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Professional development in practice

*Exploring how
lesson study
unfolds in schools
through the lens of
organizational routines*

Fenna Wolthuis

The research in this thesis was conducted at the department of Teacher Education at the University of Groningen. The PhD program was embedded in the Interuniversity Center for Educational Sciences (ICO).

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 groningen

Professional development in practice

Exploring how lesson study unfolds in schools
through the lens of organizational routines

PhD dissertation

to obtain the degree of PhD at the
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Chapter 1

General introduction

1.1 Introduction

Whenever a new professional development (PD) initiative appears, questions about its sustainability and life span quickly arise. Will this new initiative, like so many others, be a short-lived fad or hype too? Or will this one prove to be more lasting? Generally, new promising PD initiatives rarely ‘stick’ and are often only briefly implemented in shortened and simplified forms (Bryk, 2015; Desimone & Stuckey, 2014). Typically, “after researchers depart and funding has ended, implementation wanes” (Klinger et al., 2013). Oftentimes, new initiatives require a change in how schools are organized. For example, initiatives that focus on organizing collaborative and continuous learning for teachers break down the traditional grammars of schooling: the regular structures and rules that organize the work of instruction and maintain the individualistic and private nature of teachers’ work. While many innovative initiatives require a change in the traditional grammar of schooling, frequently initiatives that “reinforced an existing, taken-for-granted ‘grammar’ of subjects, classes, lessons, age-grades, and testing that had defined public education from the late 19th century were the most likely to be adopted and become institutionalized” (Hargreaves and Goodson, 2009, p. 7).

This has negative consequences. Lack of sustainability of innovative initiatives means that schools cannot reap the potential benefits these initiatives have to offer and when PD becomes too shortened and simplified it can – and has been found to – be ineffective (Desimone & Stuckey, 2014; Opfer & Pedder, 2011). The shortening, simplification, and discontinuation of PD initiatives has been suggested to stem, in part, from the failure to consider how PD is embedded within its organizational and situational context (Bryk, 2015; Klingner et al., 2013; Opfer & Pedder, 2011). As a result, calls are made for research to examine how PD initiatives are taken-up in and influenced by the school context. What is needed, it is argued, is more insight into what actually happens in schools regarding how PD initiatives unfold (Bryk, 2015).

However, the literature on professional development activities shows that these calls have not sparked sufficient response. Much of PD research (still) focuses on investigating effective design characteristics and outcomes and rarely on the context in which PD occurs (Kennedy, 2016). When studies do take the context into account, the context is often not comprehensively investigated but reduced to a number of variables, such as leadership, time, or resources (van Driel et al., 2012).

As such, the starting point of this dissertation is to explore if and how PD, in this case lesson study, unfolds in schools after researchers depart and funding has ended. Lesson study is a PD initiative originating in Japan and potentially contains all effective

design characteristics. Lesson study is shown to support teacher and student learning (Dudley et al., 2019; Lewis & Perry, 2015; Vermunt et al., 2019). However, like many other PD initiatives, it is also difficult to sustain and is often shortened and simplified, except in Japan where it has been a sustainable PD practice for the last 150 years (Akiba, 2016; Huang & Shimizu, 2016; Takahashi & McDougal, 2016). Lesson study, therefore, presents a useful case study as it experiences much of the familiar implementation problems of PD initiatives.

1.2 Theoretical framework

1.2.1 Professional development and organizational routines

Professional development is a broad notion that can refer to a variety of activities. For example, Little (1987) defined PD as “any activity that is intended partly or primarily to prepare paid staff members for improved performance in present or future roles in the school districts” (p. 491). For the purpose of this dissertation, we refer specifically to formal PD activities which (potentially) contain effective design characteristics: content focused, active, coherent, long-term, and collaborative (Desimone, 2009). These types of PD are frequently school-based, such as data use, instructional rounds, PLC, and lesson study. They therefore require extra attention to how the PD fits into the organizational context. However, as mentioned, how PD is embedded within its context has long been neglected in PD research. Only recently have researchers started focusing on how PD connects to the educational setting in which it occurs (Desimone & Stuckey, 2014; Bryk, 2015). Of particular interest for this dissertation is a group of researchers who have suggested that the concept of organizational routines holds great potential to examine educational initiatives as they unfold in schools because it offers a lens on practice (Spillane, 2012; Coburn & Turner, 2011; Little, 2012). Practice refers to “the coordinated activities of individuals and groups in doing their ‘real work’ as it is informed by particular organizational or group context” (Cook & Brown, 1999, pp. 386-387). Organizational routines, it is argued, are particularly suited to investigate initiatives in practice as they focus on how ways of working are created, maintained, and developed within organizations. Routines are vital for organizations: they structure the work, frame and focus interactions, maintain stability and offer avenues for change (Coburn & Turner, 2011; Feldman & Pentland, 2003; Spillane, 2012).

The concept of organizational routines stems from organization and business administration literature, where it has long been used as a way to examine work in orga-

nizations (Nelson & Winter, 1982; Sterne, 1940). After the foundational publications of Horn and Little (2010), Coburn and Turner (2011), and Spillane (2012), which suggest the concept's benefit for education research, various studies have adopted the concept of organizational routines to examine initiatives such as PLCs (Huguet et al., 2017), data use (Coburn et al., 2013; Hubers et al., 2017), and instructional rounds (Hatch et al., 2016) (see chapter two for an extended review of organizational routines in educational research).

Entities versus internal structure. In organizational literature the concept of organizational routines is used in various ways. One important distinction is between analyzing routines as entities or analyzing the internal structure of routines (Pentland & Feldman, 2005). When routines are treated as entities, they are considered a “black box” as their internal structure is not examined. Studies that are interested in the outcomes of routines generally focus on routines as entities while studies interested in how routines operate investigate the internal structure of routines (Parmigiani & Howard-Grenville, 2011). These different levels of analysis of routines translate into different definitions of routines as well. When routines are examined as entities they are generally defined as “repetitive, recognizable patterns of interdependent actions, carried out by multiple actors” (Feldman & Pentland, 2003, p. 95). Researchers who examine the internal structure further define the concept. The internal structure of routines consists of two parts: the ostensive and the performative aspects. The ostensive aspect involves the general script or idea of the routine. It refers to the “abstract, cognitive regularities and expectations that enable participants to guide, account for, and refer to specific performances of a routine” (Feldman & Pentland, 2008 p. 286). The performative aspect is the routine in practice and refers to the “actual performances by specific people, at specific times, in specific places” (Feldman & Pentland, 2008 p. 286).

Spillane (2012) has set forth several affordances of using the concept of organizational routines to study educational initiatives, in his case data use, in practice. First, “organizational routines are an important mechanism in school-level efforts to transform work practice in response to standards and high-stakes accountability” (Spillane, 2012, p. 116). Second, organizational routines also feature prominently in external efforts to transform work practice in schools. For example, in many educational reforms, organizational routines are designed and introduced into schools to change schooling (Peurach & Glazer, 2012). Policy often mandates that schools implement certain organizational routines to improve instruction (Resnick, 2010). Third, routines capture the relation between structure and agency as dialectical. Therefore,

using an organizational routine frame, we are less likely to attribute change

or constancy in practice entirely either to the proactive decisions of school heroes and heroines or to their reaction to social and organizational structures. Instead, practice is conceptualized as taking form in the interactions among school staff. These interactions are only possible because of the social structure made up of organizational routines, language, social norms, and so on (Spillane, 2012, p. 117).

Spillane (2012) favors the internal structure approach, offering various benefits of examining each (elaborated) aspect. In his take on the concept, the ostensive is “part of the formal structure just like formally designated positions (e.g., teacher, assistant principal) or formal documents (e.g., school improvement plans)” (Spillane, 2012, p. 118). The ostensive and performative aspect together capture the design and actual use of an initiative. Spillane (2012) offers several arguments for the use of the internal structure approach to routines. First, the ostensive focusses attention on the formal organizational structure: how work is designed and intended. Second,

framing by the ostensive aspect focuses our attention simultaneously on efforts by school staff (and others) to design and redesign organizational routines in order to transform practice as well as on extant, often taken-for-granted routines that conserve practice even in the face of pressures to transform it. Third, framing by the ostensive aspect enables us to examine how school-level design and redesign efforts are informed by, and come to embody, aspects of the institutional environment: how the macro informs the micro (p. 119).

Similarly, the performative aspect has some notable affordances as well. The performative aspect focuses attention on the social interactions amongst participants (Spillane, 2012). Moreover, the performative aspect stresses repeated actions by multiple actors rather than individual actions or behaviors. Together, these reasons show that the concept of organizational routines offers a versatile lens on practice.

However, the concept is not without its complications. Within organizational literature, the concept was long plagued by ambiguities, leading to various contradictions in the literature (Becker, 2004). What authors call routines often refers to slightly different things. According to Becker (2004), the ambiguity of routines

makes it difficult to get a good grasp of what routines are and [...] also diminishes the explanatory power of the concept of routines, and has slowed down progress

in understanding how precisely the concept of routines fits into theories of organizational change. (p. 643)

These conceptual difficulties have led to methodological and empirical issues as well. If researchers cannot adequately examine routines their conclusions might not be warranted. This raises the question to what extent ambiguities around the concept exist as well in educational research, and to what extent application of organizational routines can make good on its promise for examining educational initiatives in practice, as will be explored in Chapter two.

1.2.2 Organizational routines and organizational tasks and processes

For routines to be performed well, other tasks and processes also need to be in place. Becker (2004) explains that “action relies on external support. External support structures [...] help to control, prompt and coordinate individual actions” (Becker, 2004, p. 651). Within the organizational routines literature this is especially relevant for those studying the replication of routines to other firms. Studies have shown that the knowledge about how to make routines work are vital for making routines work across setting. Specifically, local learning processes connected to routines on how to set-up and organize routines are essential for their success (Becker, 2004). This is particularly relevant for PD as well as the knowledge about how to bring about good results is vital for ensuring that initiatives work across settings (Bryk, 2015; Paurach & Glazer, 2012). Applied to our context, PD research suggests one specific form of external support that is necessary for PD to become implemented: the organizational tasks and processes to set-up PD initiatives such as arrangements of time, participants, and credit for time-investment (Bannister, 2018; Stoll et al., 2006). Without adequately organizing the organizational tasks and processes for PD in schools, initiatives are likely to be discontinued or simplified (Bannister, 2018; Gitlin & Margonis, 1995). Current PD research does examine some organizational tasks and processes but does not do so comprehensively. As a result, we know, for example, from research dedicated to professional learning communities (PLC) (Stoll, Bolam, McMahon, Wallace, & Thomas, 2006) that sufficient time and supportive leadership reportedly are important factors for creating a PLC (Stoll et al., 2006). However, how these factors manifest in practice—such as which kinds of leadership are most effective or precisely how time can best be arranged—remains unclear. Connected to this is the idea that setting-up the organizational tasks and processes is simple and self-explanatory. For example, DuFour (2004) claimed, “building the collaborative culture of a professional learning community is a question of will. A

group of staff members who are determined to work together will find a way” (p. 10). This view suggests that when teachers and school leaders are sufficiently motivated initiatives will spread uninhibited through the school. The notion that building a PLC is a matter of will unjustly locates the success or failure of new initiatives primarily on the shoulders of teachers and ignores – and thereby inhibits – the development of additional support and workplace changes necessary for initiatives to function effectively (Bannister, 2018). Metaphors used for PD implementation – oil strain, snowball or domino effect – reflect this sentiment as well. All suggest that implementing and organizing PD is almost effortless.

1.2.3 Coupling theory

Coupling captures how responsive different elements in an organization are to one another (Orton & Weick, 1990). Coupling can be used in a variety of ways. In this dissertation, coupling is used to investigate how schools set-up organizational tasks and processes for lesson study and to investigate how schools themselves are coupled in relevant areas. Below each way is described in more detail.

Coupling of organizational tasks and processes. The set-up of organizational tasks and processes can be investigated through coupling. In particular, organizational tasks and processes can be set-up with loose, tight, or balanced coupling (de Lima, 2007; Dimmock & Tan, 2013). New organizational tasks and processes can be set-up in a tightly coupled manner when they are controlled by administrative orders and set-up in a top-down way (Shen et al., 2017). They can also be loosely coupled which happens when school leadership delegates all responsibilities to teachers (Pang, 2003), which aligns more with a bottom-up approach (Hautala et al., 2018). Lastly, a balanced coupling involves collaboration and communication between school leadership and teachers, making the organization a combined effort of the people involved. (Hökkä & Vähäsantanen, 2014).

Coupling of relevant areas in the school. There are two specific areas where coupling in school organizations will likely be relevant to setting-up organizational tasks and processes. These are coupling of PD and coupling of teams and departments. Differences between these areas can be captured in terms of tight or loose coupling. Tight coupling involves mutually agreed rules, coordination, inspection, feedback, and interdependence (Weick, 1976). By contrast, when an area is loosely coupled, people can and need to perform the work independently. If PD is loosely coupled, PD is an individual responsibility of teachers and there is little coordination, inspection, or mutually agreed rules on how PD is done. When PD is tightly coupled, there are mutually agreed

rules, coordination and feedback regarding PD. Research shows coupling of teams and departments differs (de Lima, 2007; Siskin, 1997; Witziers et al., 1999). When departments are tightly coupled and they are comfortable and used to collaborating, this contributes to embedding and sustaining initiatives (Vangrieken et al., 2015).

1.2.4 Organizational routines and school factors

The lens of organizational routines also brings attention to the influence of the context in which these routines are situated. Feldman and Pentland (2003) explain that routines “are always enacted within the context of organizational and institutional structures that define a set of possibilities for the participants” (p. 109). The structure of organizations in which routines occur matters (Becker, 2004). In particular, “routines are embedded in an organization and its structures, and are specific to the context” [...] “Context matters because of complementariness between routines and their context” (Becker, 2004, p. 651). As with the organizational tasks and processes, the concept of routines underscores the relevance of examining school factors. Three different types of school factors by Viano et al. (2020) are used: (1) features of employment, (2) malleable school processes, and (3) fixed school characteristics (Viano et al., 2020). The first type of school factors involves features of employment. Viano et al. (2020) focus on structural features that are “subject to regulations and are likely applied to all schools managed by the same organization (e.g., all schools in the same school district)” (Viano et al., 2020, p. 5). The second type of school factors are malleable school processes. This refers to those processes “for which the locus of control is expected to be within the school and under the control of school administrators. Malleable factors can be changed by school administrators in the short term” (Viano et al., 2020, p. 5). The third school factor involves fixed school characteristics. These are “less readily altered features that can only be changed over a longer time” (Viano et al., p. 5).

1.2.5 Applied to lesson study

Overall, the above illustrates the different uses of the concept of organizational routines and the specific areas it directs attention to – organizational tasks and processes and school factors – in order to grasp how new ways of working unfold in practice. These theories and frameworks will be used to explore how schools continue with a specific PD initiative, namely lesson study. How the theories and frameworks will be applied to lesson study is described below.

1.2.6 Lesson study through the lens of organizational routines

Lesson study provides the case study in this dissertation to examine how a PD initiative unfolds in schools after the end of a project when researchers depart and funding ends. Lesson study is a form of teacher inquiry during which small groups of teachers go through a research cycle. The concept of organizational routines is used to examine how lesson study unfolds in schools. As the concept of routines can be applied at two different levels of analysis, lesson study can be investigating with routines in two different ways: through the entity approach to routines and by investigating the internal structure of routines.

1.2.6.1 Lesson study from the entity approach.

When applying the concept of routines at the level of entities, lesson study is examined as a “repetitive, recognizable pattern of interdependent actions, carried out by multiple actors” (Feldman & Pentland, 2003). Repetitiveness captures the continuous nature of lesson study. Generally, lesson study is intended as a repeated practice that allows continuous improvement in schools (Hiebert & Stigler, 2017). Recognizable pattern of interdependent actions, then, refers to the different phases of the research cycle as they unfold in schools. Our version of lesson study is based on the American adaptation by Stepanek et al. (2007) and the British adaptation by Dudley (2011), which contains six phases (see figure 1).

Figure 1. Six stages of the Dutch lesson study cycle

In the first phase, groups formulate a lesson goal and long-term goals for students and develop a research question. During the first phase, teachers can undertake a literature study, make an inventory of good practices, and/or explore team members' (practical) knowledge to explore their research problem in more detail (de Vries et al., 2016). In

the second phase, the groups plan the research lesson by developing SMART (specific, measurable, acceptable, realistic, and time-bound) lesson goals, choosing case pupils, and describing expected student responses. During the third phase, one teacher teaches the research lesson while the other group members observe the learning of the case pupils. After the lesson is taught, the case pupils are interviewed. In phase four, the research lesson is discussed by focusing on the research goal and student learning. In phase five, the original research lesson is redesigned and retaught, based on the conclusions from the post-lesson discussion. Lastly, in phase six, the group reflects on the entire lesson study process and shares their gained insights with the wider school staff. Multiple actors, regarding lesson study, involves its collaborative nature, which is an essential feature of the research cycle (de Vries et al., 2016; Takahashi & McDougal, 2016).

1.2.6.2 The internal structure of lesson study.

The concept of organizational routines can also be analyzed at the level of its internal structure. Applied to lesson study, this involves investigating the general script (the ostensive aspect) of lesson study and its specific performances (the performative aspect).

General idea of lesson study. In this study, the ostensive aspect is operationalized as the subjective understanding participants have of the script of the routine. The adaptation of lesson study used during the project considered the general idea of lesson study as follows: a collective research process through which teachers develop their pedagogical content knowledge and research student learning (de Vries et al., 2016). However, oftentimes the general idea of lesson study is misunderstood (Akiba, 2016). In particular, the main idea of lesson study is often simplified to lesson planning or as creating the perfect lesson (Fujii, 2014; Lewis et al., 2006; Perry & Lewis, 2009; Yoshida, 2012).

Performance of lesson study. The performative aspect captures how lesson study is actually performed in schools. Research shows that, when performing lesson study, teachers often leave various elements, thereby shortening and simplifying the initiative (Akiba, 2016; Akiba & Wilkinson, 2016). For example, Seleznyov (2018) showed that teachers leave out the identification of a research theme (33%), studying curriculum material (63%), or the live observation of lessons (8%). At the same time, there is also evidence that lesson study is performed without adaptations (Baricausa, 2016; Coenders & Verhoef, 2017; Perry & Lewis, 2009). In chapter 3, the adaptations to lesson study are explored in more detail.

Fidelity and local adaptations perspectives. Notions on how lesson study, and PD in general, should be performed are influenced by views on implementation, namely implementation fidelity and local adaptation. Implementation fidelity holds that

initiatives need to be carried out faithfully as intended whereas the local adaptations perspective states that practitioners can make adaptations to initiatives as long as core features are maintained (Quinn & Kim, 2017). The lens of organizational routines does not preordain a specific view on what qualifies as successful performance of lesson study. This dissertation takes a local adaptations view: teachers can perform adaptations of lesson study as long as core features are maintained. When core features are left out, lesson study becomes too simplified. Given that the idea of lesson study involves teacher research, the core features of lesson study are seen as those that distinguish the initiative as a research process.

While the fidelity approach is more in line with the approach of policy-makers, practitioners favor adaptability and longevity as standards for gauging success (Perry & Lewis, 2009). Perry and Lewis (2009) give two reasons in favor of electing a local adaptability view: (1) lesson study is still relatively new in contexts outside of Japan and we still need proof that practitioners will accept and sustain this initiative, and (2) since lesson study is not yet well-documented or defined, fidelity and spread standards are problematic (Perry & Lewis, 2009). Regarding the first point, lesson study is a rather new form of PD in the Netherlands. In our particular context, the north of the Netherlands, lesson study was first introduced and used during the cross-school project in 2014 on which this dissertation builds and draws data (de Vries & Prenger, 2017). Regarding the second point, discussions on nature and elements of lesson study remain ongoing (see Wood, 2018). While some researchers defend variations of lesson study (for example, Durden, 2017), other are less lenient and prescribe a specific format that needs to be followed (for example, Takahashi & McDougal, 2016). These perspectives reveal ongoing debate on the form lesson study should or can take.

1.2.6.3 The organizational tasks and processes for setting-up lesson study

Setting-up organizational tasks and processes for lesson study is important for its implementation and continued performance (Ermeling & Graff-Ermeling, 2016; Xu & Pedder, 2014). However, there is very little research that examines organizational tasks and processes for lesson study in more detail because it seems to be mundane or simply self-evident. Practical handbooks on lesson study do offer some more concrete recommendations. For example, they suggest schools need to set-up ways to arrange participation, schedule lesson study meetings, give participating teachers credit for their time-investment in lesson study, arrange space for teachers to meet, create ways to consolidate and share findings, and assign roles and responsibilities (e.g., de Vries et al., 2016; Ermeling & Graff-Ermeling, 2016; Stepanek et al., 2007).

1.2.6.4 Lesson study and school factors

To examine the influence of school factors on lesson study's continuation after the cross-school project, we investigate the influence of features of employment, malleable school processes, and fixed school characteristics in the 14 schools (Parmigiani & Howard-Grenville, 2011). Research on lesson study shows that relevant features of employment are working hours and turnover (Akiba, 2016). For example, the amount of instruction hours matters to how much time teachers have to engage in lesson study. Malleable processes relevant to lesson study are policy on PD and scheduling (Akiba, 2016; Akiba & Wilkinson, 2016). Akiba (2016) found that the custom of U.S. districts to offer multiple PD options ('the cafeteria approach') led to shortened and simplified versions of lesson study (Akiba & Wilkinson, 2016). She also found that the way in which scheduling was done, namely through prioritizing instruction time, led to lesson study being shortened from a two-month to a two- or four-day process (Akiba, 2016). So far, studies on lesson study have not addressed the role of fixed school characteristics. However, PD research more broadly does indicate that, for example, school size influences the implementation of new initiatives. Generally, the larger the school the more barriers to change occur (DeMatthews, 2014).

1.3 Investigating lesson study

Based on the above there are two different levels of analysis that can be applied to routines which will both be taken-up in this dissertation. We will examine lesson study through the routines as entities approach and we will explore lesson study through the analysis of routines that focusses on the internal structure. This dissertation will use the lens of coupling to examine how the nine schools that continued with lesson study after the project set-up organizational tasks and processes in their own setting. Additionally, coupling will be used to investigate the cultural differences between relevant areas in the schools. The influence of school factors will be investigated on whether and how schools continue with lesson study.

1.4 The research context

In the Netherlands, lesson study is a relatively new but growing PD initiative (de Vries et al., 2016). This dissertation focuses on 14 secondary schools in the north of the Neth-

erlands that participated in a Professional Learning Network (PLN) project. PLNs are generally defined “as any group who engage in collaborative learning with others outside of their everyday community of practice, in order to improve teaching and learning in their school(s) and/or the school system more widely” (Poortman & Brown, 2018, p.1). During the PLN participants worked with lesson study. The project was undertaken at a university teacher education program in partnership with other teacher training schools and secondary schools. Two PLNs were set-up, one for math and one for Dutch language, for four years (2014–2017). During the project, teachers learned extensively about lesson study, participating in six cycles during the project.

The cross-school project was set-up to develop teacher learning, prepare teachers to become lesson study facilitators, and introduce lesson study at their own schools. Various strategies were used during the cross-school project to enable schools to introduce and continue with lesson study in their own setting. First, meetings were organized for school leaders from the respective schools to update and inform them about the lesson study progress. Second, closing conferences were held at the end of each cross-school project year where lesson study teams presented their findings to colleagues and school leadership. Third, the last cycle of the project was organized not in the cross-school teams of the project but at each respective school, enabling teachers to introduce lesson study to their colleagues. After four years, the cross-school project ended and university support and funding ceased. Schools could decide for themselves whether and how to continue with lesson study, which nine schools did.

1.5 Objective of this dissertation

This dissertation explores how lesson study as PD unfolds in schools after the specific project ended and support and funding ceased. Specific attention is given to examine how schools set-up organizational tasks and processes for PD initiatives (Bannister, 2018; van Driel et al., 2012) and the influence of school factors on the PD initiative (Kennedy, 2010). The concept of organizational routines will be used in this dissertation to explore how lesson study unfolds. To examine how the concept needs to be defined, operationalized and applied to best explore initiatives in practice we investigate how organizational routines are applied in educational literature. The following four research questions are guiding this dissertation:

1. How are organizational routines defined, operationalized and studied in educational research?
2. (How) Did teachers understand, perform, and evaluate lesson study in their schools?
3. Which organizational tasks and processes did schools set-up for lesson study and how were relevant areas in the school coupled and of influence?
4. Which school factors influenced the (dis)continuation of lesson study and how?

1.6 Outline of this dissertation

1.6.1 Chapter 2: Review of the concept of organizational routines

As pointed out above, while organizational routines are seen as promising it is also known to be an ambiguous and methodologically complex concept. Therefore, the starting point of this dissertation is to examine how the concept is and can best be used to investigate educational initiatives in practice. To investigate the potential and limits of the concept and the current strengths and weaknesses within current research practice we will explore the definitions, operationalizations, key findings, and validity of examining routines. Chapter two focuses on the following research questions: “How and at what level are routines defined and operationalized? What are the key findings of the studies? How does the validity of examinations of routines vary?” Several databases were searched, which resulted in 977 peer-reviewed studies. As the focus of this dissertation is new initiatives, studies in this review had to relate to PD, educational reform, school improvement, or policies for new educational initiatives regarding PD, school improvement, and educational reform. In the end, 24 studies met the inclusion criteria.

1.6.2 Chapter 3: lesson study through the lens of organizational routines

Exploring lesson study through the lens of organizational routines reveals how adaptations occur and shows which changes lead to ‘lethal’ or local adaptations. This study explores adaptations of lesson study by examining if and how teachers take-up lesson study within their own schools after the cross-school project ends. The research study is informed by the following research question “(How) Did teachers understand, perform, and evaluate lesson study?” Semi-structured, open-ended interviews were conducted with 21 former project teachers. Questions were asked on what they considered the general script (ostensive aspect) of the lesson study, if and how they continued to perform lesson study in their own schools (performative aspect), and how they evaluated the

usefulness and feasibility of lesson study. The data analysis involved two steps. First, a coding scheme was developed based on Feldman and Pentland (2003) and Witt (2011), which distinguished the ostensive and performative aspects and teachers' evaluation of lesson study's usefulness. Step two consisted of grouping, analyzing, and discussing coded segments to examine whether teachers maintained or modified lesson study as presented during the cross-school project.

1.6.3 Chapter 4: Organizational tasks and processes for lesson study

Chapter four examines how schools set-up the organizational tasks and processes when they continued with lesson study after the cross-school project ended. The following research questions informed this study: (1) Which organizational tasks and processes did schools set up and how were they coupled? (2) How did the set-up of organizational tasks and processes proceed? Semi-structured, open-ended interviews were conducted with 10 school leaders and 15 teachers ($n = 25$) from the 9 schools that participated in the cross-school project and continued with lesson study after the project ended. During interviews, questions were asked about how they organized lesson study and how they experienced the organizational arrangements. Interview data was analyzed by creating summaries for each school to identify which tasks and processes were set-up and how they were coupled, what the coupling of PD was in each school, and how relevant teams and departments were coupled. Using a coupling lens, cultural differences between schools were examined and how schools set-up organizational tasks and processes. This provides insight into what led to the most satisfactory arrangements for lesson study.

1.6.4 Chapter 5: The influence of school factors on lesson study

Chapter five investigates how school factors influence if and how lesson study is continued in the 14 schools after the cross-school project and its funding ended. Semistructured, open-ended interviews were conducted with 21 teachers (former project participants) and 14 school leaders ($n = 35$) from the 14 different schools. Data was analyzed by creating summaries for each school to identify school factors. Subsequently, narrative portraiture was used to investigate how school factors simultaneously influenced the continuation of lesson study. In chapter five routines are analyzed at the level of entities. The study explores which of and how the three types of school factors (Viano et al., 2020) influenced the continuation of lesson study as a (1) repetitive, (2) recognizable patterns of interdependent actions, (3) carried out by multiple actors (Feldman & Pentland, 2003). The simultaneity of school factors was explored through narrative portraiture.

1.6.5 Chapter 6: Summary, discussion, and conclusion

This chapter contains a general conclusion of the dissertation. Gained insights are discussed on how lesson study unfolds in 14 schools. Specifically, what can be learned from the findings of this dissertation for PD more broadly is addressed. Lastly, limitations and future directions for research are given and the dissertation is closed with concluding remarks.

Chapter 2

Review of organizational routines in education research

Based on: Wolthuis, F., Hubers, M. D., de Vries, S., & van Veen, K. (accepted). The concept of organizational routines and its potential for investigating educational initiatives in practice: A systematic review of the literature. *Review of Educational Research*.

Abstract

This review examines the concept of organizational routines and its potential for investigating educational initiatives in practice. The studies in our review revealed three different approaches to routines: (1) examining organizational routines as entities, (2) (also) examining conversational routines, and (3) examining the internal structure of organizational routines. When routines were treated as entities, most studies focused on the outcomes of routines, which meant that this approach was not useful to explore how the initiative itself developed in practice. One study specifically examined the routine itself as an entity by operationalizing and investigating the specific elements of routines (repeated, recognizable pattern of interdependent actions, carried out by multiple actors), which did allow for an examination of how the initiative unfolded in schools. Investigation of the internal structure of organizational routines also offered a valuable tool for examining educational initiatives in practice, as it looks at both the intended routine and its actual performance. Current definitions, operationalizations, and examinations can lack clarity and validity. At present, the concept of organizational routines holds potential, but is also ambiguous. To bolster the potential of the concept, two working definitions of organizational routines are formalized which best allow researchers to investigate initiatives in practice. These working definitions are needed to create clarity regarding the concept and for it to be able to deliver on its promise for providing meaningful and relevant information on how new initiatives actually work and unfold in practice.

2.1 Introduction

Improving schools through educational initiatives requires not just the knowledge that initiatives are effective, but also insight into how to bring about those results in specific settings (Bryk, 2015). This claim has been made in relation to various fields, such as educational policy and reform (Farley-Ripple et al., 2018; Resnick, 2010), professional development (van Driel et al., 2012), and school improvement (Bryk, 2015). How initiatives unfold in specific settings is important, as studies have continued to show that the particulars of the context matter and influence the effectiveness of interventions (Kraft et al., 2018; Sheridan et al., 2019), and there is a long history of literature that shows how the ‘grammar of schooling’ change how reforms unfold in schools (Hubbard & Datnow, 2020; Tyack & Tobin, 1994). As a result, different approaches to educational research have focused on investigating and understanding initiatives in practice, such as design-based implementation research and improvement science (Penuel et al., 2020).

Practice refers to “the coordinated activities of individuals and groups in doing their ‘real work’ as it is informed by particular organizational or group context” (Cook & Brown, 1999, pp. 386-387). To research new initiatives in practice thus involves investigating how they actually get used (Spillane, 2012) and how people perform in relation to the new initiative in the course of their ongoing everyday work (Farley-Ripple et al., 2018), as well as how the new initiative then relates to instructional changes or organizational learning (Coburn & Turner, 2011). Insight into how educational initiatives unfold in practice makes it possible to predict their outcomes and gain understanding of when and under what conditions initiatives establish productive pathways to educational improvement (Coburn & Turner, 2011).

Calls to attend to initiatives in practice have not sparked sufficient response though (Bryk, 2015; van Driel et al., 2012). For example, studies on professional development (PD) tend to focus on determining its effective characteristics (Desimone, 2009), not on how PD is taken up in practice (van Driel et al., 2012). The underlying assumption implies that as long as PD has appropriate design characteristics, it will be effective in practice. Yet several studies fail to find positive outcomes of PD, even with good design characteristics (e.g., Desimone & Stuckey, 2014; Kennedy, 2016), which prompted some researchers to consider how PD is implemented in practice. For example, a few studies consider whether local adaptations to PD initiatives might determine their effectiveness (Penuel et al., 2011; Quinn & Kim, 2017), though even these efforts remain somewhat limited (Kennedy, 2016; van Driel et al., 2012). Another example arises from research dedicated to professional learning communities (PLC) (Stoll et al., 2006), which describes

the processes used to create and develop PLCs and the factors that help or inhibit their creation and development but does not reveal why specific factors might be important or how they take shape in practice. That is, leadership by the head teacher and principal, distributed leadership, and professional learning coordination reportedly are important factors for creating a PLC, and then school size, school phase, location, the mix of pupils, and school history can promote or inhibit a PLC's development (Stoll et al., 2006). However, how these factors manifest in practice—such as which kinds of leadership are most effective in PLCs or precisely how a school's location might shape PLC initiatives—remains unclear.

To address these gaps, the concept of organizational routines offers a potentially promising approach (Coburn & Turner, 2011; Spillane, 2012). Organizational research has leveraged the notion of routines productively for decades, where they have long been used as a way to study how (new) ways of working are created, maintained, and developed and how organizations learn and change (Becker, 2004; Nelson & Winter, 1982; Stene, 1940). Several landmark articles have proposed using the concept as a tool to examine educational initiatives (Coburn & Turner, 2011; Farrell & Coburn, 2017; Horn & Little, 2010; Peurach & Glazer, 2012; Spillane, 2012). Accordingly, some education literature has adopted the concept of organizational routines to examine initiatives such as PLCs (Huguet et al., 2017), data use (Hubers et al., 2017; Spillane, 2012), lesson study (Wolthuis et al., 2020a; 2021), and instructional rounds (Hatch et al., 2016) in practice. However, the concept is not without its complications. Within the organizational literature, the concept was long plagued by ambiguities, leading to various contradictions in the literature (Becker, 2004). What authors have called 'routines' often refers to slightly different things. According to Becker (2004), the ambiguity of routines

makes it difficult to get a good grasp of what routines are and ... also diminishes the explanatory power of the concept of routines, and has slowed down progress in understanding how precisely the concept of routines fits into theories of organizational change. (p. 643)

These conceptual difficulties have led to methodological and empirical issues, because if researchers cannot adequately examine routines, their conclusions about them might not be warranted.

This raises the question to what extent ambiguities around the concept exist as well in educational research, and to what extent application of organizational routines can make good on its promise for examining educational initiatives in practice. In

this review, we show that different definitions and operationalizations of the concept also exist in educational research. Routines also refer to different ‘things’. Researchers have described and observed routines at different levels of analysis and with different terminology, leading to confusion about what routines precisely entail. There is value in observing and describing organizational routines at different levels; however, this requires clarity and consensus on what these levels are and which terms to apply. This review aims to provide that clarity. An additional value of this study lies in a description and analysis of how organizational routines have been examined, to see whether investigations have been valid and whether the concept has delivered on its potential. This review examined triangulation (method, theory, and data source) and member checking across the studies, revealing both the potential and limitation of the concept for studying educational initiatives and exposes some of the strengths and weaknesses in current research practice.

2.2 Theoretical Framework

2.2.1 Organizational routines in organizational literature

Literature from organizational research can help examine the differences within educational research regarding how the concept of organizational routines has been described and observed. Below we discuss how the concept has been defined and operationalized in the organizational literature, the main findings from different approaches to the concept, and the methodological issues in applying the concept.

2.2.2 Definitions and operationalizations

One important distinction is between the different levels at which routines are analyzed. There are two levels, namely (1) routines as entities or (2) the internal structure of routines (Pentland & Feldman, 2005). When routines are treated as entities, they are considered a “black box,” as their internal structure is not examined. These different approaches to routines translate into different definitions of routines as well. When routines are examined as entities, they are generally defined as “repetitive, recognizable patterns of interdependent actions, carried out by multiple actors” (Feldman & Pentland, 2003, p. 95). Researchers who examine the internal structure also define these aspects. Routines consist of two parts, which are called the performative and the ostensive aspects. The ostensive aspect captures the structure of the routine and the performative captures its specific performances. The ostensive aspect is defined as the “the ideal or schematic

form.... It is the abstract, generalized idea of the routine, or the routine in principle” (Feldman & Pentland, 2003, p. 101), whereas the performative aspect is defined as the “specific actions, by specific people, in specific places and times” (Feldman & Pentland, 2003, p. 101).

Another element often connected with organizational routines is artifacts. They are seen by some as tangible objects, separate from organizational routines, that may be specific to certain routines (e.g., Carayannis et al., 2017). By contrast, others consider artifacts as integral to routines, potentially equivalent to human actors in producing patterns of action (e.g., D’Adderio, 2011). Thus, researchers see artifacts as indicators of the ostensive aspect (Feldman & Pentland, 2003) or see artifacts and actors as interconnected (Jarzabkowski et al., 2016), such that artifacts are indicators of both the ostensive and the performative aspects (Pentland & Feldman, 2008).

2.2.3 Key findings

In organizational research, studies that examine routines as entities are interested in different research questions than those studies that examine routines’ internal structure. As a result, key findings between studies vary. For example, studies that examine routines as entities focus on the outcomes of routines and explore how routines play a role in organizational learning (Parmigiani & Howard-Grenville, 2011). Those that explore the internal structure are interested in how routines themselves operate. Studies from this approach have showed how routines change and remain stable, how artifacts influence routines, how people influence routines, and how routines succeed or break down (Parmigiani & Howard-Grenville, 2011). Organizational research indicates that how routines are approached matters for the kinds of findings that can be produced when applying the concept and that different approaches to the concept serve different research interests (Pentland & Feldman, 2005; Parmigiani & Howard-Grenville, 2011). This raises the question whether and how both approaches to routines are suitable for investigating educational initiatives and what specific research questions about educational initiatives in practice each approach can answer.

2.2.4 Methodological issues

The concept of routines is also plagued by empirical issues (Becker, 2004; Pentland & Feldman, 2008). It can be challenging to examine routines. It can be unclear where and when routines begin and end, as they can be distributed over space and time. As such, when researchers do not know the specific routines beforehand, member checking can be needed to ensure that the routines they identify are correct. Member checking entails

actively involving the research participant in checking and confirming the results (Birt et al., 2016). Member checking can reduce the potential of researcher bias and contribute to the credibility of findings. To investigate how studies apply the concept of routines therefore includes an investigation of when and how member checking is done.

