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A Finnish model of teacher education informs a South African one: A teaching school as a pedagogical laboratory

Authors:
Anni Loukomies[1,2]
Nadine Petersen[2]
Jari Lavonen[2,3]

Affiliations:
[1]Viikki Teacher Training School, Faculty of Educational Sciences, University of Helsinki, Finland

[2]Department of Childhood Education, University of Johannesburg, South Africa

[3]Department of Education, Faculty of Educational Sciences, University of Helsinki, Finland

Corresponding author:
Anni Loukomies,
anni.loukomies@helsinki.fi

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In this study, we examined student teachers' learning during their teaching placement period in Finland and South Africa. The setting of the inquiry in both countries was a 'teaching' school, affiliated to a university teacher education programme. The teaching school is also referred to as an educational innovation that was transferred from the Finnish context to the South African context. Data were collected through an interview protocol. The findings show that the students, like many of their counterparts in different parts of the world, focused on teaching tools and methods as well as classroom management as a gateway to their teaching career. The extended teaching placement period at both the university teaching schools was expected to yield some findings about the intersection of teaching practice and its supporting theories because of the close collaboration of the schools and the universities. Some of the findings satisfied this expectation while other parts did not, confirming that initial teacher education may be regarded as a platform for learning to be teachers, but it has its own limits even in a pedagogical 'laboratory'. The transfer of the educational innovation was regarded as successful.

Introduction

Studies of initial teacher education (ITE) continue to investigate the apparent elusive connection of theory and practice, with the work of Korthagen et al. (2001), Darling-Hammond et al. (2005), Cochran-Smith (2006), Cochran-Smith and Zeichner (2005) and Furlong, Cochran-Smith and Brennan (2009), arguing for ways to address this mismatch that students experience during their pre-service education. Snow, Griffin and Burns (2005:7) propose a model for teachers' progress through phases, arguing that student teachers are unlikely to go much beyond 'declarative' knowledge about teaching and some 'procedural, can-do situated knowledge' in the pre-service years. Darling-Hammond et al. (2005) cite similar models in their edited volume, accentuating the role of pre-service teacher education as foundation for learning to be an *adaptive expert* which is the pinnacle of the profession.

One of the avenues followed to integrate learning in teaching by the education system in Finland has been to couple each teacher education programme with a teacher training school,[1] where students learn theory and practice in tandem over the course of the programme. In this system, school teachers and university lecturers work together to facilitate the development of future teachers (Personal communication with Jari Lavonen 23.11.2013; Sahlberg 2010, 2015). The concept of a university *teaching school* differs somewhat from what is known in the USA currently as professional development schools (PDS) and has more in common with Dewey's original 'lab school' idea and with the notion of 'normal schools' or '*ecoles normales*' as teacher education spaces. It differs in some nuances from the PDS in the USA where schools place to 'learn theory as inquiry about practice in learning communities' (Darling-Hammond et al. 2005:414). In this article, we propose that there is a more intensive and reciprocal collaboration, or even 'co-existence', of teacher education programmes and schools as directly linked and shared laboratories of pedagogy. We argue that the Finnish model is an example of such a pre-service teacher education.

Therefore, in a search for a suitable conceptual model of primary school pre-service teacher education at a University in Johannesburg, the teacher education programme design team integrated some elements of the PDS model, coupled with observations and lessons learnt from US institutions such as Bank Street College, University of Minnesota and University of California, Los Angeles. The initial practicum model of the programme was developed pragmatically in the

1.In the Finnish system, the term is *teacher training school*, but in this article we use the South African term *teaching school*.

context of a school on a university campus in a 'township' area of South Africa, with specific acknowledgement of the needs of the student teachers - many of whom come from academically disadvantaged backgrounds.

The site for the school was on one of the campuses of the university in a previously racially segregated living area ('township') for black citizens, aiming to enrol students from the area and develop the campus as a hub of learning. The aim was also to monitor the integration of theory and practice, and to research student learning during their placement period at a teaching school. In 2012, a research collaboration was established with Finnish researchers from the University of Helsinki 2 years after the school had been established, and a tentative programme of teaching practice had been established. This enabled the Johannesburg institution to gain insight into how to firm up a partnership with a public school, serving local children while, at the same time, serving as a future pedagogical laboratory for educational research. In this article, we report on an inquiry on the learning experiences of students in the schools in Helsinki and Johannesburg, using data from interviews with students in their third year of study, following the same protocol and analysis process.

