LEVERAGING ALUMNI WRITING TO IMPROVE STATISTICS CURRICULUM

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INTRODUCTION

Communicating data has received increased attention in the statistics and data science community. Recommendations on writing for assessments are included in the Guidelines for Assessment and Instruction in Statistics Education (GAISE) Report, which encourages written assignments as they "can help students strengthen their knowledge of statistical concepts and practice good communication skills" (2016, p.22). Though instructors often assume students can write reports, students tend to find report writing difficult (Francis, 2005). In this case study, we investigate the types of writing the statistics alumni from our institution use. Our goal is to better understand how to prepare statistics students for writing in their careers. We believe that connecting the writing students do in the classroom to the writing done by our alumni will make our students more successful when they transition into their careers.

METHODS

Under Institutional Review Board approval, we surveyed alumni from the statistics program at our mid-sized, private liberal arts university. An online survey in Google Forms was sent to 122 alumni who graduated between the years of 2011 and 2021 with degrees in statistics from our university. The survey was deployed in February 2023 and asked questions about demographics and writing. There were 18 items on the survey including multiple-choice, short answer, and free response questions. There were 17 responses (14 in early careers and 3 in graduate school) to the survey corresponding to a response rate of 13.9%.

MAJOR FINDINGS

For alumni in statistics careers (excluding three participants in graduate programs), the most common forms of writing identified by respondents were emails (n=9, 64.3%), write-ups/reports (n=9, 64.3%), presentations (n=8, 57.1%), and memorandums (n=4, 28.6%). Other forms of writing reported by alumni included training guides, forum posts, minutes, literature reviews, surveys, coding, analysis plans, and protocol inputs. Early career writing tended to be directed to peers and other employees (n=12, 85.7%), clients (n=11, 78.6%), senior leadership and bosses (n=6, 42.9%), and the general public (n=3, 21.4%). These alumni characterized their writing about data as an overview or summary of results (n=9, 64.3%), directed to a non-statistical audience (n=7, 50.0%), and discussing descriptive statistics (n=4, 28.6%).

All alumni, including those in graduate school, were asked about their struggles with professional writing (n=16, with one alumnus not responding). Having no struggles was a common response (n=5, 31.3%), but the main two struggles were being concise or summarizing key points (n=5, 31.3%) and writing to different audiences (n=3, 18.8%).

CURRICULAR IMPROVEMENTS

Preliminary thoughts on curricular improvements include shorter writing assignments that encourage being concise or summarizing; more individual writing experiences targeting different audiences, especially authentic non-statistical audiences; and more variety of writing activities focusing on communication (e.g., emails, memorandums, abstracts, and presentations).

REFERENCES

Francis, G. (2005). An approach to report writing in statistics courses. In *Proceedings of the IASE Satellite Conference on Statistics Education and the Communication of Statistics.* Voorburg, The Netherlands: International Statistical Institute.

GAISE College report ASA Revision Committee. (2016). "Guidelines for Assessment and Instruction in Statistics Education College Report 2016," http://www.amstat.org/education/gaise.