Topic proposal: Improving statistics instruction through Shiny applications

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PSYC 6135: Psychology of Data Visualization

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February 20, 2025

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A growing body of literature has investigated methods to improve students' experiences in statistics courses. According to the 2016 *Guidelines for Assessment and Instruction in Statistics Education* (GAISE) report, instructors teaching statistics courses at the postsecondary level are recommended to incorporate active learning and technology into their instruction (GAISE, 2016). There are many ways to incorporate these recommendations into statistics instruction; however, only recently have researchers started considering how Shiny applications can enhance students' learning of statistics content.

Shiny (version 1.10; Chang et al., 2015) is an R package that allows users to create interactive and dynamic online applications (Chang, n.d.). Shiny can be a valuable tool for enhancing statistics instruction. These applications facilitate active learning through interactivity and allow students to learn statistical concepts through dynamic simulations (Wang et al., 2021). Wang et al. (2021) provide preliminary evidence on the short-term benefits of Shiny applications on students' understanding of statistical concepts, highlighting the potential value of incorporating these materials into instruction.

In this presentation, I will explain how instructors can use Shiny applications to improve psychology students' learning in statistics courses. I will provide an overview of the problem through a practical example based on the central limit theorem. I will then briefly introduce Shiny and summarize the relevant literature. Finally, I will demonstrate how Shiny applications can enhance students' understanding of the central limit theorem. The code for the application will be provided as a supplemental resource.

References

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