Moreover, because routines involve multiple participants and can be distributed within and between organizations, different data sources and multiple methods of data collection are often required to gain a comprehensive understanding of the routine (Parmigiani & Howard-Grenville, 2011). Therefore, to capture routines well and to discuss and critique the methodological quality of studies applying the concept of routines, triangulation needs to be applied. In general, triangulation is a powerful way of demonstrating concurrent validity (Campbell & Fiske, 1959; Cohen et al., 2011). Regarding organizational routines, three types of triangulation are relevant: method triangulation and data source triangulation because multiple methods of data collection are required and multiple actors are involved (Denzin, 1978; Patton, 1999; Parmigiani & Howard-Grenville, 2011). Additionally, theory triangulation is relevant for the purpose of our review as it reveals the strengths and limitations of the concept of organizational routines.

Method triangulations involves the use of multiple methods of data collection about the same phenomenon, such as interviews, observations, and documents. Regarding routines, people often use physical artifacts such as checklists and written procedures to capture (a part of) the routine. However, this does not always suffice. Feldman and Pentland (2008) illustrate this with an example: “A service establishment posts a sign that says, ‘The customer is always right.’ When challenged, employees will usually dismiss the sign as irrelevant to the particular case” (p. 14). Therefore, multiple methods of data collection are needed to investigate the routines. When they all point towards the same results, this increases the confidence that the data capture the routine.

Data source triangulation involves the collection of data from different types of people, which includes different individuals and groups to gain multiple perspectives and validation of data (Carter et al., 2014). Because routines are distributed, they can involve various people performing different tasks and roles within the routine. All participants will therefore have (slightly) different perceptions of the routine, so that “the challenge here is finding the thread – the narrative connection – that allows us to identify actions as part of a whole and to identify a diverse set of activities as a coherent flow” (Pentland & Feldman, 2008, p. 13). Data source triangulation is therefore required to ensure that the routine is comprehensively captured and can be identified.

Theory triangulation means that different theories are used to analyze and interpret

data. For the purpose of this review, we examine theory triangulation specifically with the aim of investigating the potential and the limits of the concept of organizational routines. A comparison of studies that rely only on the concept of routines with studies that add additional theory can show what the concept of routine can and cannot explain. The limits of the concept become visible when we consider in what cases additional theory needs to be incorporated.

2.3 The current study

This review study is concerned with investigations of educational initiatives in practice that used the concept of routines. Whether the concept of routines in education can make good on its promise for exploring educational initiatives in practice depends on a variety of aspects. To investigate the potential and limits of the concept and the current strengths and weaknesses within current research practice, we will explore the definitions, operationalizations, key findings, and validity of investigations of routines. The research questions addressed in this review study are the following:

1. How and at what level are routines defined and operationalized?
2. What are the key findings of the studies?
3. How valid are the routines investigated, in terms of triangulation and member checking?

2.4 Method

2.4.1 Literature review

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol outlined by Moher et al. (2015) provided a foundation for the work of this systematic review. We determined how the educational research literature has referred to organizational routines by surveying key articles and conducting a pilot search. We found that both “organizational routines” and “routines” have been used. To capture the application of organizational routines by various studies, we relied on both a wide search for the term “routine” and a narrower search for articles that used the specific term “organizational routine.” As depicted in Figure 1, we then searched the ERIC, PsycINFO, and Web of Science databases for the period from 2010 to 2020. We chose

to start our search from 2010, as this was the publication date of the first of the three landmark articles on routines (e.g., Coburn & Turner, 2011; Horn & Little, 2010; Spillane, 2012) within educational research. After several trial runs, the focal searches featured the queries [“(organizational routin*)” OR (“organisational routin*)” OR (routin*)] and [“(school”) OR (“education”)]. Our search strategy produced a pool of 977 publications.

Figure 1. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram detailing identification, screening, and inclusion of studies. Adapted from Moher et al. (2009).

2.4.2 Inclusion criteria for articles

In reviewing the abstracts of these 977 publications, we applied several inclusion criteria. Articles had to (1) be written in English (2) be peer reviewed, (3) not a conceptual paper, (4) pertain to PD, educational reform, school improvement, or policies for new educational initiatives regarding PD, school improvement, and educational reform; (5) focus on routines, (6) define and operationalize routines; (7) have a methods section. For example, because studies had to pertain to new educational initiatives, the following studies using the concept of routines were excluded: a study on student discipline routines (Diamond & Lewis, 2016), a study on student classroom placement routines (Park et al., 2017), and a study on organizational routines as manifestations of legal standards (Ottesen & Møller, 2016). The application of these five inclusion criteria left us with 24 studies for the analysis.

2.4.3 Coding Process: Phase 1

The review involved a two-phase, iterative coding process. In phase one, our focus was on collecting descriptive information about each paper, as expected within a systematic review. All abstracts and studies were read to identify the location of the study, the research questions, and the research method used in the study (qualitative, quantitative, mixed method). Summaries were generated according to these categories (shown in Tables 1 and 2). Studies were predominantly conducted in North America ($n = 17$), followed by Europe ($n = 5$), Southeast Asia ($n = 1$) and the Middle East ($n = 1$). Most of the studies reviewed used qualitative methods ($n = 20$), and the remaining four studies employed a mixed-method design. No quantitative studies were present.

2.4.4 Coding Process: Phase 2

Phase two of the coding process was conducted to answer our three specific research questions. The coding process was designed to make the following explicit:

- Level of analysis (e.g., entities or internal structure)
- Definitions and operationalizations
- Key findings
- Validity of investigations of routines

Studies were coded both deductively and inductively. The initial coding of definitions and operationalizations was cyclical, iterative, and inductive, examining the different levels of analysis, definitions and operationalizations found in the studies. Based on these findings, we fine-tuned codes to organizational routines, conversational routines, conversational moves, ostensive aspect, performative aspect, and artifacts. To investigate the validity of investigations we used a coding scheme addressing (a) member checking, (b) method triangulation, (c) data source triangulation, and (d) theory triangulation (Birt et al., 2016; Carter et al., 2014). Member checking was determined by investigating whether and how studies reported on member checking. Method triangulation was determined by investigating what kinds of data was collected and how to examine routines. Data source triangulation was determined by investigating if and how different groups were approached to collect data. Theory triangulation was examined by investigating the theoretical framework studies used to interpret the data. Central to this examination was identifying whether and how studies relied exclusively on the concept of organizational routines or added additional theory. For each study, we selected and summarized sentences in relation to the definition and

operationalizations of routines, the key findings, and the validity of the examination of routines. Throughout the data analysis process, the research team consistently shared and critically discussed their tentative interpretations. Table 1 and 2 show the descriptive information of the studies, the level of analysis of routines, and the key findings. In appendix 1, findings regarding the validity of the examinations of routines are summarized per study.

Table 1. Studies using the entities approach

Author(s), year, country	Research questions	Design	Key findings
1. Coburn et al., 2013, United States	What influences teachers' networks? Why do some teachers have networks that are likely to support individual and organizational change, while others do not?	Qualitative longitudinal multiple case study	Interaction routines interrupted conventional ways that teachers talked together.
2. Gannon-Slater et al., 2017, United States	In what ways and to what extent do cultures of data use "show up" in teacher teams' data talk, and how does this data talk address issues of equity?	Qualitative case study	The specific district and team culture present in the teams performing the organizational routine influenced the extent to which they were able to build equity cultures.

Table 1. Continued

3. Hatch et al., 2016, United States	To what extent do networks focused on teaching and learning in districts engaged in instructional rounds exhibit the characteristics of communities of practice? What is the relationship between the evolution of the networks focused on teaching and learning and the changes in the nature, extent, and understanding of rounds?	Mixed method longitudinal multiple case study	No consistent association was found between engagement in rounds and the development of social networks that have the characteristics of communities of practice.
4. Hopkins et al., 2013, United States	This study reports on one school system's efforts to redesign its infrastructure for mathematics instruction by promoting teacher leadership.	Mixed method case study	The district's redesign efforts to support teacher leadership coupled district curriculum and school and classroom practice.
5. Horn & Little, 2010, United States	How might talk among teachers supply opportunities for professional learning and account for improvements in teaching?	Qualitative case study	Conversational routines provided different resources for each group to access, conceptualize, and learn from problems of practice.
6. Huguet et al., 2017, United States	How do principals design tools and routines to guide teachers' data use in high-need middle schools? How do these tools and routines shape data-use professional learning communities (PLCs) in high-need middle schools?	Qualitative comparative case study	Hands-off monitoring of routines and tools was found to be beneficial to the development of PLCs whereas micromanaging was not.

Table 1. Continued

7. Kallemeyn, 2014, United States	What organizational and political contexts facilitated data use among practitioners in one school (Abbott)? More specifically, what organizational routines regarding data use did leaders at Abbott facilitate, and what were the outcomes of the data use?	Qualitative case study	Two organizational routines, collaborative teams and processes of inquiry, facilitated teachers' data use. Routines stored knowledge about the types of data teachers ought to notice.
8. Park, 2018, United States	What types of data conversation moves and routines support shifts towards inquiry and assets-based thinking?	Qualitative case study	Two specific data conversation routines (grade-level PLCs and LRT meetings) and four conversational moves supported the shift towards inquiry and assets-based thinking.
9. Salisbury, 2020, United States	What aspects of organizational routines and artifacts support teams of teachers in engaging in culturally relevant practices? How are these routines and artifacts embedded into the organizational culture of the school to maintain teacher learning and inquiry as the norm?	Qualitative case study	Leaders developed a web of organizational structures, routines, and artifacts that nurtured the adoption of culturally relevant practices.
10. Spain, 2017, United States	What role did routines play in eroding the collective meaning of resource allocations and the value of the extra curriculum in public education?	Qualitative comparative case study	The routine structured what ideas entered into district policy making, with local institutional consequences.

Table 1. Continued

11. Wachen et al., 2018, United States	Do teachers describe using performance data to change their instructional practices in the classroom? What factors are perceived to influence the extent to which this type of data use occurs?	Qualitative comparative case study	Organizational factors (time, data availability, routines, school leadership, and power relations) played a role in mediating the use of data for instructional adaptation.
12. Wolthuis et al., 2021, the Netherlands	What simultaneously occurring school factors influence the continuation of lesson study in 14 schools after the LSPLN project ends, and how do they do so?	Qualitative multiple case study	Nine school factors influenced the (dis)continuation of lesson study: part-time appointment, turnover, (un)planned leave of absence, work location, beginning teachers, policies on improvement, scheduling, school finances, and school size.

Table 2. Studies investigating the internal structures of routines

Author(s), year, country	Research questions	Design	Key findings
1. Datnow et al., 2020, United States	How do organizational routines, particularly teacher team meetings, provide opportunities for redefining or reinforcing accountability? What role do leaders and teachers play in this process?	Qualitative case study.	Meetings were dominated by conversational routines that reflected state accountability systems. Attempts were made to shift meeting routines, however, existing routines endured.

Table 2. Continued

2. Hubers et al., 2017, the Netherlands	To what extent is data use sustained in schools using the data team intervention, where sustainability of data use is defined in relation to the extent and manner of development over time of the ostensive and performative aspects of schools' organizational routines regarding: 1) engaging in the data team intervention, 2) acting upon their data team's improvement plan, and using data for 3) school development and 4) instruction?	Mixed method longitudinal exploratory case study	Little changed in the secondary schools regarding data use: the policy and vision did not develop (ostensive aspect) and data use activities (performative aspect) remained stable.
3. Liljenberg & Nordholm, 2018, Sweden	What routines were introduced in schools and preschools to develop the local school organization and foster lasting school improvement? How did the relationship between the ostensive and performative aspects of organizational routines impact the scope for improving practice, analyzed by the lens of organizational psychology and organizational development together with the coupling mechanisms of decoupling, assimilation, and accommodation?	Qualitative theory-building case study	The ostensive and performative aspects must be closely linked to each other to underpin organizational learning.

Table 2. Continued

4. März et al., 2017, Belgium	What organizational routines can be identified in the implementation of a data-transfer instrument? How does a data-transfer instrument shape the ostensive and performative aspects of the routines? Can the authoritative impact of a data-transfer instrument be explained in terms of institutional pressure mechanisms?	Qualitative multiple case study	The TraPS-file worked as an 'acting' artifact, instead of only a passive tool: it modified existing organizational routines or established new ones.
5. Sherer & Spillane, 2011, United States	How does an organizational routine stabilize work practice in a school? How does an organizational routine change work practice in a school? How do the ways in which people enact the routine change the routine?	Qualitative longitudinal case study	The Five Week Assessment routine stabilized school practice though the ostensive aspect, which structured work. The routine also changed as participants made adjustments to the routine by repairing, expanding, or striving.
6. Spillane et al., 2011, United States	How do school leaders respond to a shifting policy environment?	Qualitative theory-building multiple case studies	School leaders designed organizational routines that coupled government regulation with classroom teaching.
7. Spillane et al., 2016, United States	How does a local school system design and deploy a PLC organizational routine? How does the PLC organizational routine shape interactions among teachers about mathematics instruction over time?	Qualitative longitudinal multiple case study	District officials designed the PLC to focus school staff interactions on instruction and its improvement (ostensive). The performative aspect showed that the PLC routine was central to teachers' interactions about mathematics instruction.

Table 2. Continued

8. Stelitano et al., 2020, United States	How are Willow and Elm high schools formally organized (i.e., the ostensive aspect of routines) to support the inclusion of students with disabilities? What routines are practiced (i.e., the performative aspect of routines) to support the inclusion of students with disabilities in Willow and Elm high schools? What are the implications of Willow and Elm's organizational routines for student support?	Mixed-method comparative case study	Routines performed in the name of inclusion may inadvertently detract from meaningful inclusion by orienting educators' work around improving student grades in general education classes rather than improving student learning opportunities in those settings.
9. Tate et al., 2018, New Zealand	When moving to a Flipped Classroom model, what challenges exist? How can these be explained using an organizational routines lens? What insights does this offer for future education innovation initiatives?	Qualitative case study	The Flipped Classroom model disrupted established routines, creating risk, decreasing coordination and shared understanding, and increasing time and cognitive load for stakeholders.
10. Tubin, 2015, Israel	What are the main routines connected with student achievement? What routines make up what processes? What order and causality are these processes perceived to take? Who are the main agents in these routines and processes, and what are they doing?	Qualitative theory-building case study	Five processes are connected to high student achievement. Each process comprises several routines that present structuration by the alignment of their ostensive, performative, and artifact aspects. The principal is a main agent, develops a vision of high achievement, provides senior leadership team job descriptions, and appoint teachers who share the same vision and routines.

Table 2. Continued

11. Wolthuis et al, 2020a, the Netherlands	What do teachers consider the general script of lesson study (ostensive)? Do teachers continue to engage in lesson study (performative), and if so, how? How do teachers evaluate the usefulness and feasibility of lesson study (usefulness)?	Qualitative multiple case study	Different ostensive scripts influenced how teachers performed and evaluated the initiative.
12. Woulfin, 2015, United States	To what extent do teachers implement the four building blocks of reading workshop? To what extent does the intensity of policy messages influence the coupling between the reform's ideas and classroom practice? What combinations of building blocks are associated with teachers' enactment of mini-lessons?	Qualitative case study	Only a few teachers enacted the full routine. The stronger the intensity of the policy message (ostensive) about a specific block of the reading reform routine, the more teachers implemented (performative) the specific building block of the new routine.

2.5 Results

2.5.1 How and at what level are routines defined and operationalized?

2.5.1.1 Level of analysis.

Regarding the first research question, concerning the levels at which routines were examined, we found that of the 24 studies, 12 examined routines at the level of entities (see Table 1) and 12 at the level of the internal structures (see Table 2). In the former, the internal structure of the routine (the ostensive and performative aspects) was relatively undefined or not examined. In the second approach, these were taken into consideration and the focus was on how the internal structure of the routine interacted with each other. To illustrate the difference between these approaches, we take the example of two studies that examined the same initiative (a PLC) at different levels, considering how

the initiative was described through the lens of routines. Park (2018) examined a PLC from an entities approach. She gave a broad outline of the PLC routine as “a cycle of three meetings facilitated by the instructional coach. Each meeting lasted for an hour and occurred approximately every 6 weeks” (p. 631). The general steps that teachers go through during each phase of the cycle were also given. By contrast, Spillane et al. (2016) examined the internal structure of the PLC routine. The general structure of the routine was also given: the “PLC routine focused on grade level teams, with teachers mandated to collaborate weekly for 45 minutes, often with the participation or presence of subject-matter specialists (e.g., instructional coaches) and school principals” (p. 106). Subsequently, the internal structure was also addressed. The focus was on both the intended design (ostensive aspect) of the PLC routine and the actual performances of the PLC (performative aspect). The design intent for the PLC was to promote interactions among teachers about instruction that enables their learning from and about instruction. The performative aspect of the routine examined whether and how this actually occurred in practice. Because the level of analysis has implications for the definition of routines, we discuss research question two for each level of analysis separately.

2.5.2 Definitions and operationalizations of routines as entities

Within the 12 studies that described routines as entities (see Table 3 for an overview), we found that almost all researchers focused on routines as patterns of interaction, thereby specifying the types of patterns that they focused on. However, studies operationalized routines differently. Two takes on routines were found: one that focused on the patterned ways of working within an organization and one that focused on the patterned ways of interacting. The concept was applied (implicitly or explicitly) at two different levels of analysis, namely at the meso level (as an organizational routine) and at the micro level (as a conversational routine). In some cases, studies focused only on the meso level, in others both were explored. As such, studies that approached routines as entities were in some cases found to make use of different notions to explore what occurred during the routines. Because they did not use the ostensive and performative distinction, but instead adopted a focus on conversational routines and moves, we found that the educational research literature employs a different terminology for exploring the internal structure of routines.

Organizational routines. Most studies that focused on organizational routines operationalized the concept by referring to the specific initiative. Those studies operationalized routines as, for example, grade-level team meetings and policymaking routines (Gannon-Slater et al., 2017), or as externally designed routines such as instruc-

tional rounds (Hatch et al., 2016), or as locally designed routines such as PLCs (Hopkins et al., 2016). In those cases, researchers defined routines using the general definition of “repetitive, recognizable patterns of interdependent interactions, carried out by multiple actors” (Feldman & Pentland, 2003, p. 95). One study (Wolthuis et al., 2021), further specified the concept to the specific routine, determining what each aspect of the concept, (1) repeated, (2) recognizable patterns of interdependent actions, (3) carried out by multiple actors, involved for the educational initiative under investigation. For example, repeated was operationalized as “Schools decide to repeat lesson study in their own setting after the LSPLN ends [and] Schools have plans to repeat lesson study the next year with the pilot groups and potentially to form more groups” (Wolthuis et al., 2021, p. 3). Multiple actors were operationalized as “Schools gather participants for lesson study groups in their own schools [and] Schools have collective participation during lesson study meetings” (Wolthuis et al., 2021, p. 3). Such a translation of what the general definition of organizational routines entails for the specific initiative enriches the concept’s potential use in examining how the initiative unfolds in practice.

Conversational routines. In addition, studies also could (either explicitly or implicitly) define and operationalize routines at the micro level with respect to conversations. Here, routines were operationalized as, for example, “a structured routine for addressing student work” that occurs within a PLC (Huguet et al., 2017, p. 382). The application of the concept of routines to conversations originated with Horn and Little (2010). They took the definition of organizational routines and subsequently added two new concepts: conversational routines and conversational moves. Conversational routines involve “patterned and recurrent ways that conversations unfold within a social group. Routines are constituted by *moves*, turns of talk that shape the interaction’s progress by setting-up and constraining the response of the subsequent speakers” (Horn & Little, 2010, p. 184). The conversational routines Horn and Little (2010) investigate are a walk-through routine and a check-in routine, which occurred during organizational routines, in this case an algebra group and an academic literacy group. For example, the algebra group consisted of several math teachers who meet weekly. The conversational routines of the lesson walk-through:

accommodated the group’s agreement to handle initial lesson planning through a division of labor, with one or two teachers taking a lead in each curriculum unit; it principally entailed the planner’s descriptive account of the lesson design, activities, and materials. (p. 190)

The conversational moves occurred during these conversational routines. Examples were normalizing, linking, and specifying. Normalizing involved “moves that defined a problem as normal, an expected part of classroom work and teacher experience” (Horn & Little, p. 192). Both conversational moves and conversational routines took place within organizational routines. Horn and Little (2010) distinguished between the meso- and micro-level routines, where organizational routines occur at the meso level and conversational routines and moves at the micro level.

After this reconceptualization was introduced, there was an increased focus on conversations (such as Coburn et al., 2013; Huguet et al., 2017; Salisbury, 2020; Park, 2018). However, the terminology introduced by Horn & Little (2010) was not consistently applied, making it difficult to understand whether and how terms differ from each other and from the concept of organizational routines. For example, Park (2018) applied the reconceptualization of conversational routines to grade-level PLCs and a language review team, and used the term ‘conversational moves’ to refer to patterns such as triangulating, reframing, extending, or confirming. What Horn and Little (2010) conceptualized as an organizational routine was now conceptualized as a conversational routine. A grade-level PLC was seen as a patterned and recurrent way that conversations unfold within a social group, rather than a repetitive, recognizable pattern of interdependent actions, carried out by multiple actors. Coburn et al. (2013) gave the general definition of organizational routines, which they then termed routines of interaction, and operationalized them as, for example, reflecting, task analysis, and goal setting. These operationalizations resemble what Horn and Little (2010) termed conversational moves. Salisbury (2020) introduced a different distinction: organizational structures and organizational routines. The first was defined as “a configuration of activities that is characteristically enduring and persistent; the dominant feature of organizational structure is its patterned regularity” (p. 129). Organizational routines, in his study, entailed “recognizable interactions between colleagues that occur regularly over time” (Salisbury, 2020, p. 129), which was more in line with what Horn and Little (2010) termed conversational routines. Overall, we found that educational research has applied the concept of organizational routines to examine interactions and conversations, but in various – and sometimes conflicting – ways.

Artifacts. The study by Salisbury (2020) was the only one in this group to also examine artifacts. Artifacts, in that study, were not defined, but were framed within the study’s focus on interactions. They “represent a method to understand how leaders shape interactions when they are absent” (p. 130). Artifacts were operationalized as meeting agendas and note-taking templates, a master schedule with embedded collaboration

time, unit planning templates, or team structures (Salisbury, 2020).

Commonalities between all entity-oriented studies. Most studies, apart from Wolthuis et al. (2021), were interested in how routines influence or shape interaction, but they investigated this at different levels of observation. Some studies examined how routines, at organizational level, bring people together in specific configurations and with specific knowledge and skills (for example, Hatch et al., 2016; Hopkins et al., 2013). Others (also) examined how, at a conversational level, routines structure how interactions proceed. For example, in one study, a “structured routine for addressing student work” within a PLC was found to be useful for structuring the interaction (Huguet et al., 2017). Within conversational routines, moves can provide insight into why conversations do or do not produce certain results, such as learning opportunities (Horn & Little, 2010) or creating shifts that move teams towards an inquiry stance (Park, 2018). However, the different definitions and operationalizations reveal ambiguity around the constructs. The literature would benefit from consistent terminology to maximize the potential of (the adaption of) the concept of routines in order to provide a robust body of work on these different levels of analysis of routines (and moves). To support clear application of these constructs we provide an overview of the concepts, definitions, and examples (see table 3).

Table 3. Definitions and examples of key concepts from studies focusing on an entity description of routines

Concept	Definition	Examples
Organizational routine	Repetitive, recognizable patterns of interdependent actions, carried out by multiple actors	Grade-level team meetings, policy making routines, PLCs, data use, lesson study, Algebra group, Academic Literacy Group
Conversational routine	Patterned and recurrent ways that conversations unfold within a social group	Lesson “walk-through” routine, the routine practice of “check-in,” structured routine for addressing student work, data chat
Conversational moves	Turns of talk that shape the interaction’s progress by setting up and constraining the response of the subsequent speakers	Normalizing, linking, specifying, triangulating, reframing, extending, confirming

Artifact	Method by which leaders shape interactions when they are absent	Meeting agenda and note-taking templates, a master schedule with embedded collaboration time, unit planning templates, or team structures
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2.5.3 Definitions and operationalizations of the internal structure of routines

Twelve studies examined the internal structure of routines. Conceptually, all but one study described routines at the meso level. Only Datnow et al. (2020) also examined the internal structure of conversational routines. As this was the only study to do so, the definition and operationalization using in this study were treated separately from the studies that examined the internal structure of organizational routines.

2.5.3.1 The internal structure of conversational routines.

Datnow et al. (2020) investigated both organizational routines (such as teacher team meetings and lesson study) and conversational routines. The organizational routines are approached as entities but for conversational routines the internal structure is investigated, namely their formal goal (ostensive) and what actually occurred during the conversations (performative). For example, examining one conversational routine showed that:

Ostensively, teachers were supposed to look at the standards (particularly those deemed most critical) and work together to plan instruction that would be used annually. Performatively, however, conversations continued to focus on which topics were most important to cover for SBAC [Smarter Balanced Assessment Consortium] rather than on how to teach them. (p. 121)

Datnow et al.’s (2020) examination of the internal structure of a conversational routine showed overlap with examining the conversational moves within them. Conversational routines set up structures for interaction, while the moves revealed how the conversations actually unfolded. Similarly, the ostensive aspect of a conversational routine prescribed the structure in which conversations should unfold, whereas the performative aspect showed how conversations actually did unfold. However, rather than introducing new terms for the concept of organizational routines, Datnow et al. (2020) capitalized on what the concept of routines has to offer, namely, an exploration of the dynamic between its internal structures.

2.5.3.2 The internal structure of organizational routines.

The other 11 studies examined organizational routines. Some investigated externally designed routines, such as data use (Hubers et al., 2017) and lesson study (Wolthuis et al., 2020a). Locally designed routines that were investigated included the Five Week Assessment routine (Sherer & Spillane, 2011; Spillane et al., 2011), study hall routines (Stelitano et al., 2020), speed team meetings and pedagogical cafes (Liljenberg & Nordholm, 2018). Two studies operationalized routines in a classroom setting, though differently. One examined a newly designed classroom routine, namely a reading reform routine (Woulfin, 2015). Instead of examining the new teaching initiative (flipping the classroom) through the organizational routines lens, one study investigated what this new initiative did to existing organizational routines for teaching, such as a traditional routine for essay preparation (Tate et al., 2018). Organizational routines were defined rather similarly across the studies. Most authors referred to the general definition by Feldman and Pentland (2003). However, the definitions and operationalizations of the ostensive, performative, and artifact aspects reveal that beyond the initial consensus on the definition of organizational routines, ideas about the internal structure of routines differed (for an overview, see Table 4).

Ostensive aspect. Most studies defined the ostensive aspect by explicitly quoting Feldman and Pentland (2003, p. 101), who referred to “the ideal or schematic form of a routine ... the abstract, generalized idea of the routine, or the routine in principle.” However, studies differed in how this was operationalized, namely, as the general idea, formal structure, or subjective understanding. As table 4 shows, each of these views conveys a different notion of what the ostensive aspect is. When the ostensive aspect was seen as the general idea, the overall blueprint for the routine was examined, and the ostensive aspect was operationalized as, for example, “develop a vision” (Tubin, 2018) or the different steps of the Five Week Assessment routine (Sherer & Spillane, 2011).

When the ostensive aspect was understood as part of the formal structure of the organization, researchers investigated how schools design routines, such as what roles, task, and organizational structures are set up. Here the ostensive aspect reflected “the designed organization including formally designated positions, chains of command, departments, programs, and formal organizational routines” (Spillane et al., 2011, p. 588), as well as designed structures for (new) ways of working. Similar to other formal structures, the ostensive aspect codifies how work is formally arranged. For example, Stelitano et al. (2020) examined both schools’ formal design to aid students with disabilities and the performative aspects of routines related to how the formal design was implemented in practice. The operationalization of the internal structure of a

routine thus described “special educators ... assigned to co-teach at different grade levels [ostensive] and ... co-taught instruction looks different for different teachers [performative]” (Stelitano et al., 2020, p. 547).

When the ostensive aspect was operationalized as a collective narrative of subjective or shared understanding of the routine, researchers investigated how the general script of the routine was actually understood and interpreted by participants. On that view, “[t]he ostensive aspect is not per se about written rules or procedures—since for many routines they simply do not exist—but encompasses actors’ understandings regarding this routine” (März et al., 2017, p. 442). An ostensive aspect of a pedagogical café routine might be operationalized, for example, as follows: “The common perception was that the first teachers were responsible for selecting relevant literature for teachers to read, and for arranging and leading discussions at the pedagogical café” (Liljenberg & Nordholm, 2018, p. 696).

The interpretation of the ostensive aspect as the general script stays close to the definition of the ostensive aspect found in organizational research. However, studies in education were found to adapt and further specify the ostensive aspect when investigating educational initiatives, namely by examining the formal structures of initiatives and the subjective understandings of the initiatives.

Performative aspect. The 11 studies defined the performative aspect as “specific actions, by specific people, in specific places and at specific times. It is the routine in practice” (Feldman & Pentland, 2003, p. 101). As table 4 shows, what the patterns of routines consisted of, or, in other words, what the specific performative aspect was, differed. Three notions were found regarding what the patterns consisted of: (1) actions, (2) behavior, and (3) interactions. This led to different operationalizations of the performative aspect of routines. For example, the performative aspect was operationalized as actions involved vision-based problem solving and decision making (Tubin, 2015). When seen as interactions, the performative aspect was operationalized as the actual instructional advice and informational interactions among teachers that occurred in practice (Spillane et al., 2016). Seen as behavior, the performative aspect was, for example, operationalized as teachers conducting analyses and, based on those analyses, deciding to pay attention to the pedagogical climate (Hubers et al., 2017). This shows that not just the ostensive aspect referred to different things; the performative aspect was interpreted differently as well.

Artifacts. Three studies also examined artifacts, but did so differently (see table 4). First, artifacts were seen as separate from routines and as indicators of the ostensive aspect (Tubin, 2015). Here, artifacts were operationalized as school websites, brochures,

software, an office, a job description, and a title on the door. Second, artifacts were seen as indicators of both the ostensive and performative aspects and as having a potentially substantial influence in shaping the internal aspects of routines (März et al., 2017; Liljenberg & Nordholm, 2018). Here, artifacts were, for example, operationalized as a data-transfer instrument developed to facilitate and warrant the continuity of educational care when pupils make the transition from primary to secondary education (März et al., 2017).

The first (Tubin's) approach aligns with early work on routines, which presented artifacts as representations or material entities that can cue performance, mostly as indicators of the ostensive aspect (Feldman & Pentland, 2003). The second approach matches more recent work that has closely scrutinized artifacts and their influence. Here, artifacts are indicators of both ostensive and performative aspects (Feldman & Pentland, 2008; Jarzabkowski et al., 2016).

Overall, as with the description of routines as entities, the internal structure of routines (ostensive aspect, performative aspect, and artifacts) entailed different things for different researchers. Similar to findings for studies that examined routines as entities, we view these different interpretations of the aspects of routines as a potential strength of the concept, as they each capture an important dimension of routines, and each can be of use depending on the particular research aims. However, as in the previous section, the variety of operationalizations creates ambiguity and inhibits researchers from building on each other's work. Therefore, we have untangled the different definitions and operationalizations of routines and artifacts used in the studies, given each approach a specific term (such as general idea, formal structure, and subjective understanding), and illustrated each aspect with examples (see table 4).

Table 4. Definitions, operationalization, and examples of key concepts from studies focusing on the internal structure of organizational routines

Concept	Definition	Different operationalizations	Examples
Ostensive aspect	The ideal or schematic form of a routine ... the abstract, generalized idea of the routine, or the routine in principle	General idea	Develop a vision
		Formal design	Special educators assigned to co-teach at different grade levels
		Subjective understanding	The common perception that the first teachers were responsible for selecting relevant literature, arranging and leading discussions

Performative aspect	Specific actions, by specific people, in specific places and at specific times, the routine in practice	Action	Vision-based problem solving and decision making
		Interaction	The actual instructional advice and information interactions among teachers
		Behavior	Teachers conducting analyses and based on those analyses, deciding to pay attention to the pedagogical climate
Artifact	Reflective of the ostensive aspect Indicators of ostensive or performative aspects	Representations or material entities	School websites, brochures, software, an office, a job description, and a title on the door
		Authoritative actors	A data-transfer instrument developed to stimulate care continuity between primary and secondary schools

2.6 Key findings about educational initiatives using organizational routines

Different levels of analysis of routines led to different key findings on educational initiatives. First, studies that examined routines as entities mostly showed how routines can coordinate people and bring people together in specific arrangements. Routines, therefore, influence how the interaction between people proceeds. Routines were found to change norms, beliefs, and culture, because they can normalize specific values. For example, routines can create a shift towards learning and equity (Park, 2018), support teacher leadership (Hopkins et al., 2013), lead to a deprivatization of teacher practice and adoption of culturally relevant practices (Salisbury, 2020) and potentially stimulate networks with characteristics of communities of practice (Hatch et al., 2016). Studies in this group showed that while organizational routines set up structures of interaction that can change norms, beliefs and cultures, it is the specific conversational routines and moves that are pivotal for the actual change in norms and values. Only Wolthuis et al. (2021) used the routines as entities approach to examine how an initiative unfolded in practice, to investigate whether and how schools continued with an initiative after a university project ended and how the specific school factors in each of the 14 schools influenced this process.

Studies that examined the internal structure of routines focused on how routines themselves operated. Studies showed how initiatives change and stabilize, break down and succeed, and how artifacts and people influence routines. Investigation of the internal structure allows researchers to compare how routines are intended with how they are performed, revealing how initiatives unfold in practice. For example, this focuses attention on how initiatives are designed or understood and what actually happened regarding the initiative. Studies that focused on the internal structure were able to show, for example, whether and how data use initiatives were sustained in different schools (Hubers et al., 2017). In addition, Stelitano et al. (2020) showed whether and how schools set up routines for students with disabilities and whether these actually led to inclusive practices. Moreover, Woulfin (2015) showed how consistently teachers implemented a reading reform within their classrooms. Studies also gave insight into how artifacts can influence routines (Liljenberg & Nordholm, 2018; März et al., 2017; Tubin, 2015) and how people can influence routines (e.g., Wolthuis et al., 2020a; Sherer & Spillane, 2011; Tubin, 2015).

The findings also showed different operationalizations of the ostensive and performative aspects, which indicates that the concept is versatile. However, the versatility does complicate building a knowledge base, as studies gained insights on different ‘things’ regarding the ostensive and the performative aspects.

Different approaches to artifacts mattered for how much insight studies gained. For example, Tubin (2015) considered what artifacts connected to various routines might lead to greater student achievement. In her study, the analysis of artifacts did not go beyond identifying which artifacts were connected to which routines. By contrast, studies that examined artifacts in relation to the internal structure of routines were able to gain more insight into how artifacts and routines operated in practice and whether artifacts were able to fulfill the goal they were designed for (Liljenberg & Nordholm, 2018; März et al., 2017). Importantly, examining artifacts as integral to routines also provided insight into how the routines operated. For example, Liljenberg & Nordholm (2018) examined ostensive ideas about artifacts (such as the idea that using tools and templates would make it easier to evaluate a project) together with how artifacts were used in practice (performative) which revealed that teacher teams used artifacts differently. As such, when investigating how educational initiatives unfold in practice, seeing artifacts as connected to both the performative and the ostensive aspects is most useful.

2.7 How valid are organizational routines investigated?

To answer the second research question, we examined member checking and triangulation (method, data source, theory) for all 24 studies (see the Appendix for an overview). We found no notable differences between studies that investigated routines as entities or investigated the internal structure; therefore, all studies are treated together. Below, findings for each element are reported separately.

2.7.1 Member checking

Member checking is especially important when researchers examine locally designed or informal routines. When routines are highly structured, such as lesson study or instructional rounds, it is much easier to know what to focus on, as the routine is already identified beforehand. However, when researchers do not know beforehand which routines to look for, member checking can provide valuable confirmation of whether the (entire) routine has been captured.

Only six out of the 24 studies employed member checking (Datnow et al., 2020; Gannon-Slater et al., 2017; Hatch et al., 2016; Park, 2018; März et al., 2017; Woulfin, 2015). A reason for the lack of member checking can be the specific focus of our review. As we selected studies that focused on new initiatives, the routines under examination were often externally designed. When, for example, schools start with new initiatives such as data use, lesson study, PLCs, and instructional rounds, repetitive, designed patterns of interdependent actions are presented to schools, and are therefore much more recognizable and easier to distill for researchers. Studies that did incorporate member checking generally investigated existing, locally designed routines in the schools, making it more important for the researchers to check whether they accurately comprehended the routine. For example, Park (2018) investigated which data use routines and conversational moves supported a shift towards inquiry thinking. As the routines and moves were not known beforehand, Park checked with her participants whether she had accurately identified them.

2.7.2 Method triangulation.

Of the 24 studies, the majority ($n = 16$) used multiple methods of data collection. Therefore, most studies engaged in method triangulation (Patton, 1999). Studies used between one and four of the following methods of data collection: interviews (22 studies), observations (14 studies), documents (11 studies), surveys/questionnaires (5 studies). No link was found between how routines were defined and operationalized and what

types of data were collected. Studies that engaged in method triangulation well often incorporated a variety of interviews, documents, and observations to examine routines. These different types of data all provide ways to search for convergence in determining findings. Documents were used, for example, to examine the general idea, formal design, or the views of leadership on how routines are intended for the school (Hubers et al., 2017; Liljenberg & Nordholm, 2018; Spillane et al., 2011). Observations were used to investigate how routines were performed in specific situations (Spillane et al., 2011; Park, 2018) and interviews could reveal how people considered the script of a routine (Wolthuis et al., 2020a; März et al., 2017). Studies that examined routines as entities and had thorough method triangulation also incorporated these three methods of data collection. This suggests that a combination of documents, interviews, and observations is required to adequately examine initiatives through the lens of routines, both from the entities as from the internal structure approach.

