

Statistics Teaching Inventory

Exploring the Alignment of Introductory Statistics Instructors' Teaching and Assessment Practices to Professional Recommendations

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INTRODUCTION

In 2007, the American Statistical Association (ASA) endorsed the initial Guidelines for Assessment and Instruction in Statistics Education: College Report (GAISE; ASA 2007). This document, which was updated in 2016 to reflect changes in the discipline and student population, also includes recommendations on assessment and content (GAISE College Report ASA Revision Committee 2016).

The **Statistics Teaching Inventory (STI v. 3)** is intended to:

- Assess the teaching practices of instructors of introductory statistics in a variety of institutions and departments
- Gain insight into the extent to which current pedagogical practices align with GAISE recommendations
- Inform the broader statistics education community about current pedagogical, assessment, and curricular trends

METHODS

- The STI (v. 3) was administered via Qualtrics during the fall of 2019.
- Participants were recruited using email invitations sent to members of five statistics education mailing lists: Isostat, CAUSE, ASA Section on Statistics and Data Science Education, AMATYC, and the MAA Section on Statistics Education.
- A total of 228 usable responses were obtained including: 54 respondents (23.7%) from two-year colleges, 87 from four-year colleges (38.2%), and 87 from universities (38.2%); where "University" was defined as an institution that grants advanced degrees.

LIMITATIONS & LOOKING FORWARD

Some *limitations* of the study include convenience sampling method from five statistics-education mailing lists, an instrument that needs further revision to measure some of the GAISE recommendations, and data that are four-years old and may not reflect the pedagogical, assessment, and curricular trends of a post-pandemic introductory statistics course.

Future work may include a revision of some items, inclusions of other items to incorporate pedagogical or assessment trends, and psychometric analysis to provide the validity evidence necessary for longitudinal work.

GAISE recommendation



#1: Teach statistical thinking

Instructors are emphasizing the PPDAC cycle.



Many instructors are not providing opportunities to work with multivariate data.



#2: Focus on conceptual understanding

The majority of instructors are focused on procedural skills.



#3: Integrate real data with a context and purpose

Instructors are using real data most of the time in their course.



#4: Foster active learning

Instructors are using lectures as the primary mode of instruction.



