

Augment Motivation and Interaction to Help our Students Succeed

Dr. Julia Kregenow, Penn State University

Slides online: bit.ly/neroc20-julia

Goals of this presentation:

1. list and describe three principles for increasing student motivation
2. list multiple different ways that students can interact with you and peers

Handy tool: Zoom -> View Options -> Annotate: lets you (and students, if you wish) stamp, type, or draw on screen

Students come to us with varying interest & motivation. Tips for augmenting motivation:

- Establish relevance: everyday life, important to society
- Incorporate authentic questions (answers not yet known) or tasks (e.g. Citizen science sites: Zooniverse.org, Cosmoquest.org)
- Use an appropriate level of challenge: rewarding yet achievable. Offer support: frequent low-stakes practice & feedback gives them a chance to “fail” safely
- Connect individually. Ninja move: Email all your students. Seriously. It’s worth the time investment.

Students come to us with a wide range of preparation and confidence.

- How do you know their preparation level? Survey them, share aggregate results, create opportunities to let them talk, really listen, personal connection, be approachable
- Offer more support: Design question order to build in complexity / difficulty within each assignment, make extra practice Qs available, “HW party”, think-pair-share, office hours
- Offer more challenge: depth spikes, challenge questions, think-pair-share, office hours

Reference for “depth spikes” and identifying audience needs: *Marketing for Scientists*, Kuchner, 2011.

Voting questions

- Vary the difficulty. Interesting + challenging = motivating + great discussion!
Think-Pair-Share approach: 1. Vote solo, 2. Discuss in groups, 3. Vote solo again.
4. LAST: Explain reasoning. Ideally, have students explain aloud.
- Various ways to collect answers: zoom poll, zoom annotate, zoom nonverbal feedback

Reducing anxiety for shy or introverted students:

- confer with peers before answering
- group answer; group can elect a spokesperson
- opt in/out from answering in class
- talk with me privately, or submit written answer online
- email selected students ahead of time to give them prep time
- non-speaking role (e.g. emailing you a photo of their work for spot checking)

For all teaching methods, especially active learning, nuances of implementation matter.

- Try 1 or 2 new things at a time. Don’t change everything at once.
- Practice helps.
- Get feedback from students, colleagues, local teaching & learning center.
- As Brené Brown says, “Stay awkward, brave, and kind.”

Augment Motivation and Interaction to Help our Students Succeed

presentation slides online: <http://bit.ly/neroc20-julia>


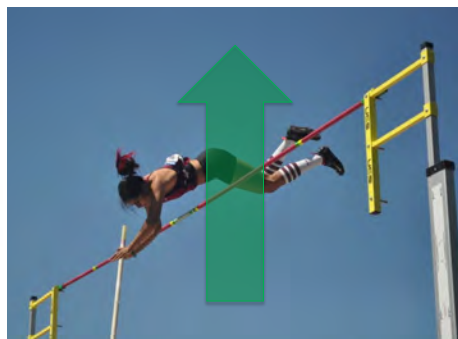



Image credits: changingpaces.com/4-general-types-of-barriers/



news.mit.edu/2015/mit-pole-vaulter-cimran-virdi-goes-ever-higher-0709

Dr. Julia Kregenow, Penn State University

website: bit.ly/kregenow 

1

What type(s) of classes are you teaching?

Using the **zoom annotate feature**, place a “stamp(s)” somewhere in the chart

NOTE:
This feature must be enabled by meeting host before mtg starts

1,000

100

10

1

class size

intro survey course;
non-technical

undergraduate
science majors

graduate students

Or,

I'm not teaching now:

Class level / technical rigor

2

What type(s) of classes are you teaching?

OR, Enter a letter in the chat box corresponding to your answer
OR, Use zoom polling with multiple choice answer options

1,000	A	B	C
100	D	E	F
10	G	H	I
1			

intro survey course; non-technical undergraduate science majors graduate students

Class level / technical rigor

Or, I'm not teaching now:

3

Where would Pluto be on this graph?

Use zoom annotate feature to mark your answer right on the graph

Where would Ceres be?

