

Spicing up online discussion boards in mathematics

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with Megan McInnis

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About Cindy

- Associate Professor at Northern Illinois University
- PhD in Instructional Technology from Purdue (2010)
- 4th/5th grade teacher (1996-1998)
- Teaching using technology since 1994
- Teaching teachers online since 2004
- Working with a combination of mathematics, active learning, and technology since 2015



About Megan

- Associate Director of Faculty Development at Galen College of Nursing
- Assistant Professor at Galen College of Nursing
- PhD Student at Northern Illinois University
- 30 years in education
- Teaching in Higher Education since 2004
- Adjunct Instructor in Mathematics at College of Lake County
- Background in mathematics, statistics, and education






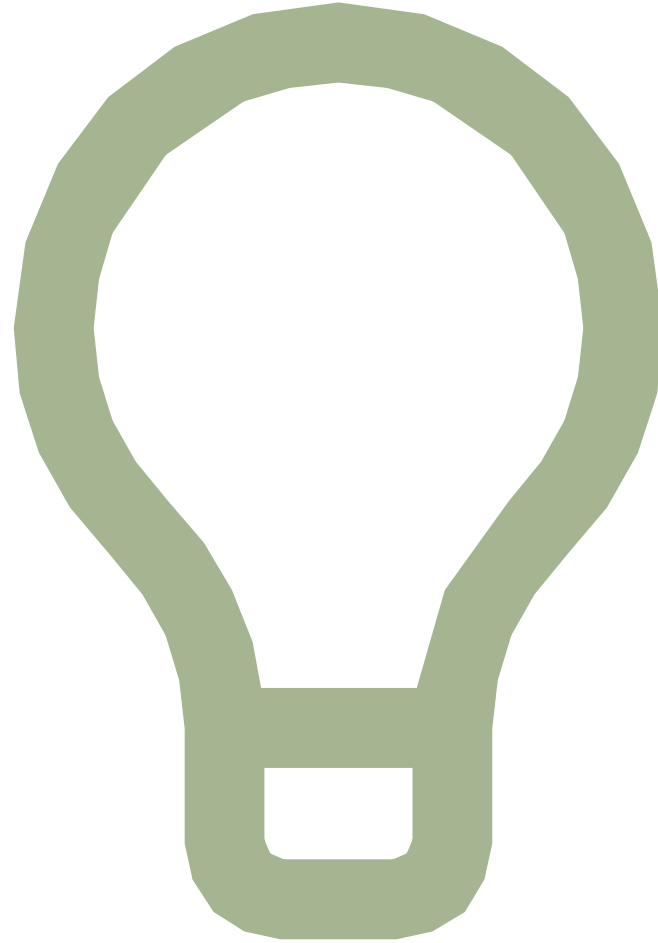
Thinking about technology...

- Because of technology, what can we do now that we couldn't do before technology?
- How do we fundamentally change how we teach - using technology in classrooms?
- What can we do BEYOND “better, faster, easier”?
- With so much of learning/teaching moving online because of COVID, how can we continue keeping/getting learners engaged?

Have your online students become bored with the traditional read, post, and respond assignments in your classes?



Are you looking for
ideas to make your
discussions more
exciting for both the
learner and the
instructor?





We will share ideas on how to make your online discussion boards more interesting.

Things to keep in mind

Set up clear expectations

- Safe space to discuss
 - Students need to be supportive of each other
- Be clear on how and when you will join in as instructor
- Be clear on your role – guidance, facilitator, participant
 - Students may work harder when they know the instructor is reading/participating, but instructors can also shut down a conversation if they post a definitive answer to an open-ended question.

Things to keep in mind

Have clear assessment guidelines

- Quantity, quality, rubric, etc.
- Make the purpose of the activity clear to students

Sample Rubric

<p>0-1 Points</p> <p>Initial posting does not indicate that the student put much thought into their answer.</p> <p>AND</p> <p>Little contribution to the discussion with others.</p>	<p>2-3 Points</p> <p>EITHER</p> <p>Initial posting weak <u>but</u> good contributions to the discussion.</p> <p>OR</p> <p>Good initial posting <u>but</u> little contribution to the discussion.</p>	<p>4-5 Points</p> <p>Initial posting indicates that the student took time thinking about the articles read and put thought into their answer.</p> <p>AND</p> <p>Contributed to the discussion with others following reflection of other posts.</p>
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Other Rubric possibilities...

