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Dialogic processes that enable student teachers' learning about pupil learning in mentoring conversations in a Lesson Study field practice



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HIGHLIGHTS

- We examine dialogic processes in student teachers' mentoring conversations.
- LS is used as a context to establish dialogic spaces of 'interthinking'.
- The mentor teacher's role as the 'knowledgeable other'.

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ABSTRACT

This study investigates dialogic processes in student teachers' mentoring conversations in field practice, where Lesson Study (LS) was used as a context for establishing a dialogic learning community in one student group in science. We apply an analytical framework associated with Sociocultural Discourse Analysis to identify utterances that have the potential to create a dialogic space and contribute to 'interthinking' among the participants. The findings show the important role of the mentor teacher as a facilitator and a 'knowledgeable other', challenging the student teachers to reflect on chosen activities using predictions and detailed observations related to pupils' learning.

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1. Introduction

A review of literature on mentoring beginning teachers (including student teachers) (Hobson, Ashby, Malderez, & Tomlinson, 2009) shows that there is a great potential for prospective teachers to learn from teaching practice in mentoring conversations since these provide an "opportunity for genuine and constructive dialogues" between mentor and mentee (Hobson et al., 2009, p. 212). However, in her study of Norwegian teacher education programmes, Hammerness (2013) states that the connection to practice is considered a challenge and that research needs to know more about how student teachers learn in field practice. The aim of this article is to investigate the specific dialogic moves that enable student teachers' learning to take place in (science) mentoring sessions in field practice in the context of Lesson

Study (LS). LS is a structured, collaborative activity that combines practice and theory (da Ponte, 2017) with an inquiry-oriented approach to teachers' professional development. It was developed and has been used in Japan for more than 140 years (e.g. Ronda, 2013). Following a comparison study of teaching practice in three countries - the United States, Japan and Germany (Stigler & Hiebert, 1999) - researchers from other parts of the world have become interested in the Japanese LS model. Although the majority of this research has reported on findings from implementation of LS among in-service teachers (e.g., Dudley, 2013; Lewis, Perry, & Hurd, 2009), there has recently been a growing interest in using an LS approach in teacher education (da Ponte, 2017; Fernández & Zilliox, 2011; Munthe, Bjuland, & Helgevold, 2016; Murata & Pothen, 2011).

In a Norwegian context, a larger, cross-disciplinary project, Teachers as Students (TasS) (2012–2015) was conducted as a time-lagged design experiment in initial teacher education in connection with student teachers' field practice (Munthe et al., 2016). The research project involved two different conditions in four subject areas (mathematics, science, physical education, and English as a

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foreign language), one 'Business as Usual' (BAU) and one intervention with a LS approach. Findings from the project revealed that even though variation was evident both within and across the two conditions, student teachers from the LS intervention group were more focused on pupils and subject related matters in their mentoring sessions, when compared to the control group (Helgevold, Næsheim-Bjørkvik, & Østrem, 2015). Another finding revealed that particularly science student teachers in mentoring sessions had a clear focus on prediction and pupil observation during the research lesson (Bjuland, Helgevold, & Munthe, 2015).

A recent review of the research on LS (Xu & Pedder, 2014, p. 48) claims that there is "still an absence of the kinds of theoretical work necessary for explaining how and why teachers learn both collectively and individually". In the continuation of the TasS project, the present study aims at digging deeper into the conversations between the student teachers and their mentor in two science mentoring sessions (one pre-lesson and one post-lesson session). More specifically, the aim is to investigate how *dialogic space* (Wegerif, 2007) is established in these mentoring sessions. A dialogic space is created when teachers can engage with each other and share ideas, collaborate and discuss proposed learning activities from different points of view (Warwick, Vrikki, Vermunt, Mercer, & van Halem, 2016). We address the following research question:

How is dialogic space created in a science group of student teachers and their mentor teacher in LS discussions in mentoring sessions in field practice?

