

CHANGING HOW WE USE STATISTICAL LEXICON: TO THE HILT

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This poster will interactively engage teachers of introductory statistics about ways in which small changes in how we teach might result in greater understandings on the part of our students. In particular, we seek to engage instructors in finding solutions that are effective in addressing issues in student understanding in statistics that are due to conflicts between statistical and colloquial language or lexical ambiguity. These solutions should not require a large investment of class time in an already over-packed semester; in other words, they should align with the acronym of HILT (High-Impact, Little-Time). This poster would fit well with the theme for ICOTS 2014 of “Sustainability in Statistics Education.”

The session proposers have been actively researching the role that language, specifically the use of ambiguous words such as *average*, *error*, *normal*, *random*, and *spread*, plays in teaching introductory statistics. One of the researchers conducted a pre-test, post-test design in her introductory statistics course in which students were asked to provide data at both the beginning and end of the semester about their understanding of the word *random*, both in its everyday and statistical usage. The course included an intervention in which graphical images were used to exploit the difference between the colloquial meaning of *random* (weird, out of the ordinary, haphazard) and the statistical meaning (where choices or outcomes are based on probability). The images were of three people dressed in rainbow-striped zebra costumes on a street in Shanghai and of an upside down hat for the colloquial and statistical meanings of *random*, respectively. The “Zebra-Hat” image was referred to every time the word *random* was used in class to emphasize the way in which the word was being applied. The graphic metaphor used little additional class time and showed promise in that 40% of her students included the idea of probability in their statistical definition of *random* at the end of the semester. This is in contrast to a prior semester in which the “Zebra-Hat” intervention was not used and only 8% of the students included the idea of probability in their statistical definition of *random* at the end of the semester.

The poster will include a brief overview of the applicable research and some of our key findings, including how our published research results have begun to influence the statistics education research community. We will invite poster visitors to draw a statistical term suspected of possessing lexical ambiguity from a hat. The attendee will be asked to reflect on a possible course intervention that might aid in exploiting the ambiguity and which follows the HILT principle of High-Impact, Little-Time using the “Zebra-Hat” intervention used with the word *random* as inspiration. The essence of the attendee’s intervention will be recorded on a sticky note and added to a log of suggestions. Attendees will also be invited to provide their email addresses so that the collection of suggested interventions can be shared at the end of the conference.