

MATHEMATICS TEXTBOOKS AND THEIR USE IN SECONDARY CLASSROOMS IN ENGLAND, FRANCE AND GERMANY: CONNECTIONS, QUALITY AND ENTITLEMENT

Birgit Pepin

Oxford Brookes University, UK

Linda Haggarty

The Open University, UK

In this presentation it is argued that lower secondary mathematics textbooks in England, France and Germany place different emphases on 'connectivity' of mathematical knowledge. The research on which this presentation is based (Economic and Social Research Council, Grant Number R000223046) investigates similarities and differences of mathematics textbooks at lower secondary level in the three countries. The aim is to understand the range of ways in which commonly taught topics in secondary mathematics are addressed in textbooks, in order to widen our understanding of how mathematics is perceived in the different contexts, of the pedagogical 'intentions' of mathematics textbooks, and of how mathematics is 'prepared' and presented for understanding.

In order to analyse mathematics textbooks, popular selling textbooks from each country were statistically sampled and analysed on the basis of a schedule which draws on the range of ideas in the literature and which had been devised particularly for this project. (In addition, observations and interviews revealed teachers' views on the use of mathematics textbooks, but this strand of the study will not be the focus of the presentation.)

In this poster presentation the findings with respect to the mathematical area of 'Directed Numbers' are being reported, and with respect to 'connectedness' involving connections between topics in and out of mathematics, between mathematics and particular contexts, the progression of mathematical ideas, and connections between textbooks used in subsequent years.

What became apparent from the data collected was that textbooks in different countries provide different (mis)representations of mathematics for their students in schools. Whereas in some countries students are inundated with skills, procedures and disconnected mathematical knowledge, in others students are allowed to develop an appreciation of its interconnectedness and generalisable nature.

Looking at textbooks and different representations of knowledge in different countries helps to sharpen the focus of analysis by suggesting new perspectives. Further, the former approaches may encourage teachers, and in particular student teachers, to prepare and present mathematical knowledge for pupil understanding in a non-fragmented and interconnected way.