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Student understanding of symbols in introductory statistics courses.

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Summary: This study explores student understanding of the symbolic representation system in statistics. Furthermore, it attempts to describe the relation between student understanding of the symbolic system and statistical concepts that students develop as the result of an introductory undergraduate statistics course. The theory, drawn from the notion of semantic function that links representations and concepts, seeks to expand the range of representations considered in exploring students' statistical proficiencies. Results suggest that students experience considerable difficulty in making correct associations between symbols and concepts; that they describe the relationship as seemingly arbitrary; and that they are unlikely to understand statistics as quantities that can vary. Finally, this study describes students' need for robust knowledge of preliminary concepts in order to understand the construct of a sampling distribution.

Classification: K40 E40 D70

Keywords: statistical symbols; symbolic representation; symbolic fluency; introductory statistical concepts
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