

Teaching Statistics Using R and SPSS: Insights into Student Motivation and Readiness

Venessa N. Singhroy and Bianca Sosnovski, *Queensborough Community College–City University of New York*

As data science and analytics gain prominence in undergraduate education, instructors in community college settings face growing pressure to incorporate statistical software tools such as R and SPSS into introductory statistics courses (Hardin et al., 2015). This article shares instructional insights and recommendations drawn from a preliminary study conducted in two sections of an introductory statistics course at a community college—one utilizing R, the other SPSS. While the small sample size ($n = 18$) limits the generalizability of findings, several patterns emerged that may inform pedagogical choices. Students in the R section reported higher levels of motivation, while SPSS students performed slightly better on a parallel coding task. Additionally, both algebra knowledge and student motivation appeared to be associated with performance outcomes, though not always in expected ways. Notably, students with stronger algebra skills demonstrated lower statistical comprehension in the R section, suggesting possible disconnects in skill transfer. Based on these preliminary observations, the article offers research-informed strategies for integrating software into the statistics classroom, including recommendations for scaffolding R-based learning, aligning software selection with student readiness, and using diagnostics to assess algebra preparation and engagement.

Keywords: introductory statistics, R programming, SPSS for statistics



Venessa N. Singhroy (VSinghroy@qcc.cuny.edu) is an assistant professor in the Mathematics & Computer Science Department at Queensborough Community College, CUNY. She is a tenured secondary high school teacher for New York State in mathematics education (grades 7–12). She holds an MA in mathematics from Queens College, CUNY and a PhD in educational psychology with a specialization in quantitative research (applied statistics), from The Graduate Center, CUNY. Her research embraces methodologies that hold promise for transforming current assessment paradigms to align with a commitment to advancing equitable and effective educational outcomes.



Bianca Sosnovski (BSosnovski@qcc.cuny.edu) is an associate professor in the Department of Mathematics and Computer Science at Queensborough Community College, CUNY. She holds a PhD and M.Phil. in mathematics from The Graduate Center, CUNY, and an MS in applied mathematics from the State University of Campinas in Brazil. Her research interests include mathematics education and cryptography.