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Pedagogical and learning theories and the improvement and development of Lesson and Learning studies

Abstract

Purpose.

It has been suggested that, if pedagogical and learning theories are integrated into lesson and learning study, a systematic construction of pedagogical knowledge is possible (Elliott, 2012). In this special issue, it is reported how theory and theoretical concepts can add value to lesson and learning study.

Design/

The papers are presented thematically and the main issues brought up are discussed.

Findings

Together the papers suggest that pedagogical theories and theorizing practice may contribute to the improvement of teachers' practical knowledge and knowledge about teachers' professional tasks and objects. Furthermore, some theories and theoretical concepts hitherto under-exploited in lesson and learning study are presented and discussed from the point of view how these might improve the quality of the studies.

Originality/value

As a total, the collection of papers bring out issues about the role of pedagogical and learning theories and how these could inform lesson and learning study.

Introduction

There is an extensive literature about the role and significance pedagogical and learning theories might have for practicing teachers. On the one hand one may argue that 'grand theories' or epistemologies of education have had an impact on curriculum on a national level (e.g. constructivism), on the other hand a commonly raised problem is that theoretical knowledge seems to be divided from teachers' practical knowledge and practice. This discrepancy is often named as the 'theory-practice gap' and appears to have been discussed for decades (Korthagen, 2007). However, it has been argued that teachers need an explanatory framework that can shed light on how their actions in the classroom affect student learning and help them to discover the features that make a difference to student learning in the classroom (Nuthall, 2004). This special issue is devoted to issues of what role pedagogical and learning theories might have in lesson and learning study.

Lesson and learning study are teacher directed and, as such, platforms for practitioners to learn from and about their practice. However, lesson and learning study is a form of action research also, where evidence from the enactment of lessons is the basis for observations and further development. This requires not only systematic inquiry and reflection. For lesson and learning study to be powerful, a critical lens is needed in the process as well (Fernandez, Cannon, & Chokshi, 2003). Can concepts from pedagogical and learning theories provide such critical lenses? What contribution can pedagogical and learning theories give to lesson and learning studies? The theories that underpin the Japanese lesson study tradition are seldom made explicit (Elliott, 2012) whereas learning study, as it was developed in the Hong Kong context, has an explicit theoretical underpinning; variation theory (Cheng and Lo, 2013; Lo & Marton, 2011; Marton 2015). Although reported as successful for teachers' professional learning, would the Japanese tradition be improved

by a more explicit theoretical framing and would learning study be more powerful if it were framed by other theories than just variation theory?

In this special issue, the contributions (except one) are based on research of lesson and learning studies. Some present reports of what can be learnt in lesson and learning studies as professional learning and in initial teacher education. Others reports studies that can be characterized as ‘teacher research’, where the aim was to gain knowledge about learners’ learning and/or the object of learning. A couple of the papers introduce and discuss how lesson and learning study may improve by applying hitherto under-exploited theories.

The role of theory for teachers’ professional development in Lesson study

One of the themes in this special issue concerns theory and teachers’ professional development in lesson and learning study. Their effectiveness for professional development has been reported. For instance, Lewis, Perry and Hurd (2009) report on changes in motivation and capacity to improve instruction, of mutual accountability, shared goals for instruction and a common language for analyzing instruction. How teachers can benefit from lesson and learning study is the common theme in Thorsten’s (2015), Peña Trapero, Soto, Servan and Perez Gomez’s (2015) and Martin and Clerc-Georgy’s (2015) papers.

Two of them (Thorsten, 2015; Peña Trapero et al., 2015) deal with teachers’ practical knowledge, its implicit and tacit dimensions, and how these are core elements and a resource in the process. However, whereas Thorsten’s paper represents the ‘teacher’s voice’, and thus the insider’s perspective, Peña Trapero et al. take the outsider’s perspective in their account. Still, these two papers contribute, although in different ways, to the understanding of how teachers’ practical knowledge can develop in lesson and learning study.

Thorsten’s main focus is how an explicit theory can help teachers to focus on the object of learning and how to handle the content in a more efficient way in the classroom. Her study was a learning study, where a theory of learning —variation theory (Marton & Booth, 1997; Marton 2015) was employed. Framing lesson study within an explicit theory of learning can change teachers’ practical knowledge, it helps them to question habits and previous experience, Thorsten argues. For instance, one of the premises of variation theory is that learning is about experiencing differences (Marton, 2015), a premise, if taken seriously, can provoke convictions about teaching and learning. This became apparent to the teachers when they realized that the theoretical premise was contradictive to the beliefs they held. Their idea ‘to take one thing at a time’, was challenged when they encountered an alternative proposed by the theory. However, when they adopted the idea, tested it in the classroom and could see the improvement in pupils’ learning, they had to reconsider their practice. Thorsten also suggests that the employment of variation theory contributed to developing a common language among the teachers. The theory provided them with a terminology and concepts that enabled them to talk more specifically and precisely about teaching and learning (c.f. Cheng & Lo, 2013). From her paper it could be concluded that a theory-informed lesson study may not only result in changes of practice, but in changes of teachers’ practical knowledge as well.

