

STATISTICAL EDUCATION IN INITIAL TEACHER TRAINING FOR DIAGNOSE LITERACY LEVEL

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One of the problems faced in Brazil is the high consumption of energy from hydroelectric plants that are dependent on the rainfall regime. Brazil is subject to periodic drought cycles, which increase power costs and negatively impact families' budgets. This work aimed to analyze the mathematics undergraduate students' level of statistical literacy, aiming at their knowledge and decision-making awareness of this problem.

Our theoretical framework for this study is Iddo Gal's (2002) components of statistical literacy. He organized the elements necessary for statistical literacy into two groups: (a) a knowledge component comprised of five cognitive elements: literacy skills, statistical knowledge, mathematical knowledge, context knowledge, and critical questions and (b) a dispositional component comprised of two elements: critical stance, and beliefs and attitudes. The development of these skills allows a citizen to improve skills to: (a) interpret and critically evaluate statistical information, arguments related to research data, and stochastic phenomena that can be found in different contexts and (b) discuss or communicate reactions to this statistical information, such as interpretations, opinions and understandings of its meaning. Recently, Gal (2019) revisited this model, emphasizing the role of contextualization for literacy development. Cazorla and Giordano (2021) bring this discussion to the current Brazilian curriculum reform, in the historical context in which our work was carried out.

We carried out a diagnostic study with twenty-five mathematics undergraduate students at a public university in northern Brazil. Students were asked to analyze the university's residential consumption for a period of seven days, as measured by equipment from the Equatorial Network. Students were tasked with evaluating possible consumption reduction and analyzing graphs, frequency distribution tables, and summary measures (central tendency and dispersion). They were given three classes to conduct their analyses. The students demonstrated knowledge about some statistical ideas but showed little familiarity with reading, interpreting, and communicating results related to graphical and tabular representations of data. The students did not show functional or scientific levels of statistical literacy while performing these tasks. However, they showed criticality in solving everyday problems, suggesting potentialities of this type of task in teaching for students at the initial stages of basic education (6 to 11 years old), as shown by Melo & Votto (2022).

These results corroborate some recently published studies, both nationally and internationally, which suggest that despite advances in the production of knowledge about teaching and learning statistics in basic education, there has been limited impact from initial and continuing teacher training courses focused on statistics education. The community of statistical educators should continue to make efforts towards supplying the demand of teachers knowledgeable about teaching and learning statistics. We hope to contribute to discussions about the development of statistical literacy in realistic contexts, through a resolution-based approach of problems.

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