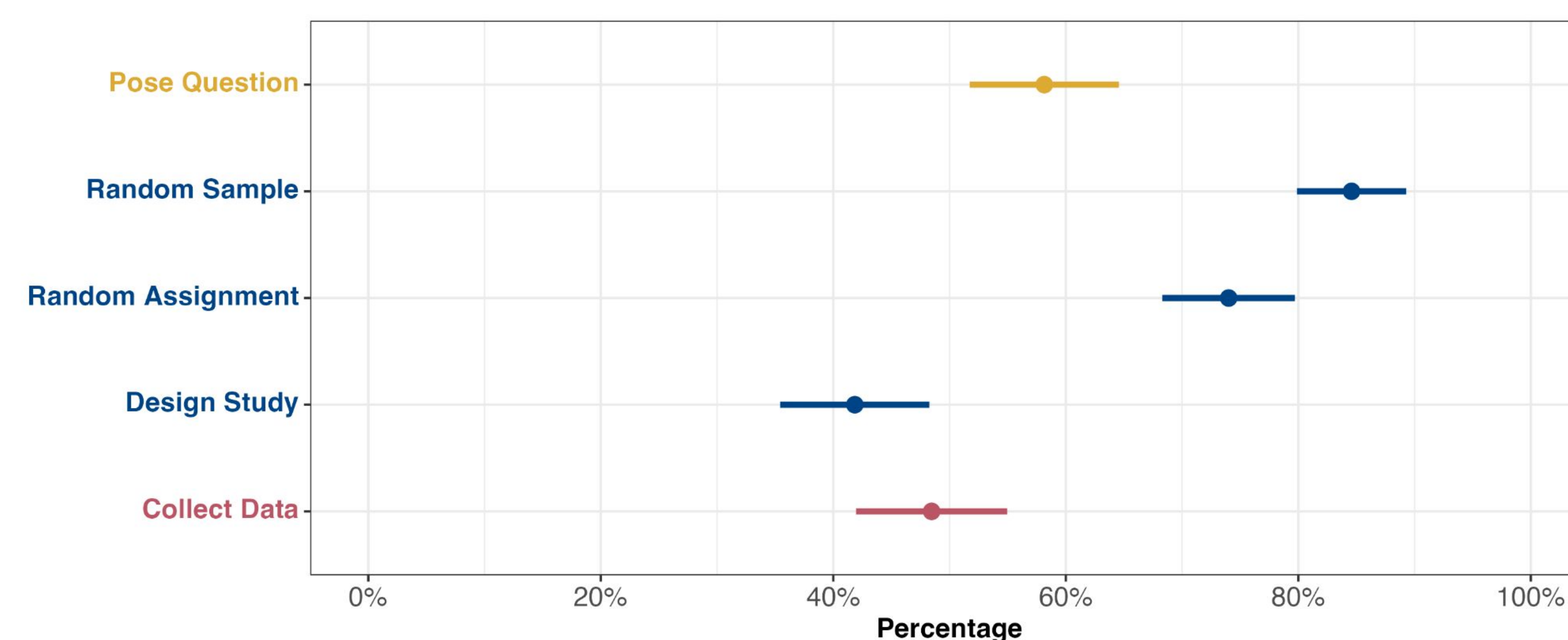
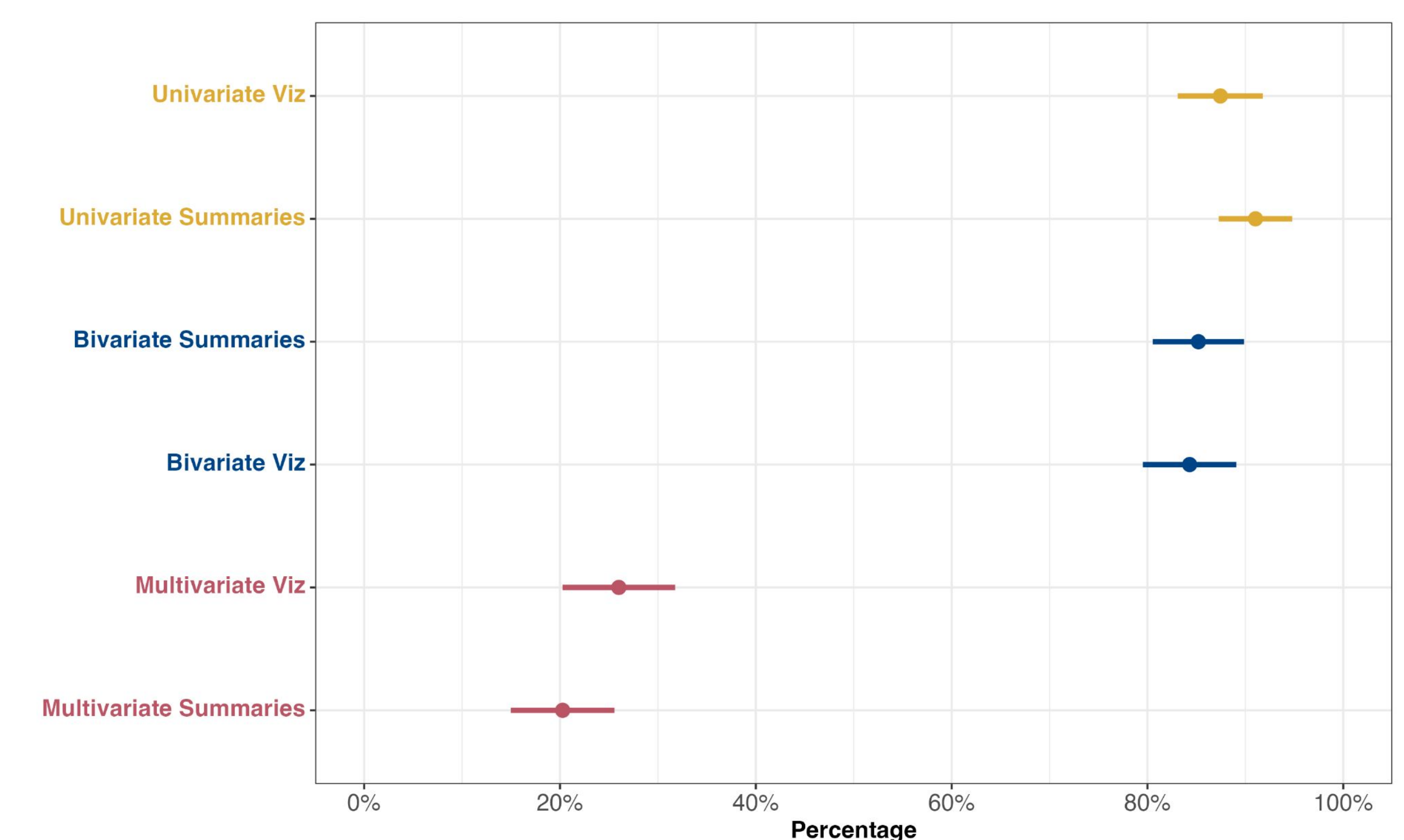
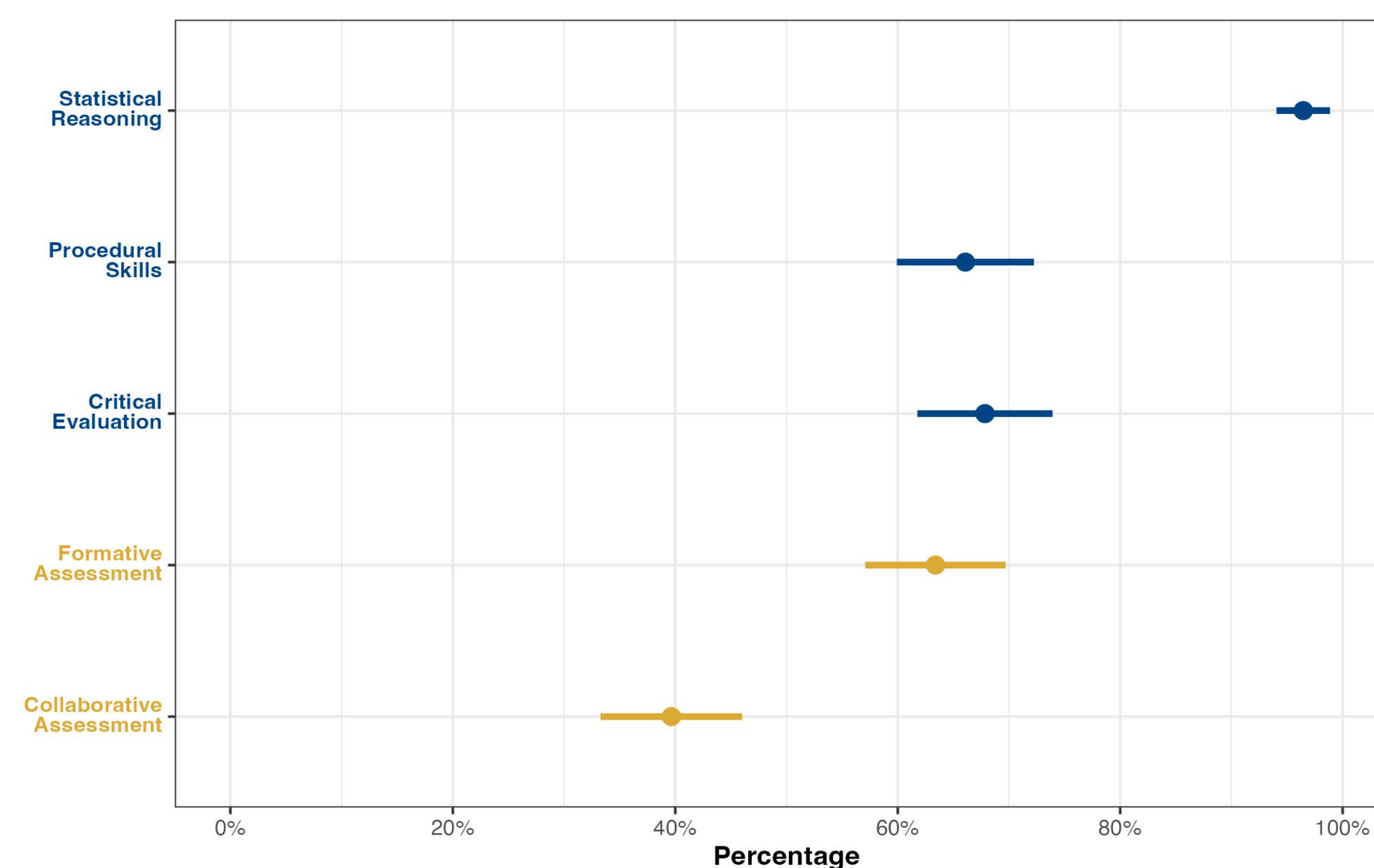
#5: Use technology to explore concepts and analyze data.

Instructors are using software in their courses, mostly to analyze data.



#6: Use assessments to improve and evaluate student learning

Instructors are emphasizing statistical reasoning in their assessments and embracing more student-centered forms of assessment (e.g., formative assessments) in their course.



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