Primary Trainee Teachers' Choice of Mathematical Examples for Learning and the Relationship with Mathematical Subject Knowledge.


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Abstract

When teachers plan to teach mathematics, they draw on many examples to either demonstrate a concept or provide opportunities for learners to practise skills and procedures. The examples used by primary trainee teachers, it is suggested, are often chosen without suitable consideration of learners' strengths, weaknesses or misconceptions. Whilst there has been research on the choice of examples by teachers in secondary mathematics, detailed empirical research of primary mathematics or for trainee teachers is relatively scarce. In this study, two cohorts of final year trainee primary teachers were invited to submit lesson plans for analysis and a sample group was interviewed to try to identify the theoretical frameworks trainees use for planning mathematics and their approaches to choosing examples for learning. The data collected was then analysed using a multiple case study approach against a conceptual framework based on the Knowledge Quartet research of Rowland et al. (2009) and the development of the notion of example spaces by Watson and Mason (2005). The analysis sought to identify commonalities in the way the group of trainees approached planning mathematics and draw insights on their rationales for choosing mathematical examples. Each trainee's planning was scrutinized against the theoretical background in the literature and conclusions were drawn regarding the methods of planning adopted, the examples chosen and the possible links between these actions and the trainees' levels of mathematical subject knowledge. Evidence from the study appears to show...
that trainees do not make use of theoretical frameworks when planning mathematics lessons, examples are chosen from existing sources such as textbooks and websites, and any modifications are made with differentiation as a key factor rather than mathematics pedagogy, playing a minimal role in the planning process.

Item Type: Thesis (PhD)

Uncontrolled Keywords: Mathematics Study and teaching (Primary)

Subjects: Education

Q Science > QA Mathematics

Divisions: Schools and Research Institutes > School of Education

Depositing User: Phil Davis

Date Deposited: 21 Mar 2016 11:07

Last Modified: 21 Dec 2016 09:57

URI: http://eprints.glos.ac.uk/id/eprint/3206

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