When studies used only one way to collect data, it can be questioned whether the routine was comprehensively understood. This was especially the case for the five studies that relied solely on interview data to examine how routines were intended and performed (Liljenberg & Nordholm, 2018; Spillane et al., 2016; Tate et al., 2018; Wolthuis et al., 2020a) or on the conversations within routines (Wachen et al., 2018). Interviews alone might not have been able to provide sufficient insight into the routines, as people are notoriously bad at predicting and reporting what they do (Jerolmack & Khan, 2014). In particular, researchers should not rely on self-reports alone when they want to uncover what actually happens during specific performances. Researchers who only used interviews did take care to note that their data provided insight into, for example, academics' preferences regarding performances of a routine (Tate et al., 2018) or stressed that they concern teachers' reported performed actions of a routine (Wolthuis et al., 2020a). Nevertheless, when researchers aim to understand what actually happened, method triangulation with observations is important in order for valid inferences to be drawn about the specific performances of the initiative. Two studies only conducted observations to examine the conversations within routines (Gannon-Slater et al., 2017; Horn & Little, 2010). These two studies were less liable to the aforementioned problems, as they gained direct access to what occurred during the performance (in these cases, specifically the conversations) of the routines.

Transparency on how (much) data is collected. Across the studies, transparency on how (much of) each type of data was collected differed considerably, regardless of whether routines were examined as entities or in terms of their internal structure. The more detailed studies were about the nature and amount of the data collected, the

more valid their investigation was of routines. For example, document collection was described with different degrees of specificity. Tubin (2018) only reported, “documentation related to the students’ achievements was gathered” (p. 647). By contrast, Salisbury (2020) gave the number of collected documents and a detailed list of examples: “162 documents, such as course syllabi, meeting minutes, meeting PowerPoints, student work samples, and lesson plans” (p. 123).

Regarding the amount of data collected, considerable variation was also found. For example, Tate et al., (2018) aimed to gain insight into teaching routines within one university and interviewed 11 people. Spillane et al. (2016) examined a PLC routine within a school system and interviewed 33 people. By contrast, Sherer and Spillane (2011), investigated one organizational routine in one school and conducted 219 interviews. In the first two examples, the number of interviews is rather low (especially as interviews were the only method used in both studies) to gain an understanding of the routines within the overall university or school system.

Moreover, the studies that examined the internal structure of routines did not always specify what type of data was collected for what aspect. For example, in the study by März et al. (2017), where the internal structure was an explicit part of the research questions, the authors did not discuss how data were collected for each aspect. This diminished validity and made it difficult to see how empirical claims were supported. Studies that provided these details were found to have much more valid applications of the concept. For example, Sherer and Spillane (2011) specified how data were collected. They reported:

We collected data on the performance of the routine in particular times and places (observations of leader and teacher practice, meeting observations) as well its ostensive aspect (artifacts, interview descriptions of the routine, and observations of leaders describing the routines to outsiders). (p. 622)

Subsequently, this provided greater clarity in interpreting the results for the ostensive and performative aspects.

Overall, studies varied in how comprehensively they incorporated method triangulation. To increase and ensure validity through method triangulation, studies should use a variety of different methods of data collection (such as documents, observations, and interviews) and detail the characteristics of the data that are collected (such as what kinds of documents are investigated and what is observed). Moreover, method triangulation for routines requires researchers to detail how collected data links to the

routine, especially when the internal structure is examined.

2.7.3 Data source triangulation.

Data source triangulation involves the collection of data from different types of people (Carter et al., 2014). Generally, the number of data sources needed to examine a routine will depend on the specific routine. When routines involve school- or district-wide practices in which different participants are involved, combining the perspectives of the different (and distributed) people will be necessary to capture the routine comprehensively. In other cases, routines might be much more specific to groups of individuals, for example, grade-level meetings that only involve teachers teaching in the fourth year or initiatives designed specifically for math teachers. Most studies in this review collected data from different sources, which means most researchers examined routines from the perspective of different participants. Some exceptions were found in studies that collected data from one subset of participants, indicating that the distributed nature of routines was not always taken into consideration by researchers and only a limited perspective on routines was sometimes gained.

On average, studies used three different types of data sources, such as teachers, school leaders, and facilitators, but in some cases (many) more. For example, Liljenberg and Nordholm (2018) used only interviews to examine what organizational routines schools implemented for improvement, but they did conduct these interviews with four different types of people: nine school leaders, 65 teachers, 49 preschool teachers and eight student health representatives.

In some cases, no data source triangulation was done. For two studies, the only data sources were groups of teachers who were observed during meetings (Horn & Little, 2010; Gannon-Slater et al., 2017). Wolthuis et al. (2020a) interviewed only the teachers who took on the role as facilitator within a lesson study routine ($n = 21$). The other lesson study participants were not interviewed, nor was additional staff (such as the principal or school leaders). This potentially provided limited insight into the lesson study routine. Interviewing other teacher participants and school leaders could have contributed to a more comprehensive understanding of the routine from different perspectives.

2.7.4 Theory triangulation

Theory triangulation can show the potential strengths and limitations of the concept of routines. We compared studies that used only the concept of routines with those that added additional theory. This made it possible to see what the boundaries of the concept are in terms of examining new initiatives. Overall, we found applying the

internal structure approach to routines holds great potential to provide in-depth insight into how the new initiative itself operates and unfolds in practice. Only one study that used the routines as entities approach was able to examine how an initiative unfolded in practice. When studies were also interested in how the wider context influenced the routine or how conversations within the routine unfolded, additional theory or reconceptualization needed to be added. This shows the limits of the concept. Routines provide a tool to explore how ways of working unfold at the meso level, but offer fewer tools to explore the influence of the wider (macro-level) context or the specific conversations within routines (micro-level). Within the 24 studies, five studies used only the concept of organizational routines (all five used the internal structure approach) and 19 added additional theories or reconceptualizations of routines.

Internal structure. The benefit of the internal structure approach lies in its ability to compare how routines are intended with how they are performed. This reveals how initiatives unfold in practice: how initiatives are designed or understood and what actually happens regarding the initiative. Studies that explored the dynamics of the internal structure of routines were able to explore how initiatives, as organizational routines, change, remain stable, break down or succeed, how artifacts influence and connect to routines, and how people influence routines.

For example, organizational routines change when adjustments are made during their performance that can lead to incremental changes. People performing the routine might engage in repairing, expanding, or striving (Scherer & Spillane, 2011). When routines do not produce the intended outcome, people can make changes to repair an organizational routine. When the outcomes of a routine create new problems, people can expand the organizational routine. Finally, when people see room for improvement, they sometimes strive to change the routine (Feldman, 2000; Scherer & Spillane, 2011). Routines can also change when people modify the ostensive script of the routine. Wolthuis et al. (2020a) showed that teachers modified the general script of the lesson study routine, which was in turn connected to which phases of the lesson study routine they performed.

Organizational routines can also stabilize. The ostensive script can structure the work, and the routine can remain in place in a school even after the initial instigator of the routine leaves. For example, the ostensive script can sustain a principal's vision and strategies for instructional improvement after the principal leaves (Scherer & Spillane, 2011). Ostensive scripts can continue to structure and stabilize work practices, focusing and framing interactions in the school in particular ways, such as around instruction and student performance. However, such stability can also be detrimental, if it leads to

inertia and rigidity. Tate et al. (2018) argued that ostensive scripts lead to inflexibility, such that an established, ostensive script of teaching constrained any changes to a new script involving an innovative teaching routine (i.e., flipping the classroom). Because ostensive scripts linked to timetabling, room booking, and managing online learning software were strongly entrenched, a new initiative routine that altered these elements was unable to achieve effects.

Consideration of the internal structures of routines also allowed for investigation of how new initiatives break down or succeed (Wolthuis et al., 2020a; Hubers et al., 2017; Liljenberg & Nordholm, 2018; Stelitano et al., 2020; Tubin, 2015; Woulfin, 2015). For example, Hubers et al. (2017) found that schools struggled to develop organizational routines for data use, even during and after participating in a PD program for that purpose. They especially struggled with the ostensive aspects, as displayed, for example, in their limited or absent policy and vision for data use. The performative aspects appeared to develop to some extent, though sometimes through data misuses. Overall, the dynamic of the internal structure of routines clarified the process by which schools failed to sustain their use of data (Hubers et al., 2017).

Routines as entities. Most studies that examined routines as entities focused on the outcomes of initiatives, and therefore did not gain insights into how the initiative itself unfolded. Routines as entities, in these studies, often remained a static construct, merely used to identify a specific initiative. The richness of the lens of organizational routines as repeated, recognizable patterns of interdependent actions carried out by multiple actors was not capitalized on. The one exception in this group was Wolthuis et al. (2021), who examined routines as entities and showed how the initiative itself unfolded in practice. This study did focus on the continuation of a lesson study initiative as a repeated, recognizable pattern of interdependent actions carried out by multiple actors. The focus was on the routine itself and how the specific context (in terms of school factors) influenced how the lesson study initiative could be continued in schools after a project ended.

Organizational and conversational routines and moves. Studies taking the entity approach that examined organizational routines and added a focus on conversational routines or moves showed that the entity approach to routines was insufficient to investigate how conversations within routines unfold. In this approach, routines can capture the repeated practices where teachers meet, and how important structures for interaction are set up within the school that allow for teachers to come together and interact. Yet, to understand how these routines, or the conversations therein, produce certain results, more was needed: both conversational routines and artifacts were

applied to reveal how patterned interactions actually led changes.

For example, two studies examined the role routines play in maintaining or changing inequities in educational opportunity (Salisbury, 2020; Park, 2018). Here, the concept of routines did not provide insight into how change occurs. Instead, this came from the analysis of the conversational moves. For example, Park (2018) showed that specific organizational routines (in her case, PLCs and language review teams) can normalize teacher collaboration and data use school-wide, but that specific conversational moves were enacted within routines, which showed how changing norms and values actually happened (Park, 2018). One such conversational move would reframe deficit thinking to build student learning assets, such that “when a teacher expressed concern or frustration about ‘low students’ or attributed low academic performance to ability or motivation, leaders who employed this move redirected the conversation to highlight the specific learning skills that students did exhibit” (Park, 2018, p. 635). These conversational moves needed to occur during conversations within the routine, for the routine to be able to shift norms, beliefs, and culture, such as moving teams towards an inquiry stance and an asset-based approach to student learning.

While studies that aimed to investigate the micro-processes within organizational routines used the notions of conversational routines and moves, the study by Datnow et al. (2020) applied the internal structure approach to investigate the micro-processes. This study showed that investigating the internal structure enables researchers to examine how conversations unfold. The benefit of using the internal structure approach to conversational routines is that researchers can build on the body of work that exists on the dynamic between the ostensive and performative aspects to understand how these interact and do or do not produce certain results.

Additional theory or framework. Studies that added additional theory revealed the limits of the concept of routines: namely, it does not provide the tools to explore the wider context in which the routine is set. Studies added various theories to examine how routines connect to their context, such as coupling theory (Liljenberg & Nordholm, 2018; Spillane et al., 2011; Woulfin, 2015), structuration theory (Tubin, 2015), and social network theory (Coburn et al., 2013; Hatch et al., 2016; Stelitano et al., 2020), or made reference to frameworks related to the organizational and political context (Kallemeyn, 2014; Wachen et al., 2018) or school factors (Wolthuis et al., 2021).

For example, coupling theory shows how school leaders design new routines to couple government regulations with classroom practice (Spillane et al., 2011) or how the intensity of policy messages influences how teachers implement new reading reform routines in their classrooms (Woulfin, 2015). Woulfin (2015) explained that while

routines allowed her to examine repeated actions, this concept provides fewer tools for examining the linkages between the policy environment and activities within an organization. Similarly, Wolthuis et al. (2021) used the concept of routines to explore how an educational initiative that had been carried out four years in a Professional Learning Network (PLN) was continued in the 14 participating schools after the PLN ended. Here, the concept of routines allowed researchers to gain insight into the enacted initiative, while the framework of school factors was used to explore how the organizational context in each school influenced whether and how the initiative was continued. Other studies placed the concept of routines itself in a broader organizational and political framework. For example, several studies (such as Kallemeyn, 2014 and Wachen et al., 2018) applied the framework developed by Coburn and Turner (2011) to capture the various elements that can influence data use routines. These studies showed that routines were important for the data use initiatives, as they structured whom people interact with, around which topics, and in what ways. However, to understand how data were used, the notion of routines itself was not sufficient. Time, access to data, leadership, norms, and power relations were other dimensions of the organizational context that influenced how the routines unfolded.

2.7.5 Key findings on triangulation

Overall, the validity of the investigations of routines varied. In particular, the more methods of data collection and data sources, used the richer and more valid the investigation of routines was. Regarding methods of data collection, conducting observations of routines was found to be especially relevant to gain insight into how routines were actually performed. In addition, the stronger examinations of the concept of routines took care to detail what kinds and how much data they collected and how the collected data related to the concept. Regarding data sources, the strongest examinations of routines collected data from various participants in the routine to overcome the partial view on routines that each specific participant offers (Pentland & Feldman, 2008). Studies that do not engage in method and data source triangulation run the risk of collecting an incomplete picture of the routine. For example, without observations or documents, the question can be raised how comprehensively the formal structures and specific performances of the initiative are understood, for example. In addition, without including all participants in the routines as data sources, important pieces of the script of routines can potentially be left out.

2.8 Discussion

In the beginning of this article, we noted that the concept of organizational routines has been proposed as a potentially useful tool to examine how new initiatives unfold. At the same time, we raised the question to what extent there are ambiguities and methodological issues around the concept in educational research, and to what extent applying organizational routines can make good on this promise for investigating educational initiatives in practice. We found that routines can provide researchers with a useful lens to examine what goes on within educational settings regarding new initiatives. At the same time, researchers defined and operationalized routines differently, thereby creating ambiguity around what routines are and limiting the potential to build a collective knowledge base, and studies varied in how valid the concept was investigated.

The studies in our review revealed three different approaches to routines: (1) examining organizational routines as entities, (2) (also) examining conversational routines, and (3) examining the internal structure of routines. When routines were treated as entities, most studies focused on the outcomes of specific routines, which meant that this approach was not useful to explore how the initiative itself developed in practice. Some studies reconceptualized organizational routines as conversational routines and moves. Here, new concepts and terms were used to explore how the initiative, or the conversations therein, actually unfolded. However, the concept used to explore conversations departed from organizational routines. Conversational routines and moves do not capture a patterned way of working in an organization, but a patterned way of conversing. Therefore, these routines become something slightly different, although connected with the original concept of organizational routines. Only Wolthuis et al. (2021) specifically examined the routine itself as an entity by operationalizing and investigating the specific elements of routines (repeated, recognizable pattern of interdependent actions, carried out by multiple actors). This showed whether and how the initiative (in this case, a lesson study initiative) unfolded in school practice. This approach to routines did not shed light on the connection between the intended and performed initiative (the ostensive and performative aspects). However, it did allow an examination of how the wider organizational context (in this case, school factors) influenced whether and how the initiative unfolded in schools. As such, this specific approach to routines as entities has potential for studying (the influence of the organizational context on) how initiatives unfold in practice. Investigation of the internal structure of organizational routines also offered a valuable tool for examining educational initiatives in practice, as it looks at both the intended routine and its

actual performance. The contrast between how initiatives are formally organized and subjectively understood and how they are actually performed shows why initiatives change and stabilize in educational settings, how participants and artifacts influence initiatives, and how initiatives break down or succeed. The findings of this review have multiple implications for the use of the concept of organizational routines. Below, we highlight some of the most important.

2.8.1 Clarifying definitions and operationalizations

Routines – depending on how well they are defined and operationalized – can be a messy or a versatile construct. Findings revealed that within educational research, researchers referred to different things and operationalized various activities as routines. Specifically, we found that studies defined and operationalized routines at different levels. Each level had its own difficulty.

When routines were treated as entities, they were defined and operationalized as both organizational and conversational routines and moves, without always clearly distinguishing between or explaining the differences between these. We recognize the value of examining the conversations that occur within routines. Conversational routines and moves are a reconceptualization that can enrich and assist the concept of organizational routines. However, the literature can benefit from clarifying the differences and connections between these different notions. This review has aimed to provide that clarity.

Operationalizations of the ostensive and performative aspects varied in the educational research. Specifically, whether the ostensive aspect was seen as the general idea, formal design, or subjective understanding of the routine mattered for what part of the routine researchers focused on. Each operationalization shed light on a relevant aspect of initiatives. As such, one implication for future researchers interested in the internal structure of routines is to consider each operationalization when examining initiatives. Beyond the most straightforward operationalization of the ostensive aspect as the general idea of a routine, researchers should examine its formal design as its subjective understanding.

Routines were mostly used to examine patterns of action in districts, schools and conversations, and less within classrooms. A possible explanation could be that another concept exists for classroom practices that predates the uptake of the concept of organizational routines in the educational literature, namely signature pedagogies (Golde, 2007; Shulman, 2005). Signature pedagogies consist of a surface structure, deep structure, and implicit structure (Shulman, 2005), elements that show resemblance to

the internal structure of organizational routines. Two studies did explore classroom routines (Tate et al., 2018; Woulfin, 2015), which indicates that the concept does have potential for investigating how initiatives unfold at the classroom level.

2.8.2 Lack of attention to the role of artifacts

Our review showed a notable lack of attention to the role of artifacts in connection with routines. Neither those that studied routines as entities nor those examining their internal structure sufficiently detailed how artifacts functioned in relation to routines. That is, many studies examined tools, but only four defined and linked artifacts to routines (Liljenberg & Nordholm, 2018; März et al., 2017; Salisbury, 2020; Tubin, 2015). Extending research on artifacts and their effects on what routines do and how they operate would be useful, considering their important effects on how initiatives develop (Bell & Linn, 2000; Thorne, 2003). For example, for PLC routines, artifacts shape local practices, legitimate interactions among staff, and reinforce program coherence (Halverson, 2007). Moreover, there has been an important approach unfolding at the intersection of organizational theory and learning sciences that also underscores the importance of artifacts (Bray & Russell, 2018; Ogawa et al., 2008). The CHAT-IT model, which combines cultural historical activity theory and institutional theory, considers mediating artifacts “which connect subjects to others and to their contexts, thus mediating social interaction, communication, action, and, ultimately, activity” (Ogawa et al., 2008). In this sense, this theory overlaps with the approach taken by März et al. (2017), who also incorporated institutional theory in their artifact analysis. There is great potential for future research to connect with this literature and to build insight into how artifacts influence organizational routines in education. As such, recent work conducted using CHAT on lesson study (Uffen et al., n.d.) could provide relevant insights.

2.8.3 Potential to study how equity is promoted and inhibited

Studies in our review indicated that the concept of routines offers a useful tool to investigate how organizations, as meso-level social structures, sustain structural inequities (Datnow et al., 2020) and also how these can be changed (Salisbury, 2020). While beyond the scope of our review, a study by Diamond and Lewis (2019) showed how applying the concept of routines can be used to explore how organizations maintain inequities. Focusing on discipline routines, they found a difference between “how rules and regulations are supposed to be enforced (ostensive aspect) and how they are enforced in practice (the performative aspect)” (p. 15). Specifically, the rules, while typically written as if they were neutral and fair, were undermined by the social meaning of race in social

interaction. During the performance of the routine, the inequalities were reproduced, showing how “attending to this aspect is essential to understanding experiences of students within them and challenging racial disproportionality that often results” (Diamond & Lewis, 2019, p. 15). Together, these studies indicate that the concept of organizational routines also holds great promise to further our insight into racialized organizations, the notion that organizations are racial structures that reproduce (and challenge) racialization processes (Ray, 2019).

2.8.4 Validity of the investigations of organizational routines

We examined how valid investigations of routines were in terms of triangulation and member checking (Birt et al., 2016; Carter et al., 2014). To some extent, the validity of investigations of routines will depend on the type of routine under investigation. Particularities of routines can increase or lessen the need to pay attention to gathering insights from many different data sources or necessitate member checking. At the same time, some general insights can be drawn from the studies in this review on what contributes to a valid investigation of routines. First is using multiple methods of data collection. Our review underscored how the ostensive and performative aspects of routines offer a useful lens on initiatives (Spillane, 2012). Given the centrality of specific performances and the rich insights that examining them provides, we stress that researchers should aim to include observations as a method of data collection (Parmigiani & Howard-Grenville, 2011). Additionally, the most valid and rich investigations of routines took care to detail how data were collected for the (parts) of the routine, what kinds of data, and how much. Future research should take care to detail, for example, what is observed and for how long. Theory triangulation showed the potential and limits of organizational routines. The internal structure of routines provides a tool to examine how new initiatives themselves unfold in practice, yet provides less of a means to examine how the wider context influences how the initiative unfolds. Data source triangulation showed that when applying the concept of routines, it is important that researchers know what people are involved in the routine and are engaged in collecting the perspectives of different participants. Member checking seems especially important when researchers are interested in discovering relevant routines not known beforehand. In contrast to externally designed initiatives for which the intended structure or script is drawn up, locally designed routines can require member checking to ensure that the understanding of the routine is complete.

2.8.5 Working definitions of organizational routines as entities and as having an internal structure

When heeding calls to explore educational initiatives in practice, both levels of analysis of organizational routines should be used, but each in specific ways. When researchers approach routines as entities to study initiatives in practice, they should focus not on the outcomes of the initiative, but on the initiative itself. This entails operationalizing the three distinct elements of the definition with regard to the initiative under investigation, namely (1) repetitive, (2) recognizable pattern of interdependent actions, (3) carried out by multiple actors. Operationalizing ‘repetitiveness’ for initiatives can entail thinking about whether and how schools intend to repeat the initiative by examining the school documents for plans and questioning the school leaders for their ideas about its continuation. Operationalizing ‘recognizable patterns of interdependent action’ requires thinking about what kinds of patterns of actions the initiative entails, how these unfold, and what is needed for people to be able to do well (for example, in terms of scheduling and credit for time investment). Operationalizing ‘multiple actors’ involves, for example, how participants in an initiative are recruited and how attendance during meetings related to the initiatives proceeds (Wolthuis et al., 2021). Approaching routines as entities does not shed light on how the internal dynamics play a role in how an initiative unfolds. However, it can still reveal much about initiatives as they play out in school practice, such as whether and how schools aim to repeat the initiative, whether and how the initiative is enacted, and whether and how people are recruited and attend meetings for the initiative.

When researchers focus on the internal structure of routines, the concept offers a useful tool to explore the internal dynamics of how routines unfold. When this approach is taken, researchers should move beyond the general script of the routine to also examine the ostensive aspect, as (1) the formal design of the routine and (2) the subjective understanding of the intended design by participants. The formal design shows how schools set up routines in terms of structures, roles and tasks. Investigating the (mis)alignment between the formal design and the actual performances provides in-depth insight into how initiatives actually unfold in practice (Stelitano et al., 2020; Spillane et al., 2011). Similarly, examining how participants understand the formal design is important, as people’s subjective understanding was shown to be connected with whether and how they (were willing to) perform (parts of) the routine (Wolthuis et al., 2020a). Both approaches to routines described above allow researchers to examine how new initiatives change and remain stable, succeed or break down, how artifacts connect with and influence initiatives, and how people influence initiatives.

2.9 Limitations

One limitation of this review is that we did not examine how other assumptions influence approaches to organizational routines. Various theoretical and methodological ideas could have shaped researchers' uses of the concept. For example, implicit notions about teacher PD or views on implementation could shape researchers' applications of the concept (e.g., Wolthuis et al., 2020a; Quinn & Kim, 2017), which in turn might determine how the studies are framed. Hubers et al. (2017) examined data team routines from a fidelity perspective, but Wolthuis et al. (2020a) tested the implementation of lesson study routines from a local adaptations perspective. In the former case, data teams need to be implemented faithfully, and no changes to routines are allowed. A local adaptations perspective on lesson study instead allows for changes to routines, as long as core features are maintained. Examining such assumptions was beyond the scope of our review, as well as difficult for a literature review, because most authors only implicitly indicated their views. Other methods might be more useful to examine underlying, implicit assumptions held by researchers that might shape their use of the concept, such as contacting and interviewing the researchers directly.

We also focused this review specifically on examining new educational initiatives in practice, while the concept of organizational routines also has been applied to established ways of working, such as student discipline routines (Diamond & Lewis, 2019), student classroom placement routines (Park et al., 2017), and organizational routines as manifestations of legal standards (Ottesen & Møller, 2016). Our findings, limited to the use of organizational routines in the context of new educational initiatives, thus might not be applicable to other research domains, such as examining established ways of working in schools. We made this choice consciously, noting the relatively limited focus on new educational initiatives in practice, in an attempt to explore an underexposed topic, but further research could complement educational initiatives too.

2.10 Conclusion

This review explored whether the current applications of the concept of organizational routines make good on its promise for shedding light on how initiatives unfold within educational settings. The concept was shown to offer a potentially useful tool for researchers to examine what actually occurs regarding an initiative in practice. However, current definitions, operationalizations, and examinations can lack clarity and validity.

At present, the concept of routines holds potential, but is also ambiguous. To bolster the potential of the concept, two working definitions of organizational routines were formalized which best allow researchers to investigate initiatives in practice. First, organizational routines can be approached as entities. In this approach, researchers need to operationalize what it entails for an initiative to be a (1) repeated, (2) recognizable pattern of interdependent actions, (3) carried out by multiple actors. Second, organizational routines can be approached by focusing on their internal structure. Here, the general script of the routine (ostensive aspect) and its specific performances (performative aspect) are examined. In this approach, the ostensive aspect needs to be considered as: (1) the general script; (2) the formal design in the school in terms of tasks, roles, and structures; and (3) the subjective understanding participants have of the initiative. These working definitions are needed to create clarity regarding the concept and for it to be able to deliver on its promise for providing meaningful and relevant information on how new initiatives actually work and unfold in practice.

For the purpose of examining PD in school practice with the concept of organizational routines, several considerations are important. First, both the internal structure approach as the entities approach shed light on important aspects of how PD unfolds in schools. Which approach to take will depend on the aim of the research: when the focus is on how the routine operates (changes, stabilizes, breaks down or succeeds), the internal structure is useful (Parmigiani & Howard-Grenville, 2011). The entities approach is useful when the aim is to understand how the routine is influenced by its wider organizational setting (Parmigiani & Howard-Grenville, 2011). In chapter three, the internal structure approach is used to examine how teachers' subjective understanding connects to their performance and evaluation of lesson study. Participants' subjective understanding is an important element to understanding how PD unfolds as research has shown that how teachers understand an initiative influences if and how they perform PD initiatives (Coburn, 2001; Luttenberg et al., 2013). The entities approach to routines is used in chapter five to investigate how the wider school context, in particular the school factors, connect to how lesson study is continued in the 14 schools. Lastly, this review showed that few studies investigate the organizational tasks and processes necessary to set-up routines, which are considered relevant in the routines literature (Becker, 2004; Coburn & Turner, 2011) and within PD research (Bannister, 2018; van Driel et al., 2012). Routines require other types of external support (the organizational tasks and processes) to be in place for successful implementation and performance. Therefore, we also explore in chapter four how schools set-up organizational tasks and processes for lesson study, as these are a requirement for lesson study's successful implementation and performance (Akiba, 2016; Xu & Pedder, 2014).

Appendix

Table 5. Member checking and triangulation of studies using the entities approach

Author(s), year	Member checking	Method	Data sources	Theory triangulations: Additional theory
Coburn et al., 2013	No	Two interviews and three classrooms observations for each focal teacher ($n = 12$) in year 1. In years 2 and 3, 5 interviews and 6 classroom observations per focal teacher. Each year, interviews with each mathematics coach and principal one or two times. Interviews with 6 additional teachers per school once per year. In each school, 3 to 5 observations per year.	5	Social network theory
Gannon-Slater et al., 2017	Yes	62 observations	1	Cultures of data use
Hatch et al., 2016	Yes	Social network surveys ($n = 31$ to 46 surveys per district per year), interviews ($n = 3$ to 5 administrators each year)	3	Social network theory
Hopkins et al., 2013	No	Surveys 2010 ($n = 311$), 2011 ($n = 337$), 2012 ($n = 375$), response rates of 89%, 96%, and 94%, respectively, interviews ($n = 33$)	2	Coupling
Horn & Little, 2010	No	Observations (one 15-minute and one 17-minute episode selected from 26 hours)	1	Conversational routines and moves
Huguet et al., 2017	No	Interviews ($n = 32$), observations, documents	3	Conversational routines and moves

Kallemeyn, 2014	No	Interviews ($n = 11$), documents, observations (40 hours)	2	Framework on data use in practice
Park, 2018	Yes	Observations (55 hours), documents, interviews ($n = 25$)	3	Conversational routines and moves
Salisbury, 2020	No	Interviews ($n = 22$), documents ($n = 162$), observations ($n = 182$).	2	Conversational routines and moves
Spain, 2017	No	Interviews ($n = 18$), documents, observations (57 hours).	2	Institutional theory
Wachen et al., 2018	No	Interviews ($n = 116$), 8 focus groups	5	Framework for understanding data use for instructional adaptation
Wolthuis et al., 2021	No	Interviews ($n = 35$): 21 teachers (former LSPLN participants) and 14 school leaders	2	School factors

Table 6. Member checking and triangulation of studies investigating the internal structure

Author(s), year	Member checking	Method	Data sources	Theory triangulations: Additional theory
Datnow et al., 2020	Yes	Interviews ($n = 128$), observations (180 hours)	3	Conversational routines and moves
Hubers et al., 2017	No	Questionnaires (response rate per year 43.0%, 33.5%, and 45.2% respectively), documents, interviews	3	-
Liljenberg & Nordholm, 2018	No	Interviews ($n = 131$)	4	Coupling, sensemaking.
März et al., 2017	Yes	Document analysis, interviews ($n = 16$)	3	Neo-institutional theory.
Sherer & Spillane, 2011	No	Interviews ($n = 212$), leader shadows ($n = 8$), observations ($n = 25$), field notes ($n = 57$).	4	-
Spillane et al., 2011	No	Observations ($n = 131$), interviews ($n = 219$)	4	Coupling
Spillane et al., 2016	No	Interviews ($n = 33$)	2	-
Stelitano et al., 2020	No	Interviews ($n = 47$), observations (60 hours), documents (450+), surveys ($n = 173$).	5	Social network theory
Tate et al., 2018	No	Interviews (1 focus group, 5 interviews)	4	-
Tubin, 2015	No	Observations, documents, interviews	10	Structuration theory
Wolthuis et al., 2020a	No	Interviews ($n = 21$)	1	-
Woulfin, 2015	Yes	Observations ($n = 38$), interviews ($n = 29$), documents ($n = 171$)	1	Coupling

Chapter 3

Lesson study as an organizational routine

Based on: Wolthuis, F., van Veen, K., de Vries, S., & Hubers, M. D. (2020).
Between lethal and local adaptation: Lesson study as an organizational
routine. *International Journal of Educational Research*, 100, 101534.

Abstract

Professional development practices remain at the forefront of ways to support teacher learning but are difficult to sustain. We investigate whether and how teachers continued to perform the professional development practice of lesson study in their own schools after participating in a cross-school Lesson Study Professional Learning Network for four years. We found different perceptions of the general idea of lesson study. If the general idea was modified, teachers rarely continued to perform lesson study; if they did, they transformed lesson study in such a way that core elements were removed. When teachers maintained the general idea of lesson study, they were more likely to continue to perform lesson study in their own school and to consider the practice useful.

3.1 Introduction

Professional development (PD) practices remain at the forefront of ways to support teacher learning. Although much is known about which characteristics PD practices need to have to be effective, maintaining and sustaining effective PD practices in schools remains a considerable challenge (Desimone & Stuckey, 2014; Hargreaves & Goodson, 2006). One such PD practice which potentially contains all characteristics of effective PD but proves difficult to sustain in schools is Lesson Study. Lesson study has gained increasing global attention in the past 30 years. Lesson study is translated from the Japanese *jugyuu kenkyuu*, with the first word meaning “live instruction” or “lessons” and the second “research” or “study” (Lewis, 2016). Lesson study involves a research cycle with phases during which teachers collaboratively investigate their own teaching practice (Lewis et al., 2006). It can support teacher and student learning in new contexts (Cajkler, et al., 2014; Schipper et al., 2018; Xu & Pedder, 2014) but is difficult to sustain. Often, lesson study initiatives are short-lived and simplified (Akiba, 2016; C. K. Lee, 2015; Takahashi & McDougal, 2016).

Specifically, when lesson study is adopted in international contexts, several researchers (e.g., Akiba, 2016; Takahashi & McDougal, 2016) have argued that it does not always “stay true” to the Japanese model. The question of how lesson study can become an embedded practice in schools outside Japan relates to the implementation fidelity and local adaptations debate (Anderson, 2017). Depending on the approach taken, different views have emerged on what is considered acceptable when lesson study is adopted internationally. In a fidelity approach, lesson study should be understood and performed as in Japan. The local adaptations approach, by contrast, allows for adjustments to the practice as long as teachers adhere to its core elements (Quinn & Kim, 2017). Generally, the implementation debate applies not just to PD practices that are adopted from another culture but to any PD practice taken up in schools. PD practices always need to be interpreted and performed by teachers, making discussions about adaptations and faithful implementations apply to other forms of PD as well. For example, research on data use, another PD practice, also engages in questions of how the practice needs to be taken up by teachers and the extent to which teachers may adjust or stay faithful to the core elements of data use (Coburn & Turner, 2011; Hubers et al., 2017). As such, while our discussion focuses specifically on lesson study, the questions and problems surrounding embedding lesson study apply to PD in general.

Given the above, investigating how lesson study can become embedded involves two separate questions: (1) Which core elements of lesson study should be embedded? and

(2) How is lesson study actually embedded in practice? In this paper, we take a local adaptations approach, arguing that lesson study can be modified as long as core elements are preserved. We apply the concept of organizational routines to examine whether and how teachers embed lesson study in their own school settings after learning to use it. We aim to contribute to the small but growing body of empirical studies examining lesson study in practice in new international contexts. In this study, we investigate teachers who took part in a cross-school Lesson Study Professional Learning Network (LSPLN) for four years, during which they performed six cycles. The LSPLN was set up to develop teacher learning and was designed to enable teachers to introduce lesson study into their own schools and to continue with the practice as a lesson study facilitator with their own colleagues after training had ended. By examining whether and how teachers maintained or modified lesson study as an organizational routine and how doing so connected with their continued performance of the cycle, we aim to provide more insight into how lesson study can become embedded in school settings new to the practice.

3.2 Theoretical Background

3.2.1 Organizational Routines

One useful way to investigate how PD practices, such as lesson study, can become embedded in practice is by framing them as organizational routines (Hubers et al., 2017; Spillane, 2012). Organizational routines broadly refer to “repetitive, recognizable patterns of interdependent action, carried out by multiple actors” (Feldman & Pentland, 2003 p.95). Schools, as with any other organization, have various organizational routines, such as parent–teacher meetings, grade-level or department meetings, and teacher evaluations (Sherer & Spillane, 2011). Organizational routines contain an internal structure, which consists of the general idea and specific performances of a routine. Feldman and Pentland (2003) refer to the general idea as the ostensive aspect and to specific performances as the performative aspects of a routine. The ostensive part is the routine in principle. It represents “the ideal or schematic form of a routine. It is the abstract, generalized idea of the routine” (Feldman & Pentland, 2003, p. 101). By contrast, the performative aspect “consists of specific actions, by specific people, in specific places and times” (p. 101). The ostensive and performative aspects are recursively related: within performance of the routine, the ostensive aspect is created and re-created; in turn, the ostensive aspect constrains and enables performance of

the routine. Organizational routines, in this sense, are capable of endogenous change, as people – either deliberately or unconsciously – “produce variations on a routine, to select these variations, and to retain them as what it means to do this particular routine” (Feldman & Pentland, 2003 p.113). The variations that can occur during performances can, in turn, lead to changes in the ostensive aspect of the routine (Scherer & Spillane, 2011; Spillane, 2012). In this sense, the concept of organizational routines allows for an investigation of how ways of working are modified or maintained, which makes it a useful concept to examine whether and how teachers adapt lesson study as presented during the LSPLN and whether and how they embed it in their own practice.

Usefulness. Understanding why some organizational routines become embedded in organizations while others do not also depends on whether they are considered useful (Witt, 2011). A routine’s usefulness involves the appropriateness of the design (Witt, 2011). Examining a lesson study’s usefulness and feasibility for practicing teachers is especially important to consider in our context, because though lesson study potentially contains all effective design principles, teachers do not always evaluate it positively (Brosnan, 2014). To date, no studies have explored in depth why teachers do or do not consider the practice useful.

Organizational routines in education. Educational scholars interested in exploring work processes within schools have recently turned their attention to organizational routines (Coburn et al., 2013; Spillane, 2012). For example, Roegman and Riehl (2015) investigate the potential of rounds as a new organizational routine to transform the practice of preservice teachers. They show that teachers made use of this possibility to a limited degree, due to the newness of the practice. Other authors investigate the implementation of data use, revealing that schools struggle to develop organizational routines and that the development of the ostensive aspect was especially scarce or lacking (Hubers et al., 2017). Scherer and Spillane (2011) show that the introduction of a five-week assessment routine enabled both constancy and change in practice over time. On the one hand, the ostensive script helps structure school practice and interactions; on the other, it never completely specifies action people need to take during performances of the routine. During performance of a routine, teachers and school leaders “changed the routine as they repaired and expanded it and as they strived to make it better”, leading to changes in the ostensive aspect of the routine (Scherer & Spillane, 2011, p. 642).

3.2.2 Lesson Study as an Organizational Routine

We investigate lesson study as an organizational routine that contains the ostensive and performative aspects and examine how teachers perceive its usefulness. (see Table

1 for an overview). In the following sub-sections, we discuss what is known from the lesson study literature on these aspects and how lesson study was introduced and performed during the LSPLN.

