

Glimpses of practice: pre-service teachers' evaluation of students' answers

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In initial teacher training, the contact with teaching practice is scarce, fragmented and often disjointed. Therefore, the challenge is to build tasks that constitute approaches to practice and place pre-service teachers in situations similar to the ones they will have to deal within the future. One of the tasks teachers have to perform in their practice is the evaluation of answers given by students. In this context, we developed a study in which we analyse how pre-service teachers (PST) evaluate answers given by students in solving certain tasks.

Keywords: mathematical teacher training, elementary mathematics, mathematical knowledge for teaching.

BACKGROUND

There are plenty of studies focusing on teacher's knowledge, trying to identify its components, analyse their characteristics and/or understand its complexity. One of the most influential works concerning teachers' knowledge was developed by Shulman (1986).

Much work has been done ever since (e.g., Ball, Hill & Bass, 2005; Gomes, 2003; Ma, 1999). In one of those works, developed by Hill, Ball & Schilling (2008), the notion of "mathematical knowledge for teaching," appeared. This conceptualization highlights the mathematical knowledge that teachers need to carry out their work as teachers and considers the specificity of specialized content knowledge.

Despite evidence linking teacher knowledge with the mathematical performance of their students (e.g., Baumert et al, 2010), there is still no consensus regarding the content, nature and type of such knowledge. Therefore, further research into how can teachers be helped in order to increase/develop their knowledge is still needed.

METHODOLOGY

This study aimed to analyse how pre-service teachers (PST) evaluate answers given by students in solving certain tasks. To this end we considered the following research questions: (1) How do PST assess students' answers?; (2) What remediation strategies are suggested in case of wrong/inadequate answers?

Given the nature of the study, a qualitative approach was adopted. The study was developed within a course of Didactics of Mathematics, taught by the researcher.

This course is part of a Masters Degree designed to prepare future elementary school teachers (children aged 6 to 12). 21 PST participated in the study. These PST were faced with tasks consisting of inadequate or wrong answers to certain questions. They were asked to comment on the answers and evaluate them. They were also asked to propose remediation strategies.

Data was obtained through PST's work and interviews with three PST after the end of the course. Data was coded with a specific coding schema.

In this presentation we will focus on one task, related to the properties of rectangles and squares.

SOME RESULTS

Even though the data analysis is not yet complete, we can advance some results. These type of tasks were unfamiliar to PST. Generally, PST reveal major difficulties in assessing the answers given by students, being unable in many cases to identify the errors or argue about their possible causes. The type of arguments used to make the assessment was often common and had no mathematical nature.

This study shows that it is essential to challenge PST with tasks related to their future practice. In particular, facing errors students make urges PST to develop their specialized knowledge for teaching (Hill, Ball & Schilling, 2008).

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