Introducing Interactivity into the Classroom

Irina Dubinina (idubinin@brandeis.edu)
Marty Samuels (msamuels@brandeis.edu)
Dan Perlman (perlman@brandeis.edu)

October 28, 2022
Center for Teaching and Learning
Interactivity $\rightarrow$ increased small group work

The Humming Test

Turn to your neighbor and say...

Puzzler

T-P-S

minimal prep

more prep
Consider the following scenario: A Teacher is speaking and asks a question of the class. First the Students think-pair-share and then the teacher calls on several Students.
Consider the following scenario: A Teacher is speaking and asks a question of the class. First the Students think-pair-share and then the teacher calls on several Students.
Consider the following scenario: A Teacher is speaking and asks a question of the class. First the Students think-pair-share and then the teacher calls on several Students.
Consider the following scenario: A Teacher is speaking and asks a question of the class. First the Students think-pair-share and then the teacher calls on several Students.
Small group work: best practices

Think through these decisions before doing the activity:

- How many people in a group? (depends on the size of the class, levels of students, subject matter, nature of the task)
- Would students need some guiding questions to complete the task in a group?
- Should group members be assigned roles (e.g., note taker, reporter)?
- Should students report out or not? How will they report out?
- Should there be some kind of “final” product? And should this product be in a written or oral form?
Interactivity → increased small group work

The Humming Test

Puzzler

Turn to your neighbor and say...

T-P-S

Art Gallery

minimal prep

more prep
You are invited to an evening at our new Art Gallery!

- Find a buddy

- Walk around the gallery: you need to visit at least 2 paintings
  - Discuss what you see on the paintings: describe objects and people (what do they talk about? What do they feel? What mood is depicted?)
  - Hypothesize when and where the events may be happening

- You have 4 minutes

Which painting spoke to you? Why?

What do we (students and teachers) get from this activity?

How can it be used in non-language classes?
Interactivity → increased small group work

Turn to your neighbor and say…

T-P-S

Begin class with a question

Art Gallery

Jigsaw

Flipping your classroom

minimal prep

more prep
Stage 1: Expert groups

Stage 2: Teaching groups
Stage 1: Expert groups

Stage 2: Teaching groups
Stage 1: Expert groups

Stage 2: Teaching groups
Stage 1: Expert groups

Stage 2: Teaching groups
Stage 1: Expert groups

Stage 2: Teaching groups
Stage 1: Expert groups

Stage 2: Teaching groups
Stage 1: Expert groups

Stage 2: Teaching groups
Stage 1: Expert groups

(20 – 30 min)

Stage 2: Teaching groups

(20 – 30 min)
Each group asked to study a different genetic disease:
• What are its causes?
• How is it treated?
• How does it appear in a family tree?

For example (from a biology class):

Each group asked:
• to teach each other about their diseases
• compare and contrast each disease's causes and treatments
• Identify trends between the causes of diseases and their how they're treated
Working with your neighbor(s):

a. Pick one of the options for using a jigsaw below
b. Spend ~ 5 minutes thinking about what you would ask students to do during stage 1 and stage 2.

Jigsaw assignment options:

i. (Literature class) Compare and contrast 4 poems
ii. (Literature class) Analyze a text through a close reading of 4 key scenes
iii. (Language class) Reconstruct a story that is broken into 4 pieces
iv. (History class) Build a timeline of 4 eras
v. (Law class) Analyze how jurisprudence evolved over 4 rulings
vi. (Chemistry class) Compare and contrast 4 chemical reactions
vii. Or pick an example from your own course!
Interactivity → increased small group work

Turn to your neighbor and say...

Puzzler

T-P-S

Begin class with a question

Art Gallery

Jigsaw

Flipping your classroom

minimal prep

more prep
Time (hr)

Class

Expertise
The diagram illustrates the progression of expertise over time. The x-axis represents time in hours (3, 6, 9, 12), and the y-axis represents expertise. The diagram shows that:

- The first 3 hours are dedicated to class activities.
- The next 3 hours are spent on discussions (Disc).
- The remaining 6 hours are allocated for homework (HW).

The dashed line indicates the cumulative increase in expertise over time.
To flip a lesson:

- Take a homework question and bring it into your class time
- To create class time for students to work on the question you introduce, remove some content from your lecture and give it to students as a pre-reading or as a video

Works best when the benefit of you getting to support students as they work on the question you introduce outweighs the cost of not getting to lecture students about a topic and students needing to learn it via pre-reading/pre-video.
To flip a lesson:

- Take a homework question and bring it into your class time
- To create class time for students to work on the question you introduce, remove some content from your lecture and give it to students as a pre-reading or as a video

Works best when the benefit of you getting to support students as they work on the in-class question outweighs the cost of not getting to lecture students about a topic and students needing to learn it via pre-reading/pre-video.
To flip a lesson:

- Take a homework question and bring it into your class time
- To create class time for students to work on the question you introduce, remove some content from your lecture and give it to students as a pre-reading or as a video

Diagram:
- Class
- Disc
- HW

Time (hr)

Before class
Flip

Expertise
To flip a lesson:

- Take a homework question and bring it into your class time.
- To create class time for students to work on the question you introduce, remove some content from your lecture and give it to students as a pre-reading or as a video.
- Works best when the benefit of you getting to support students as they work on the in-class question outweighs the cost of not getting to lecture students about a topic and students needing to learn it via pre-reading /pre-video.
Interactivity → increased small group work

Turn to your neighbor and say…

- Puzzler
- T-P-S

Begin class with a question

Art Gallery

Jigsaw

Flipping your classroom

minimal prep

more prep
Lecture 5:
Nucleic acid structure
Lecture 5: Nucleic acid structure

Warm up: Which of these molecules are DNA? Which are RNA?
Lecture 5: Nucleic acid structure

Warm up: Which of these molecules are DNA? Which are RNA?
Based on asking students to work on this:

Here are four grids showing the results from four different pitching machines. The X represents the target and the black dots represent where different pitches landed. Your task is to invent a procedure for computing a reliability index for each of the pitching machines. There is no single way to do this, but you have to use the same procedure for each machine, so it is a fair comparison between the machines. Write your procedure and the index value you compute for each pitching machine using the grids below.

