



Co-teaching as a context for teachers' professional learning and joint knowledge construction

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H I G H L I G H T S

- ▶ Co-teaching as a context for teachers' learning and joint knowledge construction.
- ▶ Learning a collaborative process with serendipitous origins.
- ▶ Shared knowledge construction crucial in the learning process.
- ▶ Co-teaching may support teachers in meeting their professional responsibilities.

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The study examined two primary teachers' professional learning and joint knowledge construction in the context of co-teaching. The teachers narrated their learning as a collaborative process with serendipitous origins. Shared knowledge construction was crucial in the learning process, as was implementing the resulting new ideas in practice. It is concluded that experiences of co-teaching may support teachers in meeting their professional responsibilities effectively. Professional development programmes need to be sensitive to teachers' individual and collaborative learning experiences to be able better to support them in the natural context of those experiences in particular local and national contexts.

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1. Introduction

In discussing the knowledge base of expert teaching in the mid-1980s, Shulman (1987, 12) remarked that, unlike other professions, teaching is “devoid of a history of practice... Practitioners simply know a great deal that they have never even tried to articulate”. Shulman concluded that further research efforts were needed to gather and interpret teachers' practical knowledge within a codified case literature. Since then considerable attention has been given to the ways in which teachers' beliefs, values and practice relate to their practical knowledge – which is commonly seen to combine experiential knowledge embedded in particular settings with formal, explicit knowledge of school subjects and educational processes in various national contexts (Lunenberg & Korthagen, 2009; Van Driel, Beijaard, & Verloop, 2001).

Teachers' narratives of their practice and professional learning emerge within the sociocultural interplay of wider educational structures, cultures and politics. Pedagogical cultures and practices can differ significantly between countries as well as more locally. Alexander (2000) found in his comparative study of primary education in five nations, that educational policy and practice can be considerably influenced by the particular balance and dynamics of centralisation, social control, national identity, wealth, and historical change in each location, although individual national systems are not entirely sealed off from each other or immune to other ideas. Just as national systems may influence each other over time allowing particular practices to migrate in translated forms across borders, local levels of school and classroom practice may also carry the power to innovate even within highly controlled national systems. Alexander refers to the ‘regulatory power of classroom discourse’ (p.562–3) through which meanings are created by the participants, even within external top-down regulatory powers of government. This macro-micro perspective helps to establish the network of influences on teachers' professional learning in more and less centralised educational systems.

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Teachers' thinking need not be over-determined in any national context, but the more decentralised systems which support collaborative dialogue, innovation, and peer challenge may be better placed to allow teachers to engage in deep forms of knowledge construction within their practice. This view informs the case study that follows and the discussion of its potential international applications.

The educational culture and conditions of the Finnish system are particularly relevant to understanding the teachers' experiences in the case study presented below, since Finnish teachers have relatively high levels of professional autonomy in comparison with many other Western school systems. The Finnish national context allowed the primary school teachers in this case to work collaboratively and innovatively at their own pace, unlike the opportunities that are generally available to most teachers in England for instance (Webb et al., 2004). The dialogue between the co-teachers in this study was found to be central to their professional learning, and this is the focus of the detailed narrative analysis that follows. The teachers' collaboration was in turn echoed by the dialogue between the two authors of this paper, who were involved in interpreting what the teachers said from their own contrasting perspectives on the Finnish and English educational systems. Small-scale case studies that acknowledge the contextuality of teachers' work and their knowledge-construction process are needed to gain more information about the local applications of, for example, world-wide aims relating to inclusive education (UNESCO 1994; UNESCO 2009).

Of particular interest in this paper are the narrative and collaborative aspects of teachers' professional knowledge-building. Since Kelchtermans' (1993) classic study, teacher narratives have become an acknowledged means to explore teachers' contextualised practical knowledge (e.g. Clandinin & Connelly, 1996; Watson, 2006). In this case study we focus on two experienced teachers' individual and joint accounts of co-teaching an inclusive class of young children, after having innovatively combined their separate "general" and "special" classes. The research questions are: How do the teachers narrate their learning experiences and knowledge construction? How do they narrate their collaboration? How do the teachers see the relationship between their collaboration, their knowledge construction and the development of their pedagogical practice in an inclusive setting? The focus of analysis emerged from an ethnographic and narrative inquiry that was carried in Finland out over a period of three and half years. The teachers are seen to be engaged in a distinctively cooperative learning process, which they remember and elaborate in a series of joint interviews. The teachers' practice of inclusive education is found to be closely integrated with their own professional development, including the knowledge base that they share and develop together.

2. Theoretical framework

2.1. Professional knowledge and inclusive education

At the heart of inclusive educational practice are classrooms in which heterogeneous groups of students learn together and achieve valued success. In teaching such groups, it may be assumed that certain types of specialist knowledge are important for supporting children who would otherwise be identified with special educational needs, even if it is accepted that basic teaching principles and strategies are similar for all (Davis & Florian, 2004; Kershner, 2007). Yet this is not just a matter of understanding individual children's capabilities and educational needs in order to integrate them with more "typical" others of the same age. In their contribution to a review of primary education in England, Ainscow, Conteh, Dyson, and Gallanaugh (2010) discussed the ways in which

educational difference itself is constructed in different contexts at different points of time. As Slee (2011) argues, "inclusive school cultures require fundamental changes in educational thinking about children, curriculum, pedagogy and school organization" (p.110).

For most teachers the immediate responsibilities for making inclusion work are classroom-based. The sheer complexity of classroom life calls for an integrated understanding of the relationship between teachers' changing awareness of classroom activity, the increasingly conscious concepts and principles that are formed in practice and the theoretical understandings that are produced from a range of different sources (Korthagen, 2010). Professional learning is not simply the superficial acquisition of further ideas, information and skills neither is it a mere cognitive process. Deep professional learning involves more fundamental and comprehensive transformations. Marton and Booth (1997), for instance, outline six conceptions of learning that move from seeing learning as primarily increasing, memorising and applying one's knowledge, to seeing learning as primarily seeking meaning through understanding, seeing something in a different way and, ultimately, changing as a person. As seen in the co-teaching example discussed below, teachers are uniquely placed in the education system to combine the formal, generic knowledge of education with the practical and personal knowledge emerging in day-to-day classroom experience.

