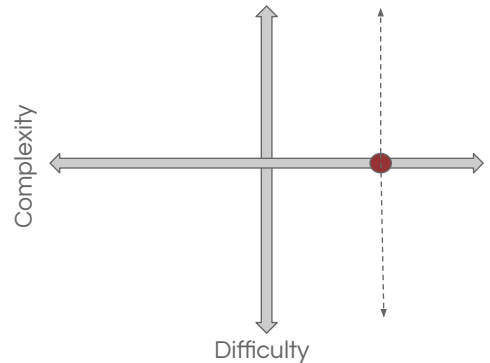
Accommodation -

- ▶ Providing supports that make learning accessible



Adaptation-

- ▶ Maintaining the complexity of expectations while adjusting difficulty



Accommodations

- Extra-time for exams
- Extra-time for essays/paper
- Provide lecture notes/slides
- Provide new vocabulary before lectures
- Audio textbooks/articles
- Recording content or providing audio or video content
- Using highly legible fonts
- Using adequate spacing on assignment outlines

Adaptations

- Clear, concise step-by-step instructions
- Provide visuals to accompany instructions (pictures or videos)
- Chunking assignments into manageable parts
- Providing templates and/or graphic organizers
- Checkpoints to ensure understanding
- Repetition and review (formative assessment)
- Multiple options for assessment (oral, visual, artistic)

Accommodations

Providing supports that make learning accessible.

5 Simple Accommodations

1. Course content available by multiple means including books/articles, audiobooks/recordings, videos/podcast by scholars
2. Provide assignments and readings in formats accessible to text readers
3. Provide notes/slides/ vocabulary for learners ahead of time
4. Use adequate spacing on assignment outlines (min. 1.5)
5. Use easily legible fonts such: Verdana, Arial or Questrial

Make Course Content Accessible!



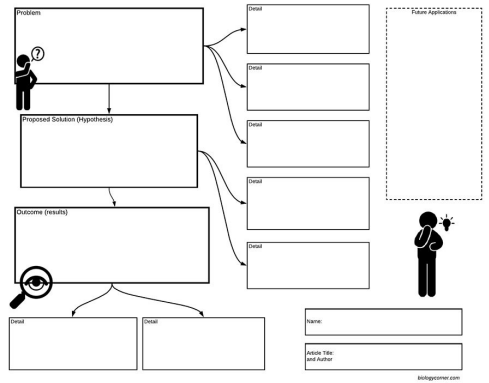
Adaptations

Maintaining complexity of content while adjusting the difficulty.

Power of Scaffolding

Supports learners to engage and complete complex multistep problems and assignments with relative ease.

- ▶ Graphic organizers and templates for assignments
- ▶ Clear multi-step instructions (with checkboxes if needed)
- ▶ Chunking with successive due dates



What Does This Look Like?

Step-by-step Instructions

Date: June 17, 2025

Erin Kline

Dyslexia 101

Making Assignments Accessible

This will clarify how you can provide students with clear step-by-step instructions that include a checklist. You can edit current assignments to fit this format.

- ❑ 1. Set your steps up to include checkboxes and numbers for steps.
- ❑ 2. Use 1.5 spacing for your assignment.
- ❑ 3. Use 12 point font in Verdana, or Arial.
- ❑ 4. Use clear concise language for each step of point presented.
- ❑ 5. Include only one instruction per bullet.
- ❑ 6. If it is a lab or assignment that lends itself to the possibility include a visual to demonstrate the step.
- ❑ 7. Use the same principles when outlining modeling examples and solutions.

What does this look like?

Effective “Chunking”

- ▶ Divide the completion of assignments into smaller chunks to be completed sequentially.
- ▶ For example:
 - ▷ Annotated bibliography (Sep. 15)
 - ▷ Outline of research paper (Sep.30)
 - ▷ Draft of paper or presentation (Oct. 15)
 - ▷ Final draft (Oct. 21)

Task Chunking Sheet						
Large Task Name or Homework Topic: _____				Course/Subject: _____		
Check when done	To be completed by the teacher or student			To be completed by student		
	Task <input type="checkbox"/> Sub-task (task breakdown)	Time Frame	% complete	Understanding Level (with check, "need help with" notes)	Teacher Signature	
	<input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____				Need help with:	
	<input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____				Need help with:	
	<input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____				Need help with:	
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	<input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____				Need help with:	

Why Use Scaffolding?

