RE-THINKING STATISTICS EDUCATION FOR SOCIAL SCIENCE MAJORS

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A course in statistics is generally required for college students majoring in any of the social sciences. Unfortunately, many students do not enjoy taking a statistics course, and many do not seem to gain an appreciation of the critical role that statistical analysis plays in their academic fields. In fact, students frequently report that they retain little from their initial statistics course. This is troubling, for a solid foundation in statistics is critical for a complete understanding of the student’s social science major, as well as for the student’s success in subsequent courses.

Our poster presentation will outline a new approach to teaching statistics. We propose that the difficulties that students experience in an initial statistics course, and the difficulties they experience in subsequent related courses, are in part due to the way the material is presented in most texts. Fundamentally, the problem is that the presentation in most texts makes it difficult for students to grasp the essential uses of statistics and how the statistical procedures are related. These shortcomings can be largely overcome by beginning simply and continually focusing students’ attention on a few key concepts.

The key concepts that we emphasize are: first, the distinction between descriptive and inferential questions; second, the role that the measurement scale (nominal, ordinal, interval or ratio) plays; and, third, the link between experimental design and choice of statistical procedure. Finally, we introduce the computationally simpler statistical procedures that are based on nominal data before proceeding to the more complex tests based on ordinal, interval or ratio data. As a consequence of this approach, students gain a much broader perspective; become more confident in their abilities; are better able to handle more challenging topics, such as variability; and are better prepared to take subsequent courses in statistics and experimental design.