In discussing inclusive pedagogy, Florian and Rouse (2010) apply Shulman's (2009, 192–193) conceptualisation of habit of mind, habit of practice and habit of heart, pointing out the reciprocal relations between teachers' "knowing", "doing" and "believing". They argue that all three elements are essential professional attributes, and having at least two out of three is necessary for the third to develop. Hence, for example, having a commitment to social justice is insufficient if the necessary pedagogical skills are lacking; and assessing children's apparent learning differences is insufficient without positive attitudes to children's active participation in inclusive classrooms. Having a commitment to social justice and relevant knowledge, however, may help to support the development of inclusive pedagogical skills and positive attitudes. In this paper our concern lies particularly with the collaborative aspects of these reciprocal learning processes.

2.2. Socio-cultural perspectives on teachers' professional learning and development

Teachers' professional learning is known to be based on active learning, reflective thinking, and collective participation (Darling-Hammond & Richardson, 2009; Desimone, 2009). This professional engagement is central to the processes of education which can be understood and mapped as a dynamic socio-cultural system (Bronfenbrenner, 2005). Within this system, activities range from the many "micro" level interactions that take place between children and adults to the 'macro' elements of social structures, research, culture, politics and economics that support and constrain educational thinking and practice over time. These have direct and indirect influence on teacher learning and moreover, on the experiences that define whether learning accumulates over time into significant personal and professional transformation. Conceptually, these transformational consequences of particular learning experiences are considered here as professional development, arising from the informal learning and knowledge-building that is embedded in daily practice as well as from participation in formal professional development (PD) programmes. The co-teaching case example discussed in this paper exemplifies the interconnections between these different learning experiences.

When teachers decide to work closely together, as in the co-teaching discussed later, outcomes commonly include the

creation of a new classroom set-up for the children's learning, such as particular forms of grouping and team teaching (Rytivaara, 2011). Yet there is also a significant new micro-system formed by the collaborating teachers themselves, comprising their continuing conversations, relationship and pedagogical practice within and beyond the classroom. This draws attention to the dialogic aspects of the professional learning process that incorporates the whole teaching partnership as well as the team-teaching activity that is visible in class.

The social and collaborative aspects of teachers' professional learning through reflection on practice are well recognised (Harrison, Lawson, & Wortley, 2005; Park, Oliver, Johnson, Graham, & Oppong, 2007). Individual and community levels of teacher learning intertwine, so that teachers' reflective thinking and engagement in a supportive community with shared visions, knowledge and commitment can be seen as central to the learning process (Shulman & Shulman, 2004). Leat, Lofthouse, and Taverner (2006, 668) found that supportive collaboration helps teachers to build confidence that further enhances positive risk-taking at work. They conclude that a "climate for change" in teachers' working contexts can have deep effects on many levels, including teachers' beliefs and professional interactions. Richter, Kunter, Klusmann, Lüdtke, and Baumert (2011) consider teacher collaboration and the use of professional literature as informal learning opportunities. Other professional learning activities include experimenting, considering one's own practice, getting ideas from others, experiencing friction, and struggling not to revert to old ways (Bakkenes, Vermunt, & Wubbels, 2010).

Yet, from a socio-cultural perspective on learning, many formal PD programmes have two problems. The first is that they fail to recognise that teacher learning is situated in particular contexts and social in nature (Putnam & Borko, 2000), but not solely limited to particular classroom experiences. Indeed, as Korthagen (2010, 102) points out, learning from practice depends on "desituating" knowledge gained from particular situations and developing the capacity to generalise learning and act in new situations in a principled and informed way. For teachers, this can include the further dissemination of knowledge to others in different contexts, although, as discussed above, any permanent change in classroom practices calls for teachers' personal engagement in deep learning with new ideas and materials (Marton & Booth, 1997).

The second problem relates to teachers themselves. Some show reluctance to capitalise on a cooperative learning context to support their efforts to experiment with new things in their classroom, despite the fact that teachers working in such environments have reported greater ease than other teachers in maintaining new ways (Bakkenes et al., 2010). Kwakman (2003), in her study of Dutch secondary school teachers, found that teachers preferred individual learning activities over activities with their colleagues. She concludes that teachers' weak tendency to participate in cooperative learning activities in schools seemed to be related to their personal characteristics rather than other workplace-related factors. Another personal factor can be teachers' own will to learn (Van Eekelen, Vermunt, & Boshuizen, 2006). We may ask, therefore, whether it is possible to overcome such problems with the help of collaborative structures like co-teaching.

2.3. Co-teaching as a context for teacher learning

Co-teaching is, at least potentially, a genuinely peer-learning relationship in which communication shifts between different contexts within and beyond the classroom. All the features of effective professional development, such as active learning and links with the wider context of teacher's work (Garet, Porter, Desimone, Birman, & Yoon, 2001), are everyday matters in

successful co-teaching, and therefore it holds particular promise for teacher learning (McDuffie, Mastropieri, & Scruggs, 2009; Trent et al., 2003). Successful co-teaching calls for the active involvement of both teachers in the task of instruction, and true sharing of the work is seen to be essential. Sharing practical responsibility for the classroom and the students brings together each teacher's, mostly tacit, practical knowledge. Tacit knowledge is difficult to communicate to another teacher, but Cook and Friend (1995) highly recommend co-teachers to discuss their beliefs about teaching, classroom routines and discipline. This, ideally, makes it possible to compromise and prevent difficult situations in and out of the classroom. It is assumed that sharing such knowledge releases teachers' energy from explaining every detail in order to focus on larger issues, and thus it offers unique cooperative learning opportunities based on mutual understanding of the context.