- ▶ Have structures in place to support all learners
- ▶ Increase ability to meet expectations
- ▶ Promotes effective learning

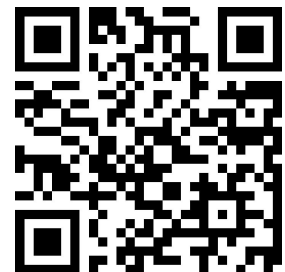
Assessment Practices: Empower Learners with Dyslexia

Beyond student advocacy; applying inclusive practices.

**Which Media
Do You Use
for
Assessment**

Let's take a poll:

- ▶ Written multiple choice
- ▶ Written short answer
- ▶ Written essay
- ▶ Oral (ie. podcast, storytelling)
- ▶ Visual media (ie. video or presentation)
- ▶ Artistic media (sculpture, music, art, dance)



Why Consider Different Media for Assessment?

Superpowers of Dyslexia

- Big picture thinking
- Interconnected thinking
- Creative problem solvers
- Brilliant spatial reasoning
- Highly Empathic
- Communication and Storytelling

Empowering Types of Assessment

- Oral (ie. podcast, storytelling)
- Visual media (ie. video or presentation)
- Artistic media (sculpture, music, art, dance)

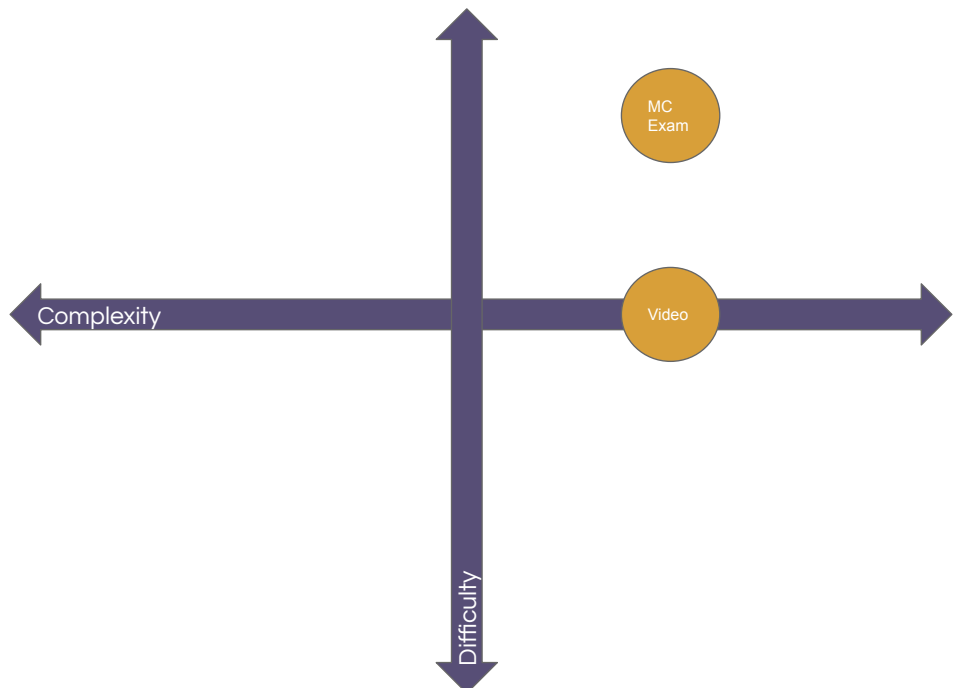
Challenges of Dyslexia

- Text heavy exams and tests
- Extensive reading
- Recalling independent facts during examinations (fill in the blank or multiple choice questions)
- Writing labs, papers

