

SYMPP - (18662) - PLANNING TO ENCOURAGE STUDENTS MATHEMATICAL REASONING: THE CHALLENGES FACED BY FUTURE ELEMENTARY SCHOOL TEACHERS

Catarina Delgado (Portugal)¹; Fátima Mendes (Portugal)¹; Joana Brocardo (Portugal)¹

1 - Escola Superior de Educação do Instituto Politécnico de Setúbal

Short Abstract

This paper focus an investigation aimed at contributing to expand the future teachers knowledge on mathematical reasoning. The data collected focus on an experience that is part of the REASON project and which was carried out in a Mathematics Didactics Curricular Unit of the 2nd year of the master's degree in Primary School Teaching, with a class of 25 future teachers. The teaching experience took place over 13 90-minute sessions.

We focuses on the challenges, perceived as doubts, difficulties, or ambivalences, that four of the future teachers (two internship groups) face when planning a task that potentially promotes the students' mathematical reasoning. Following an interpretive methodology, we draw on Stylianides et al.'s (2013) analytical model to identify and describe the challenges these future teachers face when planning one task to be explored in grades 3-4. The collected data focus on the transcripts of the lessons of the second and third stages of the teaching experiment and on the final interview conducted with the internship groups. Student's written reflections about the experience of planning and exploring the task were also analyzed.

The data analysis suggests that, although they were asked to plan a task that potentially focused on the development of the reasoning process, this aspect is not highlighted in the rationale for its choice or in the setting of the learning objectives. On the other hand, the challenges related to the required mathematical knowledge to solve the task are strongly related with the reasoning.

References

Stylianides, Stylianides & Shiling-Traina (2013). Prospective Teachers' Challenges in Teaching Reasoning-and-Proving. *International Journal of Science and Mathematics Education* 11, 1463–1490. <https://doi.org/10.1007/s10763-013-9409-9>