

USAGE OF TASKS DURING PROFESSIONAL DEVELOPMENT OF IN-SERVICE MATHEMATICS TEACHERS

Ján Šunderlík, Soňa Čeretková

Constantine the Philosopher University in Nitra, Slovakia

In the poster we describe the searching process of the mathematical tasks and design materials optimal usage for in-service teacher during professional development course. Based on the analysis of needs and interconnected model (Clark & Hollingsworth, 2002) we interpret teachers' usage of tasks and identify their way of learning. The main focus is on the transformation between learning in content knowledge and pedagogical content knowledge (Ball et al., 2008). According to the findings we suggest the new design of the continuing professional development course.

Key words: teachers' learning, CPD, inquiry based tasks

FOCUS OF THE POSTER

Our poster presents some study findings in which we were piloting different approaches of in-service mathematics teachers' usage of student oriented tasks during continuing professional development (CPD) course. The content of CPD was focused on introduction of constructivists' approach to teaching, development of competences and inquiry based learning supported by ICT. According to the usage of tasks we identified several approaches to in-service teachers' learning. Our research question was: "How was teachers' usage of tasks evolving during CPD course and what supported this change?"

THEORETICAL FRAMEWORK

Since 2009, there have been established new CPD courses for in-service teachers. In Slovak context most of the CPD courses were designed in implicit model. In the observed CPD courses we firstly focused on identification of necessary content knowledge (CK) and then we connected it with appropriate pedagogical content knowledge (PCK) (Shulman, 1986, Ball *et al.*, 2008). We analysed the trajectory of teachers' learning according to the interconnected model (Clark & Hollingsworth, 2002) and based on the findings we redesigned the model of the new planned CPD course.

METHODS AND DATA ANALYSIS

In our study three groups of lower secondary mathematics teachers 28 teachers in total were observed during the five whole day CPD sessions. One of the researchers was a lecturer of the CPD course. Some of the parts of the courses were videotaped.

Teachers were supposed to create and submit written assignments that contain some part of lesson planning after each session and the final assignment. All the written assignments were analysed. All sessions were transcribed and coded. Based on the data we identified events from CPDs that were in any way “critical” in connections with usage of tasks by the teachers. These events were interpreted within our theoretical framework.

INDICATION AND JUSTIFICATION OF THE CONTENT

The poster consists of introduction, theoretical framework, methodology, results that include examples of tasks and discussion with new design of the CPD. We observed that the settings of CPD and tasks usage in many cases were not sufficient for changes within domain of practice as well as domain of consequence. However, some teachers demonstrate positive results of inquiry tasks development. Based on these findings and theoretical framework from project PRIMAS we present new design of CPD model that more accurately addresses the difficulties that teachers had while implementing the innovative curriculum material into practice.

FORMAT OF THE POSTER

The poster will have a prescribed rectangular format 70 cm x 90 cm and will be printed on one piece of paper. Data will be optically organised and clearly described.

1. This work was supported in part by the EU, within the 7FP project, under grant agreement 244380 "PRIMAS – Promoting Inquiry In Mathematics And Science Education."
2. The actual poster presented at CERME8 may be obtained from the author by emailing them to <jsunderlik@ukf.sk; sceretkova@ukf.sk>

REFERENCES

- Ball, D. L., Thames, M. H. & Phelps, G. (2008). Content knowledge for teaching: what makes it special? *Journal of Teacher Education*, 59(5), 389-407.
- Clark, D., & Hollingsworth, H. (2002). Elaborating a model of teacher professional growth. *Teaching and Teacher Education*, 18, 947–967.
- Loucks-Horsley, S., Love, N., Stiles, K.E., Mundry, S., & Hewson, P.W. (2003). *Designing Professional Development for Teachers of Science and Mathematics*. Thousand Oaks, California: Corwin Press, Inc.
- Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15 (2), 4-14.n