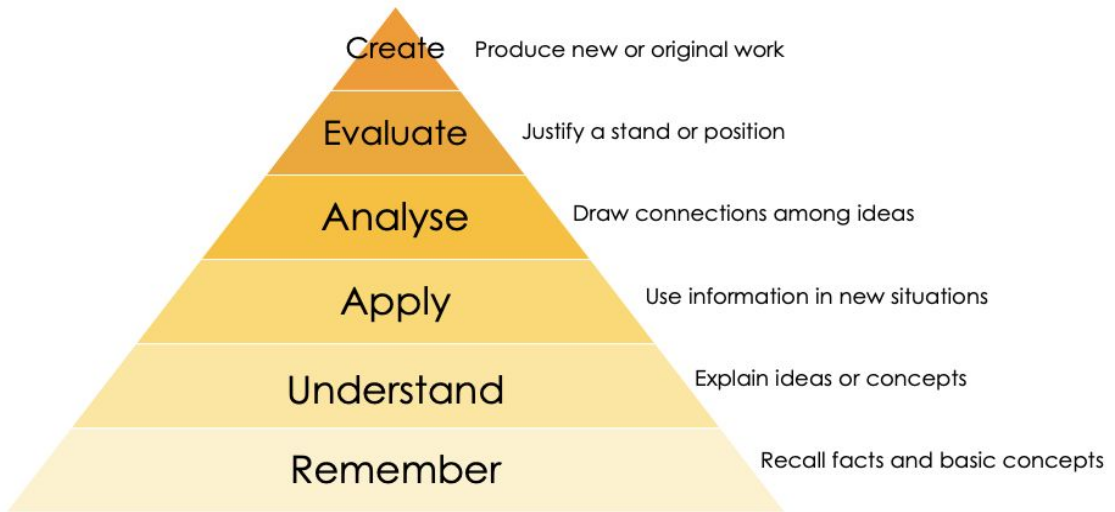
Discouraging Types of Assessment

- Written multiple choice exams
- Written short answer exams
- Written essays

Complexity Versus Difficulty



Bloom's Taxonomy



BIOL 420: Ocean Conservation and Sustainability

Rethinking Teaching and Assessment

Dr. Amanda Vincent, UBC

- ▶ Term project *
- ▶ Oral presentation*
- ▶ Blog
- ▶ Haiku
- ▶ Teaching each other
- ▶ Twitter
- ▶ Reflections *
- ▶ Policy briefing *
- ▶ e-Portfolio (website) *
- ▶ Final exam *

*** diverse media**

Applying Multi-media Assessment

“FINAL EXAM: The final examination has a take home/open book format. **Prepare answers for only two (2) of the seven (7) possible questions.** You may submit your exam in one of three formats (per question):

1. essay (\leq 1000 words),
2. podcast (\leq 10 mins) or
3. video (\leq 10 mins).

If you choose a podcast or video, indicate your intended audience, which should be adult and intellectually strong. If you wish to present another format for your exam, you must obtain approval.”

Building Rubrics to Work Across Media

Rubric for assignments/exam

Outstanding 90-100

- ▶ excellent critical thought is evident
- ▶ all topics covered with just the right detail
- ▶ very well organized, easily followed and understood
- ▶ offered me a new angle on the issue ... etc

Very Good 80-90

- ▶ good original critical thought is evident
- ▶ content covers all topics but with uneven detail or coverage of content
- ▶ well organized, good flow, quite easy to follow and understand, key points clear ... etc

**Possibilities
for Large
Classes**

1. Reduce the number of multiple choice questions; consider more short answers
2. Provide a recording of multiple choice questions
3. Consider oral exams for students who disclose their learning differences

**Context is
Important**

Be realistic...

What changes in assessment are available to you?



What is Possible for You?

Reflect...

How might you change one upcoming assessment to be more inclusive?



In Conclusion...

Empower All Learners!

Celebrate strengths

Accommodate and adapt as possible

Provide flexible media for assessment



Questions, comments ...

Any last questions, thoughts