Criteria	Excellent	Good	Fair	Poor
Timeliness and quantity of discussion responses	3-4 or more postings; well distributed throughout the week	2-3 postings distributed throughout the week.	2-3 postings; postings not distributed throughout the week	1-2 postings; postings not distributed throughout the week
Responsiveness to discussion topic and demonstration of knowledge and understanding from assigned readings. Ability of postings to move discussion forward.	Readings were understood and incorporated into discussion as relates to topic. Two or more responses add significantly to the discussions (e.g., identifying important relationships, offering a fresh perspective or critique of a point; offers supporting evidence).	Readings were understood and incorporated into discussion as relates to topic. At least one posting adds significantly to the discussion.	Little use made of readings. At least two postings supplement or add moderately to the discussion	Little or no use made of readings. Postings have questionable relationship to discussion question and/or readings; they are non-substantive. Postings do little to move discussion forward
POINTS	9-10	6-8	4-6	1-3

Define terminology in rubric

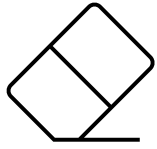
- Give students examples of **non-substantive, moderate, significant**, etc.

Example to provide students:

Posted messages should be **significant** – helping the discussion move forward. There are a variety of ways to do this, including (generally in some combination over the course of the week or within a posting):

- Providing concrete examples, perhaps from your own experience
- Describing possible consequences or implications
- Challenging something that has been posted in the discussion – perhaps by playing “devil’s advocate”
- Posing a clarifying question
- Suggesting a different perspective or interpretation
- Pulling in related information from other sources – books, articles, websites, other courses, etc.

Setup of the discussion forum



- Will you allow the student - author to be able to edit their post, or if they want to delete a post?

- Will you allow supplemental attachments (files, photos, etc.)?



How about replies to discussion.....



Use of first name:

Example: “Tamika, thank you for sharing your thoughts regarding.....”



Refer to other postings:

Example: “David, did you see Arlene’s post above about social media and body image? She shared a different viewpoint regarding the correlation of the time spent on social media and perception of body image. Check out her post and let me know what you think.”



Draw students out:

Example: “Patty, I agree that Shyanne has an interesting post but what exactly did you find interesting in what was said? Can you find an additional resource to support this?”

Things to keep in mind

- Consider how to make the discussion board an active and engaged learning experience
 - Gamification
 - Scenario-based
 - Social-media integration

How important is social presence?

Creates quality interaction

A sense of belonging

Associated with student satisfaction

Associated with perceived learning

Increased awareness in diversity of classroom

Correlated with cognitive presence

Sometimes students will not show up to learn math but will show up to hang out with their friends


Five minutes can make a BIG difference!

A comfortable class will foster respect, inclusivity, critical thinking, and intellectual growth.



Our Favorite Ideas



- Debate or Pros/Cons – instructor assigns positions, then allows participants to later post under their true positions.
 - Structured controversy
 - Role-Playing
 - Student groups present their discussion to their classmates – split topics by group and each group is responsible to present their topic and come up with discussion questions for their classmates. The group then facilitates the discussion. They can use any format they want and can be creative. (Jigsaw)
 - Creating a meme as part of an answer
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Example

Discuss what it means to “humanize calculus.” In this, discuss what the article says about mathematics and also find one fun fact about the history of calculus as a humanistic activity that helps us get to know who you are. Tell us how your fun fact relates to you as a teacher, learner, and/or a person. You may need to search the internet to find a fun fact.

In your response, connect with your classmates. Can you relate to their fun fact? Can you add to their fun fact? Can you find something in common with at least one student? Can you find another student who you differ from, but that you complement each other?

Initial discussion posting due: Sunday, September 4th by 11:59pm. (6 pts)

Response postings due: Sunday, September 11th by 11:59pm. (3 pts)



Example

Be my guest

Imagine that you are teaching calculus course (and maybe you are). Which historical figures from “The Calculus Gallery” and/or “Women in Calculus” would you bring to your classroom to lead a lesson and why? What would you expect your students to learn from these historical figures? In addition, how could you have your guest convince your students that proof is a tool for learning mathematics? Please make it clear that you have read both articles from your post.