Ronco Pitching Machine
Big Bruiser Pitchomatic
Fireball Pitchers
Smyth's Finest

Based on asking students to work on this:

Here are four grids showing the results from four different pitching machines. The X represents the target and the black dots represent where different pitches landed. Your task is to invent a procedure for computing a reliability index for each of the pitching machines. There is no single way to do this, but you have to use the same procedure for each machine, so it is a fair comparison between the machines. Write your procedure and the index value you compute for each pitching machine using the grids below.

Before teaching them this:

\[ \sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}} \]

Based on asking students to work on this:

Before teaching them this:

- Inspires student curiosity, interest
- Creates a “time for telling”
- Leverages “just in time teaching”

Interactivity → increased small group work

- Beast of the Week
- Puzzler
- T-P-S
- What’s news?

- Begin class with a question
- Art Gallery
- Jigsaw
- Flipping your classroom

Turn to your neighbor and say...

minimal prep

more prep
What’s News?

or

Community Time

or
Hero of the Week
or
Beast of the Week
or
________ of the Week
British Virgin Islands brave two storms in two weeks: 'Maria destroyed most of what was left'

Residents of the tiny British territory begin to pick up the pieces after multiple hurricanes, and life returns to an uneasy mix of the brutal and the banal.

Dawn over the British Virgin Islands (BVI) brought with it the final blows of Hurricane Maria – the second category 5 hurricane to assault the islands in two weeks.
Angela Burnett

Brandeis ‘07

Bachelor of Arts in Environmental Studies and Sustainable Development
  *Summa Cum Laude*, Highest Departmental Honors
  Phi Beta Kappa Society; National Society of Collegiate Scholars

Master of City and Regional Planning
  Rutgers, The State University of New Jersey
Angela Burnett

Ministry of Natural Resources & Labour, Government of The Virgin Islands
Environmental Officer (Climate Change) Jul ‘08-Present

Co-led development of The Virgin Islands Climate Change Trust Fund
Developed The Virgin Islands Climate Change Adaptation Policy, now used as a model for the Caribbean and Pacific
Designed and conducted The Virgin Islands Vulnerability and Capacity Assessment (VCA) of the Tourism Sector to Climate Change, including KAP surveys, a climate assessment, coastal inundation mapping, community static risk mapping, beach and reef vulnerability assessments and an analysis of risk reduction options
Led development of the National Climate Change Committee
WELCOME TO
THE IRMA DIARIES

About The Irma Diaries

Beyond the news headlines and apocalyptic images, The Irma Diaries takes readers straight into the heart of a Category 5 plus hurricane, the strongest to ever make landfall in Atlantic history.

The Irma Diaries transposes readers to the Virgin Islands on 6th September, 2017 and into the shoes of islanders on the frontlines of climate change. In a very intimate, personal style, The Irma Diaries captures the harrowing and yet amazing, inspiring, and at times amusing accounts of the ordinary turned extraordinary people who battled through Hurricane Irma, minute by minute, and came out alive.

The Irma Diaries was written to stir global attention and action on climate change, to help The Virgin Islands adapt to continuing climate change impacts and to help rebuild the lives of those impacted by Hurricane Irma. As such, 25 percent of book proceeds will be donated to The Virgin Islands Climate Change Trust Fund and 1 percent of proceeds to each of the 20 plus contributors of survivor stories.

SNEAK PEEK

Available for purchase online on 11th December, 2017
Migration routes of the humpback whale
(Source: CAFFs Arctic Flora & Fauna - 2001)
Beast of the Week!

Humpback Whale

*Megaptera novaeangliae*

Adult males: 40-48 feet (~12-15 m)

Adult females: 45-50 feet (~14-15 m)

Adult Weight 25 - 40 tons (~23,000-36,000 kg)

Calves: 10-15 feet (3-4.5 m) *at birth*, up to 1 ton (900 kg)

[https://acsonline.org/fact-sheets/humpback-whale/](https://acsonline.org/fact-sheets/humpback-whale/)

*Why the “megaptera”?*

*Why the bizarre migration/feeding pattern?*
Group Work

- Now that we’ve shared some of our favorite strategies, we’d love to hear yours!

- In groups of 3-4:
  - We’ll give everyone 2 min to quietly think of your favorite approach to introducing interactivity in your own class
  - Share your favorite ways to incorporate interactivity into your class with your neighbors
  - After about 10 minutes, we’ll ask each group to share their favorite approach to introducing interactivity.
    - The reporter for each group will be the person with the next birthday.
Interactivity → increased small group work

Turn to your neighbor and say...
- Beast of the Week
- Puzzler
- T-P-S
- What’s news?

Begin class with a question
- Art Gallery

Flipping your classroom
- Jigsaw

minimal prep

more prep