Table 1. Definition and operationalization of lesson study as an organizational routine

Aspect	Operationalizations
Ostensive	The general script of lesson study
Performative	Continued performance of lesson study
Usefulness	Evaluation of the appropriateness of the design of lesson study

Figure 1. Six stages of the Dutch lesson study cycle

Ostensive. The general script of lesson study involves the core elements of the research cycle. During the LSPLN, teachers worked with a version closely aligned with the Japanese cycle; it was based on both the American adaptation by Stepanek et al. (2007) and the British adaptation by Dudley (2011), which contains case pupils. This cycle contains six phases. During phase one, the group formulates a lesson goal and long-term goals for students and develops a research question. In phase two, the research lesson is planned, which includes developing SMART (specific, measurable, acceptable, realistic, and time-bound) lesson goals, choosing case pupils, and describing expected student responses. Teachers are advised to undertake a literature study, make an inventory of

good practices, and/or explore team members' (practical) knowledge in the course of designing the research lesson (de Vries et al., 2016). In phase three, the lesson is taught and then case pupils are interviewed. Phase four consists of the post-lesson discussion, which focuses on the research goal and student learning. In phase five, the team revises the lesson and teaches it again. In phase six, the group reflects on the entire lesson study process and shares their gained insights with the wider school staff. Figure 1 presents a graphical representation of this cycle.

Studies have shown that how teachers interpret lesson study varies and can develop as they gain more experience with the practice. Research reports that teachers often misunderstand lesson study as lesson planning instead of teacher research (Fujii, 2014; Lewis et al., 2006; Yoshida, 2012). Bocala (2015) finds that teachers without lesson study experience focus most on the observing phase whereas teachers with more lesson study experience focus more on student learning. By contrast, Durden (2018) demonstrates that what teachers consider elements of learning study (a variant of lesson study) fall on a continuum of increasing complexity, from improving lessons by following a process to transforming student understanding through conceptual change; the more complex teachers' understanding of lesson study, the more elements they ascribed to the practice.

Performative. Table 2 presents an overview of the possible elements in lesson study according to Takahashi and McDougal (2016). Following Stepanek et al. (2007), we consider the phases of the research cycle core elements of lesson study captured by elements 0–VIII. Teachers in new contexts often leave out elements that distinguish lesson study as a research process. For example, Seleznyov (2018) shows that international lesson study practices did not always include identification of a research theme (33%), studying curriculum material (63%), or live observation of lessons (8%).

Table 2. Overview of core and optional elements of lesson study

Element	Activity	Core/optional
0.	Share thoughts and ideas on education	Optional
I.	Start with a question or issue from teaching practice	Core
II.	Define clear research goal	Core
III.	Study data/publications/lesson material and share expertise	Core
IV.	Design research lesson (including observation forms) and write out research lesson plan	Core

Table 2. Continued

V.	Teach research lesson, live observation, and collection of data	Core
VI.	Engage in in-depth conversation	Core
VII.	Repeat elements V and VI followed by a final reflection	Core
VIII.	Share results with others outside the lesson study team	Core
IX.	Seek guidance of facilitator familiar with the lesson study process	Optional
X	Implement input from knowledgeable other	Optional

Optional elements of the cycle are phases o, IX, and X. In Japan, element III entails studying curriculum material. In our context, we consider this element open to local adaptation. In Japan, learning “goals are widely shared and specified with lesson-level precision” (Hiebert & Stigler, 2017 p. 2), whereas the Netherlands has no national curriculum (Nieveen & Kuiper, 2012). Teachers need to teach toward core curriculum standards, but these general objectives still provide teachers with substantial freedom to decide what and how to teach. In addition, research has shown that Japanese curricula are well designed to study student learning, which is often absent in curricula outside Japan (Lewis et al., 2011). As such, in the absence of well-suited curriculum material, the Dutch lesson study advises undertaking literature review and sharing personal teaching expertise as ways to design the research lesson (de Vries et al., 2017). In this sense, the Dutch model does not hold as tightly to the traditional studying of curriculum material (*kyouzai kenkyuu*) phase of Japanese lesson study as prescribed by the implementation fidelity perspective (Takahashi & McDougal, 2016).

A knowledgeable other “is someone from outside of the planning team with deep expertise in the content, often deep expertise in teaching, and much experience with lesson study” (Takahashi & McDougal, 2016 p. 515). In Japan, the knowledgeable other is present during the research lesson and gives the final remarks during the post-lesson discussion. During the LSPLN, teachers were assisted by two subject pedagogical experts. Although these experts were available for consultation on request after the LSPLN ended, they were no longer formally involved.

In addition, a lesson study cycle can include a facilitator, whose role is to guide and monitor the lesson study process. This person can be someone from the lesson study group or an outside member (Stepanek et al., 2007). Facilitators contribute to both the

organization and quality of lesson study: they take care of negotiating agendas and priorities, enabling the group to focus on teaching and learning, and deepen group discussions by directing the group to the lesson goal (Ermeling & Graff-Ermeling, 2016). Though not considered a core element, in the current study, all teachers were prepared to become facilitators during the LSPLN. If they continued with lesson study in their own setting, they always took on the role of lesson study facilitator within the lesson study group.

Usefulness. In Japan, lesson study is considered fundamental for the practice of teaching (Watanabe, 2018), but outside Japan, teachers' evaluation of lesson study varies. Some studies report that teachers appreciate the opportunity lesson study provides to collaborate and share experiences with and knowledge about education (Mon et al., 2016), though others show that teachers also question the use of the practice and doubt whether it is worth the time investment (Brosnan, 2014; J. F. K. Lee, 2008; Norwich & Ylonen, 2013). Although studies show that teachers interpret, perform, and evaluate lesson study differently, no research at present explores how these elements are connected. The current study explores this connection to gain insight into how lesson study can become embedded in new contexts. Herein, we address the following research questions:

1. What do teachers consider the general script of lesson study (ostensive)?
2. Do teachers continue to perform the lesson study (performative), and if so, how?
3. How do teachers evaluate the usefulness and feasibility of lesson study (usefulness)?

3.3 Method

3.3.1 Research Context

This study draws on an LSPLN project undertaken at a university teacher education program in partnership with other teacher training schools and secondary schools in the Netherlands. We use data from 21 teachers from 14 secondary schools in the northern Netherlands who participated in two LSPLNs, one for math and one for Dutch, for four years (2014–2017). These networks were part of a project for (cross-school) LSPLNs launched by the Dutch Ministry of Education (de Vries & Prenger, 2017). During the project, teachers learned extensively about lesson study and the core principles of the practice. They participated in the previously mentioned six cycles of lesson study

(Dudley, 2011; Stepanek et al., 2007) After four years, the LSPLN ended and university support and funding ceased. Teachers could decide for themselves whether and how to continue with lesson study, which 12 teachers from nine schools did.

3.3.2 Data Collection

We conducted semi-structured, open-ended interviews with the 21 LSPLN former participants (see Table 3 for teacher characteristics), three of whom did not respond to the request for an interview or were not able to participate. Examples of interview questions include the following: “What phases do you consider part of lesson study?” (ostensive), “Is every phase of the cycle equally important?” (ostensive), “Which phases of the research cycle do you perform?” (performative), and “To what extent do you think lesson study is worth the time investment and why?” (usefulness). Interviews had an average duration of 60 minutes and were audio recorded and transcribed verbatim.

Table 3. Sample descriptions

Descriptive	Data
Gender	4 male (19%)/17 female (81%)
Age (in years)	$M = 41,86$, $SD = 11,33$ (range: 26–59)
Teacher qualification	M.Ed.: $n = 11$ (52.4%) B.Ed.: $n = 10$ (47.6%)
Main teaching subject	Dutch: $n = 11$ (52.4%) Math: $n = 10$ (47.6%)

3.3.3 Data Analysis

The data analysis involved two steps. First, we developed a coding scheme based on Feldman and Pentland (2003), which distinguished the ostensive and performative aspects and Witt (2011) to examine teachers’ evaluation of lesson study’s usefulness. Step two consisted of grouping, analyzing, and discussing coded segments with the aim of examining the extent to which teachers maintained or modified the lesson study practice as presented during the LSPLN. We identified four distinct perceptions of how teachers considered the general script or idea of lesson study: 1) developing a shared vision, 2) lesson planning, 3) observing students, 4) researching student learning and enhancing pedagogical content knowledge (PCK). PCK is “the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adopted to the diverse interests and abilities of the learners”

(Shulman, 1987, p. 8). The perceptions, in turn, connected with whether and how lesson study continued to be performed and how teachers evaluated the usefulness of the practice. One teacher had two perceptions of the general idea of lesson study. His ostensive understanding of lesson study differed depending on the specific lesson study group he was in: For his own department, he maintained the ostensive element and considered the general idea of lesson study researching student learning and enhancing pedagogic content knowledge (PCK), but for groups he had set up with other departments, he saw the general idea as lesson planning. In the following section, we have translated quotes from the interviews from Dutch to English to illustrate the results.

3.4 Findings

Regarding the ostensive aspect (the general script), we found four perceptions of the general idea of lesson study. We observed no correlation between which perception participants had and subject matter taught, level of experience, or gender.

Next, we describe the results for each research question for each perception of the general idea separately. We use the overview of core and optional elements of lesson study to structure our results by beginning with the perceptions which focuses on elements of phase 0 and continuing with perceptions that focus on later and/or more phases. For each perception, we describe if and how the lesson study routine was performed and how teachers conceived of lesson study's usefulness (see table 4 for a summary of the results).

Table 4. Summary of results

	Perception	Ostensive	Performative	Usefulness	Number of teachers with this perception*
1	Shared vision	Script focuses mostly on phase of sharing views on education	Not finished and no concrete plans to continue	Design not useful to create a shared vision	1

Table 4. Continued

2	Lesson planning	Script focuses mostly on the lesson planning phase	Either not implemented or shortened and simplified	Design not useful for lesson planning	7
3	Student observation	Script focuses mostly on the observation phase	Either not implemented or intention to shorten and simplify	Design not useful for gaining insight into student responses	4
4	Researching student learning and enhancing PCK	Ostensive script includes almost all core elements	Mostly implemented as intended during the LSPLN	Design useful to enhance PCK and investigate student learning	10

* Jack has both perception 1 and 4.

3.4.1 Lesson Study as Developing a Shared Vision on Education

3.4.1.1 Ostensive

One teacher, Ann, focused specifically on the initial phase of lesson study, in which the team is encouraged to share and discuss views on education. She explained that for her, the ultimate goal of lesson study was to collaborate to develop a shared vision. At her K–9 school, she had used lesson study to allow a specific team to collaborate as a means to create more stability within the group. She viewed lesson study as a way to create a collaborative learning environment and work toward a shared vision among the members. In this sense, Ann modified the general script of lesson study by focusing specifically on phase 1.

3.4.1.2 Performative

Ann had begun performing the cycle at her school with a team that needed more stability, a group of homeroom teachers¹ who taught various subjects. She had divided the teachers into three lesson study groups and had planned to go through all the phases of the cycle. However, because she started late in the school year, when teachers had many obligations, they had to stop before any of the groups had completed the cycle. She explained that it was quite difficult to keep her colleagues present and engaged. For example, during the post-lesson discussion she struggled to keep colleagues focused and interested. Ann's performance of the cycle was incomplete, and she had no concrete plans to perform the cycle in the future.

3.4.1.3 Usefulness

Ann considered her time investment in learning lesson study worth it because of the opportunities it presented to exchange and discuss ideas with colleagues. However, her experience with the half-implemented cycle made her doubt whether lesson study was a good way to develop a shared vision. Instead, she thought it might be a prerequisite for lesson study rather than an outcome. In general, she noticed that her colleagues were less invested in the process than she was and were more willing to rush through the various phases. She believed a reason for this might be that the focus was not on the teachers' own subject. Overall, she did not consider lesson study appropriate for creating a shared vision.

3.4.2 Lesson Study as Lesson Planning

3.4.2.1 Ostensive

Seven teachers conceived of the general idea of lesson study as lesson planning had focused specifically on the lesson planning phase. For example, Lisa stated that lesson study was "thinking well about a lesson or series of lessons", and Natasha described it as "making good lessons". As another example, Jack, who had formed three groups with teachers from other departments (history upper and lower levels and music), considered the ostensive script for these groups during lesson study to improve lessons and facilitate talking about education.

Apart from highlighting the lesson planning phase, teachers with this perception

¹ In the Netherlands, teachers typically have a home group with which they meet once every few weeks depending on the needs of the group and their level (lower levels have more contact hours than upper levels).

diminished the other phases of lesson study, explaining that they felt it would be more efficient and beneficial if the cycle was shortened and simplified. Lisa explained that she thought the preparatory work could be reduced by eliminating many of the phases preceding the actual lesson planning (e.g., formulating research and lesson goals). In addition, Sarah explained, “I think that to make a good lesson study lesson it is not necessary to have done very elaborate research”. Hannah also considerably modified the general script of lesson study. She explained what she valued most:

That you sit together and talk about the lesson material and that you learn from colleagues. That is the main benefit. But the entire cycle and then starting again, etc., that took quite a lot of time, and we considered that to be the biggest disadvantage: that you are spending a substantial amount of time on the preparation of a lesson, really a disproportionate amount. That you will have spent up to six hours for a lesson that takes forty-five minutes.

The aforementioned quotes show that in this perception of lesson study as lesson planning, the teachers modified the ostensive aspect of the lesson study script by highlighting the lesson planning phase and eliminating the importance of the other phases from the general script.

3.4.2.2 Performative

When teachers perceived of lesson study as lesson planning, only two teachers, Sarah and Jack, continued to perform lesson study in their own school, but they modified the cycle. Sarah explained that she had eliminated most of the research elements, such as formulating a research goal and anticipating student responses. Instead, she reported that she started the cycle by diving straight into lesson planning. Sarah explained, “Really very elaborately outlining the first phase and then philosophizing for hours on end what your higher purpose is and all that, we went through that rather quickly”. Jack also modified the cycle: “The actual research, we omitted that a little. Writing down all the final conclusions. We do not do that, but we do say ‘this is a lesson we want to teach. This is the goal. How can we achieve that goal’”? Both noted that they mostly used the group members’ teaching experiences to plan the lesson. In summary, Sarah and Jack deviated substantially from the original cycle.

Importantly, their lesson planning no longer resembled the lesson planning phase of lesson study performed during the LSPLN, in which the lesson is part of the research process. It is specifically meant to be a research lesson, allowing teachers to collect data

and subsequently discuss how their design worked to solve their research problem and answer their research question. By contrast, Sarah and Jack were not preparing a lesson that would allow them to investigate their research question, as this phase was often neglected, but instead were focused on developing and subsequently observing general lesson plans.

Hannah explained that though she was not planning to continue with lesson study as presented during the LSPLN, she did want to have more regular meetings with her department to discuss the teaching materials, because for her this was the most beneficial aspect of lesson study. However, she had no concrete plans yet to continue with this form of collaborative lesson planning.

3.4.2.3 Usefulness

When the general idea of lesson study was seen as lesson planning, the four teachers who did not continue with performing lesson study in their own schools expressed that they had not done so because they considered the practice too time consuming. They explained that lesson study took too much time to develop one lesson, and therefore they did not consider the design of the cycle useful and feasible. Lisa, for example, said, “It is really just very specific, really very small, right? It is really small, lesson study is small”. In turn, Diane, commenting on lesson study cycles she did during the LSPLN, noted:

It was definitely not worth the time investment. That took so much time. The whole discussion cycle after you have taught the research lesson, that just takes so much time if you do all the phases. Well, then I do not believe it has had sufficient returns. But maybe if you can do it in a smaller form within the school, well, then it might be more effective.

The two teachers who had performed lesson study were more positive about the returns of the cycle. Jack considered lesson study worthwhile because of the developed lesson it yielded and because insights gained from observing the lesson being taught transferred to other lessons. However, he stressed that for lesson study to be worthwhile, the cycle needed to be shortened and simplified, as he had done. Sarah, in her evaluation of the cycle, doubted whether lesson study was worth the time investment for planning a lesson. When teachers perceived of the general idea of lesson study as lesson planning, teachers considered lesson study not appropriately designed for lesson planning and, therefore, too time consuming. The teachers who continued performing (aspects of) lesson study had reduced the time investment and modified the cycle to balance this

time commitment out, forcing the performance of the lesson study cycle to fit their conceived ostensive script.

3.4.3 Lesson Study as Observing Students

3.4.3.1 Ostensive

A third group of teachers perceived of the general script of lesson study as observing students. Four teachers focused specifically on the observation phase in their ostensive script of lesson study. They all mentioned that for them, lesson study was primarily about gaining insight into student responses. Meg and Charlotte tied the insights gained from observation to lesson planning, explaining that the insights into how students actually respond were useful to improve lessons. Teachers with this perception differed from those in the fourth perception of the general idea of lesson study as researching student learning and enhancing PCK in that none connected gaining insight into student responses with better understanding of student learning. Instead, they focused on how observing students allowed them to gain insights into the complexities of classroom communication. For example, George noted that it provided the following:

A better insight into how students can respond. Students can really react very differently than what you expect, and you need to take that into consideration. There are a lot of things that escape you during a lesson. That is really alarming. Lesson study gives you a greater awareness that you need to be really precise when expressing something. Even then, it then can still go wrong, and you need to check in some way how things come across.

In addition to highlighting the observation phase as the most important phase, teachers downplayed the importance of the other phases of lesson study as presented during the LSPLN. For example, Meg considered the preparatory phase to set up the research lesson too time consuming. She did not consider it essential for lesson study and planned to reduce it during future cycles. She explained, “Formulating the research question really well and in addition to that formulating your lesson goals, I have noticed this is really time consuming ... but then I do think this can be done somewhat more quickly”.

Instead of a continuous collaborative form of teacher research, Charlotte and George considered the insight into student responses only once; this led them to modify the ostensive script of lesson study. George considered the insight into student responses quite powerful during the first cycle. However, he explained, “The whole circus of

coming together and having to prepare a lesson and then also having to teach that lesson and observe, I do not dare to say that is really necessary. The awareness is really important". He added that after this awareness is gained during the first cycle, it does not require further repetition in subsequent cycles to develop further.

3.4.3.2 Performative

Of the teachers with the perception of lesson study as student observation, only Meg continued to perform lesson study in her own school. She first tried to get her department involved, but no one was willing to participate in the cycle. As a result, she set up lesson study as part of her role as teacher educator with the teacher trainees. She reported that she ran two lesson study groups with teacher trainees, and for the first cycle, she went through all the core phases. However, for future cycles she intended to reduce research elements of the phases leading up to the observation phase and focus mostly on the observation phase. The other teachers did not continue to perform lesson study for various reasons. Lucy said her department was willing to undertake lesson study, but she indicated she would only start once school leadership gave credit for the group to spend time on lesson study, which was not yet the case. Charlotte and George said that they had tried to form a group with their department but were not successful.

3.4.3.3 Usefulness

When teachers perceived of lesson study as student observation, all teachers were critical of the time investment lesson study required. Teachers did not consider lesson study well designed for gaining insight into student responses. For George and Charlotte, the continuous repetition of the research cycle was not commensurate to the insight that it yielded. Even when the insight into student responses was not considered once-only, the research cycle – especially the preparatory work to design the research lesson – was not considered essential.

3.4.4 Lesson Study to Research Student Learning and Enhance Pedagogic Content Knowledge

3.4.4.1 Ostensive

A fourth perception found amongst teachers was lesson study as researching student learning and enhancing PCK. Ten teachers had this perception of the general idea, which maintained most of the ostensive script of lesson study as presented during the LSPLN. Teachers with this perception of the general idea of lesson study modified

phase six slightly by including only reflection on the entire lesson study process and not sharing their gained insights with the wider staff. Throughout their descriptions of the importance of the phases, they highlighted the ways each phase was relevant to enhance pedagogic content knowledge (PCK) and investigate student learning. For example, teachers also focused on student reactions, similar to teachers who perceived of the general idea of lesson study as observing students. However, here teachers stressed that observation enabled insight into how students learn their subject instead of creating an awareness of the complexities of classroom communication. For example, Betty explained that reviewing what students write down allowed her to understand the deeper reasons they, for example, struggle with square roots, which was the specific research question of the cycle. In addition, teachers understood the cycle as a research process. For example, Kim stressed that lesson study was about “collectively formulating an educational or didactical learning problem and improving that based on the responses of students”. Overall, teachers who perceived lesson study as researching student learning and enhancing PCK viewed lesson study in line with how it was presented during the LSPLN – namely, as a research cycle – and maintained most of the ostensive script of lesson study.

3.4.4.2 Performative

Of the 10 teachers who perceived lesson study as researching student learning and enhancing PCK, eight continued to perform the cycle. Seven teachers followed the ostensive script as intended and went through almost all the phases as they had done during the LSPLN. For example, Joyce explained that she kept close to the cycle. She went through all the initial steps in phases one and two, such as formulating learning goals, establishing research questions, and predicting student responses. Joyce also indicated that she closely followed the manual to facilitate the post-lesson discussion to ensure everyone contributed and stayed on topic. In some cases, teachers deviated from the original procedure by, for example, scheduling more than two research lessons to solve scheduling difficulties. For example, Peter had had to plan six different research lessons to enable all his team members to observe. With his own department, Jack ran the cycle as intended and went through all the phases (though not with other departments). He also sought out additional literature to design the research lesson for himself and his colleagues. Most teachers with the perception of lesson study as researching student learning and enhancing PCK left out half the final phase that consisted of sharing the results and insights of the cycle with teachers outside the research team.

Jill significantly adjusted the cycle. She explained, “Now we do less, or maybe nothing

at all, with assessing student responses before observing. So we ditched the observation form. The real research, we actually threw that out as well". She also no longer collected student data during research lessons, noting, "It is more practically oriented now, in the sense of just asking: What do I see and what does that mean for my next lesson? And if I would teach it again, what would I do differently?" All teachers indicated that they mainly investigated ways to design the research lesson by exploring their own (practical) knowledge or looking up examples of good practices online.

3.4.4.3 Usefulness

All teachers with the perception of lesson study as researching student learning and enhancing PCK were positive about lesson study and considered the research cycle appropriate for enhancing PCK. Three elements recurred in respondents' explanations of why they valued the cycle. First, they appreciated being able to focus on their own subject matter and how their students learn their subject. Second, they valued the collaborative nature of the process, and third, the practical relevance of lesson study made the practice worthwhile, as they could take what they learned during the cycle and use it immediately in their further teaching. Regarding the third element, participants explained that practical relevance could be found not only in the developed material that could be used but also in terms of the insights into PCK that were gained. For example, Joyce described the value of lesson study as follows:

Learning together, learning from each other is very important, and there is a heavy focus on student behavior and student learning. I think those are the success factors. And also the deeper focus. Not just superficially deciding what you are going to do tomorrow, but preparing everything on a very detailed level. Those are the elements that make lesson study successful.

When lesson study was perceived as researching student learning and enhancing PCK, teachers all considered lesson study worth the time investment. Anna explained, "It is a lot of work, but you get so much in return, and it is also a very nice way to engage with your subject". For Holly, similar considerations were present in her evaluation of lesson study. She commented: "What I really enjoy about it is collaborating with colleagues on your own core subject. I think it is very valuable to do this with colleagues, to work on my subject and on the learning of students. Students improve and that improves my teaching".

Jill also indicated that she considered all elements of the cycle important. However, she explained that she had adjusted the cycle to keep her colleagues engaged, as they did not value the research elements, considering them too time consuming. After the adjustments, she no longer felt able to enjoy and learn from the cycle herself and said she felt considerably less enthusiastic about the process than when she had during the LSPLN. Overall, when lesson study was perceived as researching student learning and enhancing PCK, teachers valued lesson study, considering the design of the cycle appropriate for (collaboratively) researching student learning and enhancing PCK.

3.5 Conclusion and Discussion

3.5.1 Lesson Study

We aimed to investigate how teachers create lesson study as an organizational routine and gain insights into how lesson study can become embedded in contexts outside Japan. One of our main findings is that teachers varied in whether they maintained or modified the ostensive aspect of lesson study as presented during the LSPLN. Moreover, the results showed that teachers' ostensive understanding connected with the performative aspect and their evaluation of its usefulness. When teachers perceived lesson study as researching student learning and enhancing PCK, teachers mostly maintained the ostensive aspect of lesson study. In this perception of lesson study almost all the phases of the cycle were part of teachers' general script of lesson study. Teachers with this perception were both most willing to perform all phases of the research cycle and most likely to consider the design of lesson study useful. In the other perceptions of the ostensive (shared vision, lesson planning, and student observation) teachers' general script of lesson study focused on only one of the phases as presented during the LSPLN. In these perceptions of the ostensive, teachers often indicated that they did not want to continue with lesson study in their own schools and believed the cycle was not appropriately designed and, therefore, not useful. They considered the cycle too lengthy for what they thought it yielded: one lesson plan or a one-time insight into student responses. If teachers did continue to perform lesson study, they modified the cycle, considering many elements inessential and too time consuming.

A possible explanation for the differences in the ostensive script of lesson study among teachers can be found in the literature. People can adjust the ostensive aspect of a routine by going through successive performances of it (Feldman & Pentland, 2003; Spillane, 2012). Organizational routines are not stable; rather, they are subject to

change as teachers go through a “processes of variation, selection, and retention that takes place between the ostensive and performative aspects of the routine” (Feldman & Pentland, 2003). Applied to our results, this could mean that as teachers went through the LSPLN’s six research cycles, some might have changed the ostensive aspect of the practice, transforming it from teacher research to lesson planning or student observation.

Our finding that maintaining the ostensive aspect of lesson study leads to richer implementations of the practice also aligns with what we know from implementation literature. Studies show that teachers must maintain the core elements of an innovation to avoid lethally adjusting the practice (Quinn & Kim, 2017). The results indicate that perceiving lesson study as researching student learning and enhancing PCK, teachers were both most able and most willing to embed lesson study as an organizational routine in their own settings. If teachers with other perceptions of lesson study continued to perform the cycle it was modified to such a degree that the teachers’ practices aligned more with other PD practices such as collaborative lesson planning or collegial observation. These teachers continued with a practice that no longer captured the core elements of lesson study, though they did seem to continue a change process that may have been initiated by the LSPLN. Although lesson study itself was not embedded, the teachers implemented an adapted practice, which they reported offered them valuable learning opportunities.

However, if the goal is to embed long-term, school-based PD in schools, our results show that teachers’ ostensive understanding of the PD is crucial. Only when teachers maintained the ostensive script of the PD was the practice most likely to be (almost completely) embedded in the school. In all other cases, teachers either were unwilling to continue or, if they did, lethally adapted the practice into something that no longer contained all characteristics of the PD practice.

3.5.2 The Research Cycle

Our results are in line with previous findings that teachers leave out elements that distinguish lesson study as an inquiry process (Seleznyov, 2018). Our results show that including research elements is crucial for embedding the ostensive script of lesson study. Teachers who did not perform the research elements did not consider these aspects necessary parts of the general script of lesson study. Lesson study was no longer viewed as a form of teacher research but as mostly about either lesson planning or observing students. However, if lesson study was seen as researching student learning and enhancing PCK, teachers explained that they needed the research elements to assess student learning – in other words, to perform their ostensive script of the practice.

A pattern running through almost all performative aspects of lesson study was the focus on sharing personal teaching experience and good practices as a way to design the research lesson rather than undertaking a literature review or reading books or articles. This finding suggests that in our contexts, researching a topic by sharing teaching experience is preferable for teachers to investigate their research theme. It could also be an initial step in setting up a collaborative practice, as in the Dutch system it is relatively uncommon for teachers to discuss in depth one another's views on education (Snoek, 2017). Teachers also eliminated research elements during the continued performance of the cycle to make the practice more suitable to colleagues from whom resistance to research elements was expected. In Japan, teaching is considered research, and teachers are viewed as researchers of their own practice, which makes lesson study an integral part of the profession; however, outside Japan, this is not often the case (Akiba, 2016; Fujii, 2014; Hiebert & Stigler, 2017; Watanabe, 2018). As such, "perhaps the key factor for lesson study to be productive anywhere is for teachers to view teaching as research and to develop their own identities as researchers" (Watanabe, 2018 p.10).

Teachers also reported specific factors (e.g., department dynamics, organizational factors) that influenced their ability to perform the cycle. In some cases, teachers expressed a willingness to perform the cycle but were unable to find motivated and enthusiastic colleagues who were willing to engage in collaborative learning. In this case, the predominantly individualistic nature of PD in the Netherlands may have been an obstacle to the development of collaborative professional cultures such as lesson study in schools (Snoek, 2017). How lesson study was organized also influenced the extent to which it was implemented. For example, teachers mentioned that both facilitation and scheduling influenced whether and how the cycle was performed.

3.6 Limitations

We acknowledge several limitations of our analysis. First, we focused on whether teachers did or did not embed lesson study as an organizational routine. However, we did not determine how much support these teachers received from school leaders, which is an important feature of embedding new practices (de Vries et al., 2017; Xu & Pedder, 2014). Future research should examine how teachers and school leaders can work together to embed lesson study in their schools.

Second, we focused on the teachers who were part of the PLN, not on their colleagues in the school who had not been part of this network. Our results also indicate that the

role of the colleagues of the former PLN teachers also limited the extent to which lesson study could be implemented. For example, Jill saw the general idea of lesson study as researching student learning and enhancing PCK. However, Jill's colleagues did not seem to share the same ostensive script of lesson study as researching student learning and enhancing PCK, but instead seemed to see it more as lesson planning, which limited Jill in performing lesson study as a research cycle. As such, future research should also pay attention to the role of colleagues.

Third, our research focused specifically on the Dutch context. Studies in other contexts are necessary to develop a more comprehensive understanding of how the ostensive aspect connects with the performative aspect and teachers' evaluation of the usefulness of lesson study. Our results shed light on specific contexts within Dutch secondary education; evidence from more settings will contribute to a more solid knowledge base of what is required to make lesson study work across various settings.

Finally, we focused on how teachers' implementation of the ostensive aspect of lesson study shaped the performative aspect and the evaluation of lesson study's usefulness. However, our results that show other factors also determined how lesson study was implemented in a school context. For example, the organizational context played a role when, due to scheduling difficulties, groups increased the number of research lessons. Other adjustments were made out of interpersonal considerations. Not all teachers were able to form a group because their department was not on board or the cycle was adjusted as a result of different ideas on education. As such, our results also show how difficult and intractable the educational practice can be. In general, other factors such as school culture, leadership, conceptions of teaching, teacher motivation, and self-efficacy can also influence perceived ostensive script and performance of lesson study (Saito et al., 2012; Xu & Pedder, 2014).

3.7 Practical Significance

This study illustrates the importance of teachers' understanding of the general script of the lesson study. Only when teachers' general script included the core elements of the cycle did they avoid lethally adapting lesson study. For lesson study to be embedded as a form of teacher research, teachers' general script must include core elements from the research cycle by, for example, creating time within the introduction of lesson study to explicitly discuss the core elements of the cycle. This finding is in line with the literature on educational change, which argues that a crucial first step toward

embedding the initiative involves generating consensus on what the innovation is (Fullan, 2016; Wood, 2017).

In addition, our results show the difficulties of bottom-up implementation of PD. Many teachers struggled to spark interest among their colleagues in engaging in collaborative inquiry. In our context, teachers might have been especially challenged to continue with performing the research cycle at their own schools because colleagues had not been part of the LSPLN and were not familiar with the practice. As such, our results also show that teachers need support from school leadership to set up and embed lesson study in their own school settings.

3.8 Future Research

Research should continue to investigate how PD such as lesson study can become embedded in school settings. Although an increasing number of educational scholars have begun investigating how organizational routines of PD develop (Hubers et al., 2017; Roegman & Riehl, 2015; Spillane, 2012), more work is still necessary. Our study shows that the ostensive aspect can vary considerably and that the maintenance or modification of the ostensive aspect connects with whether teachers (want to) embed lesson study in their own schools. However, why teachers maintain or modify the ostensive script is still unclear. By investigating how and why teachers make sense of lesson study differently, more insight can be gained into the challenges and process involved in why core elements are maintained or modified in the ostensive script. Studies have shown that educators differ in how they interpret, adapt, and transform new educational initiatives (Coburn, 2001; Luttenberg et al., 2013). Researchers could use sensemaking, or how people come to understand new messages and ideas (Weick et al., 2005), to investigate why teachers come to different conclusions regarding the ostensive aspect. Future research can explore connections between conceptions of teaching and sensemaking of lesson study, which could provide an explanation for differences found between teachers' perception of the general idea of lesson study. Generally, sensemaking is influenced by existing frames of reference, convictions, and beliefs (Coburn, 2001; Weick et al., 2005). Specifically, it has been shown that how teachers make sense of new educational initiatives is greatly influenced by their conception of teaching (Luttenberg et al., 2013).

Takahashi's (2017) discussion on the levels of teaching further supports the connection between the interpretation of lesson study and the conception of teaching.

He presents three levels of teaching: 1) teaching as telling the important basics, facts, concepts and practices, 2) teaching as explaining meanings and reasons for basic concepts and practices, 3) teaching as providing students with opportunities to understand content and practices and support their learning. In Japan, teachers, at least at elementary level, strive to use level three teaching (Takahashi, 2017). If the core of teaching is seen as supporting student learning, lesson study - with its focus on investigating student learning - seems relevant. However, if teaching is seen as level one, telling subject knowledge without a focus on how students learn the information, it becomes less straightforward to what extent researching student learning via lesson study is needed. This suggests that the real challenge for sustaining LS globally relates to coming to see teaching as supporting student learning in order to make the practice of LS relevant and useful for teachers. Future research should further investigate to what extent teachers' sensemaking of LS is connected to their conception of teaching. Especially, it should consider how teachers can come to see the idea of LS as collectively solving PCK problems into their frame of reference.

Although gaps in our understanding of the creation, maintenance, and development of organizational routines of PD remain, our study highlights the potential of applying the concept to examine whether and how new ways of working can become embedded in school life. Gaining these insights can help lesson study fulfill its potential in supporting teacher learning and shed light on how lesson study can become a useful local adaptation instead of a lethal mutation.

Chapter 4

An exploration of how schools organize lesson study

Based on: Wolthuis, F., Hubers, M. D., de Vries, S., & van Veen, K. (2020). More than mundane matters: an exploration of how schools organize professional learning teams. *International Journal of Leadership in Education*, 1-20.

Abstract

Organizational tasks and processes are preconditions for organizing professional learning teams but are often neglected in research. In nine schools, we examined which organizational tasks and processes were set-up for lesson study, a form of a professional learning team, and in what way. Schools set-up three organizational tasks and processes: recruiting participants, giving credit for time-investment, and scheduling meetings. Recruitment of participants was sometimes difficult when potential participants worked autonomously within their departments or teams. Credit for time-investment was often constrained as schools gave credit in a way that made lesson study an additional workload. Scheduling meetings was very challenging. The scheduled meetings were considered satisfactory in only in one school. Here, the school leader collaborated and communicated with her teachers to plan useful and uninterrupted meetings in the time table. Our results show that organizational work is not mundane and simple but complex and vital for embedding professional development in schools.

4.1 Introduction

Educational research shows that professional development (PD) practices that are long-term and school-based are more effective than once-off courses and workshops organized external to the school (Desimone, 2009). This has led to increasing interest in organizational structures in the form of professional learning communities (PLC), such as lesson study and data use (Coburn & Turner, 2011; Lewis & Perry, 2015). However, organizing these types of PD in schools remains a considerable challenge (Giles & Hargreaves, 2006; Hubers et al., 2017; Takahashi & McDougal, 2016). Research suggests that one of the reasons for this is that when initiatives are implemented, the relevance of the organizational context is hardly taken into account (Borko, 2004; Bryk, 2015; Hill et al., 2013) and organizational preconditions for organizing professional learning teams are often underestimated (van Driel et al., 2012). For example, Bannister (2018) argued that in the PLC literature there has been a tendency to assume that as long as teachers are motivated, teacher learning communities will arise and become sustainable, thereby largely underestimating the organizational work and restructuring that is needed to embed these new initiatives. Additionally, it has been argued that the educational literature more generally overlooks and underestimates the preconditions for implementing new initiatives, namely the fundamental restructuring of teachers' work needed to set-up new practices and to ensure that new initiatives do not merely intensify teachers' workload (Bryk, 2015; Gitlin & Margonis, 1995). As such, while organizational tasks and processes are vital for organizing professional learning teams most studies do not engage in detail with these preconditions for setting-up new PD initiatives.

Our work aims to contribute to the literature by exploring the organizational tasks and processes schools set-up for organizing professional learning teams, by focusing on one such practice, namely lesson study. Lesson study is a form of teacher inquiry. Small groups of teachers go through PDSA (plan-do-study-act) cycles, each of which contains five general phases: goal setting, planning and conducting a research lesson, conducting a post-lesson discussion, and reflecting on the entire lesson study process (Fujii, 2014; Lewis & Perry, 2015). Lesson study originates in Japan and came to international attention after the publication of *The Teaching Gap* (Stigler & Hiebert, 1999). Lesson study is a rather new form of PD in Western countries. However, it contains strong similarities with other, longer-established forms of PD such as action research and action learning cycles (Norwich, 2018), indicating a long-term interest in professional learning teams.

Recently, schools have been analyzed through the lens of organizational routines

to understand how to organize and sustain PD (Huguet et al., 2017; Kallemeyn, 2014; Wolthuis et al., 2020a). Organizational routines are generally defined as “a repetitive, recognizable pattern of interdependent actions, involving multiple actors” (Feldman & Pentland, 2003 p.95). By examining the general script of PD and the performance of its activities, it is possible to investigate to what extent the PD practice becomes an embedded practice – an organizational routine - in the school (Hubers et al., 2017). However, for PD initiatives to become an organizational routine requires other organizational preconditions need to be arranged. Applied to our context, if lesson study becomes an organizational routine in a school the practice becomes a repetitive, recognizable pattern of interdependent actions, involving multiple actors. The required organizational preconditions for this to be able to happen (Ermeling & Graff-Ermeling, 2016; Takahashi & McDougal, 2016) will be the focus of this study.

Schools in the present study have been part of a four-year long, cross-school Professional Learning Network in the north of the Netherlands in which they worked with lesson study (LSPLN). The purpose of the LSPLN was to develop teacher learning and to introduce lesson study in the schools after the LSPLN ended. We apply the concept of coupling (Hautala et al., 2018; Weick, 1976) to explore how schools set-up organizational tasks and processes to organize professional learning teams.