In practice, however, many examples of co-teaching have been found not to have these collaborative or productively creative characteristics, perhaps because some models have a "top-down" and imposed character. Problems may arise, for instance, regarding the occasional inequality of experiences of the general and special education teachers involved in co-teaching, conflict between teaching styles, and structural and practical problems in setting up useful planning and reflection meetings (Friend, Cook, Hurley-Chamberlain, & Shamberger, 2010; Gurgur & Uzuner, 2011). Lack of balance in participant roles has emerged as a general problem in the recent studies on collaborative teacher learning in various Western countries such as USA, Canada, Australia and the Netherlands (Butler, Lauscher, Jarvis-Selinger, & Beckingham, 2004; Erickson, Minnes Brandes, Mitchell, & Mitchell, 2005; Nilsson & van Driel, 2010). Yet, there is evidence (Park et al., 2007) to suggest that making one's practical knowledge explicit might be easier with peers, which further supports one's learning and reflective thinking (Putnam & Borko, 2000).

Nevertheless, co-teaching holds the possibility of "collaborative emergence", in Sawyer & DeZutter's (2009, 82) terms, leading to creative outcomes if those involved are aligned with the following characteristics: unpredictable endpoints; contingency between moment-to-moment contributions; the possibility that further action will change previous interactional effects; and equal participation in the collaborative encounter. From the perspective of complexity theory, Johnsson and Boud (2010) also describe an emergent process of learning constructed collectively through the interactions of those involved in a workplace organisation. This is particularly the case in groups with a supportive emotional atmosphere and shared history on which to build (Eteläpelto & Lahti, 2008).

A particular tool that teachers use for professional learning is talk. Fairbanks and LaGrone (2006) studied teacher talk in a teacher research group with a focus on knowledge construction. Doecke, Brown, and Loughran (2000, 343) used teacher narratives more explicitly in their research, and they recognised that "[teacher] talk is one of a range of reflective activities that constitute their 'knowledge' as teachers", and that the teachers used talk to explore various matters. Yet, again, the common ground for these teachers is rather thin compared to teachers who constantly work together both inside and outside the classroom. The focus on dialogue and jointly constructed narrative in co-teaching is a distinctive aspect of this study.

This case study examines how the two classroom teachers working in a co-teaching context are involved in a process that we look at as a learning process. This process is illustrated in the narratives in and through which the teachers share their practical knowledge and construct new knowledge together. Furthermore, we are particularly interested in the inclusive aspects of the pedagogical practices the teachers developed in this process.

3. Methods

3.1. Participants and data collection

The framework for this study is the career path of two teachers, Matt and Lisa (pseudonyms) who both had approximately ten years of teaching experience. They work in a middle-sized primary school located in a growing suburban area of an average-sized Finnish city with a population of approximately 90,000 inhabitants. The school employed 19 classroom teachers and one special education teacher at the time of the data collection. Normally each teacher works with their class of students all the way through the elementary phase, i.e. from the first until the sixth grade. Unlike many other Western countries, all Finnish elementary school teachers have a Master's Degree in education and teacher education is highly competitive as only 10% of the applicants are accepted. Teachers' degree of autonomy is also rather high in the absence of any external accountability mechanisms. There are therefore significant differences between this context and the educational system in England, for example, where schools and teachers are subject to extensive government guidance, regular inspection and comparison in school 'league tables'. Another particularity of the Finnish school system is that it is based on public schools.

In spring 2000, Matt and Lisa decided to combine their classes. This idea was realised the following autumn, and they have been co-teaching ever since. Prior to co-teaching, Lisa taught a general education class of 20 students, and Matt taught a small special education class of 10 students. The students in the smaller class had been identified with special educational needs, that is, with behavioural and learning problems. Such integrated small classes are a common way to organise special education in Finland. After the data was collected, new legislation was established to make special education more inclusive. However, the practical transition is still in progress.

This study is a part of a larger ethnographic project (Hammersley & Atkinson, 2007; Spradley, 1980) carried out by the first author. As research always does, the project is full of stories. For example, the whole project was started as a collaboration of two researchers of which one left after the first year to work as a teacher. The first author then continued alone with the co-researchers' permission to use all the data. The project findings comprise several independent sub-studies (Rytivaara, 2011, *in press*, 2012) of which this is the last one, written with a third researcher who did not participate in the fieldwork. Thus, also this research has been a collaborative learning process for the researchers involved, with various phases and turns. This paper in particular has been a result of the first and the third researchers' joint knowledge construction process, drawing on their contrasting locations in Finland and England.

The fieldwork was done in two academic years, 2003–2004 (grade 6) and 2004–2005 (grade 1), during which the first author spent 71 days at the school observing Matt and Lisa working inside and outside their classroom. The teachers were formally interviewed (Spradley, 1979) for five times: two interviews were conducted with the teachers in both academic years, and one interview outside the fieldwork. The second researcher, Ilona, made the two first interviews and preliminary analysis on them in 2003–2004. These interviews were conducted to get a more detailed picture of the co-teaching system and to understand it from the teachers' perspectives. In the following year, 2004–2005, the first author made two more interviews (November 2004 and May 2005). The last interview was conducted outside the fieldwork periods, in March 2007 (grade 3). These three last interviews conducted by the first author had two focuses: to provide an update and to clarify issues that were raised in the data analysis between the fieldwork periods. In general, the aim of the interviews was to understand the teachers' work and their developing thinking over a period of time. The ethnographic fieldwork,

involving an extended period of time spent with the teachers, provided a firm basis for interpreting the data from narrative and socio-cultural perspectives. Furthermore, the first author became rather well acquainted with the teachers and consequently the narrative ideal of conducting several interviews with same persons (Riessman, 2008) was fulfilled. The interviews were transcribed verbatim and resulted in 137 pages of transcripts.

