

**Monday Seminar Mathematical Education, 19. October  
2009, University of Agder, Gimlemoen, Kristiansand,  
Please note special room B2-003 and earlier begin:  
14.00!**

## **What is First Philosophy in Mathematics Education?**

**Paul Ernest**

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### ***Abstract***

Emmanuel Levinas posed the question 'what is (the) first philosophy?' not as a quest for a fixed foundation for the rest of philosophy, but in terms of uncovering what is presupposed by our humanness in inquiring into philosophy. In this talk I want to pose this question for our emergent discipline of mathematics education. What is first philosophy in mathematics education? What area of Philosophical inquiry is the sine qua non of mathematics education research? In my talk I consider five possible candidates:

1. **Critical Theory.** The Critical Theory of the Frankfurt School addresses the relationship of mathematics and knowledge to society, including their educational roles.
2. **The Philosophy of Mathematics.** Understanding the nature of the subject of mathematics and its philosophical underpinnings that we teach is evidently essential for research in mathematics education. Much of my research has been devoted to developing the links between the philosophy of mathematics and mathematics education research.
3. **Epistemology.** The teaching and learning of mathematics and mathematics education research are all about knowing and knowledge. Considered philosophically, learning theories, so central to many of our research debates, are a concern of epistemology. Also the research methods and methodologies we use in our inquiries are all underpinned by epistemology.
4. **Ontology.** This area asks what are mathematical objects, what are educational and mathematics educational objects, and without presupposing an essentialist answer, what is their nature? Also 'what is a human being?' Answering this brings up issues of identity, subjectivity, agency, and the learning career of students, ourselves, and indeed of all persons. What is a *human* being, and what is human *being*?
5. **Ethics.** Human beings are irreducibly social and hence ethical creatures, and there is a vital need to be ethical in our research. But before this,

according to Levinas, we owe a debt to others that precedes and goes beyond reasons, decisions, and any attempt to understand others. As social creatures our very nature presupposes the ethics of interpersonal encounters.

Which of these five has the strongest claims to be first philosophy for mathematics education? By looking at the claims of all five areas I show how wide is the philosophical basis of mathematics education.

## **A reaction to What is First Philosophy in Mathematics Education**

**Bharath Sriraman**

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### ***Abstract***

Any theory of thinking or teaching or learning rests on an underlying philosophy of knowledge. In this talk I react to the pre-suppositions for a first philosophy discussed by Paul Ernest. Mathematics education is situated at the nexus of two fields of inquiry, namely mathematics and education. However, numerous other disciplines interact with these two fields which compound the complexity of developing theories that define mathematics education. I address the issue of clarifying a philosophy of mathematics education before attempting to answer whether theories of mathematics education are constructible?