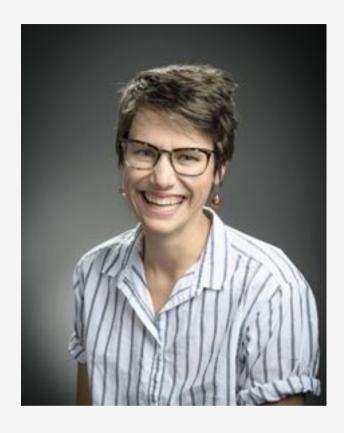
Oral Assessments: Building a Community of Statistical Thinkers and Speakers

Allison Theobold & Paul Roback



Link for slides & resources:

Phttps://bit.ly/oral-exams



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A variety of oral assessments

Paul -- A follow-up assessment to a homework assignment or a component of an exam

Allison -- A summative midterm or final exam

Plan

- 1. Rationale & experiences
- 2. Group discussion
- 3. Design
- 4. Peer feedback

Why oral

assessments?



- Insight about understanding
- No memorized definitions
 - Have students talk through process
 - Ability to ask follow-up questions

- Online courses
 - More one-on-one interaction
 - Experimentation is okay!

Exam Style

Context: Statistical Modeling

- Separate "mini-test"
- Followed first logistic regression HW
- Some questions on conceptual understanding
- Some questions on applying ideas to new scenarios

Exam Style

Context: Statistical Theory

- Part of first midterm
- Topics: frequentist principles and Bayes vs. Frequentist
- Check conceptual understanding and fitting ideas together

Exam Format

Similarities

15 minutes per student

Zoom

Adaptable script

4-point assessment rubric

Differences

Reflect on completed work

Share screens / R

Why oral

assessments?

Personally...

Experience with oral exams during undergrad Analysis

Left me feeling empowered!



Professionally...

GAISE emphasis on conceptual understanding

of 2020.

Witnessing the increase

in cheating in the spring

Facets of understanding

As new faculty...

oral assessments promote a stronger connection with individual students

Course Setting

- Second semester statistics course
- Linear model focused, with an introduction to experimental design

- Two sections -- 35
 students per course
- Entirely online
- 10 weeks

Exam Setting

Midterm Exam - Week 6

Final Exam - Week 11

Data Summaries

Data Visualization

Regression Explorations

Inference

Simulation & Theoretical Methods for Regression

ANOVA

Exam Style

- Big Picture conceptual questions
 - Distilled concepts into 5-6 questions per "unit"

"Explain to someone who has never taken a statistics course what a p-value is."

"What are the similarities and differences between a two-way ANOVA model and a multiple linear regression?"

Grading

- Holistic rubric grading
- Scores 0-4 based on understanding of concepts
 - Ability to articulate the central concepts
 - Type of errors made

Experiences

- Initially students are very intimidated
- Listening to students voice their ideas is incredibly insightful
- Talking aloud about statistics can be empowering

Your turn!

- Initial reactions
- Ideas that resonate with you
- Ideas you are unsure about

Discuss these ideas with fellow educators

20:00

Allison: Designing an Oral

Exam

- Providing practice prior to exam
- How long should each exam take?
- Should the questions be open or closed?
- Determine how students should prepare

Implementation

- "Think out loud" recordings & small group collaborations
- 10-minute exams
- Two "big picture" conceptual questions
- Questions published the Friday before exams

Facilitating the Exam

Zoom with a waiting room turned on

Tip: Use a software that allows for recording!

Exam slot sign-up through Google Sheet

Tip: Set a sign-up deadline!

Paul: Design Guidelines

Questions to consider, pt. 1

- Where does your oral assessment fit into your overall assessment plan?
 - HW? Quiz? Exam? Project?
- What content will you assess?
 - Individual concepts? Big picture? Applications?
- What format will you use?
 - Time? Zoom or in-person? R? Whiteboard?
- What questions will you ask?
 - Fixed set for each student? Pick from a list? Free flowing conversation?

Questions to consider, pt. 2

- How will you help students prepare?
 - Practice oral assessments? Sample questions? Discussion groups?
- How will you relieve student anxiety?
 - Friendly chit-chat? Let them pick first question to answer? Let them know pauses and (initial) wrong answers are okay?
- How will you assess student performance?
 - Scoring rubric? Individualized feedback?

Your turn!

Design an oral exam!

- 5 minutes -- sketch out ideas for an oral exam you would like to implement
- 10 minutes -- Get feedback on your assessment sketch

Final Questions?



Example Oral Assessments: https://bit.ly/oral-exams

Allison's JSE Commentary: https://bit.ly/oral-exams-jse.

Paul & Kelly McConville's Post: https://bit.ly/ask-good-questions-oral-exams