Get Acquainted Activity

Take a moment to consider teaching statistical concepts:

- What do you enjoy most?
- What is a challenge that you face?

Introduce yourself to the others on your "team":

- Name, School, Grade level(s) that you teach
- Your enjoyment and your challenge in teaching statistical concepts

Engaging and Motivating Students to Learn Statistical Concepts: Ideas and Resources

Carol Marchetti

Rochester Institute of Technology

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What's Difficult and Why?

Why do my DHH students have more difficulty with some concepts in my introductory statistics class?

Project with teacher, tutor, interpreter and former students recommended:

- Unique ASL interpretation
- Carefully chosen English words
- Visuals, especially those that make good use of color

Interpreting – Skewness of a distribution

- Skewed to the right (positive skew): Distribution has a long tail tapering off to the right

- Sign with finger for the mode (highest frequency), show tapering from that point.
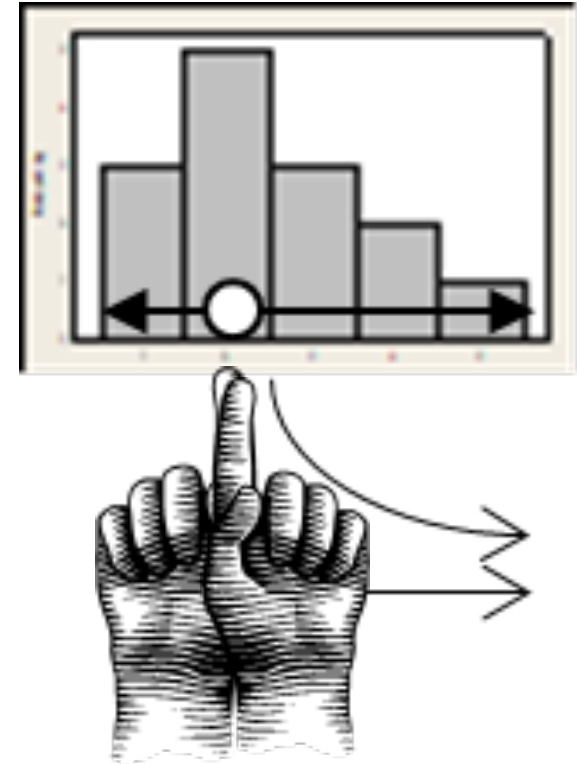
Color and Space – Population and Sample

- Population is a large group – shown by large **BLUE** circle in upper left

- Sample is a smaller group chosen from the population – shown by small **BROWN** circle in lower right

POPULATION
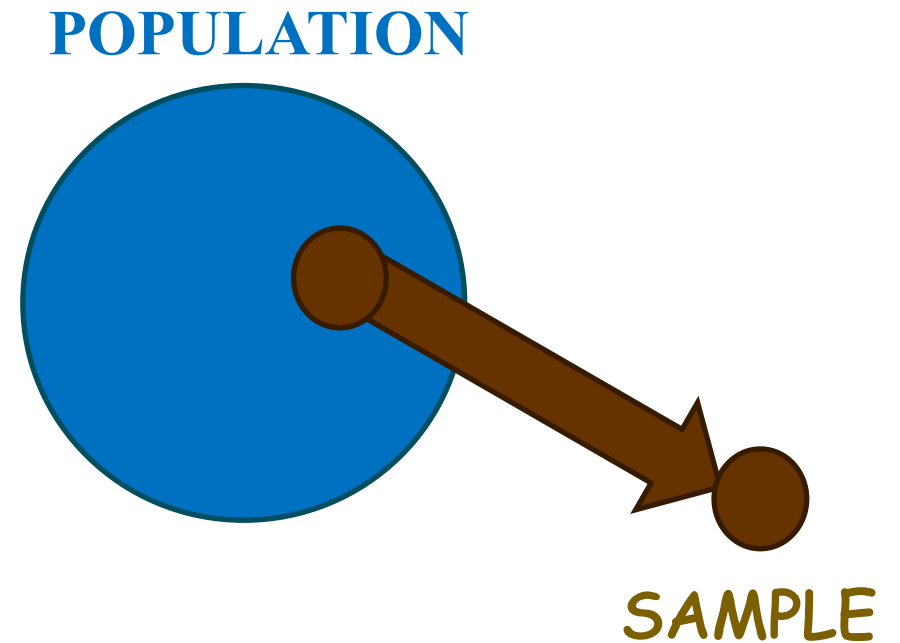
SAMPLE

Wording – "Fail to Reject H_0"