The current Finnish teaching school system can be traced back to the 1970s when a major revision of the school system and teacher education system took place (Sahlberg 2015). Teaching schools have been an essential part of teacher education in Finland, as student teachers complete their main teaching placement periods in these schools according to specified curricula, aiming at creating usable knowledge from theory for teaching. During the placement period, they gain teaching experience in an authentic setting and practice to *argue their decisions* in the context of relevant theories (Loughran 2006).

We were interested in understanding *what* knowledge students report which they adopted in Finland and South Africa, *where* the teacher education programmes have commonalities and differences, and *how* the placement period (or practicum) has addressed the perceived theory–practice gap in the two programmes. To investigate the topic, we used both a questionnaire and an interview protocol that encompassed questions about the 'domains and origins' (Shulman 1987:8–10) of teacher knowledge. In this article, however, we only report on the results of the interview data. We were also interested in what we could infer from the data about the success of the transfer of elements of the Finnish model to South Africa.

The following questions guided our research:

1. What do student teachers self-report about knowledge gained during their teaching placement period?
2. Whence do they source this knowledge?
3. What can be learnt, when transferring key elements of an educational innovation such as a teaching school, from a Nordic country with a successful education system to a Southern one that is struggling?

Types of teacher knowledge according to Lee Shulman

A professional teacher is expected to have a versatile knowledge base that supports the implementation of the curriculum, planning teaching, and organising and evaluating their own actions (Goe, Bell & Little 2008). In a review on how teacher knowledge is defined and how the concept has developed in the last few decades, Ben-Peretz (2011) argued that teacher knowledge has been expanded from a focus on subject matter and strategies for teaching to include awareness of societal issues such as socio-economic issues and diversity. Several constructs refer to the process of combining the past experiences and professional knowledge and transforming the combination into something that will guide the actions and decisions of the teacher. These include, for instance personal–practical knowledge (Connelly, Clandinin & He 1997), personal–professional knowledge (Tamir 1991), practical wisdom (Lunenberg & Korthagen 2009) or practical theory (Buitink 2009). Although teacher knowledge is strongly related to individual experiences and circumstances, there are elements of teacher knowledge which are shared by all teachers working collaboratively (Verloop, Van Driel & Meijer 2001).

When Shulman (1986; 1987) proposed his model of teacher knowledge, he introduced seven different categories: content knowledge, general pedagogical knowledge (GPK), pedagogical content knowledge, curriculum knowledge, knowledge about learners, knowledge of educational contexts and knowledge of educational aims, purposes and values. However, later in his writings, the arrangement and the number of categories and subcategories of teacher knowledge varied (Carlsen 1999). For example, Grossman (1990) combined curriculum knowledge, knowledge of the learners and knowledge of educational ends into a fourth category, known as *knowledge of the context*. This component is needed when a teacher adapts general knowledge about teaching to a specific school setting and individual students. Moreover, the ethical, political, economic and social factors that influence teaching and learning in schools are included in the concept of contextual knowledge (Abell & Lederman 2007).

For the purposes of this research, we employ the original categorisation proposed by Shulman (1987). We want to differentiate between the components of Grossman's (1990) combined category of knowledge of context, as we contend that they are all equally relevant when one considers the aims set for the placement period in the two settings of this research. The student teachers are expected to apply the knowledge encountered in university coursework in the school classroom, consider the most effective ways of teaching certain content, note the individual needs and social environment of the learners, offer a rationale for their actions in the classroom, use various instructional methods and understand the role of the curriculum as a starting point of teaching and set aims for a specific teaching sequence. Kereluik et al. (2013) note that in the future,

besides high-level cognitive skills (such as creative and critical thinking), domain knowledge will remain important, which makes using the original Shulman categorisation (Shulman 1986, 1987) of teacher knowledge, with its emphasis on content knowledge and PCK (the subject-specific differences in teaching) (Shulman & Shulman 2004), relevant.

