



Developing teachers' self-efficacy and adaptive teaching behaviour through lesson study



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ABSTRACT

Teachers are expected to address a broad range of diverse pupil needs but do not always feel capable or lack the skills to meet these high expectations. The professional development approach Lesson Study may address this. Therefore, this study examines whether participating in Lesson Study influences teachers' beliefs of self-efficacy and (adaptive) teaching behaviour. A quasi-experimental mixed methods design was used to compare pretest and posttest data of intervention and comparison group teachers ($N = 48$). Significantly different results between the two groups arise in terms of efficacy in pupil engagement as well as classroom management and instructional behaviour. Immediate stimulated recall interviews provide insight in these outcomes and illustrate to what extent teachers addressed pupils' educational needs.

1. Introduction

Responding to a variety of pupils' needs and backgrounds in order to reach the desired instructional goals, seems to comply to the demands of learning in the 21st century and its global trend towards more adaptive teaching in inclusive settings (Schleicher, 2016; UNESCO, 2009). However, teachers have difficulties providing differentiated instruction to respond appropriately to pupils' individual learning needs (Bruggink, Goei, & Koot, 2015; Randi & Corno, 2005) and lack confidence or feel unprepared for these teaching practices (Dixon, Yssel, McConnell, & Hardin, 2014; Wan, 2016). This calls for confident, self-efficacious teachers (Tschannen-Moran & Woolfolk Hoy, 2001), who are able to adapt their teaching to pupils' diverse learning needs (Summers, Davis, & Woolfolk Hoy, 2017). The professional development (PD) approach Lesson Study (LS) is believed to address these issues (Puchner & Taylor, 2006; Ylonen & Norwich, 2015). Following this rationale, this study aims to determine whether participating in LS influences beliefs of self-efficacy and adaptive teaching behaviour.

In Japan, LS (translated as *jogyo kenkyuu*) has been an integral part of teaching for more than a century (Takahashi & McDougal, 2016). After the publication of 'The Teaching Gap' (Stigler & Hiebert, 1999), this form of PD rapidly expanded around the globe (Hadfield & Jopling, 2016; Huang & Shimizu, 2016). Dudley (2015) argues that it is currently the world's fastest growing approach to teacher learning. Teachers participating in LS follow systematic cycles of collaborative studying, planning, teaching and observing so-called 'research lessons', focusing on the learning of pupils. Subsequently, the research lesson is evaluated and refined in order to improve classroom practice and pupil learning (Dudley, 2013; Sims & Walsh, 2009).

The reviews of Huang and Shimizu (2016) and Xu and Pedder (2015) show, among other things, that participating in LS contributes to teachers' beliefs of self-efficacy and the quality of teaching and learning as well as a more explicit focus on and more

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awareness of the diverse learning needs of pupils. However, it turns out that “most of the research carried out into LS has adopted a small-scale, qualitative, exploratory and inductive mode of inquiry” (Xu & Pedder, 2015, p. 49). This study contributes to the limited research on LS in which (quasi-)experimental mixed methods designs have been deployed. It includes data from different perspectives using teacher questionnaires, classroom observations and interviews. This enables us to not only determine whether participating in LS leads to changes in teachers’ beliefs of self-efficacy and their (adaptive) teaching behaviour, but also allows us to determine whether a relationship between these two constructs exists and to examine possible explanations using the qualitative data. We first elaborate on LS, teacher self-efficacy and adaptive teaching behaviour.

2. Theoretical framework

2.1. Teacher PD through LS

Although there is widespread consensus about the importance of teacher PD, the actual form of PD activities varies tremendously (Kennedy, 2016) and evaluation of these programmes may serve different purposes (Merchie, Tuytens, Devos, & Vanderlinde, 2016). The often cited conceptual framework of Desimone (2009) synthesizes a large body of research on PD and points to the “interactive, nonrecursive relationships between critical features of PD, teacher knowledge and beliefs, classroom practice, and student outcomes” (p. 184). The model distinguishes five critical features of PD in order to be effective: (1) content focus, (2) active learning, (3) coherence (consistency with teachers’ knowledge and beliefs as well as with school and macro-level reforms and policies), (4) duration (span of time and number of hours spent on the PD activity), and (5) collective participation.

