

Learning to observe mathematical learning in lesson studies

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This poster deals with lesson study in pre-service teacher education. In particular how to prepare, carry out, and reflect upon observations of pupil learning. Observation is of crucial importance to the lesson study process, and here we present a study of observation features which enable or hinder fruitful lesson study.

Keywords: Lesson study, observation techniques, pre-service education.

BACKGROUND

A key element of lesson study is the joint observation of a lesson, and the entire lesson study process will not work as a means to improve teaching if the participants are unable to extract relevant information from the research lesson. Although the issue of performing structured observation to some extent is dealt with in many guidebooks for lesson study, e.g. Lewis and Hurd (2011); Stepanek, Appel, Leong, Mangan, and Mitchell (2006), it continues to be a pitfall of lesson study (Chokshi & Fernandez, 2004), something which is particularly evident in relation to pre-service teacher education (Bjuland & Mosvold, 2015), which will be our focus here. The basis for obtaining useful evidence from a research lesson begins with the lesson plan, and it is by no means a trivial matter to prepare a plan which enables pupil learning to be observed. Indeed to do so, the pre-service teacher requires knowledge about observational techniques (Artzt, Armour-Thomas, Curcio, & Gurl, 2015; Star & Strickland, 2007) as well as *awareness* and *noticing* (Mason, 2002; Mason & Davis, 2013; Scherer & Steinbring, 2006). While substantial research has been carried out in the general field of observing pupils' learning processes and teachers' pedagogical practice, little is known about this in the particular setting of lesson study

RESEARCH QUESTIONS

How do pre-service teachers observe didactic and pedagogical practice during research lessons and how do they look for specific qualities in this practice? Are certain observational methods recommendable for lesson study in mathematics with pre-service teachers?

CONTEXT

The research questions were investigated through the design, implementation and evaluation of a course for 20 pre-service elementary and lower secondary teachers in Copenhagen labelled: "Developing the didactics of mathematics using observational tools and techniques". The course consisted of a mix of lectures and lesson studies

enacted in teams of the participants, whose findings were communicated in a final written report.

METHODS AND THEORETICAL FRAME

Data was obtained in the form of audio-recordings from the lectures and lesson study processes, which together with the written reports forms the basis for an analysis of elements which either furthers or hinders good research lesson observation practice. Criteria are developed both from existing theoretical and experimental literature (cf. Background section above) as well as more inductively from the data itself.

FINDINGS

We present salient observational techniques which have special characteristics when utilized in research lesson observation, and which are suitable to act as shared focal points of the corresponding reflection session. The poster will exemplify the findings by juxtaposing two of the pre-service teacher lesson study teams, whereby highlighting the particular conditions for an observational technique to be successful in the study of mathematical learning.

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