

WHAT ERRORS DO PROSPECTIVE TEACHERS DETECT IN THEIR MATHEMATICS LESSONS?

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This study aims to characterise the errors detected by some prospective teachers when they reflected on their own practice during their educational internships, regarding two research questions: 1) Do prospective teachers identify errors when reflecting on their own practice? 2) What types of mathematical errors do they identify? In order to answer them, we analysed the reflection that prospective teachers made in their Master's Degree Final Projects (MFPs), in which they had to remember if they made errors and explain them. This reflection was analysed using the Didactic Suitability Criteria (DSC) proposed by the Onto-Semiotic Approach.

The DSC are a theoretical tool to assess teaching and learning processes (Breda et al., 2017), which is organised into six facets. Moreover, each of the DSC has components and indicators that allow them to be assessed in practice. We specifically focused on the 'Errors' component of the epistemic suitability criterion. In this study, we consider an error as a mathematical practice that, from the point of view of a mathematical institution, is not considered as valid; and an ambiguity (or inaccuracy) as an explanation by a teacher that may be partial and/or unclear, although not incorrect, that leads students to make errors or to confusion.

This study followed a qualitative research methodology from an interpretative paradigm, which mainly consists of a thematic analysis. The research context is a Master's Degree Program taught by the public universities of Catalonia (Spain). We considered 258 MFPs (from 2014-15 to 2019-20 academic years), in which the prospective teachers assessed the implementation of a lesson plan using the DSC.

From the errors identified, as the main result, we proposed a categorisation of six types of mathematical errors that the prospective teachers detected: error of definition, error of representation, error of resolution or procedure, error in posing a statement, error of proof or argumentation, and error of proposition or property. These results are susceptible to modifications, as we analyse the MFPs from other academic years.

Acknowledgements

MINECO/FEDER, UE, Research Project PGC2018- 098603-B-I00.

References

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