Slides online: bit.ly/neroc20-julia

4

Augment motivation with **relevance**, authenticity, and appropriate challenge

Slides online: bit.ly/neroc20-julia



Image credits: <http://why-am-i-always-tired.org/78/are-you-tired-or-are-you-bored/>
<https://logophilesunleashed.wordpress.com/2015/08/19/honors-english-i-extra-credit-recommend-a-book/>

5

Augment motivation with **relevance**, authenticity, and appropriate challenge

 EURO	1 EUR	6.430
 SVERIGE	100 SEK	8.368
 DANMARK	100 DKK	92.440
 STORBRIANNIA	1 GBP	1.1229
 SVEITS	100 CHF	12.047
 JAPAN	100 JPY	53.130
 AUSTRALIA		60.000

Image credit: Prof. Daniel A. Fleisch

Slides online: bit.ly/neroc20-julia

6

Augment motivation with relevance, **authenticity**, and appropriate challenge



<https://www.dailystar.co.uk/news/latest-news/608297>

Slides online: bit.ly/neroc20-julia

7

Augment motivation with relevance, authenticity, and **appropriate challenge**



Image credits:
<https://www.upwork.com/hiring/for-clients/lightweight-app-design/>
<https://www.building-muscle101.com/light-or-heavy-weights-for-weight-training.html>

8

Augment motivation with relevance,
authenticity, and appropriate challenge

and human
connection



Pro tip: Email all your students individual near
the beginning of term. Seriously. Do this.

9

Actively support and engage students
with different levels of prep



<https://thepullupsolution.com/> Steven Proto



Image credits:

www.criticalbench.com/exercises/band-assisted-pullups.htm

Slides online: bit.ly/neroc20-julia

10

The wood of a mature tree weighs much more than a young sapling. Where did it get most of that mass?

- A. The seed
- B. The air
- C. The soil
- D. Water

Slides online: bit.ly/neroc20-julia



<https://www.freeimages.com/photo/dead-tree-1333322>

11

The wood of a mature tree weighs much more than a young sapling. Where did it get most of that mass?

Use zoom polling to vote, or zoom annotate feature to stamp in the box next to your answer

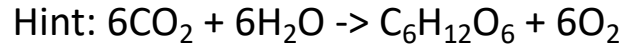
- A. The seed
- B. The air
- C. The soil
- D. Water



<https://www.freeimages.com/photo/dead-tree-1333322>

12

The wood of a mature tree weighs much more than a young sapling. Where did it get most of that mass?



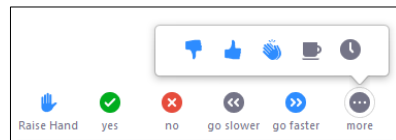
- A. The seed
B. The air
C. The soil
D. Water



<https://www.freeimages.com/photo/dead-tree-1333322>

13

A metal plate has a circular hole cut from it. When you heat the plate, the metal thermally expands. What happens to the diameter of the hole?



Use zoom non-verbal feedback icons (at the bottom of your participants window) to indicate your answer

- it decreases
 it increases
 it stays the same size
 ? it depends on the plate thickness



Slides online: bit.ly/neroc20-julia

14

For more example teaching strategies, here are some of my longer slide decks

**Connecting with your Students:
Meet them Where They Are**

slides online: <http://bit.ly/hilo18-julia>

Teaching is a Two-Way Street

slides online: <http://bit.ly/baltimore19-julia>

Dr. Julia Kregenow, Penn State University

website: bit.ly/kregenow



15

Your handout lists ideas for reducing anxiety for shy students



Video credit: https://wastesomuchtime.com/extroverts_vs_i_161227

Slides online: bit.ly/neroc20-julia

16

Minute papers are very brief in-class writing assignments

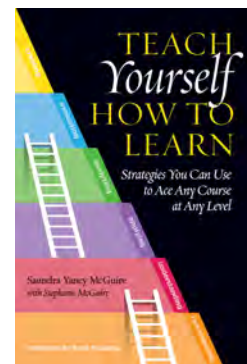
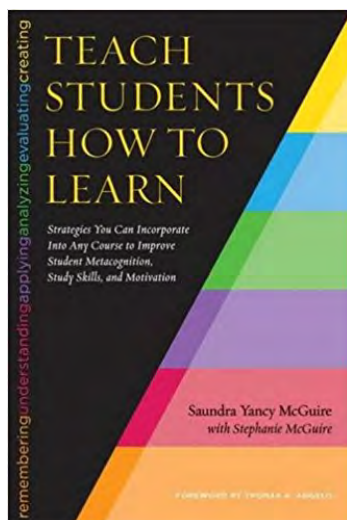


Image credit: Peeter Jontes
<https://edwp.educ.msu.edu/green-and-write/wp-content/uploads/sites/5/2015/11/StudentTesting.jpg>

Slides online: bit.ly/neroc20-julia

17

Students who take ownership of their learning are more motivated & successful



<https://www.aacu.org/resources/stem-higher-education/mcguire>

18