INVESTIGATION OF AP STATISTICS STUDENTS' UNDERSTANDING OF TECHNICAL TERMINOLOGY WITH POSSIBLE LEXICAL AMBIGUITIES

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INTRODUCTION

Language matters. While many issues regarding language may be regarded as "mere semantics" in daily life, attention to the subtleties in language can be critical for ensuring understanding of complex or unintuitive ideas (Wild, 2006). Groups differing from each other in ways such as age, culture, or gender may use similar references and vocabularies but ascribe to them substantially different meaning (Wild, 2006). Statistics is no doubt a collection of complex ideas, many of which are unintuitive.

Arguments for the explicit researching and teaching of vocabulary related to quantitative reasoning are not new (e.g., Henkin, 1972; Austin & Howson, 1979), nor are the recognition of language-based misconceptions in statistics education (e.g. Utts, 2002; Rumsey, 2009). While statistics instructors often have anecdotal evidence about language-related problems, formal research within this area of statistics education is still new (Kaplan, Fisher, & Rogness, 2010).

PROJECT OVERVIEW

This project investigates AP Statistics students' language use before and after instruction. A list of statistics terms that also have a common non-statistical use were identified using the literature (Kaplan, Fisher, & Rogness, 2009; Lavy & Mashiach-Eizenberg, 2009; Watson & Kelly, 2008) and the researchers' prior experiences. Students were asked to define and use in sentences some of these words (e.g. variable, range, model, and correlation). This approach was modeled after the work of Kaplan, Fisher, and Rogness (2009, 2010).

Research is still in-progress, but data collection will be completed by May 2014. The presentation will include results from both before, during, and after instruction. The results are compared and contrasted with extant work done on lexical ambiguities present in undergraduate statistics students. The unique position of statistics at the intersection of mathematics and science means that lexical ambiguities may arise even among competing technical definitions, a phenomenon demonstrated by this study's participants.

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