Lewis and Perry (2017) applied this framework to LS and show how these effective characteristics of high quality teacher professional learning are integrated in LS. The cyclical features that LS embodies relate to: (1) a clear research purpose, (2) an in-depth investigation of lesson material, research articles, and available curricula, (3) collaborative planning of the research lesson, (4) teaching the research lesson by one teacher and live observation by the other group members, (5) a thorough post-lesson discussion, preferably guided by a ‘knowledgeable other’ (Takahashi & McDougal, 2016), which is often a university faculty member or someone from a professional association (Lee, 2015), and (6) dissemination of the results via publishing articles or organising open houses (Lewis, Perry, & Hurd, 2009). In the US and Europe, refining and re-teaching the research lesson are integrated in the LS cycle (Dudley, 2013; Saito & Atencio, 2013), whereas this is not common practice in Japan (Fuji, 2014).

Following the conceptual framework of Desimone (2009), the rapidly growing body of research on LS shows that participating in LS results in increased teacher knowledge and skills (e.g., Dudley, 2013; Leavy & Hourigan, 2016; Lewis, Perry, & Hurd, 2009; Takahashi & McDougal, 2016; Vrikki, Warwick, Vermunt, Mercer, & Van Halem, 2017), as well as changes in attitudes and beliefs (e.g., Schipper, Goei, De Vries, & Van Veen, 2017; Cajkler, Wood, Norton, & Pedder, 2014; Puchner & Taylor, 2006; Sibbald, 2009). This, in turn, leads to changes in instructional practice (e.g., Lewis, Perry, & Murata, 2006; Lewis, Perry, & Hurd, 2009) and improved pupil learning (e.g., Lewis & Perry, 2017; Norwich & Ylonen, 2013). Lee (2015) argues that in the context of LS, teacher knowledge refers to subject matter knowledge, knowledge of instruction, the capacity to observe pupils, and the connection of daily practice to long-term goals.

The systematic approach of LS allows teachers to devote considerable thought to predicting how pupils might react in different situations (Dudley, 2013) and how they would address pupils’ learning needs (Van Halem, Goei, & Akkerman, 2016; Sims & Walsh, 2009; Ylonen & Norwich, 2015). This explicit focus on pupil learning is repeatedly stressed in the included studies of the review by Xu and Pedder (2015). LS enables teachers to “develop the eyes to see children and how they respond and learn during research lessons” (Lee, 2015, p. 103). In the United Kingdom (UK), this focus is promoted by using ‘case pupils’ who represent different attainment groupings (Dudley, 2013). In the Netherlands, where this study took place, focusing explicitly on different educational needs by using ‘case pupils’, is what we derive from this model (Goei, Norwich, & Dudley, *in press*).

Despite a growing body of research showing a clear link between participating in LS and its effect on teachers’ knowledge, skills, attitudes and behaviour as well as pupil learning, only limited LS research relates specifically to teachers’ beliefs of self-efficacy (e.g., Puchner & Taylor, 2006; Sibbald, 2009).

2.2. Teacher self-efficacy in the context of (adaptive) teaching

Feelings of competence are often referred to as self-efficacy (Tschannen-Moran & Woolfolk Hoy, 2001). Bandura (1977) first described this notion as one’s beliefs or convictions to successfully execute a given type of performance. He later redefined this definition as “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performance” (Bandura, 1986, p. 391). Since then, studies on self-efficacy “have been popping up like daisies in a spring field” (Zee & Koomen, 2016, p. 981), illustrating the popularity of this construct. In the context of education, self-efficacy is often referred to as teacher self-efficacy (TSE) and is defined as “teachers’ belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated” (Guskey & Passaro, 1994, p. 628). One of its claims is that TSE might be a vital predictor of teacher behaviour (Summers, Davis, & Woolfolk Hoy, 2017; Tschannen-Moran & Woolfolk Hoy, 2001). The underlying general assumption of TSE is that when teachers feel more confident to meet pupils’ instructional needs, they tend to focus more on improving their teaching activities (Summers, Davis, & Woolfolk Hoy, 2017).

It is argued that teachers with a higher sense of self-efficacy are associated with a higher quality of classroom environment as a result of processes that relate to pupil involvement, instructional strategies, and classroom management (Tschannen-Moran & Woolfolk Hoy, 2001; Zee & Koomen, 2016). In addition, they seem to be more likely to use instructional knowledge and skills that

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