Sources of teacher knowledge

Besides the domains of teacher knowledge, this research also focused on the origin of the knowledge about which students reported during their teaching placement periods. As Verloop et al. (2001) mentions, teacher knowledge may have a variety of origins, including both practical experiences (such as day-to-day practice) and formal learning in teacher education programmes. Reflecting on experiences using theoretical concepts may lead to what Lunenberg and Korthagen (2009) refer to as practical wisdom or practical theory as proposed by Buitink (2009). Teachers' decisions draw upon this combination of theoretical understanding and practical experience (Shulman 2007). Theories based on scientific research (Korthagen 2001) complement teachers' 'solid, "can-do" situational knowledge' (Snow et al. 2005:7). Furthermore, Shulman (2007) sees the development of the capacity for such judgement as the core of professional preparation. In his original 1987 model, he distinguishes the origin or source of theoretical knowledge in categories: (1) content discipline; (2) formal educational scholarship; (3) educational materials; and (4) practical wisdom. We utilised this distinction in the analysis of the data of the study.

We found resonance for the construction of methods in our investigation in the longitudinal study on teacher learning by Bakkenes, Vermunt and Wubbels (2010) who categorised the types of learning activities which teachers referred to. Teachers reported learning mostly through experimentation and reflection on their own teaching practices, and much less by external input like professional literature (Bakkenes et al. 2010:544).

Learning *in*, *from* and *for* practice in a teaching school

Darling-Hammond (1998) argues that for the optimal outcomes of teacher learning, teachers need opportunities for trying and testing, and for talking about and evaluating the results of learning and teaching. The learning situation is most productive when questions arise in the context of work in progress and where research is also at hand. We argue that this applies also to student teachers and that practicum in a university-affiliated teacher training school is such an optimal context in which students can learn in an authentic setting in which they can engage with practice, but with theory in mind.

A teaching school is a multilayered system, consisting of stakeholders who all have their own briefs and employ either more or less developed self-regulation. The mentor teacher usually has a twofold goal: firstly, he or she must follow the national and school level curriculum and teach the learners accordingly (Lavonen 2013). The mentor also supervises the student teachers in line with the curriculum of the teacher education programme of the university. Outside the inner circle of a practice (teaching) school, there are often complex connections to learners' homes, to the university and to society in general as is the case in all schools (Henning 1997). Elton (2003) states about the difficulties of disseminating innovations for achieving positive system changes because of their inherent complexity. We were mindful of this in transferring the model of a teaching school from a well-functioning education system into a struggling one in which a large number of young learners leave the early grades not functionally literate or numerate (Spaull & Kotze 2015).

The Finnish teaching school concept (Finnish Teacher Training Schools 2017) can be considered an educational innovation which is new in the South African context (Rogers 2003). In general, the transfer or re-invention of an educational innovation from one context to another has been recognised as challenging (Spyrtou et al. 2016). Transfer is an active process during which knowledge and skills are 'carried' across the border of two entities (Hutchinson & Huberman 1994). Successful transfer requires strong collaboration within an open and trusting atmosphere, and depends on the local characteristics which include teachers' pedagogical orientation, their teaching and learning beliefs as well as the leadership and support available to them in the school environment (Fullan 2007). In order to have a clearer view of the transfer, we describe and compare the contexts of teacher education in Helsinki and Johannesburg.

Finnish and South African educational context and teacher education in teaching schools

In Finland, a fundamental value in education is educational equity: all learners learn in heterogeneous, inclusive classrooms (Jakku-Sihvonen & Niemi 2006; Laukkanen 2008). Local curricula are constructed at municipality and school levels, and these documents are based on the national core curriculum (NCCBE 2014). In general, teachers have broad autonomy with respect to how they implement the curriculum and choose learning materials. During their teaching placement period, student teachers work within this system. They learn to infuse the essentials from the curriculum when planning their teaching. During the lessons, they can also work autonomously, but they are scaffolded when needed by the mentor teacher. A career as a primary school teacher is very attractive in Finland. The 5-year teacher education programme yields a master's degree in education or educational psychology and qualification to teach in the primary school level.

At the Helsinki University, during the teaching placement period in the third year of study, student teachers teach a total of 50 lessons in pairs in five different school subjects. One student is responsible for 25 lessons, while the other one works as a co-teacher and vice versa. The sequence plans for all subjects with more specified lesson plans constructed by the student teachers under the supervision of the mentor

teacher and university lecturers. After each lesson the students and mentor teachers reflect on the lesson, with a university lecturer only present from time to time. Student teachers write an extensive reflective report on the teaching placement period. It is expected that student teachers learn to analyse learning processes and learning environments, learn to analyse and implement different pedagogical approaches, teaching methods and learning materials while teaching and learning of school subjects. They also learn to do collaborative planning for primary education and co-teach as well as to support different learners' needs. Lastly, they learn to analyse and reflect on their own teaching in the context of the school curriculum. More importantly, in the reflective report, they also contemplate their personal goals against the background of the official aims of teaching practice.