One strength of lesson (and learning) study is the cyclic process that allows a repeated experience of the ‘same lesson’. Thus, it gives the opportunity to try out conjectures and anticipations in the classroom and draw conclusions from observations. How experimentation with ‘theories-in use’ can help to improve and develop teachers’ practical knowledge, is the main issue in Peña Trapero’s (2015) paper. They use the notion ‘practical knowledge,’ which embraces other than cognitive elements, like emotions, beliefs and attitudes. Practical knowledge operates intuitively and automatically and is ‘theories in-use’, they argue. In their paper they advocate for lesson study as a context for the reconstruction of practical knowledge into practical thinking. Practical thinking, they define as espoused theories that are explicit and conscious. Whereas Thorsten (2015) accounts for how an abstract and systematized theory, developed by expert-researchers and introduced in

lesson study, can affect teachers' practical knowledge, Peña Trapero et al., (ibid.) describe the theorization of practical knowledge. Developing a new way of thinking or new (practical) theories takes an experimentation of the theories in use. The reconstruction of practical knowledge is a dialectic process of practical theorizing (based on the planning, observation and analysis) and experimentation of theory (trying new insights in class), they say.

In the literature, issues about the theory-practice gap have been addressed in the context of initial teacher education. This is also the case in Martin and Clerc-Georgy's paper (Martin &, Clerc-Georgy, 2015). It has been previously reported how lesson and learning study can be successfully applied in teacher education (e.g. Cohan, & Honigsfeld, 2006; Davies, & Dunnill, 2008; Ko 2012; Lai & Lo-Fu, 2013). Whereas in some of these studies variation theory was used as the guiding principle for the students, in the study reported by Martin and Clerc-Georgy (ibid.), concepts emanating from other theoretical traditions were used. The reason for the choice of theory in the lesson study came from experiences with teacher students' learning problems. From noticing teacher students' often superficial understanding and employment of theory and how they tend to focus on 'the wrong thing', the authors anticipated that implementing a theory in lesson study would improve teacher students' learning. Their experiences called for a theoretical framework that could help teacher students to focus on the learners and on the learning process. The concepts prioritized came from the 'metacognition tradition' (e.g. Flavell, 1976) and from Vygotsky's historical-cultural tradition. The students were introduced to these concepts in seminars and then applied them in their practical work in the classroom. The cyclic process of planning, observing and reflecting enabled them to reflect deeply on their own, as well as the pupils' actions, from a theoretical perspective. When studying teacher students' improvement of learning, it was concluded that there were traces of the employment of the theoretical concepts found in teacher students' planning and analysis of the lesson and in their work in class with the pupils as well.

The role of theory for generating knowledge of what is to be learnt

The studies described above add knowledge to previous reports: lesson and learning study seem to be effective for teacher professional development. The power of lesson and learning study for improving and changing classroom practice is frequently reported. So, what benefit could theory give to the improvement of practice? It has been questioned whether a theory can be applied and help teachers to solve practical problems (Lunenberg & Korthagen, 2009). Three papers in this special issue particularly point to how theory and theoretical concepts can, if not solve practical problems, at least contribute to a new and probably deeper understanding of problems related to professionals' tasks and objects. Carlgren (2012) advocates for learning study as 'clinical subject matter didactical research' (c.f. Bulterman-Bros, 2008) aimed at:

improving educational practices by generating knowledge in connection with teachers' professional tasks and objects. Such knowledge is generated in dynamic, interpretative and meaning-making practices and is intended for use in other dynamic, interpretative and meaning-making practices (Carlgren 2012, p. 134).

The possibility to generate knowledge of, what Carlgren (ibid.) calls "teachers' tasks and objects", in lesson study is reported by Björkholm (2015) in her paper *'Unpacking the object of learning'*. Whereas Peña Trapero et al. (2015) describe the theorizing of teachers' practical knowledge, Björkholm's contribution is the theorizing of the meaning of knowing; the object of learning. A practical problem among the teachers was the starting point. They had noticed that their young pupils (6 and 7 years old) had difficulties with constructing a linkage mechanism for transforming and transferring movement (e.g. a jumping jack). Theoretical concepts from variation theory (e.g. object of learning and critical aspects) guided the teachers in the process of identifying what the pupils must learn to construct a movement transforming linkage mechanism. Björkholm gives a detailed report of how the identification of the critical aspects was a process of exploration of the particular

capability (what does it imply to be able to construct a linkage system?) that ended up in a specification of what must be learnt to develop that capability.

How theory can inform the identification of critical aspects is also illustrated in Wood, Lu and Andrew (2015). This learning study was about learning price in economics at high school level. Learners' conceptions of price and what is critical for learning is studied and described in the literature (e.g. Pang and Marton, 2003). These studies have been framed within the discipline of economics, that is, price is seen as a function of the structure of the market. However, in the first phase of the learning study, it was found that this established price model (supply and demand) and usually presented in text books, did not support students' learning. Students' responses to the everyday problems they met indicated cognitive and hedonic framing in their ways of dealing with the situation. Noticing this, the learning study group had to reconsider the theoretical framing of the conception of price. The students' responses became an eye-opener for the group; there might be alternative ways of perceiving the concept that embraces dimensions others than within the disciplinary tradition. The observation led the group to consider if and how behavior theory could inform the object of learning. In my interpretation, this study illustrates how other theories can be a complement to disciplinary and variation theories and together enhance the understanding of what is critical for learning.