3.2. Data analysis

The analysis presented below can be conceptualised as a mixture of analysis of narratives and narrative analysis (Polkinghorne, 1995), and it included several phases. In narrative inquiry, defining what constitutes a narrative is often challenging as a narrative per se may in fact be a collection of discrete stories (Riessman, 2008). In this paper, the teachers' stories are independent of each other but they also form a larger chronological narrative. The starting point for the narrative analysis was taken from the final interview (March 2007) where the teachers reflected on their professional development and cooperative learning from the beginning of their co-teaching up until the moment of the interview (see excerpt Section 4.4). This main story set the timeline for further analysis. Through thematic analysis (Riessman, 2008) we identified a number of turns, or "waves", as the teachers called them, in this story. These became the outline (Polkinghorne, 1995) for creating a larger narrative.

Having identified the outline, we went back to the transcriptions of all five interviews and selected accounts which added to the main narrative. The evolving idea was to collect stories where the teachers narrated events related to inventing new ideas and changing their practice. We found one parallel narrative and four additional sections in two interviews, the first (conducted in October 2003) and the last one (conducted in March 2007). The main topics of the narratives presented below relate to specific turns or "waves" as follows: starting co-teaching and creating new ideas (see Section 4.1), introducing "learning styles" in classroom management (see Section 4.2), knowledge-sharing about cooperative learning pedagogy (see Section 4.3), and pondering collaboration as a source of job satisfaction (see Section 4.4). The denouement was the latest innovation the teachers had done in their classroom and their related deliberation over whether it would be their last: "I have also had some doubts that this would not be the last the last wave in our work" (Matt; see Section 4.4).

The origin of the career turns, as well as the original main story, were subjected to a more detailed analysis as they seemed to provide fruitful data for our emerging focus on the processes of the teachers' knowledge construction. We applied analysis of narratives (Polkinghorne, 1995), where the origins were treated as parallel stories. These origin stories were multi-layered and thus we analysed them from various perspectives in order to detach ourselves from the text and to search for a broader perspective, as Riessman (2008) suggests. When analysing narratives, both what is said and how it is said are important. Thus, after examining the content through thematic analysis, we also applied structural analysis (Riessman, 2008) and elements of socio-cultural discourse analysis (Mercer, 2004) to investigate how the teachers told their stories. Here, we looked for how the teachers produced the content of their narratives; such as how they used metaphor(s) and who was the agent of actions (e.g. use of "I" and "we"). Metaphors have been a focus of interest in several studies of teacher learning (Connelly, Clandinin, & He, 1997; Leavy, McSorley, & Boté, 2007) because, for one, they can reveal tacit information in narratives (Steger, 2007). They also provide for several interpretations about the meaning of the metaphor, and even more so when, like in this study, researchers are from two different cultural contexts. We also looked at the temporality of the narratives (Clandinin, Pushor, & Orr, 2007).

3.3. Transcription and translation issues

The interviews, conducted in Finnish, were transcribed verbatim by the interviewer. Each word, whole or partial, was written down, as well as audible emotional expressions such as laughter. Exclamations and overheated sentences were marked with '!'. Non-verbal gestures were not included. Stressed words were shown in italics.

Translations require careful attention in narrative inquiry (Riessman, 2008). For example, the Finnish metaphor of “throwing an idea into the air” has slightly different form in English. If a related meaning such as “brainstorming” is translated then essential information would be lost. This is particularly the case when, as in this paper, the metaphor is central to the analysis and interpretation. The different options for interpretation and translation were discussed between the two authors as a part of the analytical discussions. Below, an example is given of a final extract from the original Finnish data and the corresponding translation into English. The extract is taken from the narrative “origin of combining the classes” presented in the first findings Section (4.1).

1 Lisa mutta ne teki jonkun verran
 2 Matt jotain juttuja nimenomaan kahen välistä yhteistyötä.
 3 Ett oisko se lähtenyt niinku siitä elämään se ajatus että
 4 tehään jotain yhdessä ja sitten siitä toinen heittänyt ett
 5 tehään joo ett tehään tää sitten ehkä jossain vaiheessa
 6 toinen on tajunnut heittää ett no miks me tehään
 7 jotain yksittäisiä juttuja ett tehään kaikki yhdessä
 8 (nauravat)

1 Lisa but they did some amount
 2 Matt some things specifically collaboration between the
 3 two. That could it have departed/ left into life from
 4 there the idea to do something together and then the
 5 other one [of us] has thrown that let's do yes let's do
 6 this then at some point the other one has come to
 7 realise to throw that well why are we doing some
 8 separate/ single things but let's do everything together
 9 [both laugh]

4. Findings

The following section is structured around extracts from four narratives. These specific excerpts were chosen because, together, they illustrate well the different characteristics of the teachers' learning process as well as key points in their learning experience. Three of these narratives are about the origins of the teachers' career turns, where the first turn was the decision to combine the two classes, the second was to use learning styles in classroom management, and the third was the shift from learning styles towards cooperative learning. The fourth excerpt is from the original main story where the teachers look back across “the span” of their professional development. The original interview questions are presented to provide some context for the responses (Mishler, 1986).