4.2 Theoretical background

First, we present an overview of the concept of coupling. Then we discuss how coupling is relevant to understand how schools set-up lesson study. While we consider coupling terms to be useful, we acknowledge that coupling terms have also been criticized for their ambiguity and varying definitions (Hautala et al., 2018) and different researchers use different interpretations of what loose or tight coupling features entail (Pang, 2003). As such, we explicitly discuss what we consider coupling to involve for each specific area relevant for lesson study.

4.2.1 The concept of coupling.

Coupling is assumed to offer a useful lens to examine how organizations operate (de Lima, 2007; Dimmock & Tan, 2013). Generally, coupling refers to how connected different areas in an organization are which is indicated by calling coupling between areas loose or tight. When there is loose coupling, activities can be performed in the absence of mutually agreed rules, coordination, inspection, feedback, and interde-

pendence, characteristics of tight coupling (Weick, 1976). Instead, when there is loose coupling people can and need to perform the work independently. Tight coupling is characterized by strong bureaucratic control features, strict rules, regulations, and monitoring (Hautala et al., 2018). In educational research, studies initially focused on coupling between the school-level administration and classroom-level instruction (Shen et al., 2017). In 1976, Weick famously portrayed schools generally as being loosely coupled in this regard. However, increasing bureaucracy and accountability pressures on education have led current research to suggest that administration and classroom instruction are becoming more tightly coupled (Buchanan, 2015; Spillane et al., 2011). Moreover, research has increasingly focused on the coupling between other areas than administration and teaching, expanding research to for example teacher-teacher, teacher-parent, teacher-pupil, and teacher-material coupling, revealing that coupling can vary within and between schools (Hautala et al., 2018).

4.2.2 Coupling of the Dutch educational system.

Coupling can vary within and between schools, and, more broadly, between different educational systems (Hargreaves, 2011). The Dutch school system is characterized by high levels of autonomy on both school and teacher level (Hooge, 2017). Dutch school boards have the highest level of autonomy compared to any other country in the world, with the government making only 14% of the decisions and school boards 86% (OECD, 2012). This contrasts heavily with countries such as Germany and Norway where school boards make 23% and 18% of the decisions, respectively. This shows that in the Netherlands, compared to other countries, the coupling between government and school boards is loose.

In the Netherlands, there is no common curriculum and teachers have the freedom to decide how and what to teach as long as they teach toward very generally formulated core curriculum standards (Nieveen & Kuiper, 2012). This contrasts with countries with a national curriculum, which can have detailed learning goals specified to the lesson level. In the Dutch context, teacher-material is more loosely coupled. Dutch teachers have a task policy specifying their tasks, which can relate to four different domains: teaching tasks, general school tasks, specific school tasks, and PD. All teachers have teaching tasks and general school tasks, which include making lesson planners and having meetings with parents. Teachers can have specific school tasks, such as organizing sports days, surveilling exams, and being a class mentor. Teachers receive task hours for specific school tasks and these tasks are determined at the start of the school year. Regarding PD, teachers have, when teaching full-time, 83 hours and 600 euros

annually to spend on PD.

As such, compared to other educational systems, the Dutch school system is generally loosely coupled. People working at various levels have substantial freedom to decide how they work and, compared to other countries, there is less accountability pressure and monitoring.

4.2.3 Coupling of organizational tasks and processes

A coupling lens can also be applied to examine how organizational tasks and processes are set-up. This can be *tightly* coupled when tasks and processes are controlled by administrative orders and set-up in a top-down manner (Shen et al., 2017). Organizational tasks and processes can be *loosely* coupled when school leadership delegates responsibilities to teachers (Pang, 2003), which is more in line with bottom-up organization (Hautala et al., 2018). Organizational tasks and processes have *balanced* coupling when school leadership collaborates and communicates with teachers, making the organization a combined effort of the people involved (Hökkä & Vähäsantanen, 2014). As such, organizational tasks and processes can have tight, loose, or balanced coupling.

While there is very little research examining organizational tasks and processes for setting-up lesson study, practical handbooks on lesson study do offer some recommendations. They suggest schools need to set-up ways to arrange participation, schedule lesson study meetings, give participating teachers credit for their time-investment in lesson study, arrange space for teachers to meet, and create ways to consolidate and share findings, and assign roles and responsibilities (e.g., de Vries et al., 2016; Ermeling & Graff-Ermeling, 2016; Stepanek et al., 2007). Additionally, handbooks suggest schools should create special teams that are responsible for setting-up lesson study (Ermeling & Graff-Ermeling, 2016; Takahashi & McDougal, 2016). Takahashi and McDougal (2016) suggest “developing a master plan for the school research; scheduling and leading meetings to find strategies to address the school’s research theme based on the ideas of the teachers; planning, editing, and publishing school research reports” (p.522). Another suggestion, by Ermeling and Graff-Ermeling (2016), is to make an inventory of all the current work and assess which practices are necessary and which can be handled more efficiently so that time is freed-up for lesson study. This time needs to be undisturbed, protected, focused, and supported.

The coupling literature indicates that understanding organizational arrangements also requires examining how they are experienced by educators (Hautala et al., 2018; Hökkä & Vähäsantanen, 2014). To better understand how organizational tasks and processes are set-up we therefore also examine how they are experienced by the actors involved.

4.2.4 Coupling in different areas of the school organization.

The coupling that exists within the school is important as this can have an influence on the extent to which new initiatives succeed. If a school is loosely coupled in key areas, efforts to improve may fail as they slip into the structural gaps between the loosely coupled elements (de Lima, 2007). At the same time, loose coupling also has benefits as it is connected to job satisfaction and commitment to work. Below, we discuss two specific areas relevant for setting-up collaborative PD such as lesson study through a coupling lens, namely departments or teams and PD in the school.

Departments or teams. One important area is coupling of the departments and teams as a lesson study group is made up of subject department colleagues or team colleagues depending on whether the lesson study group is based on subject or cross subject. Coupling in departments or teams can differ depending on the extent to which teachers collaborate or are isolated from one another (de Lima, 2007; Siskin, 1997; Witziers et al., 1999). Tightly coupled departments collaborate often, whereas loosely coupled departments work more individually. Research shows that if teachers are comfortable and used to collaborating this contributes to embedding and sustaining initiatives (Vangrieken et al., 2015).

Professional development. Lesson study is introduced as a PD initiative. Therefore, the coupling of PD in the schools will also influence how lesson study can be set-up. Coupling of PD depends on the extent to which PD is individually or collectively organized. If PD is loosely coupled, PD is an individual responsibility of teachers and there is little coordination, inspection, or mutually agreed rules on how PD is done. When PD is tightly coupled, there are mutually agreed rules, coordination and feedback regarding PD. Whether schools have a developed policy on PD and hold their staff accountable for individual PD hours indicates the type of coupling of PD. In the Netherlands, school boards have the freedom to develop and execute PD policy in their school. In many schools, it is common that the school board decides on half of the PD hours by organizing developmental afternoons for their entire staff. Teachers can decide themselves how they spend their remaining individual PD hours. Assessment from inspection (Inspectorate of Education, 2013), reveals that half of the secondary school boards in the Netherlands do not systematically steer teachers' individual PD hours and do not have clear norms towards what is expected in terms of teacher PD. Not every school requires their teachers to account for their individual PD hours and a substantial part of the teachers do not use this time at all (Inspectorate of Education, 2013). This suggests that half of teachers' PD hours is generally tightly coupled in the form of mandatory developmental afternoons while their individual PD hours can be

more loosely coupled and, in practice, can be unregulated and optional.

4.2.5 The present study

For this explorative study we aim to investigate the organizational work to set-up lesson study, and explore how the organizational work is set-up. Coupling theory is assumed to provide a useful lens to investigate and understand this. First, it enables an exploration of how new organizational tasks and processes for lesson study are set-up. Second, it provides insight into how the school organization, specifically the organization of departments or teams and PD in the school, influences how lesson study's organizational preconditions can be set-up. The following research questions inform our study:

1. Which organizational tasks and processes did schools set-up and how were they coupled?
2. How did the set-up of organizational tasks and processes proceed?

4.3 Method

4.3.1 The context

Schools in this study participated in two LSPLN for four years (2014–2017). These networks were part of a project for (cross-school) PLNs launched by the Dutch Ministry of Education (de Vries & Prenger, 2017). The LSPLNs were set-up to develop teacher learning, prepare teachers to become lesson study facilitators, and introduce lesson study in the schools. During the four years, teachers participated in six lesson study cycles. The last cycle was organized at each respective school, enabling teachers to introduce lesson study to their colleagues. Meetings were held several times per year for school leaders from the respective schools to update and inform them about the lesson study progress. Closing conferences were held at the end of the year where lesson study teams presented their findings to colleagues and school leadership. After four years the PLN ended and university support and funding was withdrawn. Schools could decide for themselves if and how they wanted to continue with lesson study in their own schools. Teachers and school leaders were approached for an interview and signed informed consent to participate in the research.

4.3.2 Data collection

Between 2017 and 2018 semi-structured, open-ended interviews were held with teachers

(former LSPLN participants) and school leadership, which included ten school leaders and fifteen teachers ($n=25$). See table 1 for participant characteristics. From one of the nine schools, the school leader did not respond to the invite for an interview. For this school only the teacher at this school provided data. Schools varied in size (see table 2). Interviews were done by phone and had an average duration of 60 minutes. Although in-person interviews are considered the gold standard in qualitative research, this might be an unjust bias (Cachia & Millward, 2011). Various studies report advantages of phone interviews such as permitting more anonymity and privacy to participants and the ability to make notes unobtrusively (Novick, 2008). Questions had a general focus on how lesson study was organized and experienced. By asking about the contributing and inhibiting factors, we indirectly asked about the nature and extent of the coupling in the schools. Examples of interview questions include the following: ‘How is lesson study organized in the school?’ and ‘What is going well and less well in organizing lesson study?’ and ‘Who is involved in organized lesson study and how are tasks and responsibilities divided?’ Interviews were audio-recorded. Additionally, we asked teachers and school leaders for policy regarding lesson study at their schools.

Table 1. Sample descriptions

School leaders	Descriptive	Data
	Male/Female	5 male (50%)/5 female (50%)
	Age (in years)	$M = 55,2$ $SD = 7,1$ (range: 42-63)
	Leadership experience (in years)	$M = 14,7$ $SD = 8,1$ (range: 7-30)
Teachers	Descriptive	Data
	Male/Female	2 male (13, 3%)/13 female (86, 7%)
	Age (in years)	$M = 42,9$, $SD = 11,9$ (range: 27-59)
	Teaching experience (in years)	$M = 15,1$, $SD = 10,1$ (range: 5-35)
	Teacher qualification	M.Ed.: $n = 7$ (46, 7%) B.Ed.: $n = 8$ (53, 3%)
	Main teaching subject	Dutch: $n = 9$ (60%) Math: $n = 6$ (40%)

Table 2. Characteristics of the nine case study schools

School ¹	Size	Interviews (N)	
		School/team leaders	Teachers
Greenfield	1316	1	1
Park West	281	2	3
Bakersfield	1361	1	1
Mayfair	305	1	1
Adams	920	1	3
Franklin	1100	1	2
Palmdale	1381	2	2
Inglewood	1004	0	1
Glendale	2051	1	1

¹ School names are all pseudonyms

4.3.3 Data analysis

The interviews were transcribed in verbatim. Summaries were created for each school to identify which organizational tasks and processes were set-up and how they were coupled, coupling of PD in each school, and coupling of the department or team of lesson study participants.

We explored the coupling of organizational tasks and processes in each school. We examined the coupling and experience of organizational tasks and processes, the coupling of departments and teams, and the coupling of PD in the schools (see table 3 for how each aspect was operationalized). All relevant quotes related to the aspects were selected. Subsequently, the segments were summarized and analyzed per interviewee to understand how setting-up the organizational tasks and processes had proceeded in each school and how this related to coupling. Tentative interpretations were shared and critically discussed amongst the research team. We found no connection between the creation of organizational tasks and processes and characteristics of the participants in the study, such as age, gender, and main subject. None of the schools had policy regarding lesson study, so no data analysis could be done regarding policy documents in the schools. To illustrate the results, quotes from the interviews were translated from Dutch into English.

Table 3. Operationalizations of the aspects of data analysis

Data analysis aspects	Operationalization
Tightly coupled organizational tasks and processes	School leadership controls tasks and processes by administrative orders and sets them up in a top-down manner (Shen et al., 2017).
Loosely coupled organizational tasks and processes	School leadership delegates setting-up the organizational tasks and processes to teachers and refrains from being involved (Hautala et al., 2018).
Balanced coupling of organizational tasks and processes	School leaders and teachers are both involved and communicated and collaborated how to set-up the work (Hökkä & Vähäsantanen, 2014).
Positive experience of organizational tasks and processes	School leaders and teachers are satisfied and content with the set-up of the organizational task or process
Negative experience of organizational tasks and processes	School leaders and teachers are not satisfied and not content with the set-up of the organizational task or process.
Tightly coupled departments or teams	Department or teams collaborate frequently
Loosely coupled departments or teams	Department or teams work in isolation
Tightly coupled PD	Schools hold teachers accountable for PD hours and there was a PD plan for the staff
Loosely coupled PD	Schools do not hold teachers accountable for PD hours and there is no PD plan for the staff

4.4 Results

We first give an overview of which organizational tasks and processes were set-up and how. Second, we discuss each organizational task and process in more detail. Here we elaborate on each organizational task and process and answer our second research question on how the set-up in schools proceeded. Results for all nine schools are described together.

4.4.1 Organizational Tasks and Processes Set-Up in Schools

School were all engaged in setting-up three organizational tasks and processes: recruiting participants, credit for the time-investment, and scheduling meetings. In one school, Adams, school leadership had also arranged a new organizational role, namely PLC coordinator. This role was given to one of the former LSPLN teachers. She was responsible for keeping overview of the different lesson study groups and other collaborative learning activities in the school. However, recruiting participants, credit for the time-investment, and scheduling meetings were the ones all nine schools set-up. Schools set them up with tight, loose, and balanced coupling (see table 4). As mentioned, none of the schools had developed any policy regarding lesson study and its organization within their schools.

Table 4. Overview of coupling of organizational tasks and process in the nine schools

School	Recruitment of participants	Credit for time-investment	Scheduling meetings
Greenfield	Loose	Tight	Loose
Park West	Tight	Tight	Tight
Bakersfield	Loose	Balanced	Loose
Mayfair	Loose	Balanced	Loose
Adams	Tight	Tight	Tight
Franklin	Loose	Balanced	Balanced
Palmdale	Loose	Tight	Loose
Inglewood	Loose	Tight	Loose
Glendale	Loose	Balanced	Loose

4.4.2 Set-Up of Recruiting Participant.

Coupling of recruitment of participants was either loose or tight.

Loose coupling. In most schools, seven in total, recruitment of participants was loosely coupled. In these schools, school leadership was not involved in the recruitment and former LSPLN teachers were solely responsible for finding participants. In this arrangement, participation of colleagues was voluntary and based on their motivation and interest. School leadership in these seven schools did not put pressure on teachers to form groups. They explained it was their main job to express support and enthusiasm for lesson study, not actively organize teachers' participation.

Tight coupling. In two schools, Park West and Adams, the set-up of recruiting participants was tightly coupled. In these schools, school leadership took charge and put expectations and demands on their teachers. In Park West, school leadership obliged former LSPLN teachers to recruit colleagues to form lesson study groups. The school leader had told the LSPLN teachers that given that they received credit (task hours) to do lesson study she required them to form a group and perform the lesson study cycle. In Adams, school leadership recruited mandatory participants. School leaders used lesson study as a means to improve collaboration in specific departments. School leadership organized the recruitment of participants by selecting departments that were working autonomously with the aim to make them work more collaboratively.

Proceedings. There was considerable variation in how recruitment of participants proceeded. Altogether, the former LSPLN teachers attempted to set-up eighteen lesson study groups of which eleven groups were easy to set-up and seven groups were very difficult to set-up. How setting-up recruitment of participants proceeded depended on department or team coupling. Teachers in departments or teams with tight coupling were all both able to recruit participants and were positive about recruitment. By contrast, teachers working in loosely coupled departments or teams had much more difficulty. They were either unable to recruit their colleagues or negative about the recruitment if it had succeeded. For example, at Franklin, one teacher from a department with loose coupling had not managed to get enough colleagues interested for lesson study. The other former LSPLN teacher had managed to bring together enough colleagues for a lesson study group but the loose coupling within the department made the arrangement precarious. She indicated that in the absence of interest in and willingness to collaborate, both her own and her colleagues' enthusiasm for a future lesson study cycle was low.

When recruitment of participants was set-up tightly through administrative orders it was still mediated by department coupling. For example, at Park West, only the

teacher working in a tightly coupled, collaborative department had been able to follow the order from school leadership to recruit her department colleagues. Two teachers working in loosely coupled departments did not succeed in recruiting participants as their colleagues resisted recruitment. Additionally, at Adams, while it had been possible to recruit participants as departments had been mandatorily assigned to the former LSPLN teachers, only the teacher assigned to a tightly coupled department was positive about the recruitment. Only her lesson study team was enthusiastic about collaborating and enjoyed participating. The other teachers had been assigned to loosely coupled departments. They were negative about the recruitment of their lesson study groups and reported the teachers they worked with were not enthusiastic about participating in collaborative learning.

4.4.3 Set-Up of Credit for Time-Investment.

Credit for time-investment was organized with either tight or balanced coupling.

Tight coupling. In six schools, credit for time-investment was tightly coupled. This meant that school leadership determined what kind of credit was given and teachers had little say in the matter. In these schools, credit for time-investment was a unilateral decision by school leadership. School leaders decided on giving credit (predominantly) in the form of individual PD hours.

Balanced coupling. In three schools, credit for time-investment was set-up with balanced coupling. In these schools, school leadership communicated and collaborated with teachers how to set-up the credit for time-investment. This led to a variety of arrangements. In one case, at Glendale, the former LSPLN teacher received a reduction of her workload. She was given one less class to teach for that school year. The school leader and teachers explained that this was a somewhat precarious arrangement made possible only by the fact that they had a teacher who was reintegrating after a burnout and able to start with taking on that class for the semester. In Mayfair and Bakersfield the school leader and former LSPLN teachers had discussed credit together and had decided on a combination of task hours and individual PD hours. At Franklin, the same combination of credit was given with the addition that all lesson study participants also received release time from departmental afternoon.

Proceedings. How credit for time investment proceeded and was experienced depended on both coupling of PD and coupling of credit for time-investment. Setting-up credit for time-investment was difficult when PD in the school was loosely coupled and school leaders gave individual PD hours. In these cases, only the school leaders were positive about the set-up. They considered lesson study to be individual PD and

therefore saw giving credit for time-investment in the form of individual PD hours as most fitting. By not giving task hours, this arrangement meant that their teachers were still available for other tasks and lesson study did not threaten staffs' involvement in existing activities. However, teachers in these schools unanimously experienced the arrangement as negative. They explained that receiving individual PD hours would make lesson study come on top of the work. One teacher elaborated: "It will lead to jealousy because it [lesson study] is a time-investment. Colleagues who do not do this do not have that time-investment and they do not have to report what it is they do" (B8, p23). Because teachers in these schools were generally not held accountable for individual PD hours, credit in the form of individual PD hours made lesson study an additional workload. When PD was tightly coupled, which was only the case in Palmdale, teachers did not resent or resist receiving credit in the form of individual PD hours. Due to the tightly coupled PD, teachers already had to account for these hours, which meant the credit was not seen as an additional workload. As such, many schools gave credit for time-investment in the form of individual PD hours but this was only experienced as a satisfactory form of credit for time-investment by teachers if coupling of PD in the school was tight.

Balanced coupling generally made arrangements more satisfactory. The communication and collaboration involved in balanced coupling led to favorable arrangements for all involved. For example, in Mayfair and Bakersfield school leaders and teachers both discussed that teachers would experience individual PD hours as an additional workload due to the loosely coupled PD in the school. Consequently, they decided that giving former LSPLN teachers and participants (some) task hours would be necessary for credit to be experienced as actual compensation. At Franklin, the school leader also recognized the resentment that receiving PD hours would evoke amongst potential lesson study participants. She explained: "most teachers will not experience this as compensation because those professional development hours are already in their possession. If teachers receive task hours or release time from meetings people generally experience that as better credit" (E1, p.6). As such, the school leader had also arranged for release-time to ensure that lesson study participants would experience the credit for their time-investment as useful. Both the school leader and the teachers at Franklin experienced the credit for time-investment positively.

Overall, setting-up credit for time investment proceeded with more difficulty in some schools than in others. Five schools set-up credit for time-investment with ease. This was because they either had tight PD coupling, making individual PD hours a satisfactory form of credit for teachers or because they set-up credit for time-investment

through balanced coupling, which meant school leaders and teachers communicated about what would be experienced as useful credit for lesson study. Four schools did not set-up credit for time-investment that was satisfactory for teachers. Teachers in these schools resisted or resented arrangements as the credit for time-investment they received was experienced as an additional workload rather than an actual compensation for their work.

4.4.4 Set-Up of Scheduling Meetings

Coupling of scheduling meetings varied between schools and was either tight, loose, or balanced.

Loose coupling. In six schools, scheduling meetings was loosely coupled. In these schools, school leadership did not engage with the scheduling and considered scheduling meetings teachers' tasks. Specifically, they explained they did not want to engage in planning fixed moments in the schedule for lesson study. Instead, they thought teachers themselves should schedule meetings in their existing weekly timetable around the scheduled lessons and other activities. Teachers struggled to do this. They reported difficulties with scheduling due to full time-tables, resistance from parents when lessons were cancelled, pressure from their school leaders to attend other planned activities when planning lesson study would be convenient, high amount of part-timers, the Dutch teaching culture that does not require teachers to stay after their lessons have been taught, and pressure from school leadership to not have any lesson cancellations. In most cases the combination of these factors made it very challenging, sometimes impossible, to find time to schedule meetings for lesson study during which all group members could be present.

Tight coupling. In two schools, Adams and Park West, scheduling meetings was tightly coupled. In these schools, school leadership decided on and arranged scheduling meetings for the lesson study groups. In Park West, the school leader ordered teachers to find five afternoons to do lesson study. Subsequently, she would cancel teachers' lessons during those hours. At Adams, school leadership told teachers to use the time designated for department meetings to do lesson study.

Balanced coupling. In one school, Franklin, school leadership and teachers planned meetings together in the regular schedule. They did so by looking at the schedule and deciding together which moments would fit well for each lesson study group. The school leader collaborated with the scheduler to ensure that lessons could be canceled or rescheduled to enable all lesson study group members to be present during meetings.

Proceedings. Most schools had difficulties scheduling meetings and teachers were

often unsatisfied about the arrangements. Only at Franklin, where meetings had balanced coupling, schedule meetings went well and both school leadership and teachers were positive about the arrangement. In the other eight schools it was either not possible or very difficult to schedule meetings. Additionally, rarely were both school leadership and teachers satisfied with the arrangement. When scheduling meetings was loosely coupled, teachers did all the work. School leadership was generally positive about this arrangement, but teachers had a hard time scheduling meetings and were very unsatisfied with the lack of involvement and support from their school leadership. They felt abandoned by their leadership and resented having to do all the scheduling themselves. When scheduling meetings was tightly coupled, leadership was satisfied with the arrangement but teachers were not. For example, at Park West, teachers were asked to select afternoons for which their lessons would be cancelled. However, teachers did not want to have so many lesson cancellations as that would put more pressure on them to finish the curriculum on time. As a result, all teacher indicated they would not follow their school leaders' order and refused to select afternoons. Instead, they were aiming to schedule shorter moments that would not require so many lesson cancellations, but they had not succeeded yet in doing so. As such, scheduling meetings had not been set-up. At Adams, school leadership was pleased with scheduling meetings for lesson study during department meetings, but teachers were not. Teachers explained that this arrangement meant they still had to do departmental work later, which made lesson study come on top of their work. In these schools, planned meetings were not useful for teachers as they added to or complicated their work.

By contrast, balanced coupling at Franklin meant the school leader was both involved and aware of creating useful and protected time for her teachers. She explained, "It is of the utmost importance that teachers have good, decent moments to come together. So, I really think that creating conditions and arranging that it is done well, is what I need to do" (E1, p1). The school leader commented that planning lesson study during fixed lesson-free afternoons would not be helpful for her teachers because these moments were already booked with various activities that teachers would need to attend, such as one-on-one student supervision or department meetings.

Scheduling meetings was very difficult to set-up as in all schools there was no weekly-designated time for teacher PD. In the absence of such a pre-existing organizational structure, schools had to create this time, which was severely complicated by various factors such as full time-tables, part-timers, and the Dutch teaching culture in which teachers are not expected to be at school after their lessons have been taught. As a result, most schools did not succeed in setting-up this organizational task in a way that was

experienced positively by both school leaders and teachers. Only one school did manage this. Here the school leader collaborated and communicated with her teachers to ensure that they had scheduled time that would be experienced as useful and protected.

4.5 Discussion

The present study aimed to explore organizational tasks and processes for organizing professional learning teams. We applied the lens of coupling to understand how schools set-up the organizational tasks and processes for lesson study and how the set-up proceeded (Hautala et al., 2018; Weick, 1976). Below we discuss the specific organizational tasks and processes schools set-up, the overall set-up of organizational preconditions, and the limitations of this study and avenues for future research.

4.5.1 The organizational tasks and processes

Schools set-up three organizational tasks and processes: recruitment of participants, giving credit for time-investment, and scheduling meetings. The coupling needed to successfully set-up each process differed: for recruitment of participants tight department or team coupling was key, for credit for time-investment and scheduling meetings balanced coupling was key. Tight department or team coupling made teachers willing to participate in lesson study, whereas balanced coupling was necessary to ensure organizational preconditions were set-up in a way that was functional and useful for teachers. Without balanced coupling, lesson study ended up being an additional burden on teachers' already heavy workload. Below we discuss how finding for each organizational task and processes ties in to the literature

Tight coupling of departments and teams enabled recruitment of participants. This ties in with the literature in which good group dynamics and interactions are a known factor contributing to the success of PD initiatives (Vangrieken et al., 2015). Additionally, our findings underscore that loose coupling makes improvement efforts fall in the empty spaces dividing teachers (de Lima, 2007).

Regarding credit for time-investment, setting-up this process up with balanced coupling meant school leaders were willing to meet teachers' experience of the individual PD hours as an additional workload. While all Dutch teachers formally have the requirement to spend some hours on individual PD, the reality is that many schools do not formally arrange this, meaning these hours are then unaccounted for (Inspectorate of Education, 2013). Therefore, when credit for time-investment was given in the form

of individual PD hours, hours which the school generally did not demand teachers to work, this made lesson study an additional workload. In schools where setting-up credit for time-investment proceeded well, school leaders organized credit in a way that made teachers' time-investment actually compensated. A possible explanation could be the divide found in earlier research between school leaders that are aware of and involved in creating conditions for teachers learning and those that are not (Educational corporation, 2016).

The most challenging organizational task to arrange was scheduling meetings. Only one school managed to arrange it in a satisfactory manner. In this case, the school leader was very aware of the complexity of scheduling and actively engaged in helping to schedule meetings by communicating with her teachers and working with the school scheduler. By contrast, six of the nine school leaders explicitly renounced involvement in scheduling, considering it teachers' task to arrange meetings (and frequently finding participants as well). This ties in with the literature which shows Dutch school leaders often refraining from facilitating and "pursuing collaborative working and learning with sufficient vigour" (OECD, 2016, p. 127). Recent research has shown that school leaders' involvement in adjusting the schedule to allow for meeting time has a substantial influence on establishing PD as an organizational routine. Research by Huguet et al. (2017) showed that when a school leader created useful time this was a major enabling factor in establishing and developing a PLC routine in a school and if they did not the implementation and development of a PLC routine was considerably constrained. This suggests that lesson study becoming an organizational routine might be critically restricted in the eight schools where school leaders did not create or protect teacher collaborative time.

4.5.2 Overall set-up of organizational preconditions

Setting-up organizational tasks and processes with balanced coupling led to the most satisfactory arrangements. Only one school, Franklin, set-up most of the organizational tasks and processes in this way and seemed to have the most success in setting-up the organizational prerequisites for lesson study. Here, school leaders and teachers made time to communicate and collaborate about the organizational work and carried shared responsibility for setting-up the organizational tasks and processes. This meant that school leaders were both able and willing to listen to their teachers and what organizational preconditions they needed for engaging in lesson study. In many schools, however, the overall set-up of organizational tasks and processes lacked balanced coupling and was shown to be difficult.

Applying a coupling lens was particularly useful in revealing the complexities of setting-up the organizational preconditions. It revealed that many factors influence if and how successful organizational tasks and processes can be set-up. What works in one school (for example, credit in the form of individual PD hours) does not work in another. In the case of recruitment, how participation was arranged, either mandatory or voluntary, did not seem to influence the success at all. Here, the contextual factor of the coupling of the department or team determined whether recruitment was successful. This suggests that there is not a one-size-fits-all guideline for setting-up the organizational work to organize professional learning teams. Instead, successful organization will be influenced by both the existing realities within the school and how the organizational work is set-up (Bryk, 2015). Overall, our results show that setting-up organizational tasks and processes to organize professional learning teams is far from mundane but vital and complex. Specifically, when aiming to sustain PD practices such as lesson study in schools – developing them as an organizational routine – requires organizational tasks and processes to be thought-through and set-up well.

However, our results also suggest some patterns in what was more likely to lead to satisfactory arrangements. In many cases, organizational tasks and processes were set-up loosely, which generally led to unsatisfactory arrangements for teachers. They were responsible for carrying out most of the work and received little support from school leadership. When organizational tasks and processes were set-up with tight coupling, it was also experienced as unsatisfactory for teachers as school leadership was very controlling about the arrangements. In these cases, teachers had little opportunity for input and were required to follow orders from school leadership. Lesson study, in these cases, was mostly used as a management strategy by school leadership to reach their own goals and vision rather than as a PD practice for teachers. This took away teachers' ownership of their own learning process, which is an important factor when implementing new initiatives in general (Ketelaar et al., 2014) and lesson study in particular (Akiba et al., 2019). Regarding lesson study, research showed that when districts supported school ownership of lesson study this enabled embedding lesson study in the schools. Our study indicates that at the school level it is also important teachers do not lose ownership of lesson study and school leaders do not use lesson study to serve their own ends.

In most schools, many organizational tasks and processes were loosely coupled, leading to relatively little change in the organizational structure of the school. Previous studies on sustaining innovations show that often little actually changes in the schools (Cuban, 2013; Hargreaves & Goodson, 2006). Specifically, Hubers et al. (2017)

showed that regarding a data use intervention in terms of policy and practice, schools did not develop or sustain much of the data use practice. One possible explanation for this is that the organizational preconditions for setting-up the PD in schools was not met. As such, our study could provide a possible explanation for the many problems the literature reports on sustaining PD as it points to the underlying organizational requirements that are necessary for organizing professional learning teams that might often not be met.

While in Franklin balanced coupling enabled the most successful set-up of organizational tasks and processes. Nevertheless, even here, there were troubles. The absence of department coupling made it difficult for both former PLN teacher to form or maintain lesson study teams. This shows that for lesson study to be organized well, many factors need to be aligned. Success of the set-up of lesson study should therefore not be seen as finding a silver bullet but as a chain that is only as strong as its weakest link.

4.6 Implications for educational policy

The present study illustrates that more attention should be paid to understanding and appreciating the complexity of the organizational work when starting with new PD initiatives. One of the main findings of our paper is that there was little consensus within schools about how the work should be done and by whom. The literature suggests that one of the important steps in organizational change within a school is establishing coherence about what the new work entails and requires (Wood, 2017). One of the implications therefore is that when schools start with new PD initiatives, organizational requirements and the division of tasks and responsibilities need to be discussed that would be needed to create satisfactory conditions for everybody involved. Specifically, none of the schools developed any policy regarding lesson study. An important implication therefore is that it would be beneficial if schools develop policy in which they think-through and develop a plan towards lesson study and its organization within their school. Moreover, few school leaders were aware of the importance of their involvement in creating the organizational preconditions for their teachers to be able to engage in lesson study. This suggests that more awareness needs to be created amongst school leaders about the vital role they play in creating the conditions for teacher learning within their school.

4.7 Limitations and future research

The present study had several limitations. The study provided a momentary picture, preventing an investigation of how the organization of lesson study developed over time. One fruitful line of further research would therefore be tracking the development of the organization of lesson study over time. Moreover, the present study focused on the organizational tasks and processes to organize PD in the school, not on teachers' sensemaking of the PD itself. How teachers and school leaders make sense of the PD might deeper explain if and how they will organize the practice in their schools (Coburn, 2001; Luttenberg et al., 2013). Specifically, research has shown that the way in which teachers perceive lesson study influences their willingness to engage in the practice (Wolthuis et al., 2020a). As such, a potentially fruitful next question would be to examine how teachers and school leaders conceive of lesson study and how this connects to their willingness to create preconditions for its performance in their schools. Additionally, our findings reveal the influence of what is called the "situational factors" or "noise" (Kennedy, 2010). Examples of noise during classroom teaching are telephones ringing, public address announcements, unexpected visits from central office personnel, students coming from or going to special classes (Kennedy, 2005). Generally, noise refers to the reality of the day-to-day life which is often unpredictable and unintended. For example, many different elements influenced scheduling meetings; even when meetings were planned often whether other activities did or did not require teachers' presence at the last moment influenced to what extent participants were all present. Examining the noise during the set-up of PD could contribute to a greater understanding of which factors contribute to the complexity of embedding new initiatives in schools.

4.8 Conclusion

Organizational tasks and processes are preconditions for organizing professional learning teams, but are often neglected and considered mundane. We examined how nine schools set-up organizational tasks and processes for lesson study, a professional learning team. Setting-up organizational tasks and processes with balanced coupling, in which school leaders communicated and collaboratively organized lesson study, led to the most favorable organizational arrangements. However, this was only done in one of the nine schools. In all other schools, setting-up organizational tasks and processes through both tight and loose coupling proved to be very difficult. Our study showed that the organizational tasks and processes are much more than mundane matters, but both complex and vital for the organization of professional learning teams.

Chapter 5

The influence of school factors on the (dis)continuation of lesson study

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Abstract

This study examines which school factors schools report influence their (dis)continuation of lesson study, a professional development initiative, and how after a four-year, cross-school lesson study project ends. To examine this, the framework on three types of school factors (features of employment, malleable school processes and fixed school characteristics) and the concept of organizational routines are used. Semistructured interviews were held with 21 teachers and 14 school leaders from the 14 schools who participated in the project. Findings show schools reported nine school factors that influenced their (dis)continuation of lesson study after the project: five features of employment (part-time appointment, turnover, (un)planned leave of absence, work location and beginning teachers), three malleable processes (policies on improvement, scheduling and school finances), and one fixed school characteristic (school size). School factors were reported to constrain schools from making lesson study a repeated practice in the school, performing its core features, and ensuring collective attendance. Two narrative portraits revealed that the simultaneous occurrence of school factors made continuing with lesson study especially complex and limited schools' ability to move beyond shortened and simplified initiatives to more rich and meaningful professional development.

5.1 Introduction

Although research shows that professional development (PD) initiatives that are active, coherent, collaborative and school-based best support teacher learning (Desimone, 2009), these types of initiatives tend to have an impermanent and fleeting nature (Bryk, 2015; Hubers, 2020). Indeed, initiatives that reinforce the existing “grammar of schooling” are more likely to succeed, and more innovative initiatives that challenge the grammar of schooling often have only localized or temporary success (Tyack & Tobin, 1994). These types of initiatives are often discontinued in schools when a project—and its funding—ends or continues in shortened and simplified versions (Hargreaves & Goodson, 2006). Researchers have argued that the short-lived and simplified forms of PD initiatives common in schools stem in part from the failure to consider how learning is embedded—that is, how it is taken up in and influenced by the school context (Kennedy, 2010; Opfer & Pedder, 2011; van Driel et al., 2012). Therefore, scholars have called for research on teacher learning that focuses not only on individual teachers and PD programs but also on how PD is taken up in and influenced by the school context (Bryk, 2015; Opfer & Pedder, 2011).

Studies suggest examining PD through the lens of organizational routines as a useful way to explore initiatives in the school context (Spillane, 2012). In general, organizational routines refer to “repetitive, recognizable patterns of interdependent actions, carried out by multiple actors” (Feldman & Pentland, 2003, p. 95). Examining PD through the lens of organizational routines concentrates on what actually happens regarding the initiative (Spillane, 2012). It focuses attention on how new initiatives are created, maintained, and developed in schools (Wolthuis et al., 2020a).

While some studies view the concept of organizational routines as useful to examine how PD initiatives are taken up in schools, they often overlook the influence of the wider school context. Specifically, researchers have “ignore[d] fundamental organizational attributes that exist above the level of the routine” (Parmigiani & Howard-Grenville, 2011, p. 443). This research gap aligns more broadly with PD research in which the characteristics of the people involved (e.g., teachers, facilitators and school leaders) or the initiative itself (its effective design characteristics), rather than the situation in which PD occurs, is investigated and viewed as central for the success or failure of a new initiative (Kennedy, 2010; van Driel et al., 2012). In particular, PD research has overlooked the influence of so-called school factors. In contrast with, for example, school culture, trust and leadership, school factors capture the organization of the work in schools. These factors can be divided into three types: (1) fixed school charac-

teristics, (2) features of employment and (3) malleable school processes (Viano et al., 2020). Applied to the context of PD, examples of relevant school factors are school size (fixed), part- or full-time appointment (employment) and PD policy and scheduling (malleable) (Akiba, 2016; DeMatthews, 2014; Organization for Economic Co-operation and Development [OECD], 2020).

When studies do discuss the school factors, they frequently treat these factors superficially or very generally. For example, high-quality research dedicated to PLCs (e.g., Stoll et al., 2006) identifies inhibiting and promoting school factors. However, the authors present results as a list of general factors that are important, hardly discussing why these factors might be important or how they shape PD in schools. To fill this research gap, we aim to explore which school factors are relevant (and how) in how a PD initiative is taken up in schools after a PD project ends.