- This phrasing confuses SO many students, hearing and DHH
- We are trying to reject H_0 (and support H_a) H_0

- Two possible results:
  - The sample *provides* enough evidence:

    We CAN reject H_0 – we have succeeded!
  - The sample *does NOT provide* enough evidence:

    We CANNOT reject H_0 – we have "failed" in our attempt to reject H_0

Get Students Busy!   It doesn't have to be fancy.

- In-class activities
- Projects
- Working in teams

In-Class Activities

- Activities can be used to meet learning objectives through
  - practicing skills
  - discovering concepts
  - developing their voice in the language of statistics

Exploration with Applets

- Interactive simulations
- Way to visualize attributes of statistical ideas.

Insert Web Page

This app allows you to insert secure web pages starting with https:// into the slide deck. Non-secure web pages are not supported for security reasons.

Please enter the URL below.

https://	www.isi-stats.com/isi2nd/ISIapplets2021.html

Note: Many popular websites allow secure access. Please click on the preview button to ensure the web page is accessible.

Web Viewer Terms | Privacy & Cookies   Preview

Example - M&M Activity

- Each team has
  - Bag of milk chocolate (plain) M&Ms
  - Chart template
  - Set of instructions
- Use your M&Ms as directed (you can eat them when we're done!)

Effective Teamwork

- For in-class activities and/or longer-term projects
- Instructional supports help teams work together productively
  - Setting expectations
  - Establishing ground rules
  - Facilitating communication

Instructor Support for Teamwork

Provide tools for communicating & documenting work:

- Paper
- Whiteboards
- Google docs
- Email

Model (and point out) good practices:

- Everyone can see materials
- Speak up, ask questions
- If you work with an interpreter, explain that *you* need help communicating with a deaf person

Take Time to Address Team Dynamics

- Invest early on and revisit regularly

- Explain the benefits of inclusion
  - Team learning is most effective when everyone is involved

- Make students responsible for their team
  - Determine their own rules & agree to them as a team
  - Occasionally evaluate their strengths and weaknesses AND adjust

Establishing how we want to interact in our team

- Attention Matters – Clear your space (e.g. put laptops, phones away)
- Confidentiality Is Key – "Stories stay, lessons leave"
- All Ideas Are Welcome – Reserve judgment

In this activity:

- Speak one at a time; listen and do not interrupt
- Be mindful of what others may have experienced or witnessed
- As you listen, consider "How does this apply to me?"

Vibrant Learning Environment – a team activity

- Think of when you were part of (or witnessed) a **vibrant learning** event where everybody was learning.

  - Define the term 'vibrant learning' any way you like, and consider your experience as a student, leader or observer.

- Describe the situation to your team. What made this such a great learning experience?

Ground Rules

Based on what you shared and heard from your team, along with your other experiences,

- **collectively establish with three "ground rules" for team behavior**

Free Resources

- Lesson Plans
  - STatistics Education Web (STEW) https://www.amstat.org/education/stew/statistics-education-web-(stew)

- Applets
  - ISI Applets https://www.isi-stats.com/isi2nd/ISIapplets2021.html
  - Statlets: https://www.usu.edu/math/schneit/CTIS/
  - Stats Medic: https://www.statsmedic.com/applets
  - Stat Crunch: https://www.statcrunch.com/applets/

Free Resources - continued

- ## Collections of Data Sources
  - NC State University Library: https://www.lib.ncsu.edu/teaching-and-learning-datasets
  - A Little Stats (blog): https://alittlestats.blogspot.com/p/data-sources.html
  - Data and Story Library (DASL) https://dasl.datadescription.com/

- ## Data Collection Sites
  - US Census at School https://ww2.amstat.org/censusatschool/
  - Data Games http://ccssgames.com/

- ## Project Ideas
  - Ron Millard: https://www.uwosh.edu/faculty_staff/benzaid/documents/189S2007/Projects.pdf