4.1. Excerpt 1: origin of combining the classes (March 2007)

1 Anna Then comes a question that I've been pondering long
 2 and hard without any answer: Where did you come
 3 up with the idea of combining the classes? You
 4 invented it but where did you get the idea of the
 5 possibility of combining two classes?
 6 Lisa We don't know
 7 Matt This is
 8 Lisa for us

9 Matt we have tried to [do] the same, to the book to find it
 10 but no, we have written there that we really can't find
 11 the we can't get the situation to (our) mind (recall),
 12 where the concrete situation where it happened and
 13 who exactly did
 14 Lisa or I remember where it happened. It happened right
 15 there in that corridor when the idea was thrown into
 16 the air. That I remember
 17 Matt A-wing corridor?
 18 Lisa right
 19 Matt there between the toilets and your classroom
 20 Lisa yes
 21 Matt yes it did, now you say it there it happened
 22 Lisa yes it did
 23 Matt yes
 24 Lisa but that I don't that where it came from
 25 Matt yes, yes
 26 Lisa and that where, which one said it, that I can't recall
 27 Matt neither can I, from the conversation the feeling of
 28 enthusiasm is the first thing I can recall after the idea
 29 had flown into the air from somewhere
 30 Lisa yes but it is that
 31 Matt but I had no previous experience from elsewhere or
 32 knowledge/ information from somewhere else [that
 33 somebody] had been doing like this [combining
 34 classes]
 35 Lisa neither had I ever thought about, afterwards has been
 36 such (information) that even big classes have been
 37 able to do together
 38 Matt yes

(12 lines about the teachers' agency deleted)

51 Matt [] And now I'm thinking that what could have been
 52 there in the background, what have been, where has the
 53 idea departed from and then do you remember Tom
 54 and Mary were one grade higher and they had separate
 55 classes yes but they had common (they shared)
 56 Lisa they did some amount
 57 Matt some things specifically collaboration between the
 58 two. That could it have come into life (derived from)
 59 there the idea to do something together and then the
 60 other one of us has thrown that let's do yes let's do this
 61 then at some point the other one has come to realise to
 62 throw that well why would do some separate/ single
 63 things but let's do everything together [laughter]
 64 Lisa something like that happened there

In this section the teachers are talking about the origin of their idea to combine the two classes. The extract shows how the teachers are jointly constructing their memory in response to the interviewer's initial question. At the beginning of the narrative, the teachers agree that they do not remember the origin of the idea of combining their classes. As is very typical of their narratives, and of other everyday conversations, they use the pronoun “we” (lines 6–11). Matt introduces the book they have been writing as a stimulus for this recall (lines 9–13). There is a turn in the narrative when Lisa suddenly corrects what seems to be a collective memory and says she actually remembers the place where they invented the idea which was “thrown into the air” (line 15) – a phrase which is later echoed by Matt (lines 29 and 58–62). With this narrative turn, Lisa takes the narrative forward, with a reference backwards in time to an early stage in their collaborative activity. This initiates shared recall of a shared experience during

which they confirm each other's increasingly explicit memory of the event in question.

In the end of the first section of this excerpt, both teachers refer to their lack of previous knowledge regarding co-teaching (lines 31–35) and thus to their common starting point. Lisa also refers to the new awareness (lines 35–37) that they have achieved after they started co-teaching, implying that collaboration itself has made them to see things that may previously have gone unnoticed. They do not initially attempt to pin down the specific origins of their idea to combine their classes. They leave it open at first, with Matt referring to the possible influences of “the conversation”, “the feeling of enthusiasm”, the “previous experience” or “knowledge/information from somewhere else” (lines 27–28, 31–32). The continuing interview conversation prompts Matt to return to pondering the origin of the idea, after Lisa's short reflection (not included in the above excerpt) on the possibility of accomplishing any ideas they might have. Matt finally locates the source in the collaboration they have seen at school between other two teachers, and he invites Lisa to join in remembering (line 53). She adds to his narrative and in the end she confirms his memory (lines 56 and 64).

The origin of the idea of combining the classes is narrated as a common construction in which both teachers had an equal role. They may genuinely not remember who invented the idea first or another possibility is that one, or both, remembers but for some reason does not say it aloud. Yet, they are able explicitly to re-construct the process of inventing the idea as an exploratory dialogue. The narrative illustrates in a very concrete way the situated nature of the memory shared and reconstructed by the teachers during the interview. Together they created something – an idea of co-teaching – that neither of them had ever thought about individually, and they are now re-creating this moment in their discussion seven years later. Furthermore, the book the teachers were writing is not only a reason to recall the memory but also a repository of their shared experiences and memories, and a tool for sharing their knowledge with a wider audience.

The narrative has three types of actors: an individual teacher, “we” and the idea. The idea has a life on its own: at first, it has been thrown into the air but as the narrative proceeds, the idea becomes independent of the teachers and active. It “comes”, “flies” and “departs”, and “comes into life”. The metaphor of the throwing of the idea into the air is repeated in several narratives and in two research interviews. The air can be seen as a space between the teachers, and when an idea (which in fact is something one says aloud) flies through it, the other teacher can take it from there and start developing it. Thus the metaphor of the idea in the air illustrates the process of knowledge sharing through talk, which further enables shared knowledge construction.

4.2. Excerpt 2: origin of learning styles (October 2003)

1 Lisa At least I have had all the time kind of great enthusiasm
2 about it and I don't know, somehow excitingly it has
3 happened that the enthusiasm has not faded but on
4 the contrary it has increased. I don't know if you have
5 experienced
6 Matt I have
7 Lisa the same that excitingly they have clicked into place
8 we have these learning styles in grouping that I just
9 happened to attend in [a city] a course on learning
10 styles [short laughter] at some point in that spring
11 Int mmm

12 Lisa and then when we had talked already about this that
13 we would combine these [classes], then I don't
14 remember did it come in the spring or if it didn't come
15 until autumn that this would be an incredible thing
16 this that we will divide [the students] like this
17 Matt it may be that it was only in the autumn when we met
18 Lisa yes

(Next the teachers talk about the time frame of inventing the learning styles)

This narrative presents how the teachers came to the solution of using learning styles as the basis of their new shared class after the implementation of co-teaching. Lisa is clearly the main narrator here. She starts by describing her positive feelings about their collaboration and asks Matt to join her. However, after his brief utterance of agreement she continues her story. She narrates the story as if it started by accident: “I just happened to attend” (lines 8–9) but returns to the use of “we” right after that. Matt's two contributions in this narrative are supportive. First, he answers Lisa's “I don't know if” (line 4) and second, he gives his guess for Lisa's “I don't remember [] if” (lines 13–14). It is noteworthy that this happens only after Lisa returns to their shared discourse (lines 12–16), as if it is only now that Matt becomes a more active participant in the story.

