

PRELIMINARY RESULTS OF THE EFFECTS AND ROLES OF FUN IN INTRODUCTORY STATISTICS CLASSES

Lawrence M. Lesser¹, Dennis K. Pearl², Reynaldo Reyes¹, and John Weber³

¹The University of Texas at El Paso; ²The Ohio State University; ³Georgia Perimeter College
Lesser@utep.edu

BACKGROUND

Lesser et al. (2013) note that the effectiveness of fun items in statistics education has been established for few modalities besides humor. As part of a grant (see Acknowledgment), data collected in fall 2013 from a student-randomized double-blind experiment at a university and a community college (with different and diverse student populations) were analyzed to see if introductory statistics students exposed to fun modalities such as CAUSEweb.org cartoons or songs inserted (following the experimental plan in Garner, 2006) into 12-14 otherwise conventional short content items in their course management system would perform better on embedded related multiple-choice exam questions, display greater improvement in attitudes towards statistics (measured by the SATS-36; Schau et al., 1995), or greater decrease in statistics anxiety (measured by the SAM; Earp, 2007) over a semester.

QUANTITATIVE DATA

Five of the embedded test items at each school involved the use of songs to teach the material to a randomly selected group of students (four items used at both schools and one unique item at each school). All six of these items showed a higher percent of correct answers amongst students who viewed the lesson in conjunction with the song compared with the control students who saw the lesson alone. Overall, students randomized to the song group got these embedded questions correct an average of 50% of the time while students randomized to the lessons without songs got them correct an average of 43% of the time ($p \approx 0.04$). The use of cartoons and quotes did not show any differences between groups on test item performance. Detailed analysis of the SATS and SAM data is in progress and will be presented at ICOTS9.

QUALITATIVE DATA

Six one-on-one student interviews and five whole class meetings have been transcribed from a Spring 2013 course at the university, and eight one-on-one student interviews have been transcribed from a fall 2013 course at the community college. Preliminary findings reveal that the use of fun items like songs, and how they are taught, engage students more and help to reduce the “tensions” of statistics. Thematic analysis of the data from this experiment is in progress to identify patterns and themes about the roles of fun in teaching and learning introductory statistics.

ACKNOWLEDGMENT

This work is supported by Project UPLIFT (NSF/EHR/DUE 1140690, 1141261, 1140592).

REFERENCES

- Earp, M. A. (2007). *Development and validation of the Statistics Anxiety Measure*. Unpublished doctoral dissertation. University of Denver.
[Online: <http://iase-web.org/documents/dissertations/07.Earp.Dissertation.pdf>]
- Garner, R. L. (2006). Humor in pedagogy: How ha-ha can lead to aha! *College Teaching*, 54(1), 177-180.
- Lesser, L. M.; Wall, A.; Carver, R.; Pearl, D. K.; Martin, N.; Kuiper, S.; Posner, M. A.; Erickson, P.; Liao, S.-M.; Albert, J., & Weber, J. J. (2013). Using fun in the statistics classroom: An exploratory study of college instructors' hesitations and motivations. *Journal of Statistics Education*, 21(1), 1-33. [Online: <http://www.amstat.org/publications/jse/v21n1/lesser.pdf>] (also, see <http://www.causeweb.org/webinar/jse/2013-08>)
- Schau, C., Stevens, J., Dauphinee, T. L., & Del Vecchio, A. (1995). The development and validation of the Survey of Attitudes Toward Statistics. *Educational and Psychological Measurement*, 55(5), 868-875.