In South Africa, the school system is highly centralised and the national department of education (the Department of Basic Education) prescribes a single curriculum known as the Curriculum and Assessment Policy Statement (CAPS) for all primary schools (Department of Education 2011). Weekly teaching plans and timelines are provided as part of this curriculum for each subject per grade with some provincial authorities also requiring an annual lesson plan. Accountability systems include monitoring by district officials and evaluations of pupils' learning through nationally administered assessment instruments in numeracy and literacy in Grades 1–6 and Grade 9 to promote accountability in the school sector (Kanjee & Moloi 2014[2]). In South Africa, in contrast to how they are regarded in Finland, primary school teachers have been traditionally perceived as the lowliest in the hierarchy of teachers (Gravett, Henning & Eiselen 2011; Henning & Gravett 2011). The 4-year teacher education programme yields a Bachelor of Education degree and a qualification to teach in the primary school level.

In the Johannesburg institution, student teachers complete teaching placement periods of between 20 and 32 weeks over the course of their degree in both the university teaching school and other primary schools. The placement includes two 3-day block periods which operate in 6-week cycles. During these periods, the student teachers conduct observations in the classrooms and plan and teach lessons under the guidance and supervision of practicing teachers. The teachers are also mentors for the students. The students work in groups of ten and prepare lessons in accordance with the prescribed school curriculum. They get guidance from a lecturer or senior tutor at the university. The students meet the lecturer or the tutor twice in each 2-week period: once to rehearse the lesson with their peers and improve it, and a second time to teach it to the pupils in the school. The second lesson is assessed by a school teacher and a university lecturer, and the group is provided guidance and feedback. Students also assess each other's work.

2.The testing has been temporarily suspended and did not take place in 2016 and 2017.

Method

To gain an understanding of student teachers' learning during their practicum period, we employed a mixed-method research design approach, combining quantitative (questionnaire) and qualitative data (student teacher interviews). In this article, the focus is on the student teachers' interviews. Based on these data, we make inferences about the transfer of an educational innovation in teacher education - in this case the conceptual model (which operates in conjunction with a teacher training school) and how this, in turn, has the potential to improve the teacher education programme design.

The interview protocols were refined by the two teams after pilot trials (Annexure 1). In Finland, 12 third year student teachers were interviewed in six pairs. The interviews continued for 30 minutes up to 1 hour. The interviewer was also a mentor teacher of the practicum, but she had not been mentoring the interviewed students. The interviewer asked both of the students in each pair to answer each question. In some interviews, the questions were asked in a different order, because the interviewees brought some of the topics into the conversation spontaneously.

Similarly, in South Africa, 20 third year students were interviewed in pairs by three researchers, one of whom was a doctoral student in the project. Students were requested to provide signed consent before they were interviewed. Each of the interviews lasted about 30 minutes to 1 hour. These interviews allowed the space for the students to talk with the interviewer about the kind of knowledge they had been constructing during the teaching practice. The interviewers did not directly refer to the domains and origins of knowledge as per Shulman's categorisation, but maintained an openness in the interview process with gentle probing to elicit the appropriate student responses.

Interview data analysis

The interviews were first transcribed verbatim. One response utterance was utilised as an analysis entity. Two researchers in each country went through all utterances together, discussing them carefully. Then each utterance was relegated to one of the seven categories of domains of teacher knowledge (Shulman 1987). In every instance, knowledge was also grouped according to its source or origin. Given that the interviews took place in the context of the teaching placement period, the overall 'origin' of knowledge was practical experience for all the students, except if mention was made of a specific source. An utterance was not categorised if the student spoke at a meta-level, for example, saying that 'I know I need to learn about content knowledge', but did not specify it. In some cases, the interviewer's knowledge was utilised about the situation the student teacher was recalling if the answer was unclear. Thereafter, one researcher from each team checked the other team's data analysis.

