

EAMS

Alternative Assessment in Mathematics

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**Who is in the room and what do you wish to learn
from this session?**



Alternative Assessment: Examples and Champions

- Introduction
- What exactly is alternative assessment?
- Why are we talking about alternative assessment? Why do we need it?
- Examples/ Natasha's insights
- Our project

Introduction

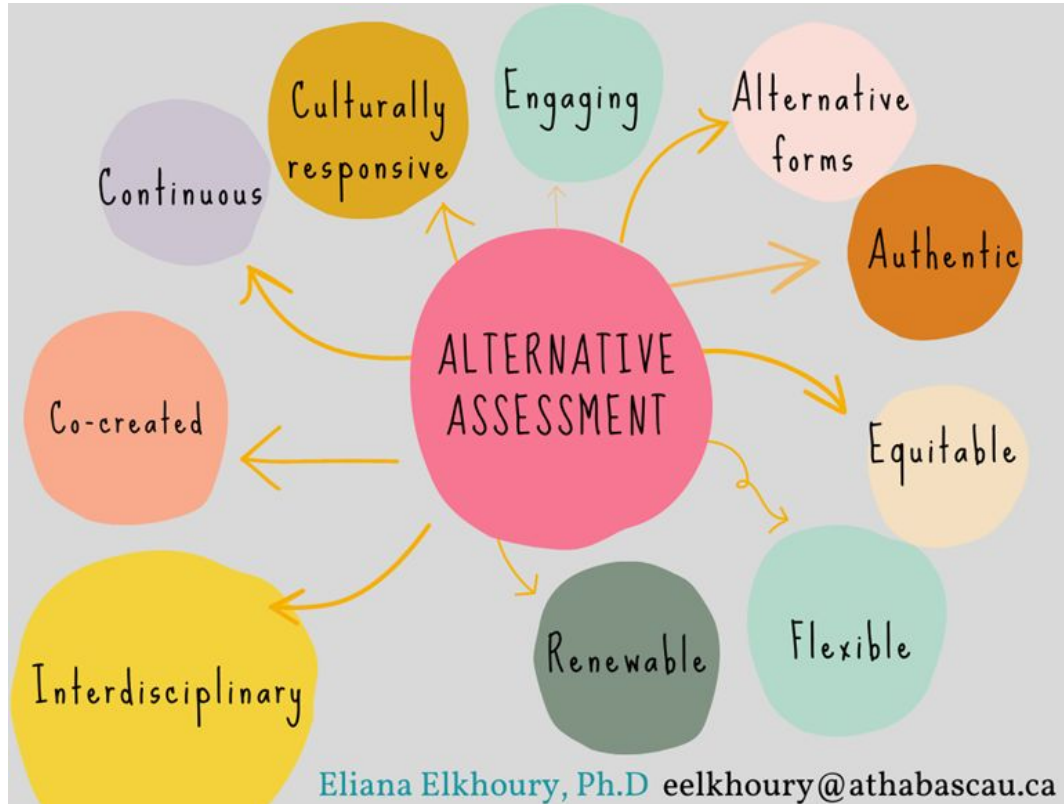
What type of assessment do you use in your classroom?

What exactly is alternative assessment?

- A way of thinking about assessment
 - The design, the implementation, the feedback, the grading
- Assessment as learning, for learning, of learning

[Learning Design Voices | Perspectives from the Margins](#)

What exactly is alternative assessment?



Why are we talking about alternative assessment?



What exactly is alternative assessment?

It is also about grading...

And the feedback...

What exactly is alternative assessment?

Assessment needs to reflect the world we live in

What works and what works best

What evidence are we collecting as educators

What exactly is alternative assessment?

We propose a scheme for characterizing alternative assessment methods based on factors such as:

- the format
- the examples used, the data used
- the decision maker

What is equity in math assessment?

Equity in mathematics learning occurs when teachers ensure that every student has opportunities to engage in challenging mathematics learning, learn worthwhile mathematics, and develop proficiency in working collaboratively with peers to solve challenging problems, along with a strong sense of personal agency and identity as a competent and confident doer of mathematics .

(Strutchens and Silver 2018)

Disclaimer

We want to acknowledge that :

- there are different types of math courses (pure, applied, and service)
- Departmental requirements that make some things possible and some not so much
- Small classroom and large classrooms

Let's dive in!



Photo by [Malek Bee](#) on [Unsplash](#)

Technique #1: multi stage exams

- An individual test followed by a collaborative test
- Usually 85% + 15%
- Three stage exam:
- Four stage exam:
- Works better with open ended answers

Equity tip: peer learning/ digital divide

Technique #1: multi stage exams

Natasha's insights





Technique #2: Student generated exam questions, problems, and examples

Technique #2: Student generated exam questions

Natasha's insights



Technique #3: Oral assessment



Technique #3: Oral assessment

Natasha's insights



Technique #4: Eportfolios in math assessment

- **Making connections**
- The e-portfolio demands a type of triangulation of data given its requirement for various artifacts to support each other:
 - the learner's up-to-date resume
 - a narrative autobiography that outlines
 - highlights learning activities through learners' past