The study of curriculum material, text books and other teaching resources is an essential element in lesson and learning study. This could indeed be done with different purposes. Although their paper is not based on a lesson or learning study, Fredlund, Linder and Airey (2015) illustrates how social semiotic theories (Halliday, 1978) can be applied when analyzing texts (in a broad sense) in a physics text book to identify critical aspects and the object of learning. In a very close analysis of a canonical text about light refraction, they explore the similarity between variation theory and a social semiotic approach to meaning-making, and propose a new approach to identifying critical aspects of objects of learning. This is a hitherto under-exploited but powerful approach, they argue.

In my interpretation, the notion 'critical aspect' is used differently in Fredlund et al.'s (ibid.) paper compared to how Wood et al. (2015), Thorsten (2015), and Björkholm (2015) use it. According to the latter, critical aspects cannot be found from the subject or the discipline alone. This comes out particularly strong in Wood et al (ibid.). In their study the analysis of differences in the learners' understanding of the concept was *one* and an important source for identifying the critical aspects thus, what these students had to learn to make the object of learning their own. So, (although this is not explicitly said) the critical aspects were seen as relational. Critical aspects are critical only in relation to the learners. I cannot find this relational character of critical aspects, in Fredlund et al. (2015).

Theoretical frameworks to improve lesson and learning study

Two papers in this issue give novel and interesting contributions to the lesson and learning study community in that they suggest how rarely employed theories and theoretical concepts could enhance the development of lesson and learning study.

In one of them, *French didactique des mathématiques and lesson study. A profitable dialogue?* Clivaz (2015) presents the French didactique des mathématique (DM) and some of the theoretical concepts developed within this tradition. The concept didactique does hardly not exist in the English speaking world, although it is common in a European landscape. Here didactique or didactics does not have pejorative connotations, but denotes a field that studies questions about teaching and learning in a school context. A substantial part of Clivaz' paper deals with the theory of didactical situations (TDS) (Brousseau,1997). TDS originates from a methodological tool, didactical engineering. Although this French tradition is mainly oriented to the development of theory, it has many features in common with lesson study. These interesting similarities are described and

discussed in the paper. Some of the theoretical concepts developed within this methodology is accounted for, concepts, Clivaz suggests, could improve the understanding of lesson study from a theoretical perspective.

The role of theory in lesson and learning study is elucidated from a methodological perspective in Adler and Pillay (2015) in their paper *Evaluation as a key to describing the enacted object of learning*. They studied teaching and learning of the mathematical concept 'function' in a South African context and employed tools from variation theory to describe how the content was enacted in the classroom and what was critical for student learning. In this way they followed the tradition of previous research of learning study. However, to make the data production more rigorous, systematic and comprehensible, they did something new; tools from Bernstein's theory of pedagogical discourse were employed also. In their paper they demonstrate how the notion "evaluative events" became a unit of analysis that enabled them to describe what was enacted on the level of authorization, thus how meaning was legitimized. By raising methodological issues about how to analyze a lesson to describe the enacted object of learning, and applying theoretical concepts from a different tradition, they give a novel and unique contribution to lesson and learning studies.

Conclusions

One proposal to fill the theory practice gap advocates the application of theories and research results of 'what works' into practice. However, this has been demonstrated to be problematic and even undesirable (Biesta, 2007). Theories of learning are explicit, involve definitions and logical propositions but are sometimes static and detached from the specific situations they have a bearing on (Lunenberg & Korthagen, 2009). Teachers' 'practical theories' on the other hand, are implicit and situational and involves values and emotions. In several of the papers in this special issue it is explicated how theory and practical knowledge are resources in lesson and learning study. Thus, it is not a matter of applying theory and neglecting practice-based knowledge, but to adopt theory and theoretical concepts as critical lenses that allow a synthesis of practical and formal knowledge. What can be concluded is that, if pedagogical and learning theories and teachers' practical knowledge are amalgamated, practice might be seen with 'new eyes' and the theoretical lens might result in a qualitatively different perception of the situation.

Furthermore, in the papers it is demonstrated how lesson and learning study could be a platform that provides for exploring, testing and further development of theories (Clivaz, 2015; Martin & Clerc-Georgy, 2015; PeñasTrapero et al. 2015; Thorsten, 2015; Wood et al. 2015). It is indicated that the teachers and teacher students can make theory and theoretical concepts their own and use them as tools for pedagogical design, for understanding their own or learners' actions and for gaining knowledge of what is to be learnt.

There is another and, somewhat novel, contribution to the lesson and learning study community in this issue. That which has been asked for previously by Elliott (2012) is demonstrated in this special issue; variation theory synthesized with other theories might contribute to a further development of learning study.

Together the contributions in this special issue may encourage a discussion about how a more theory-informed lesson study and a broader theoretically framed learning study would improve and change the scope and progress of the two.

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