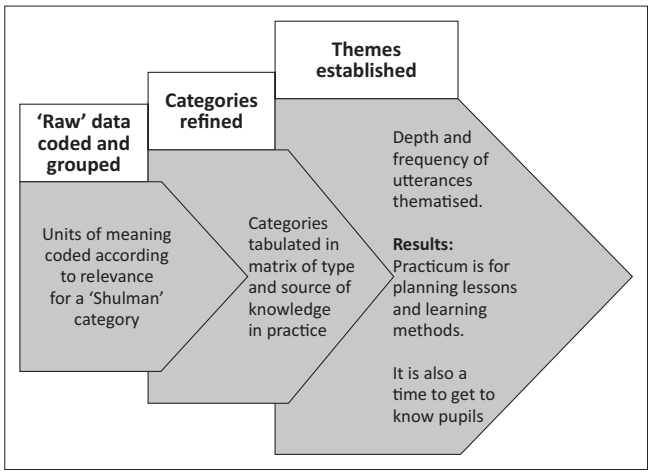

FIGURE 1: Analysis of interview data.

After the grouping of the utterances, the data were filtered to have all utterances related to a category, for example GPK in one sheet in a sub-data set. Then these were refined. Finally, a summary was written about each main category to capture subcategories and their frequencies (see Figure 1).

Results: Domains and types of knowledge

In the analysis process, we coded utterances in 'open' style as described by Strauss and Corbin (1999) and then grouped these codes into Shulman's seven categories of teacher knowledge after which we aligned these categories with the four origins or sources of knowledge in the Shulman model. The first category was content knowledge of school subjects.

Content knowledge: Somewhat unexplored

With regard to this domain, the Finnish students responses' are strongly related to details of school subjects. They emphasise the conceptual dimension of knowledge construction. They also mention the level of the content that needs to be learnt and various sources to search for the information when required to prepare the enactment of the curriculum. There is, however, no mention of the procedural and epistemological aspects of knowledge related to different school subjects, even though they are all present in the curriculum. The following comment is an example:

> 'We were informed that we are going to teach history of Rome and I was like I don't remember anything. But now I know a lot more about Rome than a while ago.' (5b_N)

In the interviews with the South African students, there was some emphasis on the concepts to be taught, but in general there was little reference to their learning of content knowledge. Where it was mentioned, it is in a cursory reference to 'knowing your content' as evidenced in the following quote:

> 'Another important thing is to know your subject matter as the teacher.' (A.1.2)

General pedagogical knowledge: 'Can-do' methods and classroom management

In both institutions, the interview results revealed the emphasis on the accumulation of GPK. However, the results showed a superficial understanding of educational theories as a basis for instruction. In the Finnish data, one interviewee remembered having heard about 'the importance of motivation' during the lectures before the teaching placement period, but did not give any specific examples. Others mentioned the importance of theory for lesson planning, but provided no real detail. Overall, most of the Finnish students spoke about planning and the importance of having the aims of a lesson stated clearly. The emphasis in the interviews was on the need of structure.

This is similar to the South African data where most of the students mentioned the importance of lesson planning with a strong emphasis on motivating pupils to learn. It is best exemplified in the following quote:

> 'In the second year I really started to understand how to construct a well-put-together lesson plan … the most important has been lesson planning and the template that we have is very thorough. It absolutely covers every aspect of your lesson plan from the class that you're having, the resources you have available.' (B 1.1)

In both settings, students emphasised instructional methods, mainly from the perspective of activating the pupils' interest in learning. There was also a strong focus on classroom communication and classroom management. A South African student claimed that there must be evidence of reading material in a 'print-rich classroom' (B 1.1). This element was missing in the Finnish data. Overall there was evidence that the students wanted to see 'learning by doing':

> 'I have begun to consider two aspects, one of which is variance in the lesson structure and [the] other is activating the pupils. Those I see differently now.' (3a_N)

What stood out in the data about GPK is the students' sense of the need for classroom management. The issue is considered from three different perspectives in the analysis frame. The first is managing people and giving clear instructions as well as maintaining a classroom atmosphere that is conducive to learning and open communication. The second is managing the physical environment and the third is managing time - with not too many activities and being flexible during lessons.

> 'In the conversations, we spoke about choosing relevant tasks or how to get the tasks relevant and reasonable and to follow the aims, and to have such lesson structure that the pupils can concentrate the whole lesson.' (1a_N)

The South African students commented substantially on the issue of order and management in the large classes.

> 'When you observe children in Funda they are so disciplined; this is because the teachers understand what management means, time management, discipline, classroom management all these things. I think they do display an understanding of that aspect of a teacher.' (B 3.2)

Curriculum knowledge: 'Starting with the curriculum'

In this category, the data from the two contexts differed considerably. In the South African data set, knowledge of the curriculum dominated - with students frequently drawing on the importance of the national curriculum which is prescribed and must be followed diligently.

