IASE Free November Webinar

A collection of SERJ papers by new researchers - 2024

Date: 12 November 2024; 19:00 UTC (click here for localized date/ time)

Presenters: Sarah Huber, Sayali Phadke, Yannik Fleischer

Sarah Huber - Technical University of Munich

Teaching statistics with positive orientations but little knowledge? Teachers' professional competence in statistics

Research suggests teachers have positive motivational and emotional orientations regarding statistics but little statistical knowledge. How does this fit together? Since teachers' professional competence in statistics has not been well explored, we asked 88 in-service mathematics teachers about their orientations regarding teaching statistics and tested their statistical content knowledge. First, we investigated how "positive" their orientations were by comparing them to their orientations regarding teaching fractions. Then, we analyzed relationships between teachers' orientations and content knowledge in statistics using mixed-effects logistic regression models. The results showed that teachers' orientations regarding teaching statistics were: (1) poorer than those regarding teaching fractions and (2) related to their statistical knowledge. Teachers with high self-efficacy showed higher knowledge than teachers with low self-efficacy, and anxious female teachers had higher knowledge than less anxious female teachers. We also found that knowledge decreased with increasing age of the teachers. The findings underscore the need to strengthen statistics in teacher education, including both content knowledge and the development of positive orientations.

Sayali Phadke - Pennsylvania State University

Examining the role of context in statistical literacy assessment

The Guidelines for Assessment and Instruction in Statistics Education (GAISE) College Report advocates for use of real data with context and purpose. This work contributes to the growing literature on assessing statistical literacy by investigating the influence of context as it relates to assessment performance among post-secondary introductory statistics students. We discuss the development of an isomorphic form of an existing assessment instrument, and report results which concluded that test takers demonstrated lower statistical literacy scores when assessment tasks incorporated real data from published studies as context when compared with functionally similar tasks such as those with a contrived data set and a realistic context.

Yannik Fleischer - Paderborn University

Teaching and learning to construct data-based decision trees using data cards as the first introduction to machine learning in middle school

This study investigates how 11- to 12-year-old students construct data-based decision trees using data cards for classification purposes. We examine the students' heuristics and reasoning during this process. The research is based on an eight-week

them doing text data. They learned to manually construct decision trees to classify food items as recommendable or not. They utilized data cards with a heuristic that is a simplified form of a machine learning algorithm. We report on evidence that this topic is teachable to middle school students, along with insights for refining our teaching approach and broader implications for teaching machine learning at the school level.

Register Here

Upcoming Webinars

Integrating Data in the STEM Curriculum for the Primary Years 3-6 (ages 8-11, grades 3-6)

3 December 2024; 23:00 UTC (click here for localized date/time**)**

Webinar duration: 90 minutes

Presenters: Jane Watson and Noleine Fitzallen, University of Tasmania

The aim of this presentation is to describe the activities that were carried out as part of a funded project here in Tasmania across four years in one primary/elementary school. We worked with a school's cohort of students as they progressed through Years 3 to 6. Our aim was to develop the Practice of Statistics across the four years using contexts from STEM parts of the school curriculum. We will be introducing each of the eight activities we did across the four years, with the hope of inspiring others to work at this level, perhaps adapting these activities.

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Past Webinars Recordings

Teaching and Learning Statistics in an AI World

Presented at: 27 August 2024; 19:00 UTC

Webinar duration: 90 minutes

Michigan State University and University of Kentucky, USA

Video of Webinar

Statistical Tools to learn about Climate Change

Presented at: 20 June 2024; 20:00 UTC

Webinar duration: 90 minutes

Presenters: Joachim Engel and Laura Martignon, Ludwigsburg University of Education, Germany, Tim Erickson, eeps media

Video of Webinar