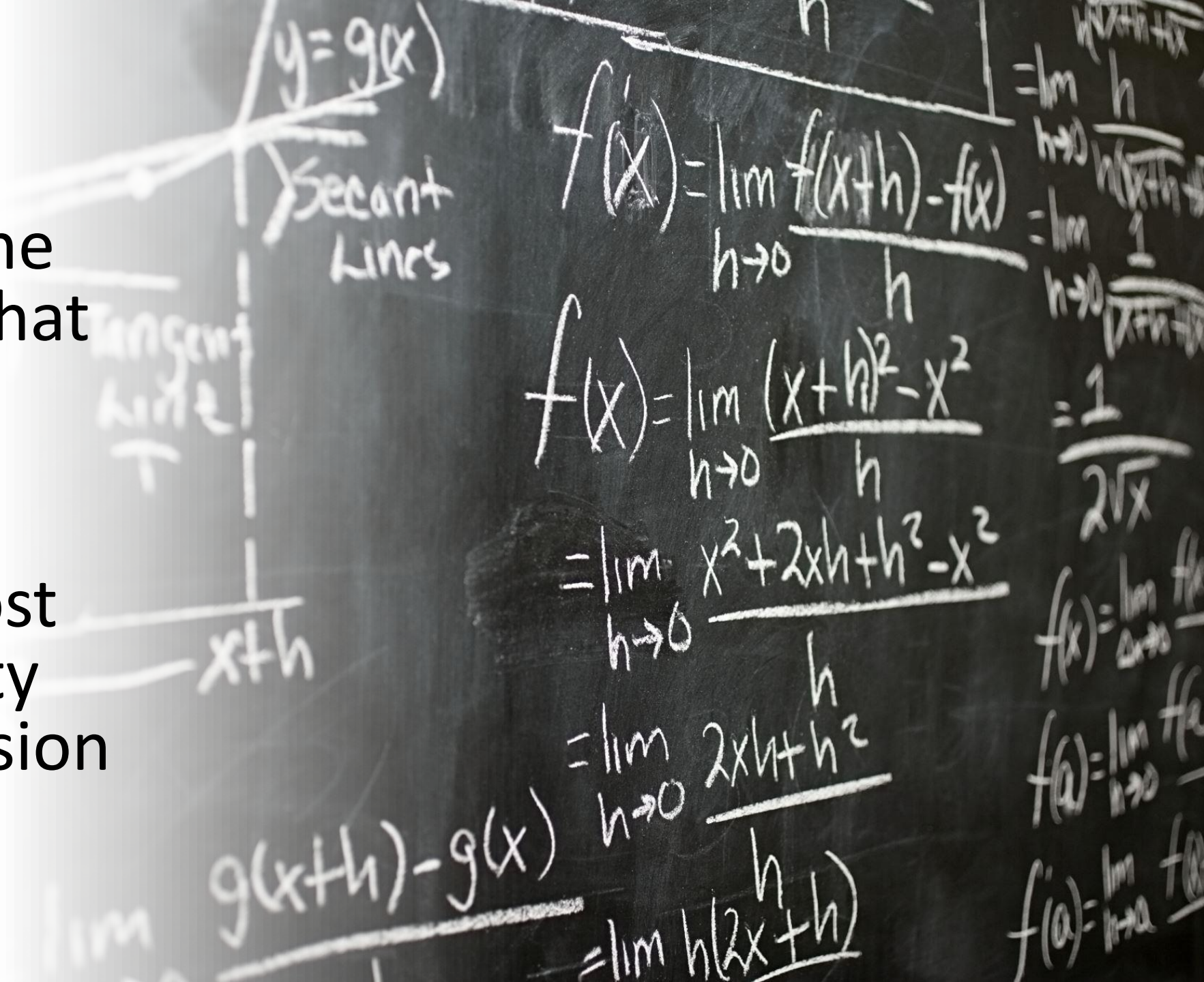
Example

What is quantitative literacy?

Create two pictures/slides that depict the meaning of quantitative literacy (QL) and quantitative reasoning (QR). Respond to at least two classmates commenting in particular on what you liked about their definitions and questions you may have about their definitions.

Example

Create a meme that shows what equity should mean in mathematics education. Post it to the equity meme discussion board.



Example



What's math got to do with it.



Create a list of top 10 lessons learned for mathematics teachers from the first five chapters of this book. Share your list with the class. Be as detailed as possible.

Example

You may already know some of your classmates and some may be new to you. In this post, include a picture that illustrates **you** as a learner of higher-level mathematics (e.g., a picture of someone jumping up and down with excitement or a picture of someone working solo while snuggling a cat). Include a paragraph as to why you chose this picture both personally in terms of who you are and who you are as a learner of higher-level mathematics.

Respond to at least one classmate you know and one classmate you don't already know (or if you don't know anyone respond to any two classmates).



