EDITORIAL FOR REGULAR PAPERS

Welcome to the first issue of *SERJ* for 2017. Before my discussion on the regular papers in this issue, there are two announcements. The first is that Ernesto Sánchez, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Mexico resigned as Associate Editor in December 2016. Ernesto served twelve years as Associate Editor, a long and invaluable voluntary service to SERJ. We thank Ernesto for his work and tireless support for SERJ. The second announcement is that Jennifer Noll, Portland State University, USA, has kindly agreed to be an Associate Editor and began serving in April 2017.

There are seven regular articles in this issue. Five articles attend to students' attitudes, beliefs or anxiety about learning or teaching statistics, a recognition of the link between dispositions and learning outcomes. Two articles focus on students' learning and reasoning processes.

Carita Hommik and Piret Luik focus their study on validating their adaptation of the Survey of Attitudes Towards Statistics (SATS-36) for Estonian secondary students. There is considerable research on attitudes to statistics and on the SATS instrument and this study adds to the research base in terms of assessing SATS reliability and validity for Estonian-speaking students and for secondary students.

Dianna Spence, Brad Bailey, and Julia Sharp investigate introductory students' attitudes and beliefs about statistics after experiencing the use of projects in their courses. There have been many recommendations for students to experience the statistical research process but little research on whether such experiences improve learning outcomes and positive dispositions to statistics. The findings from this study suggest that projects can lead to better self-efficacy and statistical knowledge in specific domains.

Jane Watson and Lyn English are also concerned about introducing students to the practice of statistics. Their study focuses on Grade 5 students who experienced two different ways to collect data to answer a statistical question. Their assessment of students' capacities to engage in statistical investigation and to determine which method of data collection was more reliable suggests that students can develop age-appropriate understanding.

Nicola Justice, Andrew Zieffler, and Joan Garfield delve into the beliefs, practices and preparation of graduate teaching assistants (GTAs). Because many introductory statistics courses in the USA are taught by GTAs there is concern about their lack of professional development with regard to pedagogical practice. The findings from this study suggest that there is a mismatch between GTAs' beliefs and their practice and that their teaching practices are misaligned with professional recommendations for teaching statistics.

Sarai Hedges explores the differences in persistence, learning outcomes and anxiety levels between online and face-to-face delivery methods for students enrolled in an introductory statistics course. The proliferation of online courses has resulted in researchers questioning how these courses might impact on learning outcomes. The findings from this study suggest there were differences in student outcomes between the delivery methods but some of these differences were not consistent with other studies. Hence further research is needed on understanding the factors that influence student outcomes.

Sarai Hedges and Shelly Harkness provide a phenomenographical study of twelve university students to investigate factors contributing to their self-identified negative attitudes about statistics. Their focus is on students' perceptions of their prior and current mathematics and statistics experiences, as previous studies showed a relationship between

attitudes to the two disciplines. Although the student responses are varied, one theme is that traditional teaching and the focus on testing in statistics courses are prevalent, leading students to view statistics as another mathematics class. Changing the culture and pedagogical practice in statistics classes may not only be about the inertia of educators to change but also about the expectations, culture and narratives perpetuated within society about statistics and mathematics learning. Listening to learners' perspectives on their experiences in statistics courses, however, is an interesting research avenue that could be further explored.

Sharon Lane-Getaz conducts an in depth examination of social science students learning with regard to inference in an introductory statistics course. Using her Reasoning about *P*-values and Statistical Significance (RPASS-10) scale for pre- and post-testing, she ascertains what students learned, and what learning outcomes remained elusive including what students' reasoning in the form of explanations revealed about them. Overall most students achieved statistically significant gains for 20 of the 36 RPASS-10 items. A hallmark of this study is the commitment to continual improvement of student learning outcomes within the domain of inference through multiple cycles of testing, analysing, and re-designing of instruction.

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