This is a rare narrative because here Lisa identifies the concrete origin of an idea in herself rather than maintaining the shared discourse of “we-ness”. Possibly, a course as a highly concrete source of ideas is easier to remember or express, when compared to the more abstract source in the previous narrative.

4.3. Excerpt 3: origin of cooperative learning pedagogy (March 2007)

1 Anna How has this (academic) year been, what do you
2 think?
3 []
4 Matt and then somehow funnily we were at the same time,
5 I was reading the book on pair work and she was
6 reading the inclusion book and it was a Monday when
7 (laughing) [on Mondays, the teachers have their
8 planning session after school]
9 Lisa You should have been here that Monday! (laughing)
10 Matt when we came here, nearly attacked each other
11 immediately when we met, that hey I've been
12 reading this book and now full of orange notes, both
13 a book in hand explaining *now* I've got this *this way*
14 we have to, both were speaking at the same time and
15 then we decided to switch the books and discuss
16 afterwards and then we read the books and they
17 included many things in common (teachers are
18 laughing all the time) and then we spent all January
19 fussing about this if you can say that
20 Lisa didn't [do] anything with the book [the teachers were
21 writing their own book at the time]
22 Matt not at all
23 Lisa we just read these things and everything
24 Matt and then we started to brainstorm the science period
25 that we just had, we spent several weeks on
26 developing systems. It was really fun
27 Lisa mm
28 Matt really
29 Lisa and very nice

30 Matt that's been the thing to remember about this year
 31 about *teaching* which has increased our motivation
 32 a lot

This third origin of the idea is books. Both teachers have read a book, each teacher a different one, and when they discover that they have two books to discuss, they decide to switch books (line 15). The teachers seem to want to have the same information which they can then discuss and explore, thus putting the individual knowledge of each on the same footing before brainstorming. In the dialogue, however, the teachers only talk explicitly about the enjoyment and motivation of this process (lines 26, 29 and 30–32), perhaps highlighting the benefits of the social relationship that supported their knowledge-sharing and cooperative learning. The main actor in this narrative is “we”, from the start until the last mention of ‘our motivation’. Both points where a singular personal pronoun (lines 5 and 11) is used refer to the teachers as equal actors; in the latter, “I’ve”, the specific teacher cannot be named at all.

Time has several functions in this narrative. The story is addressed to Anna, who “should have been there that Monday” (line 9). This reference probably relates to Mondays that are set aside for teachers’ weekly afternoon planning sessions, and Anna knows this. Also the source of an idea has several temporal dimensions. On the one hand, the teachers describe in detail the exact moment where the process started; on the other hand, the “fussing” (line 19) lasted the whole of January and outstripped their on-going book project. It is interesting that Matt explicitly emphasises how the teachers had been reading the books “at the same time”, and how they spoke “at the same time” (lines 4 and 14) and how the books “included many things in common” (line 17). This is also different from the other narratives in that the actual event was temporally so close to the interview, only two months earlier.

This narrative is clearly stated as shared through several means. First, the idea apparently originated in the individual self-directed learning of each teacher, although we may question how entirely “self-directed” it actually is when two individuals are doing the same thing which, although unbeknownst to each other at the time, is closely related to their on-going collaborative practice. Second, the teachers show willingness to share the ideas that they have, individually and independently of each other, received from a book. Third, the narrative forms a picture of the two teachers as very close, thinking and acting almost as one person. Also, the positioning of Anna as an audience might be interpreted as showing that the teachers are on one side, together, with Anna as on the other side. Even the written form of this narrative is able to reflect some of the shared enthusiasm displayed by the original, tape-recorded, story with its different vocal effects and outbursts of laughter. The teachers complement each other and construct a narrative of their shared experience together, reflecting their close relationship and enjoyment in interaction.

4.4. Excerpt 4: retrospective reflection of the professional development process (March 2007)

1 Lisa Then on the other hand at some point (stage), at first
 2 we divided them according to their learning styles but
 3 we didn't fuss much about it either
 4 Matt no
 5 Lisa the learning styles didn't come, as a slightly bigger
 6 topic, until later that this is a good thing!
 7 Matt kind of got into the topic hey we could get more out
 8 of this

9 Lisa then it went into *that* direction and then and then
 10 clearly now going in this kind of inclusive and
 11 collaborative direction, we separated the learning
 12 styles there and they work here very functionally and
 13 Matt they
 14 Lisa and the value, it is not the major issue but now the
 15 major issue is how we do things collaboratively in this
 16 class. That it is exciting the whole span
 17 Matt and then, what is the next thing, can't know if it ends
 18 here. I don't think so
 19 Lisa little
 20 Matt I have also had some doubts that this is not the last the
 21 last wave in our work, but let's say that this kind of
 22 bigger breaker wave comes rarely and now it was this
 23 collaboration the big wave of many years this January.
 24 But it wouldn't have come either we would not have
 25 drifted into the sources of it if we didn't write this
 26 book. So we have to thank that
 27 Lisa yes
 28 Matt that we've been in it, surely we wouldn't have
 29 Lisa at least not yet
 30 Matt no
 31 Lisa it could have come at some point
 32 Matt yes
 33 Lisa had I been thinking about buying the book anyway, no,
 34 it came after writing the book

In this narrative the teachers assess the pedagogical turns in their career. Looking back, they see their professional development as something that has direction (lines 9–11). They see their newest turn, “inclusive education and cooperative direction” (lines 10–11), as a separate and different direction from the learning styles that they are continuing to use because they “work here very functionally” (line 12), but which are no longer ‘the major issue’ (line 14). The teachers describe their career and development with the metaphors of a “span” with “stages” and “waves” (lines 16, 1 and 21–23, respectively). However, Matt describes the book writing process as “drifting into the sources” (line 25) of the cooperative learning idea instead of an active seeking for a new innovation. Nevertheless, the teachers do not mention the first career turn, the beginning of their co-teaching, which is surely the most significant of all, if only because it was also the origin of all their later turns. It is also noteworthy how the teachers, literally, only talk about collaboration although in practice, they implement the principles of cooperative learning (Putnam, 1998) in the classroom.

