

INTERACTION SUITABILITY ANALYSIS WITH PROSPECTIVE MATHEMATICS TEACHERS

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We study how the development of four professional tasks focused on the analysis of mathematics class interactions, may influence the reflection and evaluation of own practice done by future secondary mathematics teachers. We describe the tasks and we show its specific impact on these reflections.

KEY WORDS: Interaction suitability analysis, Teacher development

INTRODUCTION

The training program for prospective teachers of mathematics at the University of Barcelona is looking to develop various competencies, including competence didactic analysis. Our study is assumed as a teaching experiment in which design, plan, implement and evaluate a set of professional tasks. Four professional tasks focused on the analysis of the interactions in the mathematics classroom will be presented, by using case studies, with theoretical underpinnings. It is intended that future teachers develop tools for critical thinking and research attitudes. In task 1, future teachers must review the process of solving a geometrical problem, developed by a couple of students aged 16, with reference to the analysis of interactions proposed by Cobo & Fortuny (2010). In the second, was asked to analyze an episode of one class of measurement developed with students of 12-13 years, with reference to another episode analyzed using the proposal from Vanegas, Font y Giménez (2009). The third task is the analysis of a debate in a class of beginning algebra, having as a reference the proposal given by Vanegas, Giménez & Font (2012), by characterizing democratic mathematical practices. In the fourth task, we did a joint reflection among future teachers and trainers, on the notion of quality of interaction analysis, by using an ontosemiotic approach (OSA).

To analyze how the proposed tasks have influenced the thinking process of the practice of future teachers, we identify written productions, class discussions, and particularly in the Master Thesis (MT): a) if it appears a collaborative work and reasoning, b) if teaching purposes are clearly described, c) the type of didactical configuration is identified, d) the importance of recognizing the teacher's role in generating teaching situations that allow the development of mathematical democratic practices is revised and it appear some criteria used to assess the quality of their practice.

DISCUSSION AND CONCLUSIONS

All students interested in the analysis of the interaction in the reflection of their own practice, as an important aspect of class management analysis. The first reflections

immediately after the school practice, are characterized by superficial and descriptive comments focused on the action, with little justification argument.

“... in the activity with more implication, in which the students participate more actively was a "role-play", in which students are points. The teacher says an inequality with two unknown, then the students raise...” (Student A)

When analyzing MT productions, value judgments prevail. 88% of prospective teachers recognize different performances which has enabled or not promoted the interaction. Only 24% identify concrete situations of their own practice as justification. 16% of the students allude to the quality of the interaction to reflect on how to improve aspects of their own practice. The following example refers to both the proposed mathematical democratic practices (Task 3) as a means of intervention raised in Task 2.

“This is to allow more time for students to think about how to get to the solution of problems... On the other hand, it has also changed the role of the teacher giving students proper tracks looking to reflect rather than closer to the procedure or solution ... The role of the teacher can encourage students' reasoning or else cut their reflections. So the teacher has to act as a guide but let the student take responsibility at all times” (Student B)

Only one student proposes a creative graph to represent the evaluation of different aspects of their practice, using some of the criteria proposed by the EOS and noting what was their level of achievement in different practice sessions.

Finally, we recognize that the use of different theoretical framework for analyzing the interaction allowed some improvements in the reflection of the actual practice of future teachers. Meanwhile, they were considered more variables to characterize the interaction, were incorporated in certain cases the categories proposed by the authors studied, and it is reflected on the importance of analyzing the development of these processes in math class. We suggest that more time is needed to have more influence, and the need to have a common discussion about own reflection.

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