

# Being an out-of-field teacher: An opportunity model

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# Being an out-of-field teacher: An opportunity model

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# The English context

## Compulsory education age 5 – 18

- Primary: age 5 – 11
- Secondary: age 11 – 16
- 16 – 18: in secondary school, further education, employment or training

- English
- Maths
- Science
- History
- Geography
- Modern foreign languages
- Design and technology
- Art and design
- Music
- Physical education
- Computing
- Relationships, sex & health
- Religious education
- (Citizenship)

# The UK context

## Qualified Teacher Status

- Required to teach in state-maintained sector
- Not phase or subject specific
- Training is phase or subject specific

## Out-of-field Teaching

- Referred to as non-specialist teaching
- 'No-relevant post A-level qualification'
- Science and foreign languages
- 13% of maths lessons taught by out-of-field teachers in 2022 – 23.

## The Teachers' Standards

1. Set high expectations which inspire, motivate and challenge pupils
2. Promote good progress and outcomes by pupils
3. Demonstrate good subject and curriculum knowledge
4. Plan and teach well structured lessons
5. Adapt teaching to respond to the strengths and needs of all pupils
6. Make accurate and productive use of assessment
7. Managed behaviour effectively to ensure a good and safe learning environment
8. Fulfil wider professional responsibilities

# The research context

## Research focus

- How out-of-field teachers know and learn and why they value doing mathematics

## Participants

- Taught for six or more years and have a degree and teaching qualification in a subject other than mathematics
- Ten teachers
  - 2 teaching maths for first time
  - 4 PE specialists, 2 geographers, 1 each of physics, religion, music, psychology

## Methodology

- The bricolage, a philosophical approach to research that is open to all methodologies, continuously and rigorously selecting and adapting methodologies and methods to suit the focus of the research
- Semi-structured interviews, creative data elicitation tools
- Thematic analysis

# The research context

## Research focus

- How out-of-field teachers know and learn and why they value doing mathematics

## Principles

- Opportunity model
- Acknowledge complexity
- Recognise agency

## Conceptual framework

		Knowing (ontology)	Learning (epistemology)	Doing (axiology)
		<i>Teachers' beliefs about the nature of mathematics</i>	<i>Understanding of how we come to know mathematics</i>	<i>Conceptualisations of purposes for doing mathematics</i>
School mathematics	<i>Mathematical knowledge structured to be taught (Davis and Renert, 2014)</i>			
Academic mathematics	<i>A discipline that creatively seeks patterns and to simplify the complex (Lockhart, 2009)</i>			
Pedagogical mathematics	<i>Mathematical knowledge for teaching (Ball et al., 2008)</i>			
Everyday mathematics	<i>Mathematical knowledge informally or contextually structured as it is used (Davis and Renert, 2014)</i>			

# The research contribution

The out-of-field teachers participating in this study appeared to conceptualise mathematics as school mathematics through a complex student lens of their own and their students' experiences of mathematics.

- Cross boundary from school mathematics (as a learner) to pedagogical mathematics
- Complex understanding of mathematics
- Human relationships more important than content of the mathematics
- We learn mathematics for personal fulfilment
  - To pass exams
  - To experience positive emotions: mathematics for personal growth



# The research contribution

- Professional development for out-of-field teachers should include helping them cross the boundaries **within** their out-of-field subject
- Remember that out-of-field teachers bring a **deep, complex understanding** of the subject they are teaching out-of-field
- Learn from the **different perspective** out-of-field teachers have of the subject, for example seeing learning mathematics as social
- Listen to out-of-field teachers to enhance our understanding of the subject from a **learner's perspective**