The PD initiative we focus on is lesson study, a form of teacher inquiry that originated in Japan in which teachers go through a research cycle to examine their own teaching practice (Lewis et al., 2009). The research cycle contains different phases: goal setting, planning and conducting a research lesson, conducting a post-lesson discussion and reflecting on the entire lesson study process (Fujii, 2014; Lewis & Perry, 2017). Lesson study is an innovative PD initiative that requires schools to reexamine their existing organizational structures and work on reforming their context to support it (Akiba & Wilkinson, 2016). That is, lesson study can support teacher and student learning in various contexts (Cajkler et al., 2015; Lewis & Perry, 2017), but in practice, it is often short-lived or simplified (Akiba, 2016; Wolthuis et al., 2020a). In this regard, lesson study mirrors the challenges of other PD initiatives with effective design features: while they can potentially support teacher and student learning, these types of innovative PD initiatives are difficult to sustain in schools (Hargreaves & Goodson, 2006; Hubers et al., 2017).

Schools in our study were part of a cross-school professional learning network during which they worked with lesson study (hereinafter, LSPLN). Research has shown that both participants and the design features can influence lesson study initiatives (Lewis et al., 2009), but in general, few studies have examined the influence of the school context, particularly the school factors. Our research is not meant to show that school factor are decisive, as other aspects also play a role; instead, we aim to explore whether and how school factors influence the (dis)continuation of lesson study in each of the 14 schools after the cross-school LSPLN ended.

5.2 Theoretical Framework

5.2.1 Lesson study through the lens of organizational routines

We operationalized organizational routines to examine the (dis)continuation of lesson study in schools after the LSPLN ended, which means that the three elements of its definition are central to this study: repetitiveness, recognizable patterns of interdependent actions, and multiple actors. Because schools were part of a cross-school initiative in which lesson study was organized at an external location for four years, the continuation of lesson study involves shifting from a cross-school to a school-based initiative. This means that there are some prerequisites schools must decide on or arrange before they can continue with lesson study as a school-based organizational routine. We incorporate these prerequisites to the continuation of lesson study (see Table 1). Next, we describe how each element adds to our investigation of the (dis)continuation of lesson study in the 14 schools after the LSPLN ended.

Regarding *repetitiveness*, after the LSPLN ends, the goal is for lesson study to become a repetitive practice within the 14 participating schools. During the LSPLN, schools were advised to start with one or a few pilot groups and, after they were established, explore spreading the initiative through the school (de Vries et al., 2016). Repetitiveness in our context refers to (1) whether schools repeated lesson study in their own school after the LSPLN ended and, if they did, (2) whether schools (intended to) repeat lesson study the following year with the pilot group and/or select more groups for lesson study.

The *recognizable patterns of interdependent actions* pertain to the phases of the research cycle as they unfold in schools. How the cycle needs to unfold is a contested issue as discussions on essential nature and core elements of lesson study remain ongoing (see Wood, 2018). While some researchers defend variations of lesson study (for example, Durden, 2017), other are less lenient and prescribe a specific format that needs to be followed (for example, Takahashi & McDougal, 2016). For example, Takashi & McDougal (2016) argue for the essential presence of a knowledgeable other, while some lesson study users and research papers do not include a repeat lesson as it is not always possible to do so.

We take a local adaptation approach to the continuation of lesson study. Teachers can adapt the cycle as long as its core features are maintained (Wolthuis et al., 2020a). In our context, core features are distilled from the Dutch model of lesson study teachers worked during the LSPLN, which was based on both the American adaptation by Stepanek et al. (2007) and the British adaptation by Dudley (2011) which contains case pupils. As this version of lesson study was both used and taught during the LSPLN to

teachers as a form of teacher research, the six phases that distinguish lesson study as a research process need to be preserved. Adaptable features in our context are input by a knowledgeable other, studying curriculum material and guidance by facilitator (Wolthuis et al., 2020a). These elements are considered adaptable for our context, as the Netherlands has no national curriculum (Nieveen & Kuiper, 2012) and can decide what and how to teach as long as they teach towards core curriculum standards. Because of this, the Dutch model holds less tightly to studying of curriculum material (*kyouzai kenkyuu*). Regarding the knowledgeable other, during the LSPLN, teachers were assisted by two subject pedagogical experts. Although these experts were available for consultation on request after the LSPLN ended, they were no longer formally involved. The six phases of Dutch model of the research cycle involve (1) picking a research theme; (2) planning a research lesson; (3) teaching or observing the research lesson; (4) discussing the research lesson; (5) revising, reteaching, and rediscussing the research lesson; and (6) reflecting on the lesson study experience (de Vries et al., 2016). The phases are interdependent as they are all considered core features of the Dutch model of lesson study (Wolthuis et al., 2020a). Significant time must be spent on the problem analysis, the study of the lesson material and the post-lesson discussion (de Vries et al., 2016; Takahashi & McDougal, 2016). Continuing with lesson study, therefore, requires that sufficient time be scheduled for teachers to go through each phase of the research cycle (Akiba, 2016; Akiba & Wilkinson, 2016). As such, to identify recognizable patterns of interdependent actions, we examine two aspects: (1) whether schools were able to plan meetings of sufficient time and (2) whether the core features of the research cycle could be continued.

Regarding *multiple actors*, we examine two aspects in particular. Because the LSPLN was a cross-school initiative during which one or two departmental colleagues from each school formed groups with teachers from other schools, the first step for schools that continued was to gather participants for lesson study among their own staff. Second, after a group is formed, it is important that all participants are present during the research cycle, as lesson study is fundamentally a collaborative process (de Vries et al., 2016; Takahashi & McDougal, 2016). As such, to determine if multiple actors were involved, we examine whether and how (1) schools gathered teachers to form lesson study groups after the LSPLN and (2) teachers engaged in collective participation during the research cycle.

Table 1. Operationalization organisational routines lens to lesson study

Organisational routine	Operationalization
Repetitive	Schools decide to repeat lesson study in their own setting after the LSPLN ends. Schools have plans to repeat lesson study the next year with the pilot groups and potentially to form more groups.
Recognisable pattern of interdependent actions	Schools plan meetings with sufficient time for lesson study. Schools continue with the core features of the research cycle.
Multiple actors	Schools gather participants for lesson study groups in their own schools. Schools have collective participation during lesson study meetings.

5.2.2 School factors

In general, school factors involve factors at the school level, such as type of school, school size, student–teacher ratio, students per class and teacher gender. Applied to our context, they relate to the organization of work in schools, not specifically to the organization of PD. They constitute the working context of the school in which the PD is implemented. School factors are a broad notion, and depending on the aim of their study, researchers have distinguished various types of school factors. For example, Fuller (1987), examining which school factors raise achievement, classifies school factors into school expenditures, school material inputs (e.g., class size, instruction material, science laboratories), teacher quality (e.g., teachers’ level of schooling and experience), teaching practices (e.g., homework frequency, time spent on class preparation) and school management (e.g., quality of principal, student repetition of grade). By contrast, Vanlaar et al. (2016) examine school factors related to achievement in student groups and thus focus on collaboration, resources, community and partnership amongst others. As such, depending on the focus of the research, different (types of) school factors will be relevant. For our study, we use and adapt Viano et al.’s (2020) theoretical framework of school factors. They focus on how the work in schools is organized and distinguish three types of school factors: (1) features of employment, (2) malleable school processes, and (3) fixed school characteristics. Next, we discuss what each of these factors entails and what we know about them in the contexts of lesson study and PD.

Features of employment involve the specific organizational arrangement of the school staff. These arrangements can be “subject to regulations and are likely applied to all schools managed by the same organization (e.g., all schools in the same school district)” (Viano et al., 2020, p. 5). No research to our knowledge identifies relevant

features of employment for lesson study, though OECD (2020) more broadly indicates that teachers' working hours (full- or part-time) influence engagement in PD. This study shows that part-time teachers are less likely to participate in PD and score lower on the index of professional collaboration than full-time teachers (OECD, 2020). The Netherlands, the context of this study, has one of the highest numbers of part-time working teachers worldwide: Whereas in Japan, the United States, and England only 10%, 6% and 18% of teachers work part-time, respectively, in the Netherlands 58% of teachers work part-time (OECD, 2020).

In addition, PD research suggests that other, non-structural features of employment such as turnover influence how PD unfolds in schools (Guin, 2004). Studies report that teacher and administrator turnover is a reason schools struggle to maintain new initiatives (Klingner et al., 2013). For example, the sustainability of PLC initiatives is vulnerable to teacher turnover or when key leaders leave (Hargreaves, 2007). In the Netherlands, turnover numbers are somewhat difficult to determine, partly because not all studies examine the same groups of teachers and various definitions of "teacher attrition/retention" are used (Kelchtermans, 2017). Overall, research reports that 25% of beginning teachers in the Netherlands leave their first teaching job within five years (Helms-Lorenz et al., 2016). In general, turnover is a relevant school factor. If, for example, teachers or school leaders well-versed in a new initiative leave education or move to another school, the new project may struggle to continue. Given that research shows the importance of non-structural features of employment for PD initiatives, we also examine these features in terms of whether and how lesson study is continued in schools. Features of employment, in our context, thus refer to issues, aspects and arrangements that relate to staff's appointment.

Malleable school processes refer to the processes "for which the locus of control is expected to be within the school and under the control of school administrators. Malleable factors can be changed by school administrators in the short term" (Viano et al., 2020, p. 5). Regarding lesson study, PD policy and scheduling are important malleable processes in determining whether and how schools implement lesson study (Akiba, 2016; Akiba & Wilkinson, 2016). For example, Akiba and Wilkinson (2016) show that offering multiple PD options (the "cafeteria approach") leads to shortened and simplified versions of lesson study. In Dutch schools, PD policy and the way schools arrange their PD activities are largely under the control of school boards (Inspectorate of Education, 2013). Assessment from inspection (Inspectorate of Education, 2013) reveals that half the secondary school boards in the Netherlands do not systematically steer PD activities and do not have clear norms for what is expected in terms of teacher PD.

Regarding scheduling, timetables that incorporate teacher learning, rather than priorities instruction time, support the continuation of lesson study. For example, in the United States, lesson study was shortened from a two-month to a two- to four-day initiative as a result of teachers' work schedules, which did not allow time for ongoing professional learning activities (Akiba, 2016). In the Netherlands, teachers in some schools rarely find time to engage in PD, whereas in other schools, they do (Inspectorate of Education, 2018).

Fixed school characteristics involve the "less readily altered features that can only be changed over a longer time" (Viano et al., p. 5). Regarding lesson study, not much is known about the influence of fixed school characteristics, though PD research more broadly indicates that school size influences how PD unfolds in school (DeMatthews, 2014). School size influences PD as physical proximity gives more opportunities for unplanned encounters, which in turn contributes to school improvement (Sherrill & Spillane, 2020). As such, we aim to explore and identify which fixed school characteristics school report influenced their (dis)continuation of lesson study.

In addition, an important finding of Kennedy (2010) is that a multitude of simultaneously occurring factors influence teachers' ability to implement reform ideas in their classroom. To obtain a comprehensive view of the influence of school factors on lesson study, we therefore also examine whether and how their simultaneity influences the (dis)continuation of lesson study.

In summary, the preceding discussion shows that with regard to school factors, both PD research in general and lesson study research in particular have identified some relevant aspects. However, no detailed examination exists of which school factors influence PD and how. We aim to investigate this topic more closely. Our research is guided by the following research question: Which (simultaneously occurring) school factors influence the (dis)continuation of lesson study in schools after the LSPLN project ends, and how do they do so?

5.3 Method

5.3.1 Background of study

Fourteen secondary schools located in the north of the Netherlands participated in two LSPLNs: one for math and one for Dutch language. The LSPLNs continued for four years (2014–2017) and were part of a pilot project for (cross-school) PLNs launched by the Dutch Ministry of Education (de Vries & Prenger, 2017). Teachers participated in

six lesson study cycles. The LSPLNs were set up to develop teacher learning, prepare teachers to become lesson study facilitators and introduce lesson study at their own schools. To enable schools to continue with lesson study, meetings were organized for school leaders from the respective schools to update and inform them about the lesson study progress. In addition, closing conferences were held at the end of each LSPLN year at which lesson study teams presented their findings to colleagues and school leadership. After four years, the LSPLN ended, and university support and funding were withdrawn. Of the 14 schools, nine continued with lesson study in their own schools.

5.3.2 Data collection

Between 2017 and 2018, we performed semistructured, open-ended interviews with 21 teachers (former LSPLN participants) and 14 school leaders from 14 different schools (for an overview of the school characteristics, see Table 2). All interviewees gave informed consent to the use of the interview data for research. In general, questions focus on whether and how lesson study was organized after the LSPLN and which school factors influenced this organization. Examples of interview questions were as follows: “How is lesson study currently organized in your school?” “What makes it easy or difficult to continue with lesson study in your school?” and “What influenced your discontinuation of lesson study?” We asked follow-up questions about the school factors teachers and school leaders experienced as relevant for the (dis)continuation of lesson study. Interviews were audio-recorded.

Table 2. Characteristics of the 14 case study schools

School	Pupils	Interviews (N)	
		School/team leaders	Teachers
Greenfield	1,247	1	1
Park West	281	2	3
Bakersfield	1,361	1	1
Mayfair	305	1	1
Wisteria	1,111	1	1
Adams	920	1	3
Franklin	1,100	1	2
Oak Grove	1,183	1	1
Palmdale	1,381	2	2

Evergreen	1,163	1	2
Silver Oak	1,400	0	1
Inglewood	1,004	0	1
Glendale	2,051	1	1
Pine Hill	1,775	1	1

5.3.3 Data analysis

The interviews were transcribed verbatim. To determine which school factors were reported to influence the (dis)continuation of lesson study, first we examined teachers' and school leaders' transcripts and created summaries for each school. We explored the transcripts using the three types of school factors from our theoretical framework (features of employment, malleable school processes and fixed school characteristics) and the examples of specific school factors found in lesson study and PD literature (part-time employment, turnover, PD policy, scheduling and school size). We considered factors a feature of employment when they pertained to issues and arrangements regarding appointment of staff. As described previously, we explored both structural (e.g., work hours) and non-structural (e.g., turnover) employment features. We identified a school factor as a malleable process if it involved processes under the school's or school leadership's control, and we regarded school factors as fixed school characteristics if they involved more or less permanent features of the school.

Second, we examined how school factors were reported to influence whether schools (dis)continued with lesson study. We examined the influence of school factors on lesson study as a (1) repetitive, (2) recognizable pattern of interdependent actions with (3) multiple actors. Regarding repetitiveness, we examined what schools reported about the influence of school factors on (1) repeating lesson study in their own school after the LSPLN ended and (2) whether pilot groups would repeat the cycle the following year and schools' plans to form more lesson study groups. Regarding the recognizable patterns of interdependent actions, we examined the influence of school factors on (1) planning meetings with sufficient time and (2) the continuation of core features of the research cycle. Regarding the multiple actors, we examined the influence of school factors on (1) gathering teachers to form lesson study groups after the LSPLN and (2) the collective participation during meetings. All relevant sections regarding school factors were selected.

Finally, we examined the influence of the simultaneity of school factors, using the narrative portraiture method. This method allows the contextualization of the process

and original connection of the data to become clear and offers a way to present the simultaneity of the school factors, as it gives an in-depth account of what happened when, where and with whom (Rodríguez-Dorans & Jacobs, 2020). Because reporting on all 14 schools would be too extensive, we selected two key school sites to portray the influence of the simultaneity of school factors on the (dis)continuation of lesson study: one school that continued with lesson study and one that did not. We chose the schools in which interviewees were most explicit about and expansive on the influence of the simultaneity of the school factors to best draw out the schools' narratives. We used an analytical tool to aid the process (see Table 3), focusing on the characters (teachers and school leaders), time (from the start of the LSPLN to the time of interview), space (school organization and people's experiences), key events (decisions on whether and how to continue with lesson study) and the phenomena of interest (the interaction between the school factors) to understand how various school factors operated within the school context. Applied to our context, we investigated the teachers' and school leaders' experiences of the influence of school factors on the (dis)continuation of lesson study. We examined the key words in the interviews and drew up narratives by using the time codes found in the transcripts.

Table 3. Analytical tool (based on Rodríguez-Dorans & Jacobs, 2020)

Codes	Helps illustrate	Key words: What we looked for
Characters	Who – Important characters, relationships between characters	Names, pronouns, experiences or events involving other people
Time	When – sequence of the story, experience of time	Dates, conjunctions of time (after, before, when), periods (weeks, months, days).
Space	Where – organisational context	The school site, but also the states of mind of the people involved
Key events	How/why – connections and relationships, interactions, turning points, wider influences	Link to important decisions made regarding implementation of lesson study, link to development and performance of lesson study in the school

Phenomena of interest	How/why – how the phenomena of interest are narrated, experienced	Influence of school factors on the implementation and performance of lesson study. The school factors identified were (1) staff appointment, (2) turnover, (3) other routines in the school, (4) the organisation of scheduling, (5) school finances and (6) school size
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5.4 Results

In total, nine school factors appeared to influence the (dis)continuation of lesson study after the LSPLN ended (for an overview, see Table 4). Of the three types of school factors (Viano et al., 2020), features of employment and malleable processes were most frequently reported. Regarding features of employment, schools reported part-time teachers, turnover, (un)planned leave of absence, work location and beginning teachers as influencing their (dis)continuation of lesson study. Regarding malleable processes, schools reported that their policy on improvement scheduling, and school finance influenced lesson study (dis)continuation. Regarding fixed school characteristics, respondents only mentioned school size. In most cases, schools reported that the specific school factors constrained rather than promoted the continuation of lesson study. In the next section, we describe the influence of each school factor in more detail, beginning with the most frequently reported factor.

Table 4. Overview of reported influential school factors

Type of school factor	Specific school factor	Number of schools reporting its influence
Employment characteristics	Part-time appointment	12
	Turnover	8
	(Un)Planned leave of absence	3
	Work location	3
	Beginning teachers	2

Table 4. Continued

Malleable school characteristics	Policy on school improvement	11
	Scheduling	8
	School finance	3
Fixed school characteristic	School size	2

5.4.1 Part-time appointment

Of the 14 schools, 12 reported that part-time teachers influenced the (dis)continuation of lesson study. All five schools that discontinued lesson study after the LSPLN ended reported that many of their teachers worked part-time, which meant that at no time during the week were all teachers from a prospective lesson study group present at the school. Therefore, they had no time during the week to plan lesson study (*recognizable pattern of interdependent actions*). As one school leader from Wisteria explained:

If everyone would work full-time, people would be much more flexible. But with part-timers, well, one works one part of the day, the other does not work that part of the day and not another part of the day. This really is an inhibiting factor. A really big one, a really big one. (C1)

Part-time teachers also had fewer hours within their workload to spend on PD activities. Consequently, lesson study could also be too time-intensive to add to their workload, and schools could not gather these prospective teachers for a group (*multiple actors*). As such, part-timers hampered these five schools from repeating lesson study in their own schools (*repetitive*).

Seven of the nine schools (Park West, Bakersfield, Mayfair, Adams, Franklin, Palmdale and Glendale) that continued with lesson study reported that part-time working teachers were a major influence. The more part-time teachers a lesson study group had, the less schedules tended to align, making it difficult to plan meetings with enough time to go through each phase of the research cycle (*recognizable patterns of interdependent actions*). As one teacher explained: “It is such a disadvantage when you have part-timers. For example, I am a very complicated part-timer. I only work three mornings a week. I think this is a big obstacle” (B4). Accommodating everyone’s specific working hours led to shorter meetings, which challenged groups’ ability to maintain the core

features of the research cycle (*recognizable patterns of interdependent actions*). In addition, misaligned schedules of part-timers led the group to make compromises regarding full attendance (*multiple actors*), which constrained the collaborative nature of the lesson study routine. For example, as one teacher explained, “In the week that the one of the research lessons was given, [I] did not attend one of the research lessons because I did not work on that day” (D2).

5.4.2 Policy on improvement

Instead of policy on PD, schools reported that their policy on improvement was a more broadly influential school factor. In general, it was customary for schools to simultaneously plan multiple mandatory or voluntary initiatives, ranging in scope from individual to group to school-wide. These initiatives were not limited to PD.

Four schools (Evergreen, Wisteria, Oak Grove and Silver Oak) reported that their policy on improvement influenced their discontinuation of lesson study. School leaders explained that they already had chosen to explore another initiative for their staff and wanted to focus on that. Therefore, they decided not to repeat lesson study in their schools (*repetitive*).

Seven of the nine schools (Park West, Bakersfield, Mayfair, Adams, Franklin, Palm-dale, and Glendale) reported that policy on improvement influenced the repetition of lesson study for the next year (*repetitiveness*). Not only did policy on improvement involve offering multiple initiatives, but frequently, often yearly, changing initiatives as new priorities were also set each year, which made the repetition of lesson study for the next school year rather uncertain. For example, one teacher from Franklin reported, “Priorities can change every year. We often have not even made anything of them yet, and well, then a new priority appears all of a sudden because that is just how it is” (E2). In addition, the policy on improvement made it difficult to have all participants present during the research cycle (*multiple actors*). Given that initiatives all had similar time slots, and teachers were often involved in multiple initiatives, they had to choose which one to attend. This meant that teachers could, and sometimes did, favor other initiatives and did not show up for lesson study meetings. As one teacher explained:

Last year, for example, we had team meetings on Monday afternoon. Well, at that time I had also planned lesson study, which was fine. But then the team leader would add ‘or teachers can work on innovation of a specific school track’. Well, then people had the choice: do you do lesson study or [do] you innovate? (G4)

5.4.3 Turnover

Turnover influenced whether and how schools repeated lesson study after the LSPLN (*repetitive*). Two schools (Evergreen and Pine Hill) that discontinued lesson study after the LSPLN reported that turnover influenced this decision. At Evergreen, the entire leadership had been newly appointed. The previous leadership had been criticized for introducing too many different new initiatives, and the new leadership did not want to make this same mistake. Instead, the new leadership was focused on the initiatives the school already had in place and did not intend to repeat lesson study after the LSPLN, as that would (eventually) mean establishing the initiative as a new PD activity in the school. At Pine Hill, one of the two teachers who participated in the LSPLN had left. Consequently, the other LSPLN teacher explained she lost a sounding board and a partner with whom to set up lesson study. She did not feel up to the challenge of repeating lesson study alone, and therefore the school did not repeat lesson study after the LSPLN.

Of the schools that did continue with lesson study after the LSPLN, six schools reported that turnover of leadership influenced the repetition of lesson study for the following year. New school leaders were often not acquainted with or informed about lesson study, which often resulted in a lack of commitment and threatened the repetition of lesson study for the following year (*repetitive*). Moreover, new leaders were rarely engaged in ensuring that new lesson study groups would start.

5.4.4 Scheduling

Eight schools reported scheduling as an influencing school factor. In three schools (Wisteria, Oak Grove and Evergreen), scheduling influenced the discontinuation of lesson study: instruction time and existing activities were prioritized, which meant that little time was left to plan meetings for lesson study (*recognizable patterns of interdependent actions*). For example, as one team leader explained: “In the current educational system, the way we now run things at school it [lesson study] is not really possible” (G4). Another school leader echoed this sentiment: “The schedules are full, the classrooms are full. Then it is just really difficult to say: we are going to plan an afternoon for lesson study. Because well, then I cannot get my lessons in [the schedule]” (K4). In all three schools, scheduling influenced discontinuation of lesson study after the LSPLN (*repetitive*).

Three schools (Park West, Adams and Inglewood) reported that the scheduling influenced the continuation of the research cycle (*recognizable pattern of interdependent actions*). Schedules were so full that lesson study needed to take place in a short time, as only brief meetings of approximately an hour could be planned, which in turn influenced groups’ ability to maintain the core features of the cycle, which required more

time. One teacher from Adams explained that her group did not always have sufficient time to, for example, explore the research problem or have a post-lesson discussion.

In two schools (Adams and Inglewood), scheduling influenced attendance (*multiple actors*). Given that instruction time was prioritized, teachers could not easily cancel or reschedule lessons, making it difficult to attend all lesson study meetings. For example, one teacher from Adams reported that she could not attend one of the research lessons because she had to teach her own classes.

5.4.5 (Un) Planned leave of absence

Schools also reported a variety of (un)planned leaves of absence, namely sabbatical, maternity leave and illness. Regarding maternity leave, teachers in the Netherlands are legally entitled to at least 16 weeks of paid maternity leave.

One school (Wisteria) reported that the (un)planned leave of absence, specifically maternity leave, influenced its discontinuation of lesson study. The former LSPLN teachers went on maternity leave when the project ended, which meant no facilitators were present to repeat lesson study in the school after the LSPLN (*repetitive*).

Two schools (Franklin and Palmdale) reported that this school factor influenced the continuation of lesson study: when former LSPLN teachers were absent for long periods, repeating lesson study after the LSPLN was either postponed or done on a smaller scale (*repetitive*). For example, Franklin started with one pilot team instead of two, as one of its two facilitators was away on sabbatical for half a year and was unavailable to facilitate a pilot group in the school. (The school planned for him to facilitate a group when he returned.) In addition, when colleagues who were potential participants were absent, respondents reported finding it difficult to gather or maintain enough colleagues to form a group (*multiple actors*). For example, in Palmdale, the former LSPLN teacher explained her difficulty in gathering colleagues: “One teacher was just ill. Not work related, but just ill. So, she was not in school for half a year and could not join [lesson study]” (G2). Similarly, at Franklin, several colleagues’ illnesses reduced the lesson study group from seven to five participants.

5.4.6 Work location

Work location was reported to influence the continuation of lesson study—in particular, schools’ ability to have all participants present during the research cycle (*multiple actors*). In three schools (Park West, Adams and Palmdale), teachers working in different locations influenced attendance during lesson study. Other locations had generally different times allocated to PD or school improvement. Teachers working at different

locations would have lessons scheduled when the other teachers in the group would have time for PD. To work around these misaligned schedules, oftentimes the choice was made to compromise on complete attendance for some phases of the research cycle. For example, one teacher reported: “I had to have the discussion of the two research lessons separately with two people because they could not be present at the time because they had obligations at other locations. It [lesson study] is only taken up [in the schedule] at our location, not at the other location” (D3).

5.4.7 School finances

School finances influenced schools’ ability to continue with lesson study as a repetitive, recognizable pattern of interdependent actions with multiple actors. For example, respondents from Wisteria reported that the shortage of finances influenced their decision not to repeat lesson study after the LSPLN ended (*repetitive*). Their poor financial situation necessitated that they merge with another school. The school leader explained that this engendered a great deal of uncertainty for his staff, and when times are uncertain, he believed it was not good to introduce new initiatives to his staff.

Finances also influenced the continuation of the research cycle (*repetitive recognizable patterns of interdependent actions*), as it was easier to plan meetings if there was money for lesson cancellations, ensuring that all participants could be present (*multiple actors*). For example, at Adams, the transition of lesson study from the LSPLN to the school had come at a convenient time. The school had received project money that year, and leadership decided to use it for lesson study. Thus, school leadership was able to plan regular meetings for groups as lesson cancellation or rescheduling was more affordable. However, as the project money was for one year only, the repetition of lesson study for the pilot groups for the following year was uncertain (*repetitive*). Conversely, at Glendale, the school was forced to cut costs for various reasons, one of which was that the school was in an area that experienced population shrinkage. Without money to cancel lessons, planning meetings for the research cycle (*repetitive recognizable patterns of interdependent actions*) in which all teachers (*multiple actors*) were able to attend was difficult.

5.4.8 Beginning teachers

In three schools (Pine Hill, Park West and Bakersfield), beginning teachers were reported to influence the continuation of lesson study, in particular gathering participants for lesson study groups (*multiple actors*). At Pine Hill, beginning teachers influenced the discontinuation of lesson study in that they made it impossible to gather enough participants from a prospective department. Beginning teachers were reported to have

a high workload and little headspace to engage in activities beyond preparing and teaching their classes. Therefore, they discontinued lesson study because not enough prospective teachers were available to participate.

In Park West and Bakersfield, by contrast, beginning teachers were reported to influence the ease with which groups could be formed. In both schools, beginning teachers were enthusiastic, making them especially eager to form a lesson study group. For example, in Park West, the former LSPLN teacher had two beginning teachers in her department who immediately signed up for the lesson study group.

5.4.9 School size

Two schools (Mayfair and Palmdale) reported that school size influenced their continuation of lesson study: the larger the school, the more challenging its continuation was, particularly because in large schools, frequent, informal meetings were rare, making it difficult to gather enough people for a lesson study group (*multiple actors*). In Mayfair, the specific department in which the school leader and former LSPLN teacher worked was small (with 305 students), but the school contained other departments that were spread across three buildings. As the school leader explained: “The people in those departments rarely see each other. Some sections only see each other three times a year. Well, that does not help a lot in creating demand and interest for doing lesson study together” (B9). The teacher in the school had managed to set up one lesson study group, but she stressed that with the different break times for each building, she rarely spoke to subject colleagues who worked at other locations. She had few opportunities to discuss and organize meetings for the research cycle (*recognizable patterns of interdependent action*). By contrast, Palmdale, as a small school, provided ample opportunities for informal contact, which contributed to the ease with which the former LSPLN teacher could gather participants for a lesson study group (*multiple actors*) and subsequently plan meetings for the research cycle (*recognizable patterns of interdependent actions*).

5.4.10 Two Narrative Portraits

The two narrative portraits in this section illustrate the influence of the simultaneity of school factors. The schools involved include Wisteria, which discontinued lesson study, and Adams, which continued with lesson study after the LSPLN ended.

Wisteria

One school leader (Rosanne) and one former LSPLN teacher (Judith) were interviewed from Wisteria. In Wisteria, five school factors (turnover, (un)planned leave of absence,

school finances, policy on improvement, and scheduling) simultaneously influenced the discontinuation of lesson study. When the LSPLN started, two teachers from Wisteria took part. When one of them stopped halfway through the LSPLN, she was not replaced. As a result, the school had one fewer trained lesson study facilitator than planned, and Judith lacked the support of another LSPLN colleague. She explained, “It would have been easier for me if I had had someone within the department who did this [lesson study] with me. Or if there was a math group with whom I could brainstorm now and then” (C2).

At the same time, the other teacher who participated in the LSPLN went on maternity leave during the LSPLN, and her attendance was substituted by Judith. As noted previously, teachers in the Netherlands are legally entitled to at least 16 weeks of paid maternity leave, which meant that the former LSPLN teacher would not be working for at least four months. When Judith became pregnant at the end of the LSPLN, she also went on maternity leave, precisely at the moment when the LSPLN ended and lesson study could be continued at the school. During her absence, no one advocated for or started lesson study. Rosanne explained, “Well, then it [lesson study] came to a complete halt ... and that had to do with illness, turnover and changes of teachers. And then somebody was gone and then somebody came back. Well, then you do not have a consistent factor” (C1). During this time, school leadership decided to pursue another initiative. Judith explained, “I was on maternity leave and then that decision was made without me” (C2).

Another factor that added to the decision to discontinue lesson study was scheduling. Judith explained, “What we also ran into were the preconditions. That things might need to be altered in the schedule in order for there to be time to get together” (C2). Rosanne echoed this sentiment: “The actual coming together during a lesson, teaching the lesson and then collectively meeting and adjusting the lesson and looking at the lesson again, that demands a lot time and space in the schedule. And well, that is a bottleneck” (C1).

Scheduling, therefore, influenced the discontinuation of lesson study. At the same time, both Rosanne and Judith explained that they were more enthusiastic about another initiative, which put much less pressure on the schedule and required fewer changes than lesson study. The school favored continuing with that initiative instead of lesson study.

In addition, before and after the LSPLN ended, the school was engaged in a merger with another school due to finances. Rosanne explained, “This brings great uncertainty on the work floor. I have learned that when people are uncertain about what will happen

or what something means for their own position you should not put too many new things next to this. So, these things definitely have a relationship with each other" (C1). Judith concluded: "So all in all, I think there was just too much hullabaloo in the school to go for it [lesson study]" (C2).

Adams

The director (Abigail) and three former LSPLN teachers (Hester, Erin, and Paul) were interviewed from Adams. At Adams, various simultaneously occurring school factors influenced the continuation of lesson study: teachers working part-time, teacher working at different locations, school finances and scheduling. Hester continued lesson study without all core features of the research cycle and without full attendance during meetings. Scheduling constrained planning lesson study meeting with sufficient time. In general, only one-hour meetings could be planned, which led Hester to worry about the quality of the first phases. She explained, "Our research phase was quite short, because we are just pressed for time" (D2). She further noted that she did not have the time to explore the problem context and study the material to determine the precise nature of the problem they aimed to research. As such, time constraints challenged her group's ability to maintain the core features of the research cycle.

In addition, Hester could not always carry out the research cycle with all participants. Because she worked part-time, she could not attend the research lesson of her group, which was planned on a day when she did not work. She reflected, "It is still not the full idea of lesson study because the research aspect and the preparation aspect still come off badly. Only, to be honest, I also do not know how realistic that is as that would require much more time" (D2). She indicated that to maintain all the core features, she would have needed two-hour meetings at least, but that, with the current schedule, was not feasible.

Erin continued lesson study without full attendance. Teachers in her lesson study group worked at different locations, and their schedules differed to such an extent that the only solution had been to plan two post-lesson discussions: one for teachers working at her location and one for those working at another location. Erin could not manage to have everybody present to observe the research lesson, including herself, as she had to teach. She also reported that scheduling made continuing lesson study with all participants difficult, as the school prioritized instruction time.

Paul also continued lesson study without full attendance. He explained, "We made the choice not to have everybody observe during every research lesson, because schedule-wise this was not possible. But we did make sure that at least two or three of the

group were observing” (D4). This decision also influenced the post-lesson discussion, which they also had to split. Only the people who attended a research lesson attended its post-lesson discussion.

In summary, the continuation of lesson study was influenced by various school factors at Adams. These school factors influenced the continuation of lesson study as a shortened and simplified version.

5.4.11 Simultaneity of school factors

Our findings indicate that in the 14 schools, it was rarely the case that only one school factor was reported to be of influence. However, they did not make clear the influence beyond each specific school factor. The narrative portraits in this section provide this insight, revealing that school factors tended to occur simultaneously, thereby providing many constraints for schools. As such, while all school factors had their own specific influence, their complexity and limitation on schools’ ability to continue with lesson study only become clear by exploring their simultaneous occurrence.

5.5 Discussion and implications

This study aimed to answer the call that research on PD should attend to the influence of the wider school context (Kennedy, 2010; Opfer & Pedder, 2011). Our research shows that school factors connected to whether and how new initiatives were continued in schools after a PD project ends. Although the findings are suggestive rather than causal, this finding should raise the attention towards the importance of the school factors on PD.

We found that four school factors were reported most frequently in relation to schools’ (dis)continuation of lesson study: part-time working teachers, turnover, policy on school improvement and scheduling. In all cases, these school factors were reported to inhibit lesson study from becoming a repetitive, recognizable pattern of interdependent actions, carried out by multiple actors in the school.

Part-time working teachers was often reported to considerably influence the (dis)continuation of lesson study. As mentioned previously, this characteristic is a specific Dutch feature of employment, as the Netherlands has the second-highest number of teachers working part-time worldwide (i.e., 58%) (OECD, 2020). Our study shows that when teachers have substantially different schedules and workdays, the ability to organize collaborative activities becomes incredibly complex, as teachers can often find no time when they are all at school at the same time. Meetings were often shortened to

work around teachers' schedules, constraining the maintenance of the core features and simplifying the research cycle (*recognizable pattern of interdependent actions*). This led to compromising on full attendance (*multiple actors*). Part-time working teachers, therefore, pose a considerable challenge to continuing with lesson study in the Dutch context.

In addition, turnover was also often reported to influence the (dis)continuation of lesson study in many schools, in line with previous literature (Guin, 2004; Klingner et al., 2013). Schools specifically reported turnover constrained lesson study from becoming a repetitive practice in the schools after the LSPLN (*repetitive*). Turnover meant a loss of lesson study expertise and an increase of instability and uncertainty among staff. Once created and embedded, organizational routines can stabilize new initiatives in the face of turnover (Sherer & Spillane, 2011). Our study indicates that if a new initiative is not (yet) an embedded and established organizational routine in schools, it is vulnerable to turnover. Schools were often unable to continue with lesson study when staff consistency was absent. Continuing with lesson study required the consistent presence of specific individuals, such as the trained facilitators, and support from knowledgeable school leaders who could explain the new initiative and foster enthusiasm for it. When these people leave, the continuation of the initiative is challenged.

Schools also reported that the policy on improvement, specifically the tendency to organize multiple and changing initiatives, influenced the (dis)continuation of lesson study, which aligns with previous findings (Akiba, 2016; Akiba & Wilkinson, 2016). The variety of initiatives meant that often limited resources, such as time, needed to be shared and teachers often needed or chose to attend other activities organized at similar times (*multiple actors*). In addition, the priorities of the school improvement initiatives tended to change yearly, further constraining lesson study from becoming a repetitive activity in the school (*repetitive*). While PD might have moved to teachers' workplace, the changing priorities in schools are likely to make the continuation of lesson study a short-term endeavor.

Many (eight of the 14) schools reported scheduling as influencing the (dis)continuation of lesson study. In these schools, instruction time was prioritized, and teachers had little room to create time for collaboration, which meant that oftentimes the research cycle was simplified and core features were left out (*recognizable pattern of interdependent actions*). Of the six schools in which scheduling was not mentioned as an influencing school factor, four continued with lesson study. In these schools, scheduling seemed more directed at also supporting teacher learning. A possible reason for this difference is that scheduling is also informed by different beliefs about teaching and learning. In Japan, teacher learning is deemed a core responsibility, and schools prioritize it in their

schedules (Akiba, 2016). In other contexts, such as the United States, teacher learning is not considered an integral part of the profession, and schools are primarily organized for student learning (Hiebert & Stigler, 2017). The Netherlands varies greatly in how school leaders perceive teacher learning: some consider it their responsibility to organize and facilitate PD, while others do not (Inspectorate of Education, 2018; van Driel et al., 2012). This variation could explain why some schools did not have trouble with arranging time in their schedules for lesson study. As such, views on teacher learning can exert a powerful influence on how scheduling occurs. Moreover, addressing these scheduling challenges might not be possible until the more deeply seated beliefs about teacher learning are altered.