Learning journals in math assessment

Natasha's insights



Technique # 6: Peer Assessment/ peer feedback/ social annotation

- [Liquid Margins 8: Solving Problems in the Margins: Annotating Math : Hypothesis](#)
- Social learning
- Peer feedback
- Gallery walk for peer feedback

Technique # 6: Peer Assessment/ peer feedback/ social annotation

Natasha's insights



Technique #7: Renewable assessment

- Wikipedia assignment (write a wikipedia article, review an article, illustrations)
- Course auxiliary materials
- Assessing available resources/critiquing (available Youtube videos)

Technique #7: Renewable assessment

Natasha's insights



Technique #8: Social Media assessment

- A professional learning network - people - organizations-movements
 - [Protect Pure Maths \(@protectingmaths\)](#)
 - [Twitter, London Mathematical Society \(@LondMathSoc\)](#)
 - [Republic of Mathematics \(@republicofmath\)](#)
 - [Twitter/ Twitter, Reygan Dionisio \(@ZahlenRMD\)](#)
 - [Twitter/ https://twitter.com/mathisstillfun](#)
 - [https://twitter.com/apperiodical](#)
- A twitter assignment
- A tiktok assignment
- A meme assignment

Technique #8: Social Media assessment

Natasha's insights



**Alternative assessment could also be applied
when changing the examples and the data
sets that we use**

Technique #9: Trends and datasets

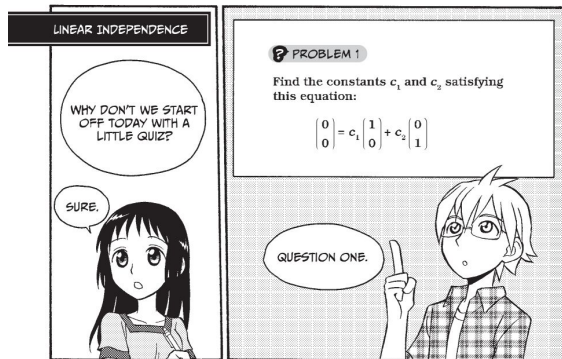
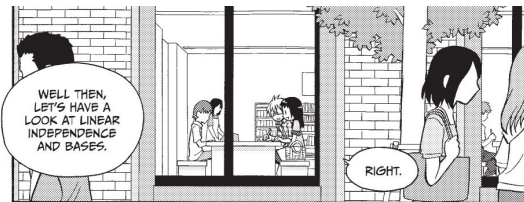
- Where do you get your data from?
- Who is choosing the data
- Trends (google, youtube, facebook, twitter)
- Google data studio: [Google Data Studio](#)
- [Math and Statistics - Toolkit for the Interdisciplinary Infusion of the SDGs into Classrooms \(yorku.ca\)](#)

Technique #9: Trends and datasets

Natasha's insights



Technique #10: Cartooning



132 CHAPTER 6 MORE VECTORS

[Chapter 7 - The Manga Guide to Linear Algebra - Manga1s.com - Read and download Manga Online for Free!](#)

Clair, J. S. (2018). Using cartoons to make connections and enrich Mathematics. In *Proceedings of the Interdisciplinary STEM Teaching and Learning Conference* (Vol. 2, pp. 45-53). [Microsoft Word - ED503880.doc](#)

Technique 12: Multimodal Assessment

○ Podcast

- [Podcasts in Mathematics - Mathematics Research Guide - Research Guides at Princeton University](#)
- [► Unique Approaches to Online Math Assessment with Kevin Pitts | Speaker](#)

○ Digital book

- Children's books
- Open access book (graduate course)
- [Free Ebook Creator - Design Your Ebook Online | Visme](#)
- [Using Book Creator in English / Language Arts - Book Creator app](#)

Technique 12: Multimodal Assessment

Natasha's insights



Technique #13: Virtual escape room

- Playful pedagogy
- Escape pedagogy
- Branched scenario (start with a theme, build a puzzle, decide on the clues, build it online)
- How to create a virtual escape room: [How To Create a Virtual Escape Room - YouTube](#)

Technique #13: Virtual escape room

Natasha's insights



Technique # 14: Math in nature

[STEM Series: Discovering Math in Nature - Acorn Naturalists](#)

Technique # 14: Math in nature

Natasha's insights



Advice from experience

- **Start small**
- **Collect feedback**
- **Co-design with a colleague**
- **Establish multiple check-ins**

Which one would you use?

- https://jamboard.google.com/d/188gwLa5-X98xRuiKC3QV409BfzHDN_hkmJgcFYhFIOY/edit?usp=sharing

Stay Connected

- [Alternative Assessment Worldwide – Exploring alternative methods of assessing students \(alternative-assessment.com\)](https://alternative-assessment.com)
- **Submit a video to our social media campaign**
 - **Follow our social media campaign**
 - [Alternative Assessment: About | LinkedIn](#)
 - Twitter: [Alternative Assessment \(@elianaelkhoury\) / Twitter](#)
- eelkhoury@athabascau.ca
- <https://forms.gle/JfTAstjx8fjQ2e6V7>