The origin of the cooperative learning idea was found in books. On the one hand, the teachers were involved in a process of writing a book about their work, which certainly had made them think about and evaluate their career and collaboration. On the other hand, as a part of that process, they were interested in reading books, which then resulted in finding new content knowledge on which to build in the classroom. Books can be interpreted as external sources of information; however, the interactive process that involved the two teachers, books and collaboration, was a situated learning process. The question of the origin of the idea is, however, more complex. Matt narrates the story as if it were a coincidence, yet he also recognises the interaction between writing a book, reading books and finding new ideas.

The teachers describe how they have come up with new ideas, tried them out in the classroom and only later realised the meaning and value of each in the context of their professional development. In their content, these turns reflect a change in their beliefs about students. No matter how flexible the grouping is (Rytivaara, 2011), the principles of learning styles means labelling individual students in terms of their preferences or needs, whereas the discourse in

cooperative learning marks a shift towards the processes involved in students of all kinds learning together. Unlike learning styles, the principles of cooperative learning acknowledge students' individual differences as learners but these are not the focus of diagnosis and prescriptive teaching.

Time is an essential feature in this narrative extract, which includes different concepts of time. The temporality of this narrative lies in the way the teachers use metaphors. "Span" has a starting point and an ending point, and its highest point is in the middle. Lisa, after explaining how their development has gone in several directions, seems to indicate conclusion by talking about "the whole span" as if it was finished. Matt, however continues by starting to think about the future prospects of their professional development and Lisa joins in, stating how they expect to have new waves later. Time may proceed in stages, but it is nevertheless linear, whereas waves, if they accumulate enough smaller activities, may turn into another category, "bigger breaker waves" (line 22). Furthermore, waves refer to a flowing movement and include the possibility of floating on them and thus, represent a cyclic concept of time.

5. Discussion

Although teacher collaboration has been acknowledged as important in the teacher learning and professional development literature, co-teaching has rarely been studied with a focus on the processes of teacher learning and shared knowledge construction, as was done in this study. The present findings about co-teaching are interesting in several respects that we offer for discussion from the aspects of professional knowledge, inclusive education and teacher learning.

We found that the co-teaching and collaboration did not merely form the context for Matt and Lisa's individual learning. Their narratives about learning and professional development present a picture of how the two teachers act and work together more or less as one, as 'we'. At first they were two; after sharing their classes they became "we". Individual expression was given only to feelings and even these they eventually shared. The teachers even consider that they have a shared motivation. This "we-ness" has further implications when thinking about, for example, a teacher's unique practical knowledge and the distribution of such knowledge between teachers. Collaboration is a means for the co-construction of further knowledge as well as serving as a shared repository for current memories and shared knowledge. Thus, in a collaborative context, teachers would have more knowledge to apply in practice than when working alone. This emphasis on the strengths of each is also a principle of inclusive education for children and teachers: not everybody needs to know everything if learning is shared. Recalling the habits of mind, practice and heart discussed earlier (Shulman, 2009) initial teacher education would ideally provide teachers with more effective collaboration skills as well as encouraging an open attitude towards sharing knowledge. It would be interesting in the future to examine this process in more and less individualistic national cultures to understand the processes by which collaboration skills may be learnt and practised by teachers. Furthermore, such studies can illustrate the role teachers' cultural backgrounds play in collaboration. An example of this is the study where American and Japanese teachers collaborated on lesson studies in American context (Fernandez, Cannon, & Chokshi, 2003). Without wanting to underestimate the role of the individual factors in teacher learning, we suggest that the distinctive experiences of co-teaching are likely to support many teachers in meeting their professional responsibilities effectively.

Little (1993) has criticised the training model of teachers' professional development. By this she is referring, among other

things, to a mechanical view of teaching and to learning activities outside the teacher's actual working context in the school and classroom. Such a model is particularly inadequate in preparing teachers for the challenges of inclusive education because it decontextualizes teacher thinking from the dialogues and activities that comprise inclusive practice over time. This case study suggests that co-teaching might provide a safe and fruitful environment for teachers to find their own solutions in working with heterogeneous student groups, but one has to keep in mind the highly autonomous working environment where the teachers collaborated. This study was conducted in Finland where, compared for example to USA and England, teachers have relatively strong professional autonomy, a low level of political interference and no accountability mechanisms (Itkonen & Jahnukainen, 2007; Webb et al., 2004). More highly controlled school systems provide teachers with different kind of contexts for developing the range of pedagogical and instructional practices available for professional choice. Matt and Lisa narrated all the origins of their current practice as unexpected. Whether they really were serendipitous (Plunkett, 2001) or not, is another question; it is enough that the teachers considered them such. Nevertheless, collaboration was an essential context for the ideas to become more than mere ideas – when one teacher has come up with an idea, the other teacher can 'catch' it and this originates a new practice. This process where two teachers create and share experiences which they can then later use forms a basis for their further knowledge construction. Through its implementation the original idea becomes a shared experience which can be examined, discussed and developed further.