> 'I'm able to do that because I've already got the exposure to the children. I've already got exposure to the curriculum through CAPS. I know how to use CAPS, I know how to do lesson plannings, I know how to teach, I know the teaching styles.' (C 10.2)

Given the emphasis on curriculum coverage in South African public schools, it is not surprising that this element has infiltrated students discourse so prominently as indicated in the following student comment:

> '… the teachers in Funda ... like the curriculum, they follow the curriculum on time ... their time management and the teaching speed'. (C 10.1)

On the contrary, in the Finnish data where there is much more flexibility with curriculum implementation, the way in which the students talked about this aspect is very different. They stated that it is important to argue one's decisions in a way that they are based on the curriculum:

> 'More and more staring at the curriculum. That it is the most essential thing to do. And giving a rationale to all actions. That all actions must have aims that are related to the curriculum.' (3b_N2)

Pedagogical content knowledge: Seeing a lesson 'come to life'

The coding of PCK was somewhat complicated as there was a strong overlap in the student responses with the categories of GPK and knowledge of the learners of context. However, we were heartened to find that the students in both countries referred specifically to PCK development, as this is an important aspect of student teacher knowledge. The Finnish students were much more specific in their responses and talked about choosing appropriate learning material for the purposes of teaching a certain topic, considering the benefits of different instructional methods to reach particular aims and choosing the appropriate level to introduce the concept(s) to the pupil. The South African students showed an emphasis on the teaching of concepts which is emphasised in their university coursework. This difference is best illustrated in the following utterances first from the Finnish and then the South African data:

> 'Well, at which level the pupils start accomplishing a task. Sometimes if a task is done at the university, we have the view that this is the way it goes; then when you come to the situation with the pupils, it is something else what comes from the pupils. And sometimes it's the opposite, the pupils have unbelievable amount of knowledge and they comment in a very clever way.' (1a_N)

> 'Learning how to teach a concept because you can know maths but not being able to teach it will not help in any way. So with the teaching methods when you teach learners because when you plan a lesson you have to consider ... then when you're there at Funda you get to see your lesson coming to life.' (A 8.2)

Knowledge of the learners: 'We learn from the learners themselves'

Knowledge of the learners is a prominent part of the South African data. This is not surprising given that it is an aspect that is emphasised strongly in the university coursework and it guides the practicum arrangements in the South African teaching school. South African students are paired with a child in the teaching school from their first year of study and follow this child closely over 3 years. The value of this for the students is evident in the following student response:

> 'We learn from the learners themselves because we tend to get different behaviours, different learning abilities and this actually makes us grow because how they learn in maths is usually different from what they do in English or in any other subject. So it actually broadens our scope to understand the child development, how the child thinks mathematically, or how the child thinks in a linguistic way.' (B 3.2)

This aspect was less pronounced in the Finnish data where students generally spoke about the importance of 'knowing their pupils'. They did however note that a teacher should take the pupils' developmental state into account in order to adjust his or her teaching to accommodate the level of the children and the concepts being addressed:

> 'For me knowing the pupils. This placement period is superficial from that perspective, and there is not enough time, but to develop as a teacher it is important to build the knowledge of pupils and based on that observe the development of learning and change in the pupils.' (6b_N)

Knowledge of context: 'What were the pupils' feelings and what were my feelings?'

In the analysis about this type of teacher knowledge there was also some overlap, especially with knowledge of the learners. In the Helsinki data, most of the responses were about knowing the specific group of pupils during the particular teaching placement period – students, for instance, addressed issues of creating realistic teaching plans, the diversity of the group and adjusting their teaching for specific situations and groups of learners. Here the students were of the view that topics learnt during the practicum may facilitate their transfer into work life after university. This is best encapsulated in the following quote:

> 'What were the pupils' feelings and what was my feeling? Is there something specific in the culture, in a way there are many aspects? For example, in the physical education lesson we found out that we come from a different culture and value different and the group is used to particular [*aspect*] and there are many aspects that affect it and one has to work hard to see even half of those aspects that had effect on what the situation became.' (4a_N)

In the South African data, there was reference to the context of the pupils who live in a previously racially segregated

area of the city where the majority of schools are 'underperforming' in systemic assessments.

