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Students' Attitudes Toward Statistics in higher education: A pre–post analysis and implications for curriculum and assessment

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Abstract

Statistics teaching in higher education requires attention not only to students' acquisition of statistical knowledge but also to the attitudes that shape their engagement with the discipline. From a curricular perspective, understanding these attitudes can provide evidence for the design of teaching, learning, and assessment practices in undergraduate statistics courses. This study examines changes in students' attitudes toward statistics and explores differences across academic faculties in a Probability and Statistics course at Universidad de Ibagué, Colombia. A longitudinal pre–post design was conducted with 213 students from four faculties: Engineering; Economic and Administrative Sciences; Humanities, Arts and Social Sciences; and Natural and Mathematical Sciences. Students completed the 36-item Survey of Attitudes Toward Statistics (SATS-36), assessing Affect, Cognitive Competence, Value, Difficulty, Interest, and Effort. Paired analyses were conducted to examine changes across SATS-36 dimensions, while between-faculty analyses explored differences in attitudinal patterns. Results showed differentiated changes across dimensions: Cognitive Competence showed a positive trend, whereas Affect, Value, and Difficulty remained broadly stable. Interest and Effort showed significant pre–post changes. The magnitude and direction of change also varied across faculties, particularly for Affect, Value, and Interest. These findings provide evidence that students' attitudes toward statistics should be considered within curricular decisions concerning the teaching, learning, and assessment of statistics in diverse disciplinary contexts. The study contributes empirical evidence to discussions on curriculum and assessment in higher education.

Keywords: Evaluation; SATS-36; Statistics Anxiety; Statistics Education; Teaching Methods