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DIFFICULTIES IN THE LEARNING OF STATISTICS BY THE STUDENTS OF THE PRIMARY EDUCATION

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Huge data amounts are part of our day-to-day, so the acquisition of statistical knowledge is increasingly essential so that enable citizens to be capable and able to extract useful information from databases, or to understand and evaluate, critically, the statistical information conveyed by the media. The development of skills in analysing and interpreting statistical data, during the school education, is essential for the development of the capacity of critical analysis regarding to the statistical information.

The teaching-learning process of statistics needs to be properly integrated in real contexts, involving all stakeholders (students/ teachers/ community). The reflection and discussion regarding the results of the analysis of data is essential to the development of the reasoning and statistical thought. The statistical reasoning promotes the ability to know use the tools and statistical concepts, while the statistical thinking allows the understanding of case studies based on statistical knowledge. Statistical literacy is the ability to understand and interpret the information using the statistic knowledge. In order to develop the statistical literacy in the primary school, the teachers should know the difficulties of the students in the domain of the Organization and Data Handling (ODH). In this context, it is also important not only the statistical knowledge of the teachers, but also their attitudes towards statistics and the adopted strategies, in the classroom, including the quality of the interaction with the students.

The present study, covering students from public schools and a private school on the island of São Miguel (Azores, Portugal), aims to meet the difficulties of the students of the 3rd and 4th years of the primary education in solving tasks involving construction, reading and interpreting tables and statistical graphs, in the context of ODH. For this purpose, we developed a survey, which included some sociodemographic variables (e.g., gender, type of school they attend, year of the primary school they attend, the parents' level of education), and a set of questions that aimed at assessing their knowledge and their perceptions on the importance of the ODH. The questionnaire also contains a set of questions concerning the degree of the student satisfaction regarding the developed activities, in this context, and the degree of difficulty of their resolution.

We present the main results obtained from statistical methods, among which we highlight some non-parametric hypothesis tests and the Categorical Principal Component Analysis (CatPCA), given the nature of the variables included in the questionnaire (mostly nominal and ordinal variables). Our findings may contribute to the design of intervention strategies that motivate all students, even those with more difficulties, for an active involvement in activities of OTD, creating favourable conditions for the development of the statistical literacy.

keywords: statistical literacy, primary education, organization and data handling, difficulties of the students.