Writing for Learning: How to implement writing at scale

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How do you feel about writing in Statistics?

What do you when you get stuck in your writing?

Goals for today

- Define the “expectation gap” of student writing in statistics courses
- Identify how to “mind the gap” in large courses
- Propose solutions for these challenges
- Investigate two examples of writing tasks to
    - Preserve your learning objectives
    - Preserve your time spent grading and giving feedback
- Share resources and empower you implement these writing strategies in your courses.

The “Expectation Gap”

Student’s writing ability in statistics

“Reasonable” expectations of writing ability in statistics

The “Expectation Gap”

- What we (as faculty and teachers) think students are capable of submitting in their writing compared to what they deliver.
- This covers a broad range of “expectations”
  - Grammar
  - Style and formatting
  - Citations
  - Cohesion of a narrative
  - Appropriate level of statistical language
- Today, we’ll focus on intermediate/upper level students who plan to be Statistics majors or minors and are in their second or third year of college, but this idea is prevalent in all levels of writing.

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- Writing in Statistics is new to students
- Nobody else filled it!
  - No time
  - Context alters perception

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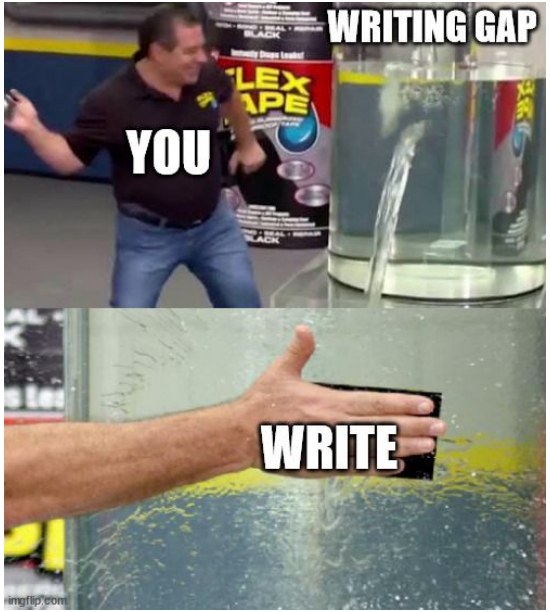
- **SOLUTION-**
  - The best time to fill the gap is now



Why don't you teach writing (or more writing) in your statistics course?

- This is different from **assigning** writing

Content vs Writing

- Statistical content and writing are not mutually exclusive in the classroom
- At a small scale- Writing reveals understanding
- On the large scale- Writing is a vehicle for sharing information
- We can integrate writing at any level without compromising “losing content”
- Let’s explore 3 levels of writing assignments that can be incorporated into any level statistics course (at any size)

Small Scale Writing (Less than one page)

Goal: Get students to write anything that reveals their level of understanding

- Who benefits from this reveal?
- Increase transparency

Examples: “Just In Time” Activities, Minute Papers, Exit Ticket, class discussion boards

Large Course Solution

Medium Scale Writing (1-2 pages)

Goal: Pick one course objective you would like students to demonstrate. Use as an opportunity to scaffold for feedback for a larger assignment.

Examples: Lab Write-Up, Assessment Reflection, One part of a larger assignment (proposal)

Large Course Solution:

- Rely on peer feedback for things like grammar and structure.
- Ungraded and part of scaffolded assignment,
- Graded on a scale with a parsed down rubric.
- Partner or group assignment.

Large Scale Writing (5+ Pages)

Goal: Produce a high-quality structured report.

Examples: Final project with scaffolded steps; others?

Large Course Solution:

- Rely on peer feedback
- Scaffold the process
- Consider a partner or group assignment.

Considerations

Creating your assignment- Be transparent and specific about your expectations!

Writing a Rubric- Consider collaborating and adapting it with your students

Revision & Reflection- Provide opportunities for students to revise in and out of class

Peer Review - LOTS of options and ways to integrate this (discussion if time permitting)

Providing Models of work for students- Include A level and B level work.

Example 1: Preserve Your Learning Objectives

- Intermediate Course (Second Statistics course in our program), primarily second year students
- **Problem**: Final projects were lacking in the “background and research question” section.
    - “Shouldn’t students be better writers?”.... Maybe I need to fix something??
- **Intervention**: Medium Scale assignment in second week of semester. Students had one full day in class to draft ideas, then a week to submit.
- **Large Scale Solution**: Partner assignment for collaboration, parsed rubric, short paper
- **Outcome**: Notable difference in final papers and projects from previous semesters and even more so after making slight changes to the assignment sheet and resources.

Link to Assignment

Example 2: Preserve your time spent grading

This assignment is meant for an introductory course and is focused on helping students to consider sampling variability.

- In particular, we'd like this assignment to provide opportunities to check in on student's statistical thinking by having them consider the problem solving process.
- Students will produce writing on this topic AND will give each other feedback.
- Students can also collect and use their own data.
- Suggestions are provided here to aid in grading time for large lecture classes.

Link to assignment

Discussion/ Workshopping your assignments

Workshop Groups

Introductory Statistics Courses

Introductory Programming

Intermediate Analysis Courses

Advanced/Capstone Courses

Link to Collaborative Document

bit.ly/3N7dE34

Task

Phase 1- Brainstorm several small writing assignments that you could implement.

Phase 2- Share, revise, ideate, or adapt an assignment sheet with your group.

Phase 3- Consider and discuss options for peer review, scaffolded assignments, or other time-preserving instruction methods.

Workshopping Starting Points for Phase 1

A task for the beginning of class

A task for the end of class

The Assignment Sheet Considerations for Phase 2

Do's

- Include a clear statement of purpose
- Be concise about your expectations
- Can students identify:
  - SUBJECT: what they should write about?
  - AUDIENCE: for whom?
  - PURPOSE: for what purpose?
  - FORM: in what format?

Don'ts

- Vague suggestions on content
- "You may consider… Keep in mind…"
- "Hints"
- Too many examples

Questions?

Feel free to **write** to Rich at rr3pp@virginia.edu or Krista at kmv9q@virginia.edu

Recommended Resources!

The Elements of Teaching Writing: A resource for Instructors in all disciplines (Gottschalk and Hjortshoj)

Technology we have used:

Google Forms, sli.do, Shared class Google Docs/Sheets

Gradescope (Can replace your LMS's submission and grading)

Peerceptiv (Facilitates Peer review of writing)

What does your LMS offer?

What does your institution offer? Data Librarian, Writing Center, Center Teaching Excellence