The two narrative portraits examining the simultaneity of school factors paint a more nuanced picture of the environment in which PD takes place. In all 14 schools, rarely was only one school factor reported to be of influence. Instead, schools reported a hullabaloo of school factors that influenced their (dis)continuation of lesson study, in line with previous research (Kennedy, 2010). While school administration could possibly deal with one or two constraining school factors, the co-occurrence of multiple constraining factors (often not just malleable processes, but also fixed school characteristics and features of employment, which are more difficult to influence) made continuing with lesson study particularly challenging. Organizing collaborative, long-term, school-based PD, such as lesson study, is extremely difficult when teachers work part-time and turnover, especially in school leadership, is high (Guin, 2004). Given that school factors beyond the control of teachers and school leaders considerably influenced organizing collaborative learning, an important implication of our research is that schools could use this information to make more informed choices about how to spend their resources and whether, in their context, organizing PD initiatives such as lesson study is feasible. Our results show that some schools had less trouble with school factors, for example, when there were fewer part-timers and scheduling was directed at teacher learning. In these cases, it may be worthwhile to pursue lesson study initiatives. In other cases, the school factors in a specific school context might be so complex that another initiative might work better for that school. In general, when organizing PD initiatives for staff, schools should take the specifics of their own context as the starting point for making decisions about which initiatives are suitable.

5.6 Limitations

Our study has several limitations. First, we interviewed informants once, which gives insight into the (dis)continuation of lesson study in schools at only one point in time. Examining schools at more points in time could shed more light on whether and how lesson study unfolds in the schools (Parmigiani & Howard-Grenville, 2011; Spillane, 2012). Second, supplementing interviews with observations could offer a broader picture of the school factors, which in our case, given our aim to explore many school contexts, were limited to those reported by school leaders and teachers from the 14 LSPLN schools (Yin, 2011). Third, we conducted interviews with school leaders and former LSPLN teachers only. Including, for example, other participants in the lesson study groups or the LSPLN teachers' departmental colleagues in the schools that did not continue could provide more comprehensive insights into the influence of school factors on why lesson study was (dis)continued. Last, we chose to highlight school factors, as they have been under examined and overlooked in research. Although we find that school factors have considerable influence on whether and how lesson study was continued after the LSPLN ended, other factors may be important, such as culture (Stigler & Hiebert, 2016) or leadership style (Wolthuis et al., 2020b).

5.7 Conclusion

In conclusion, foregrounding the voices of school staff revealed a hullabaloo of school factors that make up the lived reality of the day-to-day work in schools. These school factors often constrained continuing with lesson study. As such, examining the school factors provides an understanding and acknowledgment of the organizational challenges for those working in schools to move beyond the simplified and shortened versions of PD initiatives and toward richer and more meaningful teacher learning.

Chapter 6

*Summary, discussion,
and conclusion*

6.1 Introduction

This dissertation focused on if and how a new PD initiative, in this case lesson study, unfolds in schools after the end of a four-year long, cross-school lesson study project. Below we will give a summary of the main findings of each separate study followed by a discussion of the results. Next, we will elaborate on the most important limitations of this research and provide direction for future research. This chapter closes with implications for educational practice and concluding remarks.

6.2 Summary of the main findings

6.2.1 The concept of organizational routines

This dissertation started with an examination of the potential of the concept of organizational routines. Several studies have proposed the concept to be well-suited to explore educational initiatives in practice. At the same time, organization research shows the concept to be ambiguous and methodologically complex. A literature review was performed in order to examine whether and how the concept can best make good on its promise to examine how PD initiatives unfold within schools.

The ambiguity of routines was also found in education research: studies referred to different things as routines. Variations were found on whether routines were approached as entities or parts (Becker, 2004; Parmigiani & Howard-Grenville, 2011). Specifically, three different approaches to routines were found: (1) examining organizational routines as entities, (2) (also) examining conversational routines, and (3) examining the internal structure of routines. When routines were approached as entities, most studies in the review focused on the outcomes of routines or added a focus on conversational routines and moves to explore how routines unfold. In the first case, this led to a rather static substantiation of the concept in which initiatives are identified. But how they unfold is not further explored. Studies that used the routines as entities approach supplemented their research with the use of the reconceptualized concept of conversational routines and moves. These new concepts and terms were used to explore the inner workings of the routine: how the conversations within the routine developed and unfolded. However, the concept used to explore conversations departed from organizational routines. Conversational routines and moves do not capture a patterned way of working in an organization, but a patterned way of conversing. Therefore, these routines become something slightly different, although connected with the original

concept of organizational routines.

An investigation of routines at the level of entities was only found to inform on how educational initiatives in practice unfold when the focus remains on the initiative itself. This is possible when the distinct elements of organizational routines are operationalized and investigated. The internal structure of routines enables an investigation of how the initiative operates. In the latter case, researchers added new terms to explore the workings of the routine. The dynamics of the internal structure of routines makes it possible to investigate how new initiatives change or stabilize, break down or succeed, and how artifacts and actors influence routines.

As such, the concept was shown to offer a potentially useful tool for researchers to examine what actually occurs regarding an initiative in practice. However, current definitions, operationalizations, and examinations can lack clarity and validity. At present, the concept of organizational routines holds potential, but is also ambiguous. To bolster the potential of the concept, two working definitions of organizational routines were formulated which best allow researchers to investigate initiatives in practice. First, organizational routines can be approached as entities. In this approach, researchers need to operationalize what it entails for an initiative to be a (1) repetitive, (2) recognizable pattern of interdependent actions, (3) carried out by multiple actors. Second, organizational routines can be approached by focusing on their internal structure. Here, the general script of the routine (ostensive aspect) and its specific performances (performative aspect) are examined. In this approach, the ostensive aspect needs to be considered as: (1) the general script; (2) the formal design in the school in terms of tasks, roles, and structures; and (3) the subjective understanding participants have of the initiative. These working definitions are needed to create clarity regarding the concept and for it to be able to deliver on its promise for providing meaningful and relevant information on how new initiatives actually work and unfold in practice.

6.2.2 Between lethal and local adaptation

Research shows that lesson study is often discontinued or shortened and simplified in new contexts (Akiba, 2016; Takahashi & McDougal, 2016). Chapter three, explores how teachers understood the general script of lesson study and how this influenced their performance and evaluation of lesson study. The dynamic of the internal structure of lesson study is investigated and a focus on teachers' evaluation of lesson study's usefulness is added. The latter is important to understand why some initiatives become embedded and other are rejected (Witt, 2011). This enabled an investigation of whether and how teachers adapted lesson study to their own context. We conduct-

ed semi-structured, open-ended interviews with 21 teachers from the 14 secondary schools who participated in the cross-school project. Teachers were found to have different ostensive understandings of lesson study, namely 1) developing a shared vision, 2) lesson planning, 3) observing students, or 4) researching student learning and enhancing pedagogical content knowledge (PCK). How teachers understood lesson study connected to their performance and evaluation of lesson study. Teachers who maintained the script of lesson study as researching student learning and enhancing PCK, maintained its core features when performing lesson study in their own schools and considered lesson study useful. All other teachers modified the general script and rarely continued to perform lesson study after the cross-school lesson study project ended. If they did, they removed core features. When teachers modified the ostensive script, they often considered the initiative unsuitable for their perceived goal and did not consider it useful.

6.2.3 Organizational tasks and processes to set-up lesson study

Chapter four focused on the nine schools that continued with lesson study. This chapter concentrated on organizational tasks and processes to set-up lesson study, which are necessary to implement and perform the PD practice in schools. Organizational tasks and processes, in the context of this study, involve the organizational preconditions necessary to make an initiative work. For example, schools can set-up the new task of lesson study coordinator and create new processes such as meetings during which findings from lesson study are shared with staff. Through conducting and analyzing interviews with school leaders and teachers, we found that all schools set-up three organizational tasks and processes: (1) recruiting participants, (2) giving credit for time-investment, and (3) scheduling meetings. When departments and teams were used to collaboration (in other words, were tightly coupled), this promoted the recruitment of participants. When organizational tasks and processes were set-up collaboratively between teachers and school leaders (that is, with balanced coupling), this was found to be most beneficial for setting-up credit for time-investment and scheduling. Setting-up organizational tasks and processes with balanced coupling led to the most satisfactory arrangements. However, in all but one school, new organizational tasks and processes were either loosely or tightly coupled. In the first case, all responsibility was delegated to teachers and school leaders were not involved. Teachers could not set-up tasks and processes well because, in the absence of backing from leadership, they lacked the authority to make suitable organizational adjustments. Regarding the tightly coupled set-up, this led to unsatisfactory arrangements as well. When school leadership directed the set-

up of tasks and processes, teachers experienced school leadership as too controlling. Overall, this study revealed the difficulty and complexity of setting-up organizational tasks and processes, which are often considered self-evident or mundane, but were shown to be crucial for successful implementation of lesson study.

6.2.4 The influence of school factors

Chapter five explored the influence of school factors on whether lesson study was continued as a (1) repetitive, (2) recognizable pattern, of interdependent actions, carried out by multiple actors. School factors involve the organization of the work in schools and capture the organizational context in which PD plays out. Through interviews with teachers and school leaders ($n = 35$), we found that overall, nine school factors influenced schools' (dis)continuation of lesson study after the project ended. Five relevant features of employment were found, namely (1) part-time working teachers, (2) turnover, (3) (un)planned leave of absence, (4) work location, and (5) beginning teachers. Three relevant malleable school processes were found, which were (6) policy on school improvement, (7) scheduling, and (8) school finance. One relevant fixed school characteristic was found, namely (9) school size. Oftentimes, school factors constrained the continuation of lesson study. The four most reported school factors were part-timers, policy on improvement, scheduling, and turnover. First, due to many part-time working teachers there was little or no time in schedules for teachers to meet, constraining teachers to go through the research cycle of lesson study. Second, policy on improvement was directed at offering frequently changing initiatives, which made it difficult to repeat lesson study in schools. Third, instruction time was prioritized during scheduling, pushing aside time for teacher learning. Fourth, due to turnover, key actors such as school leaders and teachers, who were informed and enthusiastic about lesson study, left. This resulted in a loss of expertise on lesson study. In all but one school, schools reported a "hullabaloo" of multiple inhibiting school factors. The simultaneous occurrence of constraining school factors often led to discontinuation of lesson study or shortened and simplified versions of the initiative.

6.3 General conclusions

Of the 14 schools that participated in the lesson study project, 9 schools continued with lesson study in their own setting after the project ended and university support and funding was withdrawn. Of the teachers that continued in these 9 schools, 10 continued

with (locally adapted) lesson study practices, while other teachers either discontinued or shortened and simplified the initiative. Teachers' who continued with locally adapted lesson study all understood the general idea of lesson study as researching student learning and enhancing PCK. Overall, the 9 schools that continued with lesson study had some common characteristics: (1) teachers were held accountable for their PD hours, (2) prospective lesson study subject departments already worked collaboratively, and (3) malleable school processes were set-up to allow for teacher learning. At the same time, schools that did not continue with lesson study had the following characteristics in common: (1) teachers were not held accountable for their PD hours, (2) prospective lesson study departments worked individually, and (3) malleable school processes were not set-up to support collaborative and continuous teacher learning.

6.3.1 The concept of organizational routines

The studies in this dissertation show that the concept of organizational routines is a useful lens to examine how PD initiatives unfolds within educational settings because it showed in detail the organizational complexities involved in implementing lesson study and provided insights in what schools need to do to organize lesson study in their own setting. Both approaches to the concept of organizational routines in this dissertation (entities and internal structure) enabled different insights to be gained. Approaching routines as entities connects the influence of the wider organizational structures to the continuation of lesson study. Exploring the internal structure provides in-depth insight into how the lesson study routine unfolded and operated in the 14 schools.

Chapter three explored the dynamics of the internal structure of the lesson study routines. This showed how ostensive understandings shape the performances of a routine. The review in chapter two showed that most studies that approach routines as entities do not capitalize on the potential of the concept. By focusing on the outcomes of routines, the concept remains rather static. However, this dissertation shows that approaching routines as entities can offer a way to explore how a new way of working develops and how this process connects to the wider setting. This can be done when analyzing routines as entities focusses on the elements of organizational routines (repetitive, recognizable patterns of interdependent actions, carried out by multiple actors) in relation to the educational practice.

The review found that within education research, the ostensive and performative aspects are operationalized differently. In particular, studies were found to offer further qualifications of the ostensive, specifying it as the (1) general idea, (2) formal design, and (3) subjective understanding. Regarding the second, school structures or school

policy are investigated (e.g., Spillane et al., 2011; Stelitano et al., 2020) while in the third the subjective understanding of the script by participants in the routine is examined (e.g., März et al., 2015). Each specification further qualified an important element of initiatives in practice as research shows that both the development of formal structures (Bannister, 2018) as the interpretation of initiatives (Coburn, 2001) influence how new initiatives are implemented, performed, and sustained. As such, when applying the concept of routines to explore PD in practice the multiple components of the ostensive aspect should be taken into consideration.

The review also highlighted that the examinations of organizational routines is not always valid. Triangulation of methods and of data sources was found to be especially important to ensure that researchers are able to fully comprehend and understand the routine in practice. The benefit of routines for examining how educational initiatives unfold is that it focuses attention to the performances of the initiative. This means that observations are an especially important method of data collection to comprehend the performances of initiatives. As, for example, interviews can be inadequate as people are notoriously bad at predicting and reporting what they do (Jerolmack & Khan, 2014). In particular, researchers should not rely on self-reports alone when they want to uncover what actually happens during specific performances. At the same time, observations are a cost and time intensive means of data collection which might not be feasible for every project. In addition, as observations are time consuming, researchers can be restricted from gaining an understanding of routines across different settings as it can be too costly and time intensive or impractical to observe multiple schools spread out over a vast area. The method of collecting data that studies use will therefore involve a trade-off between strengths and limits of each type of data. Observations allow for rich insight into how initiatives unfold in a setting but can restrict gaining insight across multiple settings. Interviews enable researchers to gain insight across multiple settings but restrict a detailed understanding of how the initiative unfolds in the specific settings with specific people at specific times and places.

6.3.2 How much can lesson study be adjusted?

A question that arises based on our findings concerns the extent to which lesson study can be adjusted and still be considered lesson study. This is a difficult discussion and

echoes the Sorites Paradox which occurs with vague terms with unclear boundaries¹. Two points can be made regarding the extent of adaptations that can be made that can complement or ease the complexities of the local adaptations debate which will be discussed below. Lastly, findings from research have shed light on what the characteristics of lesson study are that need to be maintained for lesson study to still be effective.

First, chapter three not only showed whether and how adaptations were made to lesson study but also how teachers' evaluation of lesson study connected to the adaptations they made. Only the teachers who maintained the script of lesson study as a research process (investigating student learning and enhancing PCK) were unanimously positive about lesson study. When teachers adapted the script, they were much less positive in their evaluation of the initiative. This suggests that regardless of whether lesson study can be shortened, for teachers to be willing and enthusiastic about lesson study its script needs to be maintained. As such, focusing on teachers' evaluations can offer a pragmatic solution to the debate on how much lesson study can be adapted.

Second, from an educational change perspective, successful implementation is not tied to maintaining specific routines, but to sustaining the continuation of individual and organizational learning and change of the way of doing things (Hubers, 2020). From this view, successful continuation of lesson study is not a matter of continuing the research cycle. Instead, the focus is on "the changes that are made in the core of educators' everyday practice by the individual educators and the school (system) as a whole, students' changing (learning) outcomes and how these outcomes feed back into the change process" (Hubers, 2020, p. 8). Applied to lesson study, this could mean that the cross-school project (also) continued in the 14 schools in form of teachers continued use of the educational materials developed during the four years (the research lessons) or in an increased emphasis on investigating student learning when teaching. Additionally, the four-year long lesson study project could have led to organizational changes in the 14 schools as well. Teachers could have started or increased their collegial observations after getting used to having observed or observing lessons during the project. Moreover, departments connected to participating teachers can have started or increased their focus on discussing curriculum material (rather than on organizational and administrative points, which is what usually happens) due to the teachers

¹ The Sorites Paradox is as follows: "Because the predicate 'heap' has unclear boundaries, it seems that no single grain of wheat can make the difference between a number of grains that does, and a number that does not, make a heap. Therefore, since one grain of wheat does not make a heap, it follows that two grains do not; and if two do not, then three do not; and so on. This reasoning leads to the absurd conclusion that no number of grains of wheat make a heap" (Hyde and Raffman, 2018).

reporting back on the value of time spend on pedagogical content. This shows that much more can be involved in assessing whether or not an initiative continues after researchers depart and funding ends.

Overall, while the definitive answer to the question about how much lesson study can be adjusted and still be lesson study remains to be found, the above does suggest that the closer lesson study stays to a research process the more positive teacher evaluations are and the more likely it is that the initiative is continued in schools. At the same time, the four-year long cross-school project might also continue to impact those schools that did not implement lesson study in their own settings.

6.3.3 Incremental changes

As mentioned in the introduction, an important reason why new initiatives do not become sustainable in schools is the grammar of schooling. The grammar of schooling refers to the regular structures and rules that organize the work of instruction. It involves “standardized organizational practices in dividing time and space, classifying students and allocating them to classrooms, and splintering knowledge into “subjects” (Tyack & Tobin, 1994, p 454). These grammars of schooling have proven to be remarkably stable and currently still constrain many efforts to provide potentially effective PD to teachers. As van Veen et al. (2010) stated: schools are generally not designed for teacher learning. While the rigidity of the grammar of schooling shows that an instant turnaround is unlikely, recent calls have been made to research the incremental changes that are possible (Cuban, 2020; Mehta & Datnow, 2020).

This dissertation provides support that these incremental changes are possible and also points towards key areas that enable changes, namely the malleable school processes that are under control of school leadership and administration. Schools have the ability to ensure their policy on PD and improvement involves a thought-through and long-term plan where energy and resources on initiatives are focused. Schools can hold teachers accountable for their PD hours and accommodate teacher learning in the schedule.

Within the 14 schools, some teachers did continue with lesson study in their own setting after the cross-school project, some schools did set-up organizational tasks and processes for the initiative, and they did aim to work around the school factors when they constrained lesson study. The studies point towards some key features that made it possible to continue with lesson study as a new, innovating PD practice in the schools.

How lesson study is understood. First, how teachers understand lesson study matters for whether and how they (continue to) perform it. A question that arises is

why different teachers understood lesson study differently. Research offers a possible explanation for this, namely that teachers' conception of teaching might play a key role in teachers' willingness to perform lesson study after the cross-school project. For example, Takahashi's (2017) explains how this can influence how teachers approach lesson study. He presents three levels of teaching: 1) teaching as telling the important basics, facts, concepts and practices, 2) teaching as explaining meanings and reasons for basic concepts and practices, 3) teaching as providing students with opportunities to understand content and practices and support their learning. In Japan, teachers, at least at elementary level, strive to use level three teaching (Takahashi, 2017). If the core of teaching is seen as supporting student learning, lesson study - with its focus on investigating student learning - is congruent with teachers' perspective and seems relevant. However, if teaching is seen as level one, telling subject knowledge without a focus on how students learn the information, it becomes less straightforward to what extent researching student learning via lesson study is needed. Connected to our study, this could mean that teachers who saw lesson study as researching student learning and enhancing PCK might have seen teaching as level three, whereas those that saw lesson study as lesson planning might have been had level one ideas on teaching. This means that for those teachers that see teaching as level three, changing the traditional isolated way of working might be easier.

How schools are coupled. Second, while setting-up organizational tasks and processes was often difficult, there are indications as to what promoted the set-up of support for continuous and collaborative learning in the schools. When coupling in schools resembled traditional grammars of schooling, the more complicated it was to set-up lesson study. By contrast, when schools already had less traditional grammars and supported teacher learning, the better organizational tasks and processes could be set-up. Within the 14 schools, it was found that if departments or teams were tightly coupled rather than the traditional loosely coupled egg-crate structure, this meant recruitment was easier. Similarly, when PD was tightly coupled, finding time to plan meetings proceeded more smoothly. Schedules were then already much more accommodating towards PD activities. This aligns with studies that found that reforms or new initiatives have a better chance at succeeding when they are consistent with prevailing norms and values (Cohen & Mehta, 2017; Tyack & Tobin, 1995). Overall, this suggests that the more organizational structures and norms and values in a school support continuous and collaborative teacher learning, the easier setting-up new organizational tasks and processes for PD initiatives will be.

How school leadership is involved. How school leadership set-up organizational

tasks and processes was found to be connected to the (evaluation of the) success as well. In many cases, organizational tasks and processes were set-up loosely, which generally led to unsatisfactory arrangements for teachers. They were responsible for carrying out most of the work and received little support from school leadership. When organizational tasks and processes were set-up with tight coupling, it was also experienced as unsatisfactory for teachers as school leadership was very controlling about the arrangements. In these cases, teachers had little opportunity for input and were required to follow orders from school leadership. Lesson study, in these cases, was mostly used as a management strategy by school leadership to reach their own goals and vision rather than as a PD practice for teachers. This took away teachers' ownership of their own learning process, which is an important factor when implementing new initiatives in general (Ketelaar et al., 2014) and lesson study in particular (Akiba et al., 2019). Regarding lesson study, research showed that when districts supported school ownership of lesson study this enabled embedding lesson study in the schools. Our study indicates that at the school level it is also important teachers do not lose ownership of lesson study and school leaders do not use lesson study to serve their own ends. Leadership and teachers that set-up organizational tasks and processes together (balanced coupling) were able to reach the most satisfactory results. This finding shows that school leadership from the principal is important as principals need to support the initiative by organizing, encouraging and helping teachers (Schildkamp et al., 2019). At the same time, this chapter showed that school leaders need to be careful not to be too engaged as they can obstruct the implementation of initiatives when they become too steering and domineering. As such, this chapter gives further support to the notion that distributed leadership best enables educational change to arise in schools (Seashore Louis & Lee, 2016; Spillane & Healey, 2010).

Which school factors (simultaneously) occur. Lastly, school factors were found to matter to if and how lesson study was continued in schools. School factors involve the organizational context that is already present in schools before the PD initiative is introduced. They were found to strongly influence what is possible regarding lesson study. School factors often made continuing with lesson study challenging, yet at the same time they also revealed where the organizational 'space' lies to organize PD initiatives such as lesson study. The malleable processes often constrained lesson study's continuation: schedules prioritized student learning and policy on improvement made it a custom to organize many, frequently changing initiatives. However, in some schools, malleable processes were not reported to constrain lesson study, suggesting that their set-up was more accommodating to lesson study when the initiative was introduced.

In these schools, scheduling was less rigid. School leaders in these schools were much more open to reshuffle and reorganize the timetable to create time for teacher learning. In addition, school leaders could also be aware of the conflicting activities their policy on improvement presented to their staff. Some leaders were found to actively ensure that no conflicts arose amongst initiatives. Given that malleable processes are under the influence of leadership they offer a potential area in which incremental changes can occur.

Importantly, chapter five revealed that only so much of implementing PD can be controlled and planned for. Within schools, there will always be unexpected or unforeseen events (Kennedy, 2010; 2005). Whether that is the turnover of an especially enthusiastic and supportive school leader or the illness of a child that prevents a teacher from being fully engaged at work. While research's quest is to make the world more understandable, the hullabaloo of schooling shows what stand between expectation and outcome. We might expect our attempt to organize a new initiative to work as long as we have substantiated all the steps in the plan. However, as chapter five shows, we cannot control many of the events within the school environment. Oftentimes, research treats this hullabaloo of factors as a leftover dross after all the important patterns have been discerned and assumes it will all be explained one day when we get around to it (Blastland, 2018). The hullabaloo of schooling, by contrast, suggests an alternative view. One in which this unplannable noise is part and parcel of the context. Rather than something separate from the controlled and simplified patterns we deem to discern from school organizations, the unexpected and unplannable hullabaloo is an inherent feature of the fabric of school life. Consequently, planning PD will need to move beyond the notion that our environment is simple and controllable and embrace its infinitely messy complexity. Importantly, this means considering the details of implementation not as an afterthought, but as a make-or-break factor (Banerjee & Duflo, 2012).

6.4 Limitations and directions for future research

There are a number of limitations to take into account when interpreting the findings. Additionally, these limitations provide suggestions for future research. Both are discussed below.

Insight into what happened in the 14 schools was gained from self-reports from interviews. The review in chapter two showed that relying on self-reports potentially provides a limited insight into how organizational routines are performed and there-

fore should be supplemented with observations. At the same time, observations are a time and cost intensive method and can therefore be too costly and time-intensive to conduct across a wide variety of settings. As such, choices about methods of data collection will involve a trade-off between in-depth insight into a limited amount of settings using observations or gaining more (and potentially a more partial) insight across a variety of settings. Given that the aim of this dissertation was to examine the influence of (different) school contexts, the choice was made to focus on a larger number of schools, thereby hoping to gain a better picture of the influences of various school contexts. The implication of this was that no direct observations were used to examine how lesson study was taken-up. Conducting direct observation would have provided relevant information (Parmigiani & Howard-Grenville, 2011) but it would also have entailed a much smaller sample set as it would not have been possible to conduct direct observations in all 14 schools that were part of the lesson study project. However, by omitting direct observation from our examination, a more partial picture of how lesson study unfolded might have been gained (Parmigiani & Howard-Grenville, 2011; Spillane, 2012). As such, the findings in this dissertation need to be corroborated by observations. Future research should incorporate direct observation when examining PD through the lens of routines. This will allow results to move beyond the self-reported activities by school leaders and teachers to a more comprehensive insight into what actually happened within schools.

Throughout the dissertation, many elements have been examined, but there are still important elements that remained out of the scope. For example, chapter three focused on teachers' conception of the general script of lesson study which was found to be connected to if and how teachers were (willing) to implement and perform lesson study in their own schools. However, lesson study is a collaborative initiative which means other lesson study participants' understanding of the PD initiative could have given a more comprehensive insight as well. Additionally, school leaders' understanding of lesson study is also relevant as they play an important role in supporting the (organization of) the initiative. Combined, these additional data sources could explain why for example school leaders did or did not (want to) continue with the initiative after the LSPLN or why colleagues did or did not want to participate in a group. Moreover, other factors could have played a role in how the PD initiative was understood and performed such as self-efficacy, motivation, and beliefs, which were not explored. As teachers' beliefs about learning and teaching connect to their continuing PD (de Vries et al., 2013), it would be especially interesting if future research explored these beliefs in connection to teachers' understanding of PD initiatives. Additionally, while we did

examine coupling in relevant areas, namely PD and departments and teams, we did not examine other aspects that might have been important, such as school culture, climate, and trust (Bryk & Schneider, 2002). Similarly, while school factors captured an important element of school context, other elements of hullabaloo or organizational noise occur in schools which we did not investigate. For example, research shows that the teachers' personal lives can also be important (Day et al., 2006) as is the unpredictable nature of the daily work (Doyle, 2013). Although the aforementioned aspects can play a role and therefore can be interesting to take into account in future research, the goal of this dissertation was to focus on the organizational tasks and school factors which is why the additional factors were not part of this investigation.

In addition, while artifacts featured in our review, we did not include artifacts in our own empirical studies as we were primarily interested in investigating how the organizational context influences how lesson study unfolds. Regarding lesson study, the Dutch handbook *Lesson study: Een praktische gids voor het onderwijs* (de Vries et al., 2016) can be considered an important artifact which provided guidance to schools in the form of worksheets and protocols to perform and organize lesson study. As artifacts can have a potentially influential role in shaping both the ostensive scripts as the performances of a routine (Liljenberg & Nordholm, 2018; März et al., 2015), a question that remains unanswered in this dissertation is the role that artifacts played on how lesson study unfolded in the schools. Future research could take up this line of research and examine which artifacts influence lesson study in what way.

Lastly, while a growing number of studies in the field of education research apply the concept of organizational routines, its application is still limited. Given the usefulness of the concept, one step towards building our understanding on how new PD initiatives can move beyond simplified and shortened versions in schools is by furthering the research of initiatives through the (integrated) lens of organizational routines. The two working definitions presented in this dissertation can be applied to examine how initiatives unfold in educational practice and build a common knowledge base on how results can be brought about.

6.5 Practical implications

6.5.1 Organizational tasks and processes

Chapter four showed that all 9 schools all set-up organizational tasks and processes for lesson study. As such, each school setting was engaged in the organizational work

for implementing lesson study. However, a question that remains is to what extent the three organizational tasks and processes that schools set-up were sufficient to support lesson study. Suggestions from handbooks on lesson study indicate that more is needed. The practical handbooks recommend much more organizational tasks and processes to set-up lesson study. For example, special teams that are responsible for setting-up LS, a master plan in which the schools' research is developed and organized, and to an inventory of all the current work and assess which practices are necessary and which can be handled more efficiently so that time is freed-up for LS (Ermeling & Graff-Ermeling, 2016; Takahashi & McDougal, 2016). The studies in this dissertation suggest first that starting with departments that are already used to collaborating allows for a more satisfactory arrangement of lesson study groups.

Second, time needs to be freed-up in advance at the start of the year for the preparatory work and post-lesson discussions. Combined with the finding from chapter five which showed that in many schools the scheduling constrained lesson study as instruction time was prioritized, a more radical advice is to start the yearly schedule by planning time for teacher learning. Studies in this dissertation show that in the absence of specified time for teacher learning, lesson study was added into the schedule after all other activities and tasks were planned in. In these cases, lesson study is pushed to the end of the long work day or ended up in temporarily available free periods. Instead, teacher learning needs to be the first task planned into the schedule to ensure protected and undisturbed time for PD (Ermeling & Graff-Ermeling, 2016)

And three, teachers need to be able to receive credit for time-investment which does not make lesson study an additional task to their workload. Regarding the latter point, the specifics of the school determine what can be considered effective for teachers: when PD hours need to be accounted for, PD hours are a suitable way to ensure lesson study comes in the place of other tasks. However, when schools do not hold their staff accountable for PD hours, giving credit in the form of PD hours will make lesson study an additional task to teachers (often already heavy) workload. Instead, task hours of a fixed moment in the schedule can be used as suitable ways to arrange credit for time-investment. In addition, schools need to ensure that various activities (PD, school improvement, and other activities) are scheduled in such a way that they do not compete for time and attendance.

6.5.2 Using and creating organizational space

School factors (Viano et al., 2020) showed both the constraints and the opportunities – or 'space' – schools have to create a supportive infrastructure for new PD initiatives.

Regarding the constraints, the current organization of schooling in the Netherlands shows that many factors inhibit teacher learning from becoming a structural and embedded part of the work in schools. Currently, teachers often work part-time which means there is little time to meet colleagues or, when teaching full-time, there is little time left, after the 25 hours of instruction time are done, for teachers to engage in PD. While school factors such as of employment and fixed school characteristics are beyond the control of schools to change, malleable processes are not. Leadership can change the malleable processes to create support for continuous and collaborative PD. While in practice this rarely happened, it does reveal that there are opportunities to create a (more) supportive infrastructure within schools to embed PD. In particular, this would require restructuring the way in which policy on improvement, scheduling, and school finance are organized. Rather than organizing multiple, and often-changing initiatives, which constrains embedding PD as a repetitive practice (Akiba, 2016; Akiba & Wilkinson, 2016), schools could prioritize specific initiatives in a more focused and long-term manner. Regarding scheduling, schools could prioritize not just instruction time, but also teacher learning. Prioritizing time for PD initiatives when drawing-up the schedule at the start of the school year would enable protected, focused, and supported time to be created for teachers to come together and learn (Ermeling & Graff-Ermeling, 2016). In some schools, money will be necessary to allow for lesson cancelations and credit for teachers' time-investment. Aligning and cutting down on multiple initiatives could also enable schools to use their financial resources more purposefully.

Overall, our studies also showed that the school contexts varied widely. Schools differed in how the script of the PD initiative was understood, how PD and teams or departments were coupled, and which specific promoting or inhibiting school factors were present. Each school setting had its own unique set of characteristics, which all led to different opportunities for continuing with lesson study after the cross-school project. School varied in the organizational 'space' they had to organize the PD initiative. As such, there will not be one blueprint for implementing PD that will work for every school (Stiegelbauer, 1994). How to proceed with implementing lesson study will depend on specific local contexts and needs. As such, another implication is that each school will require different types of monitoring and subsequent adjustments to the implementation process (Bryk, 2015; März et al., 2018).

6.6 The elephant and the butterflies

In conclusion, this dissertation started by pointing out that the PD literature often mistakenly assumes that when PD initiatives are introduced into schools, organizing and performing them will be simple and straightforward (Bannister, 2018; van Driel et al., 2013). Frequently used metaphors for PD implementation, such as the oil stain, snowball, or domino effect, all suggest that implementing a new initiative will be easy. This dissertation shows that these metaphors are incredibly misleading. Organizing PD in schools is hard work. This process cannot be expected to happen on its own accord. It requires fundamental organizational restructuring, collaborative effort, and substantial resources (Bannister, 2018; Gitlin & Margonis, 1995) to achieve what will most likely be incremental changes (Cuban, 2020; Mehta & Datnow, 2020). Given the importance of metaphors (Lakoff & Johnson, 2008; Larsson, 2013), we would like to close this dissertation by providing one that better suits the insights gained about organizing PD in schools. Instead of thinking of implementation as behaving like an oil stain that spreads uncontrollably on water, we should think of it as guiding a heavy elephant. This image both acknowledges and informs about the heavy lifting that is involved in the process of implementation. Only by collectively guiding in the same direction from multiple angles, can successful implementation of PD be expected to occur. It requires a coordinated and thought-through plan where everyone's tasks and responsibilities are clear so that everybody can pull their own weight, while at the same time acknowledging that plans will only get you so far, as unexpected events will turn up.

Organizing continuous and collaborative PD is a substantial effort. However, our dissertation also points to the seemingly small aspects that can substantially contribute towards bringing successful implementation about. For example, making an informed decision about recruitment, scheduling, and school improvement policy were all shown to be influential and, when done right, eased the implementation process. To capture this, we also incorporate the understanding of butterfly effect in popular culture into our metaphor. The butterfly effect comes from chaos theory. Edward Lorenz used the metaphorical example that the flapping of the wings of a butterfly in Brazil can be instrumental in generating a tornado in Texas (Lorenz, 2000). In popular culture, the butterfly effect has taken on the meaning that small changes in one part of the system can have large effects in other parts. This metaphor provides a much more suitable image of the often unknowable but influential events or hullabaloo within the school organization than the smooth water surface without any currents over which the oil stain flows. While the school context can be uncontrollable and complex, it can also have

substantial influence (both negatively and positively) on the PD initiative. We should picture the elephant being guided amidst various small, seemingly inconsequential butterflies, which both nudge and inhibit the guiding of the elephant. This metaphor captures not only the current, often constraining, reality of the organization of schools we examined, but also their potential for change. Many schools are at present not organized to accommodate PD with effective design characteristics. Implementing PD will require a restructuring of the system, which is hard work. At the same time, changes to these various, seemingly small factors could produce the incremental changes needed to implement and sustain PD. Starting to hold teachers accountable for their PD hours, creating cohesion in the policy of improvement, and adjusting the schedule to incorporate time for teacher learning are all small steps to change the grammar of schooling from being organized not just for student learning but for teacher learning as well. Using the concept of organizational routines to investigate how PD unfolds in practice provides a useful lens to capture what is needed to bring about the changes within specific setting.

Chapter 7

Dutch summary

7.1. Introductie

7.1.1 Aanleiding

Binnen het onderwijs komen vaak nieuwe veelbelovende professionaliserings-(PD) initiatieven voorbij. Wanneer een nieuw initiatief voor professionele ontwikkeling verschijnt, rijzen er snel vragen over de duurzaamheid en levensduur ervan: zal dit nieuwe initiatief, zoals zoveel andere, ook een kortstondige rage of hype zijn? Of zal deze duurzamer blijken? Nieuwe veelbelovende PD-initiatieven beklijven echter zelden en vaak worden ze maar tijdelijk geïmplementeerd in verkorte en vereenvoudigde vormen (Bryk, 2015; Desimone & Stuckey, 2014; Hargreaves & Goodson, 2006). Zodra onderzoekers vertrekken en de financiering stopt, zwakt de implementatie af (Klinger et al., 2013). Dit heeft negatieve gevolgen: Een gebrek aan verduurzaming of structurele inzet betekent dat scholen niet kunnen profiteren van de potentiële voordelen die initiatieven te bieden hebben; ook blijken PD-initiatieven vaak ineffectief wanneer ze te vereenvoudigd en verkort worden geïmplementeerd (Desimone & Struckey, 2014; Opfer & Pedder, 2011).

De vereenvoudiging en het gebrek aan duurzaamheid van PD-initiatieven is volgens verschillende onderzoekers deels het gevolg van het feit dat niet wordt nagedacht over hoe leren van docenten is ingebed in de schoolorganisatie (Bryk, 2015; Klingner et al., 2013; Opfer & Pedder, 2011). Deze onderzoekers onderstrepen de noodzaak om te onderzoeken hoe nieuwe initiatieven worden opgepakt in en beïnvloed door de schoolcontext. In deze dissertatie wordt daarom niet alleen gekeken naar het professionaliserings-initiatief of de deelnemers, maar ook naar hoe een nieuw initiatief wordt opgepakt en beïnvloed door de schoolomgeving. We richten ons in het bijzonder op één initiatief, namelijk lesson study.

