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Improving the teaching of basic statistical inference for social science students

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The approach is based on participant-centered learning of an hour workshop. The class starts with a real problem for the students to estimate the true proportion of red beads in a box containing approximately 4000 beads (red and white). Using a random sampling of 50 units, each student draws his/her own sample using a paddle two times of which the second sample size is doubled. An MS-Excel template is used to compute the p-value and confidence interval. Think-pair-share method is used for interpreting the p-value, both what it means and what it does not. Confidence interval (CI) interpretation is taught by drawing a collection of single interval that each student has. Here it is emphasized that those intervals are drawn from the same box (population). Misinterpretations around the meaning of CI are also discussed. Changing the null hypothesis is suggested to compare the effectiveness of p-value and CI in estimation. The same analysis is repeated using the larger sample to demonstrate the effect of sample size.

Keywords

teaching, basic statistics, misinterpretation

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