In line with Warwick et al. (2016), we wonder which specific dialogic moves encourage learning to take place in LS discussions. We are particularly concerned about student teachers' learning related to pupil learning in mentoring sessions and the role of the mentor teacher as a possible facilitator, contributing to 'interthinking' among the participants. As a point of departure, we take a sociocultural perspective, considering the important relationship between thinking and the use of language (Vygotsky, 1978). The term 'interthinking' (Littleton & Mercer, 2013) is "coined to convey the meaning that people cannot only act together (interact), they can think together (interthink)" (Warwick et al., 2016, p. 557). In a dialogic learning community, ideas from participants are exchanged and compared, but interthinking is also used to convey the idea that we can use language in the genuine co-construction of new knowledge (Mercer, 2005, 2010). Inspired by Warwick et al. (2016), we apply an analytic framework (see method section), emphasising five dialogic moves that have the potential to bring the conversation further to a collaborative learning experience.

2. Theoretical background

A lot of studies have found that a crucial driver for learning to take place within LS for teachers (e.g. Dudley, 2013; Lewis et al., 2009) and for student teachers (e.g. Cajkler, Wood, Norton, & Pedder, 2013; Murata & Pothen, 2011) is the significance of establishing a professional community of practice (Warwick et al., 2016). Using methods associated with Sociocultural Discourse Analysis, in line with (Mercer, 2005, 2010), Warwick et al. (2016) made detailed characterisations of productive discourse moves amongst teachers in LS discussions, linking these to the content of the discussions. In Sociocultural Discourse Analysis, focus is more on the functions of language for the pursuit of joint intellectual activity, than on the language itself (Mercer, 2005). An open coding process of video recordings from four LS groups of teachers showed a variety of dialogic moves. These (moves) were in the final coding scheme

developed into five dialogic moves (requesting information, making supporting contributions, expressing shared ideas, providing evidence, challenging ideas) that were considered to be essential for the efficacy of the dialogic processes and in progressing teacher learning. The analytical framework was applied in a case study from a primary school that was considered to be representative for reflective teacher discussions in order to change pedagogical intentions amongst the teachers involved. The findings revealed that four of the most frequently occurring dialogic moves emerged in the reflective discussions apart from challenging each other (Warwick et al., 2016). Warwick and colleagues claim that the issue of challenge is very important as a dialogic move since it has a direct effect on the dialogic process, moving the dialogue positively forward towards development of teacher learning.

In this article, we will use these dialogic moves (Warwick et al., 2016) to focus on the creation of dialogic space in the mentor-student teachers' conversations. We continue this section by introducing some essential principles of LS and point to research conducted in LS teacher education. Following this, we present some review literature on mentoring and examine how the literature addresses the role and function of mentor teachers in mentoring conversations with student teachers in field practice.

2.1. Essential principles of LS

LS is a form of professional development with the aim to support teachers' exploration and implementation of effective teaching practices (Lewis, Perry, & Murata, 2006; Stigler & Hiebert, 1999), through the detailed examination of students' learning in lessons. Through an organised cycle of several phases like (a) goal setting, (b) curriculum analysis, (c) lesson planning, (d) teaching a lesson while being observed, and (e) debriefing and reflecting in an open and collaborative setting, teachers collaboratively investigate classroom practices, often with the support of 'knowledgeable others' (Lewis et al., 2006). In a traditional Japanese LS cycle, a 'knowledgeable other', or outside expertise is often invited to a research lesson and expected to provide 'final' comments at the end of the post-lesson discussion. These comments are meant to provide a different perspective on the LS work of the group; to provide information about the subject matter content, new ideas, or reforms; and to share the work of other LS groups (Takahashi, 2014). In an American context, the role of a knowledgeable other, or an 'outside specialist' (Lewis & Hurd, 2011, p. 33) is described as "to raise questions, add new perspectives, and be a co-researcher, not to tell other what to do".

In a recent study that focuses on designing and adapting tasks in lesson planning, Fujii (2016) emphasises that LS begins with a question (not with an answer) that becomes the research theme that should be addressed in the process of developing a lesson plan. According to Fujii, the collaborative work among teachers in developing a lesson plan is a crucial part of the LS cycle. This plan or 'lesson proposal', as Fujii prefers to phrase the document, is much larger and broader in scope compared to a lesson plan. Such a detailed plan or proposal for the research lesson involves predictions of student thinking related to chosen activities and anticipated student solutions on given problem-solving tasks. There is also a strategy for structured observation that involves data collection forms for observers (Fujii, 2016). After having taught the research lesson (one teacher/team member teaches, while the others observe and collect data on specific, assigned pupils), there is a post-lesson session in which observers share empirical evidence (data) from the lesson; here, particular attention is paid to the learning of the observed pupils.

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