

2019 JSM: ISLP Session

Titles, Presenters and Abstracts

Jan 2019

Title: Quantitative Literacy Should Not Be Optional

Presenter: Gail Burrill

Abstract (306541): Despite curriculum standards that emphasize statistics as a core curriculum content area and the work of Steen and others in the early 2000's, statistical literacy and quantitative reasoning never became part of the mainstream curriculum for all students. Even the growing popularity of Advanced Placement Statistics does not really address issues of statistical literacy/quantitative reasoning. NCTM has made a promising beginning in its recent publication Catalyzing Change, which includes the recommendation that quantitative literacy should be considered an essential component of the high school curriculum for all students graduating from high school. And as students continue schooling to prepare for careers, the need for quantitative thinking and reasoning only increases, particularly in this era that is awash with data. What are some of the opportunities and challenges we face as we try to make this recommendation a reality for both secondary and postsecondary work? And how can we work to have a smooth transition for students entering post secondary programs with a background in quantitative literacy and statistics.

Presenter: Chris Wild

Title: Serving up tasty morsels: mapping from literacy to capability

Abstract (304467): "Data science" has added a whole slew of new topic areas desirable for teaching to beginners (at whatever level). A challenge I am addressing is how to facilitate important topic areas being able to be covered in something like two or three one-hour sessions (supplemented with hands-on activities) with the end result of students gaining an understanding of the biggest issues involved and some genuinely-powerful practical capabilities – the baking of "tasty morsels". I will illustrate primarily with data on maps, but may also briefly venture into text analytics if time permits. The facilitating software produced are new modules in the iNZight system which not only delivers visualizations but also the R code that produced them.

Presenter: Milo Schield

Title: Statistical Literacy: Critical Thinking about Social Statistics as Evidence

Abstract (301866): Social statistics are primarily observational or quasi-experimental. Most decisions are made using social statistics. Decision makers make organizational decisions; consumers make personal decisions. Both groups need help in evaluating how resilient social statistics are to various influences. Simply saying "association is not causation" is inadequate. Statistical literacy is needed. This talk covers six topics: 1) Identifying the grammatical signs of association vs causation. 2) Classifying the influence on a social statistic into four categories. 3) Evaluating the resilience of study design to confounding. 4) Evaluating the resilience of an association to confounding. 5) Separating statistical literacy from decision-making. 6) Evaluating the use of a p-value to reject the null hypothesis.

Presenter: Travis Weiland

Title: Creating a Learning Progression to Support Secondary Mathematics Teachers to Develop a Critical Statistical Literacy

Abstract (302886): The importance of statistical literacy for citizenship has been acknowledged for decades. However, how to prepare teachers to create learning environments for students to develop statistical literacy has been under investigated considering the importance of statistical literacy. The goal for this talk will be to discuss a learning progression for supporting secondary mathematics teachers in developing their own statistical literacy and how to in turn create environments for their students to develop statistical literacy as well. This work is situated in the philosophical position that the goal of K-12 education is democratic equality, preparing students to be actively engaged and critical citizens in their society and communities. Furthermore, the work draws from a critical statically literacy framework as the type of statistical literacy to be developed by teachers and students. A coherent framework situated in sociopolitical theories of learning along with the notion of generative themes drawing from the critical literacy work of Paulo Freire serve as the basis for framing how people learn used to develop the learning progression.

Presenter: Jamis Perrett

Title: Data Visualization: Modernizing the ASA Poster Competition for Grades K-12

Abstract (304588): The ASA Poster Competition for grades K-12 has been around since 1990 when the first competition was held that Spring. It has continued to develop over the years to stay current with the advances in technology. It recently aligned with the ISLP poster competition and changed its name to the ASA Data Visualization Poster Competition for Grades K-12. This talk will discuss the purpose of the competition, its connection to ISLP, and the effort to help students visualize data to learn more about the world around them.