7.1.2 Lesson study

Lesson study komt uit Japan en bevat mogelijk alle effectieve ontwerpkenmerken van professionele ontwikkeling voor docenten (Lewis & Perry, 2015). Het is een vorm van docentonderzoek waarbij kleine groepen docenten een onderzoekscyclus doorlopen. De cyclus omvat doorgaans de volgende fasen: het stellen van doelen, het plannen en uitvoeren van een onderzoeksles, het voeren van een discussie na de les en het reflecteren op het hele lesson study-proces. Hoewel is aangetoond dat lesson study een effectieve manier is om het leren van docenten en leerlingen te ondersteunen (Lewis & Perry, 2015; Schipper et al., 2018; Xu & Pedder, 2014), toont onderzoek ook aan dat lesson study, net als veel andere professionaliserings-initiatieven, moeilijk te verduurzamen is en vaak

wordt verkort en vereenvoudigd wanneer het op scholen wordt uitgevoerd (Akiba, 2016; Huang & Shimizu, 2016; Takahashi & McDougal, 2016). Lesson study biedt daarom een bruikbare casus, aangezien het veel van de bekende implementatieproblemen van professionaliserings-initiatieven ondervindt.

7.1.3 De context

De studies in dit proefschrift zijn uitgevoerd in de context van het Nederlands voortgezet onderwijs. Lesson study is een vorm van docentprofessionalisering die in Nederland relatief nieuw is, maar steeds vaker ingezet wordt in het voortgezet onderwijs (de Vries, Goei & Verhoef, 2016). We verzamelden gegevens van 14 middelbare scholen in Noord-Nederland die deelnamen aan een Professionele Leergemeenschap (PLG) waarin ze werkten met lesson study (LSPLG). Er zijn twee LSPLG's opgezet, één voor wiskunde en één voor Nederlands, voor een periode van vier jaar (2014–2017). Na vier jaar eindigde de LSPLG en stopte de universitaire ondersteuning en financiering. Scholen konden zelf beslissen of en hoe ze door wilden gaan met lesson study, wat negen scholen deden. Voor dit proefschrift werden 21 docenten (voormalige LSPLG-deelnemers) en 14 schoolleiders van de 14 verschillende scholen geïnterviewd.

In dit proefschrift zullen hebben we onderzocht hoe lesson study wordt opgepakt in en beïnvloed door de schoolomgeving nadat lesson study in projectvorm is uitgetroefd en de bijbehorende financiering is gestopt. Het doel is om inzicht te krijgen in de wijze waarop PD, in plaats van een kortstondig en vereenvoudigd initiatief, een succesvol ingebedde praktijk kan worden in scholen.

7.1.4 Doelstelling van dit proefschrift

Dit proefschrift onderzoekt hoe lesson study zich ontvouwt op scholen nadat het LSPLN-project is beëindigd en de ondersteuning en financiering van de universiteit is stopgezet. Onderzocht wordt hoe scholen organisatorische taken en processen voor lesson study opzetten (Bannister, 2018; van Driel et al., 2012) en welke invloed schoolfactoren hebben op de voortzetting van lesson study (Kennedy, 2010). Het concept van organisatieroutines zal in dit proefschrift worden gebruikt om te onderzoeken hoe lesson study zich in de 14 scholen ontvouwt. Om te onderzoeken hoe dit concept moet worden gedefinieerd, geoperationaliseerd en toegepast om initiatieven in de schoolpraktijk het beste te verkennen, onderzoeken we hoe organisatieroutines worden gebruikt in de relevante literatuur. De volgende vier onderzoeksvragen vormen de leidraad voor dit proefschrift:

1. Hoe worden organisatieroutines gedefinieerd, geoperationaliseerd en bestudeerd in onderwijsonderzoek?
2. (Hoe) hebben docenten lesson study op hun school begrepen, uitgevoerd en geëvalueerd?
3. Welke organisatorische taken en processen hebben scholen opgezet voor lesson study en hoe zijn relevante gebieden in de school gekoppeld en van invloed?
4. Welke schoolfactoren waren van invloed op de voortzetting van lesson study na de LSPLG en hoe?

7.2. Resultaten

7.2.1 Een overzichtsstudie naar organisatieroutines

Dit proefschrift begon met een onderzoek naar de bruikbaarheid van het concept van organisatieroutines. Er is een literatuuronderzoek uitgevoerd om te onderzoeken hoe het concept het beste kan worden ingevuld om nieuwe initiatieven in de schoolpraktijk te onderzoeken. In verschillende databases (ERIC, PsycINFO en Web of Science) is gezocht naar artikelen die tussen 2010 en 2020 zijn gepubliceerd om de meest recente inzichten te verzamelen. Na het toepassen van onze inclusiecriteria bleven er 24 artikelen over die het concept van organisatieroutines gebruikten om onderwijsinitiatieven te onderzoeken.

De term ‘routine’ wordt in de literatuur op diverse manieren gedefinieerd. Deze ambiguïteit bleek ook in de geselecteerde onderwijskundige studies: studies noemden verschillende dingen routines. Routines werden op verschillende levels geanalyseerd: als geheel of de interne structuur (Becker, 2004; Parmigiani & Howard-Grenville, 2011). Concreet werden drie verschillende benaderingen van routines gevonden: (1) het onderzoeken van organisatieroutines als geheel, (2) het (ook) onderzoeken van gespreksroutines en (3) het onderzoeken van de interne structuur van routines. Wanneer routines als geheel werden benaderd, concentreerden de meeste studies zich op de uitkomsten van routines of ze voegden een focus toe op gespreksroutines en gespreksbewegingen om te onderzoeken wat er precies binnen de uitvoering van routines gebeurde. Als routines als geheel werden benaderd leidde dit tot een vrij statisch gebruik van het concept waarin initiatieven enkel als routine werden aangeduid. Routines als geheel onderzoeken bleek alleen informatief voor hoe onderwijsinitiatieven zich in de praktijk ontfouten als de focus op het initiatief zelf bleef. Dit is mogelijk wanneer de verschillende elementen van organisatieroutines worden geoperationaliseerd en onderzocht. De interne structuur

van routines maakt het mogelijk om te onderzoeken hoe het initiatief zich in de praktijk ontvouwt: hoe nieuwe initiatieven veranderen of stabiliseren, afbreken of slagen, en hoe artefacten en actoren routines beïnvloeden.

7.2.2 Lesson study door de lens van organisatieroutines

In hoofdstuk drie hebben we ons gericht op of en hoe docenten lesson study aanpassen in de eigen school context ten opzichte van de vorm die tijdens het project gebruikt werd. Tijdens het project was het algemene script van lesson study het onderzoeken van het leren van leerlingen en het verbeteren van vakdidactische kennis. De onderzoekscyclus van lesson study die door docenten werd uitgevoerd tijdens het project was gebaseerd op de Amerikaanse adaptatie van Stepanek et al. (2007) en de Britse adaptatie van Dudley (2011). We onderzochten of en hoe docenten lesson study implementeerden en uitvoerden op hun scholen nadat de LSPLN was afgelopen. Daarbij keken we ook naar de wijze waarop docenten de bruikbaarheid van lesson study hebben ervaren: in hoeverre achtten zij lesson study nuttig en haalbaar voor het beoogde doel (Witt, 2011)? De onderzoeksvragen in deze studie waren:

1. Wat zien docenten als het algemene script van lesson study?
2. (Hoe) Voeren docenten lesson study uit?
3. Hoe beoordelen docenten het nut en de haalbaarheid van lesson study (bruikbaarheid)?

Semigestructureerde interviews werden gehouden met 21 docenten van de 14 scholen die deelnamen aan de LSPLN. Alle docenten maakten deel uit van één van de twee LSPLG's, hetzij voor wiskunde, hetzij voor Nederlands. Om de gegevens te analyseren hebben we eerst een coderingsschema ontwikkeld op basis van Feldman en Pentland (2003) en Witt (2011). In het codeerschema worden het begrip, de uitvoering, en de evaluatie van lesson study onderscheiden.

De resultaten toonden aan dat docenten verschillende opvattingen hadden over lesson study. De opvattingen hielden verband met de wijze waarop docenten lesson study uitvoerden en evalueerden. Docenten bleken de volgende algemene scripts (oostensief) van lesson study te hebben: 1) gedeelde visie ontwikkelen, 2) lessen ontwerpen, 3) leerlingen observeren, 4) onderzoeken van het leren van leerlingen en het verbeteren van vakdidactische kennis. Docenten die lesson study begrepen als een manier om het leren van leerlingen te onderzoeken en vakdidactische kennis te verbeteren behielden het algemene script van lesson study zoals gepresenteerd tijdens de LSPLG. Deze groep

docenten behield de kernelementen van lesson study tijdens de uitvoering van de cyclus op hun eigen school. Bovendien vond deze groep docenten lesson study nuttig. Alle andere docenten bleken het algemene script te hebben aangepast. Wanneer het algemene script of idee door docenten werd gewijzigd, gingen docenten zelden door met lesson study op hun eigen school. Als ze dat wel deden, veranderden ze de uitvoering van lesson study zodanig dat de kernelementen verdwenen. Docenten die het script zagen als lesplanning, behielden bijvoorbeeld voornamelijk de lesplanningselementen in de cyclus en verwijderden de elementen die hier geen verband mee hielden, zoals het opzetten van een onderzoeksvraag of het uitgebreid nabespreken van de les.

Deze studie toont aan dat wanneer docenten het algemene idee van lesson study behielden (het onderzoeken van het leren van leerlingen en het verbeteren van vakdidactische kennis), ze eerder geneigd waren lesson study uit te voeren en positief te evalueren. In het bijzonder ze behielden met name die fasen die lesson study tot een onderzoekspraktijk maken. Deze docenten maakten aanpassingen waarbij de kernelementen behouden bleven. Docenten die het algemene script aanpasten verwijderden kernelementen, wat schadelijke gevolgen had voor de kwaliteit van de uitvoering van de lesson study. Door lesson study te onderzoeken door de lens van organisatieroutines, konden we beter begrijpen waarom docenten lesson study aanpassen en aanbevelingen doen om te zorgen dat docenten de kern van lesson study behouden.

7.2.3 Een verkenning van hoe scholen lesson study organiseren

In hoofdstuk vier lag de focus op de organisatorische taken en processen die nodig zijn om lesson study uit te kunnen voeren. In dit onderzoek hebben we gekeken naar welke organisatorische taken en processen de negen scholen die doorgingen met lesson study opzetten en hoe. We hebben coupling (of koppeling) toegepast om te onderzoeken hoe scholen specifieke taken en processen opgezet hebben. Ook hebben we gekeken naar de koppeling van de bestaande organisatorische en beleids- context in scholen, namelijk bij het professionalisingsbeleid in de school, in teams en in secties. Koppeling betreft de mate waarin verschillende gebieden in een school aan elkaar verbonden zijn. Koppeling wordt beschreven in termen van los en strak. Wanneer koppeling strak is dan is er veel coördinatie, inspectie, regulatie, feedback, (overeenstemming over) regels. In los gekoppelde systemen gebeurt het werk in de afwezigheid van deze elementen, hier is weinig coördinatie, (overeenstemming over) regels, inspectie en feedback. Twee onderzoeksvragen stonden centraal in dit onderzoek:

1. Welke organisatorische taken en processen hebben scholen opgezet en hoe waren die gekoppeld?
2. Hoe is de inrichting van organisatorische taken en processen verlopen?

Interviews zijn gehouden met 10 schoolleiders en 15 docenten ($n = 25$) van de negen scholen die doorgingen met lesson study nadat de LSPLN was afgelopen. Samenvattingen voor elke school werden gemaakt waarin organisatorische taken en processen werden geïdentificeerd. Er werd in de samenvattingen gekeken naar de manier waarop taken en processen waren opgezet en hoe ze waren gekoppeld, wat de koppeling van het professionaliseringsbeleid in elke school was en wat de koppeling met de sectie of het team van de lesson study deelnemers was.

We ontdekten dat scholen drie organisatorische taken en processen opzetten: (1) het werven van deelnemers, (2) het faciliteren van de tijdsinvestering, (3) en het roosteren van bijeenkomsten voor lesson study groepen. Een strakke koppeling (nauwe samenwerking) tussen secties en teams bevorderde het werven van deelnemers. Deze teams en secties waren al gewend aan samenwerken en stonden daardoor meer open voor samenwerken. Voor het faciliteren van de tijdinvestering en plannen van bijeenkomsten bleek een gebalanceerde koppeling (waarin docenten en schoolleiders samenwerken) het meest voordelig te zijn. Dit gebeurde echter maar in één van de negen scholen. Op de meeste scholen waren nieuwe organisatorische taken en processen losjes gekoppeld, wat leidde tot relatief weinig verandering in de organisatiestructuur in de scholen, of ze waren nauw gekoppeld, wat leidde tot onbevredigende regelingen voor docenten omdat ze schoolleiderschap als te controlerend ervoeren. Dit onderzoek toonde aan hoe ingewikkeld en complex het opzetten van organisatorische taken en processen is. Veel scholen hadden moeite met het opzetten van adequate regelingen. Onze resultaten laten zien dat het opzetten van organisatorische taken en processen is geen eenvoudige taak, maar wel essentieel en complex.

7.2.4 De invloed van schoolfactoren op de voortzetting van lesson study

In deze studie hebben we onderzocht welke schoolfactoren een rol spelen en hoe deze lesson study beïnvloeden. Schoolfactoren kunnen worden onderverdeeld in drie typen: kenmerken van de werkaanstelling, wendbare schoolprocessen en vaste schoolfactoren (Viano et al., 2020). De volgende onderzoeksvraag vormde de leidraad voor ons onderzoek: Welke (gelijktijdig optredende) schoolfactoren beïnvloeden de continuering van lesson study op scholen nadat het LSPLG-project was afgelopen, en op welke wijze?

Gegevens werden verzameld door middel van semigestructureerde interviews met 21

docenten (voormalige LSPLG-deelnemers) en 14 schoolleiders ($n = 35$) van de 14 scholen die deelnamen aan de LSPLG. De gegevens werden geanalyseerd door samenvattingen voor elke school te maken om relevante schoolfactoren te identificeren. Vervolgens is onderzocht welke schoolfactoren volgens scholen van invloed waren op de continuering van lesson study na afloop van het project en hoe. Daarbij werd gekeken naar de invloed van de schoolfactoren op lesson study als een (1) herhalend, (2) herkenbaar patroon van onderling afhankelijke handelingen met (3) meerdere mensen. Om de invloed van gelijktijdig optredende schoolfactoren te onderzoeken is gebruikt gemaakt van de methode van narratieve portretten (Rodríguez-Dorans & Jacobs, 2020). Scholen rapporteerden negen schoolfactoren die van invloed waren op de voortzetting van lesson study. Vijf kenmerken van de werkaanstelling werden gerapporteerd, namelijk parttime docenten, personeelsverloop, (on)gepland verlof, werklocatie en beginnende docenten. Er werden drie relevante wendbare schoolprocessen genoemd, namelijk het beleid voor schoolverbetering, roostering en financiën. Er werd één relevant vast schoolkenmerk gevonden, namelijk schoolgrootte.

De meeste schoolfactoren droegen niet bij aan de continuering van lesson study na het einde van de LSPLN. De vier meest genoemde schoolfactoren waren op de volgende manieren van invloed. Ten eerste, doordat veel docenten parttime werkten was er geen moment in de week waarop docenten samen konden komen. Docenten werkten op dusdanig verschillende dag(delen) dat het op sommige scholen niet mogelijk was om een moment in te plannen met een groep voor lesson study. Ten tweede was het professionaliseringsbeleid gericht op het aanbieden van vaak wisselende initiatieven. Hierdoor kon lesson study geen herhaalde activiteit op scholen worden. Omdat elk jaar de prioriteiten veranderden, kwam er ook elk jaar weer een nieuw professionalisering-sinitiatief. Ten derde werd er bij het opstellen van het rooster prioriteit gelegd bij het inplannen van de lestijd, waardoor de tijd voor het leren van docenten in het geding kwam. Ten vierde verlieten sleutelfiguren zoals schoolleiders en voormalige LSPLG-docenten, die geïnformeerd en enthousiast waren over lesson study, de school, vanwege het personeelsverloop. Op veel scholen kwam het zelden voor dat slechts één schoolfactor invloed had op voortzetting van lesson study. In plaats daarvan gaven scholen aan dat ze een opeenstapeling van verschillende schoolfactoren ondervonden die samen van invloed waren. Vaak zorgde dit voor dusdanige beperkingen en complexiteit dat voortzetting van lesson study onmogelijk of erg ingewikkeld was.

Deze studie onderstreepte de invloed van de bestaande schoolorganisatie. Het onderzoeken van schoolfactoren biedt een genuanceerder beeld van hoe professionalisingsinitiatieven zich op scholen ontvouwen. Deze studie toonde aan dat de huidige

organisatie van scholen vaak dusdanig complex is dat scholen niet altijd de organisatorische ruimte hebben om professionalisingsinitiatieven te organiseren op de manier waarop ze bedoeld zijn.

7.3 Conclusie en discussie

7.3.1 Algemene conclusies

Van de 14 scholen die deelnamen aan de LSPLN, gingen 9 scholen door met lesson study nadat het project was afgelopen en de ondersteuning en financiering van de universiteit ophield. Vijf scholen gingen niet verder met lesson study. Van de 15 docenten op deze 9 scholen, gingen er 10 door met (aangepaste) vormen van lesson study, terwijl andere docenten stopten met lesson study of het verkortten en vereenvoudigden. Docenten die doorgingen met lokaal aangepaste lesson study zagen het initiatief allemaal als een manier om het leren van leerlingen te onderzoeken en de vakdidactische kennis te verbeteren. De 9 scholen die doorgingen met lesson study hadden enkele gemeenschappelijke kenmerken: (1) docenten werden verantwoordelijk gehouden voor hun professionaliseringsuren, (2) secties of teams die mee konden doen met lesson study waren al gewend aan samenwerken, (3) wendbare schoolprocessen waren ingericht op het leren van docenten. Scholen die niet doorgingen met lesson study hadden de volgende kenmerken gemeen: (1) leraren werden niet verantwoordelijk gehouden voor hun professionaliseringsuren, (2) teams en secties die mee konden doen met lesson study werkten niet veel samen en (3) wendbare schoolprocessen belemmerden het organiseren van het samenwerkend leren van docenten.

7.3.2 Het concept van organisatieroutines

Het concept van organisatieroutines is bruikbaar, maar het huidige gebruik van organisatieroutines (definities, operationalisaties en onderzoeken) is tegelijkertijd ook soms onduidelijk en ongegrond. Om de bruikbaarheid van het concept te versterken, werden twee werkdefinities van organisatieroutines geformuleerd die onderzoekers het beste in staat stellen om initiatieven in de praktijk te onderzoeken. Ten eerste kunnen organisatieroutines worden benaderd als geheel. In deze benadering moeten onderzoekers elementen van het concept operationaliseren voor het desbetreffende onderwijsinitiatief: namelijk (1) herhalend, (2) herkenbaar patroon van onderling afhankelijke handelingen, (3) uitgevoerd door meerdere mensen. Ten tweede kunnen organisatieroutines worden benaderd door te focussen op de interne structuur. Hier worden het algemene script

van de routine (ostensief aspect) en de specifieke uitvoeringen (performatief aspect) onderzocht. In deze benadering moet het ostensieve aspect worden beschouwd als: (1) het algemene script; (2) het formele ontwerp in de school in termen van taken, rollen en structuren; en (3) het subjectieve begrip dat deelnemers hebben van het initiatief. Deze werkdefinities zijn nodig om duidelijkheid te scheppen over het concept en om te kunnen voldoen aan de belofte om zinvolle en relevante informatie te verstrekken over hoe nieuwe initiatieven werkelijk werken en zich in de praktijk ontplooiën.

7.3.3 Kleine, stapsgewijze verbeteringen

Dit proefschrift geeft verder bewijs dat deze incrementele veranderingen van de schoolorganisatie mogelijk zijn en wijst op sleutelgebieden in de school waar veranderingen mogelijk is, namelijk de wendbare schoolprocessen die onder controle staan van de schoolleiding en het schoolbestuur. Scholen kunnen zelf hun beleid inzake professionalisering vaststellen. Door meer doordachte en lange termijnplannen op te stellen kan de energie en de middelen voor initiatieven beter worden benut. Scholen kunnen docenten verantwoordelijk (beginnen te) houden voor hun deskundigheidsbevordering en tijd inplannen voor het leren van docenten in het rooster.

Op de 14 scholen gingen sommige docenten door met lesson study na de LSPLG. Sommige scholen lukte het om organisatorische taken en processen op te zetten en belemmerende schoolfactoren te ondervangen. De studies wijzen op enkele belangrijke kenmerken die het mogelijk maakten om door te gaan met lesson study als een nieuwe, innoverende professionalisingsaanpak op de scholen. Ten eerste, lesson study moet begrepen worden als een aanpak om het leren van leerlingen te onderzoeken. Ten tweede, organisatorische taken en processen moeten met gebalanceerde koppeling worden opgezet. Zo kunnen docenten en schoolleiders randvoorwaarden organiseren die voor iedereen als acceptabel en ondersteunend worden ervaren. Ten derde, wendbare schoolprocessen moeten zo worden ingericht dat ze het leren van docenten ondersteunen. Dit kan door een doordacht beleid voor professionalisering op te zetten waarin energie en middelen worden gefocust en door tijd in het rooster in te richten voor het leren van docenten.

7.4 Conclusie

Veel scholen zijn momenteel niet ingericht om initiatieven met effectieve ontwerpkenmerken te organiseren. Het implementeren van initiatieven zoals lesson study vereist een

herstructurering van het systeem, wat niet gemakkelijk is. Tegelijkertijd kunnen veranderingen in verschillende, ogenschijnlijk kleine factoren de incrementele veranderingen stimuleren die nodig zijn om professionaliseringsinitiatieven te implementeren en in stand te houden. Docenten aansprakelijk houden voor hun deskundigheidsbevordering, het creëren van samenhang in het professionaliseringsbeleid en het roosteren van tijd voor het leren van docenten zijn allemaal kleine stappen om het onderwijs te veranderen. Om te zorgen dat scholen niet alleen het leren van leerlingen faciliteren, maar ook het leren van docenten. Het gebruik van het concept van organisatieroutines om te onderzoeken hoe PD zich in de praktijk ontvouwt, biedt een bruikbare lens om te kijken naar wat nodig is om de veranderingen binnen een specifieke setting teweeg te brengen.

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Appendix

Interview protocol

Interview leidraad docenten

Introductie

Dit is een heel open interview, met vrij brede, open vragen. Ik nodig je dan ook uit om vooral uit te weiden en concrete voorbeelden te geven als dat mogelijk is. Het interview gaat – zoals je al weet – over lesson study. Je hebt gedurende drie jaar deelgenomen aan de PLG-wiskunde of Nederlands waarin gewerkt is met Lesson Study. Uiteindelijk doel hiervan was dat de docenten LS zouden introduceren op hun eigen school waar ze dan als LS-begeleider kunnen fungeren om het onderwijs vakdidactisch op een hoger plan te krijgen. Ik ben vooral geïnteresseerd in wat er rondom lesson study al dan niet gebeurd is sinds het einde van de PLG.

- Doel van dit interview/onderzoek is om na te gaan welke plek LS nu heeft op de school.
- Ik zal waarschijnlijk dingen vragen die voor jou vanzelfsprekend zullen lijken, dat komt dan omdat ik zeker wil zijn dat ik niet mijn eigen ideeën in jouw verhaal stop.
- Ik zal soms vragen naar iets waar je misschien helemaal niet over hebt nagedacht. Als dat zo is, is dat prima om aan te geven. Dat heb ik liever dan dat je het gevoel hebt dat je met een antwoord moet komen omdat het nu toevallig gevraagd wordt.

Het interview wordt opgenomen, gaat je daarmee akkoord? Uiteraard worden de gegevens anoniem verwerkt. Indien toestemming voor opname: Dan gaan we nu van start met de eerste vraag.

- Wat is LS voor jou? Wat zie je als de kern van LS?
- Wat doen jullie nu aan LS?
- Hoe groot/kleinschalig is het nu opgezet in de school?
- Welke stadia doorlopen jullie in een cyclus?
- Hoe verloopt het doen van LS nu bij jullie op school?
 - Wat gaat er goed in de uitvoering?
 - Wat gaat er minder goed in uitvoering?
- Wat maakt het nu gemakkelijk om LS op school uit te voeren?
- Wat maakt het nu moeilijk om LS op school uit te voeren?

- Hoe is LS op jullie school nu opgezet/georganiseerd?
 - Facilitering van tijd en ruimte?
 - Beleidsplannen? Mag ik daarover beschikken?
 - Ondersteuning management/schoolleiding?
- Wie is er op dit moment allemaal betrokken bij het organiseren van LS?
- Hoe verloopt de organisatie van LS nu?
 - Wat gaat er nu goed in de organisatie van LS op school?
 - Wat ging er op dit moment minder goed in de organisatie van LS op school?
- Hoe je LS ziet in de context van andere dingen die bij je werk horen: hoe past het ertussen? Veel verschillende aspecten: lesgeven/APV/rapportvergadering/mentortaken. Mensen hebben vaak verschillende ideeën over die taken: sommige zie je als heel relevant en vanzelfsprekend voor je werk; andere zie je als minder relevant en vanzelfsprekend.
- Hoe verhoudt LS zich hiertoe?
 - Is het inhoudelijk relevant?
 - Is het organisatorisch uitvoerbaar?
 - Zou het bij je werk moeten horen? Waarom?
 - Is het waardevol? Waarom?
- Eén docent: “ik kan mij niet voorstellen dat je les kan geven zonder LS”
 - Hoe zie jij dat?
 - Ben je het ermee eens?
 - Waarom?
- Is LS iets wat er nu bij hoort?
 - Wat maakte het nu moeilijk om LS als relevant en vanzelfsprekend te zien / ervaren?
 - Organisatie ervan?
 - De cyclus zelf?
- Andere taken van je werk die het verdrukken?
 - Wat maakte het gemakkelijk om LS een onderdeel van het werk te ervaren op school?
 - Organisatie ervan?
 - De cyclus zelf?
 - Andere taken van je werk die het verdrukken?

Interview protocol schoolleiders

Introductie

Dit is een heel open interview, met vrij brede, open vragen. Ik nodig u dan ook uit om vooral uit te weiden en concrete voorbeelden te geven als dat mogelijk is. Het interview gaat – zoals u al weet – over lesson study. Enkele van uw docenten (specificeren) hebben gedurende drie jaar deelgenomen aan een PLG-wiskunde of Nederlands waarin gewerkt is met Lesson Study. Uiteindelijk doel hiervan was dat de docenten LS zouden kunnen introduceren op hun eigen school waar ze dan als LS-begeleider kunnen fungeren om het onderwijs vakdidactisch op een hoger plan te krijgen.

Doel van dit interview/onderzoek is om na te gaan welke plek LS nu heeft op de school. Ik ben vooral geïnteresseerd in wat er rondom lesson study al dan niet gebeurd is sinds het einde van de PLG.

- Ik zal waarschijnlijk dingen vragen die voor u vanzelfsprekend zullen lijken, dat komt dan omdat ik zeker wil zijn dat ik niet mijn eigen ideeën in uw verhaal stop.
- Ik zal soms vragen naar iets waar u misschien helemaal niet over hebt nagedacht. Als dat zo is, is dat prima om aan te geven. Dat heb ik liever dan dat je het gevoel hebt dat u met een antwoord moet komen omdat het nu toevallig gevraagd wordt.

Het interview wordt opgenomen, gaat u daarmee akkoord? Uiteraard worden de gegevens anoniem verwerkt. Indien toestemming voor opname: Dan gaan we nu van start met de eerste vraag.

- Wat is LS voor u Wat ziet u als de kern van LS?
- Wat doet uw school nu aan LS?
- Hoe groot/kleinschalig is het nu opgezet in de school?
- Hoe verloopt het doen van LS nu bij u op school?
 - Wat gaat er goed in de uitvoering?
 - Wat gaat er minder goed in uitvoering?
- Wat maakt het nu gemakkelijk om LS op school uit te voeren?
- Wat maakt het nu moeilijk om LS op school uit te voeren?
- Wat doen jullie nu aan LS op jullie school?

- Hoe is LS op jullie school nu opgezet/georganiseerd?
 - Facilitering van tijd en ruimte?
 - Beleidsplannen (inzien/over beschikken?)
- Wie is er op dit moment allemaal betrokken bij het organiseren van LS?
- Hoe verloopt de organisatie van LS op dit moment?
 - Wat gaat er nu goed in het organiseren van LS bij jullie op school?
 - Wat gaat er nu minder goed in het organiseren van LS bij jullie op school?
- Wat maakt het nu gemakkelijk om LS te organiseren op school?
- Wat maakt het nu moeilijk om LS te organiseren op school?

- Ziet LS nu als onderdeel van het werk van docenten in de school?
- In wat voor opzicht?
 - Is het inhoudelijk relevant?
 - Is het organisatorisch uitvoerbaar?
 - Zou het bij het werk in de school moeten horen?
 - Is het waardevol? Waarom?

- Eén docent: “ik kan mij niet voorstellen dat je les kan geven zonder LS”
 - Hoe zie u dat op jouw school?
 - Ben u het ermee eens?
 - Waarom?
 - Is LS iets wat er nu bij hoort?

- Wat maakt het nu moeilijk om LS als zinvol en relevant onderdeel van het werk in de school wordt ervaren?

- Wat maakt het gemakkelijk LS nu als een zinvol en relevant onderdeel van het werk in de school te ervaren?

About the author

Fenna Tineke Wolthuis was born in the city of Groningen on July 11, 1989. After graduating from the Kamerlingh Onnes College, she decided it was time for a change of scenery and moved to Amsterdam to enroll in the first year English Teacher Training course at the Amsterdam University of Applied Sciences in 2007. However, after a year she felt the pull of the north again and, with a propaedeutic degree in hand, she moved back to start with a bachelor in English Language and Culture at the University of Groningen in 2008. During the second year of her Bachelor English she also started a Bachelor in philosophy, supplementing her weekly studies of Medieval and Victorian literature with questions on logic and ethics, brains in a vat thought experiments, and a lot of trolley problems. After obtaining both bachelor degrees she obtained her master in philosophy in 2015 and graduated cum laude from the educational master English in 2016. For her philosophy thesis, she examined whether Bernard Williams begs the question against external reasons, while her thesis for the educational master English examined the L1/L2 use in the English literature classroom. After her master degrees, she worked as a teacher of English at Praedinius Gymnasium and as a PhD candidate at the department of Teacher Education at the University of Groningen (RUG). After a year of combining two workplaces, Fenna focused her all attention on the department of Teacher Education, where she joined the Ethical Committee and also became a project assistant for Expertise Centrum Vakdidactiek Noord for one day a week, while focusing on her PhD for the remaining four. She has presented her work at various national and international conferences (e.g. the ORD, the WALs, the ICSEI, and the AERA) and published several chapters of this dissertation in international journals. Currently, Fenna works as a postdoctoral researcher on two different projects. First, at the University Medical Center Groningen (UMCG) department of Health Sciences, section of Nursing Science, where she investigates learning departments as an educational innovation to promote healthy work and learning climates for (student) nurses. Second, at the department of Educational Sciences of the RUG, she is conducting an integrative review on student engagement as a collective process.

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The school leaders and teachers

This PhD project would not been possible if teachers and school leaders from all the 14 schools who participated in the Professional Learning Network project had not been willing to let me take up their time and allow me to interview them. I know that time in secondary education is very precious and there is always too little of it. Thank you all for giving some of you time to this project and allowing me to talk to you about lesson study. I am very thankful!

Research team

It is often said that although research can be a solitary endeavor, it is never an individual accomplishment. This has been my experience as well. I would like to thank my promotor Klaas van Veen and my co-promotors Mireille Hubers and Siebrich de Vries for all their input, feedback, and support that contributed to making this PhD happen.

Klaas, I am so grateful that you offered me the opportunity to start this project. Although I was unsure about whether I could do such a big and scary thing as a PhD, you thought that I could and for that I am very thankful. You gave me lots of freedom to shape this project and always had faith in its good conclusion. You were patient when I decided (again) that the approach to a paper should be completely different (“so I completely changed everything in the manuscript but this is the final version I swear!”) and gave me the time to explore all kinds of different directions and interests. Thank you for allowing me the freedom to wander and pursue my (sometimes too many) ideas. Thank you for both the knowledgeable and cheerful supervision, and celebrating the importance of other things besides work, such as good books, wine, and having a laugh.

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Colleagues

Apart from those directly involved in my research, there are several other colleagues whose support has contributed to this project. First of all, **Jasmijn Bloemert**. When I became your student at the English Educational Master you quickly became an important role model for me with your enthusiasm, drive, competence, and the sheer abundance of energy. When you mentioned in class that you were looking for a student-assistant I did not hesitate and set down immediately after class to write you an email that I was very, very, very interested. What followed was a long and wonderful collaboration, not just on your research and my final thesis, but also on our endlessly adapted and revised ‘suddervlees’ article. Very rarely have I had the luck to have had such an incredible collaborative experience and I cannot do justice within these acknowledgement pages to all the things that I have learned from you. Thank you so much for all the guidance, support, and faith you have had in me and for being such a great teacher and colleague to me. Thank you, thank you!

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Friends and family

Apart from the support of colleagues I have also received support from my friends and family.

Vera, thank you so much for both your friendship and your beautiful design of this dissertation. It looks amazing! I am so happy I got my pink elephant! You always cheer me up, pour me more wine, and recommend me a great book. I am so grateful to have someone to talk to about the important things in life with (“What is up with Adrienne in the Real Housewives of Beverly Hills? And who was that hot farmer in Boer Zoekt Vrouw again?”). I look forward to many more evenings filled with high-quality TV and lots of cheese, preferably in sweatpants.

Rianne, my fellow PhD friend! I am so glad we started meeting outside of our regular ACLO classes and our subsequent weekly dinners and drinks over the years have been an incredible source of sustenance. Every week I look forward to our meetings knowing I can rant, reflect, listen and laugh about all the things that happened in both our lives since the last couple of days we spoke. It has been great to have someone who is also in the midst of this PhD madness and shares the same experiences. Thank you for your friendship!

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Finally, **Jeroen**, mien laiverd. Thank you for all your humor, love, patience and support. You always make me laugh and cheer me up. I love you a little.

To my teachers

During the course of my education I have had the luck to have had some incredible teachers who have inspired and supported me and whose influence has sparked my love of learning. I want to mention two in particular.

First, **dr. John Flood**. In high school, I was very much not interested in my studies. This changed, however, during my Bachelor English Language and Culture. A big part of this had to do with your literature classes. You taught with such passion and knowledge that it became infectious. Your dedication to and love for literature sparked my own and set-off my development as a student. For the first time I was doing course work not because I had to but because I wanted to. I particularly enjoyed your course on Literature and the Meaning of Life and am grateful to have been able to write my final master thesis under your supervision, exploring literary truths in the *Remains of the Day*. Your teaching throughout my English degree stood out to me and I still look back on your classes with much fondness. I would like to take this space here to acknowledge how formative your classes have been to me and thank you for some really great teaching that stimulated my own learning.

Second, **prof. dr. Pauline Kleingeld**. A year into my philosophy bachelor I heard someone in the hallway mention with great enthusiasm; 'We have a new staff member, it is a woman, and she has social skills!' Within the (or any) department of Philosophy, that was quite something! It was inspiring for me to see someone who looked like me, in such a male-dominated field as philosophy and who was also so open and easy to talk to. I quickly came to admire your knowledge, competence, and drive. In many ways, you were my first female role model. I learned so much from you as my Bachelor thesis supervisor and later on as my mentor in the Research Master program. Your very kind and encouraging words during my bachelor degree graduation ceremony made me aware that I might have more to offer within academia than I thought. Thank you for instilling that belief in me. I hope that although I did not continue in the field of philosophy, with this PhD I am still doing justice to your encouraging words.

Publications

Peer reviewed publications

- Wolthuis, F., Hubers, M. D., de Vries, S., & van Veen, K. (accepted). The concept of organizational routines and its potential for investigating educational initiatives in practice: A systematic review of the literature. *Review of Educational Research*.
- Wolthuis, F., Hubers, M. D., de Vries, S., & van Veen, K. (2021). The hullabaloo of schooling: The influence of school factors on the (dis)continuation of lesson study. *Research Papers in Education*.
- van Veen, K., Bloemert, J., & Wolthuis, F. (2020). Preparing the Dutch Educational System for the 21st Century. In *Oxford Research Encyclopedia of Education*.
- Wolthuis, F., Hubers, M. D., de Vries, S., & van Veen, K. (2020). More than mundane matters: An exploration of how schools organize professional learning teams. *International Journal of Leadership in Education*, 1-20.
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- Wolthuis, F., Bloemert, J., Tammenga-Helmantel, M., & Paran, A. (2019). A curriculum in transition: TL/L1 use in Dutch EFL literature lessons. *Language, Culture and Curriculum*, 33(4), 335-350.

Presentations and workshops at (international) conferences

- Wolthuis, F., van Veen, K., de Vries, S., Hubers, M. D. (2019). Teachers' creation and evaluation of lesson study as an organizational routine. Part of symposium 'Lesson Study in the Netherlands, Current Trends and Issues', presented at American Educational Research Association (AERA), Toronto, Canada.
- Wolthuis, F., van Veen, K., de Vries, S. (2019). Organizing professional development in schools: whose job is it anyway? Part of symposium 'Sustainability of educational interventions', presented at the International Congress for School Effectiveness and Improvement (ICSEI), Stavanger, Sweden.
- Wolthuis, F. (2019) Lesson Study als organisatie routine in de school. Workshop given at The World Association of Lesson Studies (WALS), Amsterdam, the Netherlands.
- Wolthuis, F., van Veen, K., de Vries, S. (2019). Hoe interpreteren, implementeren en waarderen 21 vo-leraren die zes LS-cycli hebben doorlopen LS? Part of symposium 'Weten of Lesson Study werkt voor wie', presented at de Onderwijs Research Dagen (ORD), Heerlen, the Netherlands.

- Wolthuis, F., van Veen, K., de Vries, S. (2018) Organizing sustainable in-school professional development: lesson study as an organizational routine. Paper presented at European Association for Research on Learning and Instruction (EARLI) sig 18 & 23, Groningen, the Netherlands.
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