Example

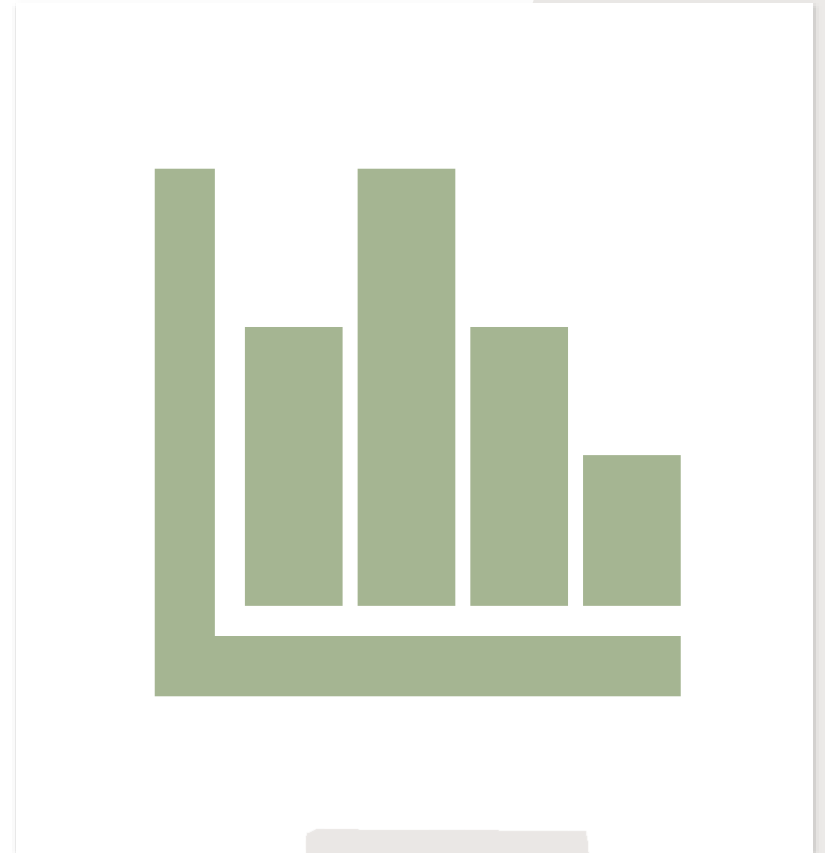
Discussion on Graphs:

Original:

What makes a good graphical representation of data? When should you use a pie chart? When should you use a bar graph? Which kind of graph do you find easier to interpret?

Change:

Choose a topic of interest and find a graphical display of data on that topic of interest. The graphical display can be either a scatterplot, dot plot, bar graph, histogram, stem-and-leaf, pie chart, or box plot. **Share why you chose this topic and summarize the graph** (what did you find interesting, confusing, and/or helpful). Be sure to reference with in-text citations (author, date) when necessary and in APA format.



Our Favorite Ideas

- Creating a meme as part of an answer
- An introduction post relating it to a “calculus” person of the past
- Saying which mathematician they would have as a guest speaker on a topic and why
- Creating a video/PowerPoint as a post
- Sharing a resource or video

Other Ideas to Try

Simulations

Case studies

Blogging

Virtual Tours

Evaluating resources

Scavenger hunt

Guest Speakers (pre-recorded)

Quick Polls

Use videos (Flipgrid = now Flip, YouTube) for students to record and respond versus text-based answers

Provide videos and other resources in the original discussion prompt versus simply text.

To help with creativity...

- Use ChatGPT (AI)

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what can we do instead of a boring "introduce yourself" for a discussion board ice breaker



There are tons of exciting ways to break the ice and get to know each other on a discussion board! Here are a few ideas:



1. The "Two Truths and a Lie" game: In this classic game, each person shares three statements about themselves, two of which are true and one that is false. The rest of the class then tries to guess which statement is the lie.
2. The "Bucket List" exercise: Ask everyone to share one item on their bucket list that they hope to accomplish in the next year or so. This can spark some great conversations and give everyone a better idea of each other's interests.
3. The "Show and Tell" challenge: Have everyone choose one item from their home or workspace that represents something unique about themselves. They can then take a picture or video of the item and share it on the discussion board, along with a brief explanation.
4. The "Emoji Introduction" activity: Ask each person to introduce themselves using only emojis. It's a fun and creative way to get to know each other and see how everyone interprets the different symbols.
5. The "Superpower" exercise: Have everyone share what superpower they would choose if they could have any. This can reveal a lot about people's personalities and aspirations.

Remember, the key to a successful ice breaker is to make it fun and engaging, so don't be afraid to get creative and try something new!

Other General Discussion board Resources:

Engaging the Online Learner book:

[https://www.google.com/books/edition/Engaging the Online Learner/PQVddG7Pv2EC?hl=en&gbpv=1&dq=how+to+engage+learners+in+an+online+discussion+board+book&printsec=frontcover](https://www.google.com/books/edition/Engaging%20the%20Online%20Learner/PQVddG7Pv2EC?hl=en&gbpv=1&dq=how+to+engage+learners+in+an+online+discussion+board+book&printsec=frontcover)

Creating Engaging Discussions book:

[https://www.google.com/books/edition/Creating Engaging Discussions/5yIWdWAAQBAJ?hl=en&gbpv=0&kptab=overview](https://www.google.com/books/edition/Creating%20Engaging%20Discussions/5yIWdWAAQBAJ?hl=en&gbpv=0&kptab=overview)

Rena M. Palloff & Keith Pratt have written a number of books on the topic of discussion boards.

Thank you!!

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