Trainee and qualified teachers could be encouraged towards the practice of creativity in schools. This paper reflects not only the wide freedom and relative autonomy that teachers can draw on in their school context, but above all their willingness to seize on new ideas and develop them further. Teacher creativity is easily understood as something that is done inside the classroom (e.g. Sawyer, 2011), but it can and should extend beyond day-to-day classroom practice. The learning processes presented here reflect two levels of collaborative emergence (Sawyer & DeZutter, 2009): on the first level were Matt and Lisa's immediate pedagogical innovations. What was particularly interesting was the way the individual origins of ideas were obscured in the process of joint meaning making and knowledge construction. This, on the one hand, requires rather strong feeling of equality and trust so that both feel active participants in the collaborative process. On the other hand, it probably maintains and even strengthens the collaborative nature of the on-going dialogue and learning. Furthermore, whatever the origin, the ideas were never used exactly as received, but as starting points for developing the ideas further. Each final idea was tried out in the classroom. These experiments formed the second level, which was the long-term process of professional development that seemed to lead the teachers deeper into inclusive thinking. Even if teachers learn, it seems difficult to change one's classroom practice (Bakkenes et al., 2010). Unlike many PD programmes, the changes in Matt and Lisa's classroom practice were not only an outcome of their learning but also part of their learning process. It has to be noted, however, that the teachers not once talked explicitly about their learning or professional development. This, as well as the emotional dimension of learning that they narrated, is consistent with the findings of a previous study of teachers' informal learning in Scotland (McNally, Blake, & Reid, 2009).

The narratives analysed in this paper illustrate several temporal processes. In the first three (4.1–4.3), the teachers narrate how their major career turns have materialised, and in the fourth they reflect on their professional development in general. Altogether, this forms a circle of development starting from seeing the

collaboration of another pair of teachers. The development involved the contribution of their individual knowledge to their strong sense of collaboration with shared knowledge and, further, shared knowledge construction. The full “span” extends to writing a book that shares their knowledge and experiences with others. Time gives a wider perspective to the narratives: the interviews are located within a timeline of 3.5 years. By telling these small narratives, the teachers construct a larger story of their professional development since they began co-teaching.

This study adds to earlier work carried out in Europe (Bakkenes et al., 2010; Leat et al., 2006) by presenting in more detail a process in which two teachers felt confident about sharing ideas and experimenting in the classroom. The findings foreground the temporal dimension of teachers’ changing knowledge and practice: seemingly small events and experimentation can be significant steps towards a bigger change in a teacher’s thinking, beliefs and practice – steps in their professional development. PD programmes need to be sensitive to teachers’ individual learning experiences and learning processes and their complex nature, to be able to support them better in the context of those experiences and processes. This study showed that if teachers are provided with adequate time for collaboration outside their classroom, it may have enormous effect on their professional development.

The findings support the evidence that teachers learn from each other through reflection, adding to previous research conducted in Europe and USA (Harrison et al., 2005; Park et al., 2007). However, reflection on particular incidents of practice was not the only means for Matt and Lisa’s learning. Another means was the way their uptake of formal and informal learning opportunities was intermingled in practice and in their on-going dialogue. It is complex process that cannot be reduced to any single event. In this paper, we traced the origins of each pedagogical “wave”, but these were mere starting points for a longer journey into sharing and creating knowledge through experimenting with new ideas in practice and reflection. The diverse origins of teacher learning do not seem to matter overall; more relevant is the will to learn and that this will emerges in a supportive environment, such as the co-teaching context in this study. Such professional development originates with teachers, but in a school context where they have professional autonomy, responsibility and opportunities to innovate. It is important to acknowledge that the contextual factors which in part define each teacher’s working conditions vary greatly from one country to another, and even between teachers within schools (Talbert & McLaughlin, 1994). In acknowledging the unique context co-teaching always provides for learning, we can see that the learning experiences will also be unique for each teacher. However the dialogic processes of reading teachers’ rich narrative accounts of their learning allow others to draw comparisons with their own experiences and contribute in this way to understanding teaching as a profession in all its variety of practice.

Some of the strengths of this study relate to its nature as a detailed case study of one pair of teachers in its societal context, but there are associated limitations to be tackled. To fulfil the criteria of transferability, we have described the research process and the research context in detail. Co-teaching pairs in any context involve individual teachers with certain personal preferences (e.g., will to learn, commitment to teaching and to collaboration, one’s personal strengths and weaknesses). Also the work context of teachers varies across schools and across countries as discussed above. Several years have passed since the original data were collected. From the socio-cultural perspective, this means that the teachers’ working environment has changed. They have, for example, a new group of students and a new principal. Yet, research is always bound in certain time and place; a snapshot of the people under study. Thus, the conditions that prevailed during the

fieldwork, no longer exist but then the conditions for teacher learning are always unique. The time passing since the early interviews has allowed a longer perspective on interpreting the teachers’ narratives of learning, including what now appear as significant turns and actions. The member check was done by giving the two teachers the manuscript to read in December 2011. They agreed on the findings and our interpretations by saying that they recognise themselves in the descriptions.

6. Final conclusions

The origins of the new ideas in the co-teaching case discussed in this paper are interesting in their variety, but the actual examples identified may not be that important for others; more significant is the process in which the teachers collaborated in developing their ideas and trying them out in the classroom. The national context in which this study was conducted matters, as for all studies, but the study also reveals some more general level findings that can be relevant to teachers, teacher educators and researchers in other contexts as well. Experimenting is seen to be an essential part of the learning process but not necessarily the final product, so teachers clearly need time for their learning. Further, whereas co-teaching can provide a supportive environment for this deep professional learning, teachers also need adequate level of autonomy and trust to take full advantage. We may conclude that when the circumstances are right, teachers’ professional development can be effectively grounded in teachers’ everyday actions in schools, supported by opportunities and encouragement for teachers to incorporate other sources of information and ideas into their dialogue and collaborative activity.

Teacher learning, professional development and inclusion are all long-term processes. Therefore short-term programmes and teacher studies are often not enough to transform practice. As this case study of one pair of teachers demonstrates, more long-term research is needed to understand the individual and collaborative processes of teachers’ professional development in a holistic manner. Furthermore, more studies from different countries, including those from outside the Western world and those with different levels of policy centralisation and collaborative social cultures, are needed to understand how the various national and local contexts comprise part of teachers’ learning environments. Compilation of similar case studies could provide a platform for planning interventions and bringing about significant educational change (Zeichner, 2007).

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