> 'So the social economic status sometimes contribute to how a child develops; you find that children who are more privileged get more access or more exposure to those kinds of things than those children who come from homes where the parents cannot afford those things.' (A 1.2)

Knowledge of educational ends: No bigger picture

In both data sets, there was no reference to the bigger picture of the ultimate aims of schools and societal needs.

Results: Sources or origins of knowledge

The students reported on whence they drew their knowledge during the practicum with some detail of what they explored, whom they consulted and what their peers taught them. Again, we grouped the data into the components of the Shulman (1987) model, referring to the content of the coursework (at the university in this instance), available learning materials, educational research (formal educational scholarship) and the wisdom of practice (and thus also practitioners).

Content discipline: Crossing from the university to the practicum

In the Finnish data, the content discipline as a source of information was mentioned explicitly only three times: two were about the didactics of mathematics and teaching certain concepts and one quote was related to the didactics of physical education.

> 'A year ago we went to the course of didactics of physical education and from there we got a clear picture of what are the aims of the new curriculum and what to aim in the physical education lessons, and depending who taught us at the university we acquired a model emphasising the educational aims, but here we noticed that it is necessarily not what the pupils are used to. One must adapt his or her approach if one goes to a school with a certain culture.' (1b_N2)

Similarly, in South Africa, there was little mention of scholarship in the content disciplines as a source of knowledge. The one prominent view is indicated here.

> '… language competency and then acquisition. And then through observing, we would be able to tell whether our child was at a level that they should be on and also whether they learnt through the nativist or the usage-based theories. And, we had to write up a project based on our observations in order to motivate whether we support the usage-based or the nativist theory in language acquisition.' (B 9.2)

Educational materials: Textbooks as curriculum?

Curriculum and textbooks were mentioned by the South African students who noted the importance of knowing the curriculum when setting aims for a certain teaching sequence. This then means that a teacher has the responsibility to familiarise himself or herself with the printed or web-based material related to the topic to be able to choose the most suitable books and pieces of text. In the South African data, the students' responses were restricted to the curriculum documents (CAPS) for each subject area and grade in the school system and to the use of textbooks and other texts used for teaching. The Finnish students made explicit distinction between the curriculum and textbooks and valued the teachers' freedom to choose the material according to their aims. The following are examples from each country.

> 'Instead of having one textbook and reading it we had seven books and internet and considered what is relevant.' (4a_N)

> 'I actually go to the library and get books about teaching phonics, language and what not. I do that and then also the internet.' (A 8.2)

Formal educational scholarship: To search or not to search

The Helsinki students mentioned that they consulted literature to help them select instructional methods, support pupils' motivation, develop pedagogical thinking, know the pupils' characteristics and enhance the activation and participation of the pupils. However, this source of knowledge was mentioned less than 10 times in the Finnish interviews and the main ideas are encapsulated in the following extract:

> 'I have learnt related to activation that doing is an effective means of learning compared to teacher telling it. If it is possible to reach it through a child's own activity and thinking. I have known it in theory but it has become clearer.' (3a_N)

On the other hand, the South African data were replete with numerous examples of how formal educational scholarship was regarded as a source of knowledge for students. All the examples were about children's physical and emotional development as well as the way in which students learn about children's early cognition in subjects like mathematics and science.

The wisdom of practice: Getting to know ourselves in schools

Data for this component dominated over the other categories in the Finnish data. In more detail, the interviewees mentioned their own observations in the planning and teaching situations as well as discussions with their mentor as the most common sources of knowledge they gathered during the practicum period. Sometimes they even addressed a discrepancy between their existing knowledge and what they adopted during the placement period, for example topics related to what kind of activities are realistic to implement in the classroom.

> 'We spoke about clarifying the concepts with the mentor teacher, and it was very helpful, speaking about basic things like using the blackboard, what to put and where, how to introduce the concepts.' (2a_N)

In the South African data, this was hardly mentioned by students as a source of their knowledge. There was, however,

a recognition that the many years of teaching experience of the lecturers is evident in their in-class examples and practical advice for students. One student commented on this in the interview:

> 'At least from their experiences that they had in their classrooms before becoming lecturers, they help us a lot in that aspect of how to teach the lesson. How to make it simpler for the children and so for me.' (A 4.1)

Discussion: Whereto with practicum in teaching schools?

The research team jointly generated an interview protocol to investigate student teachers' learning experiences during the teaching placement period (practicum) at two teaching schools. The student teachers reported having learnt a lot, but about different aspects in the two countries. The qualitative findings attest to much of what we know about ITE and we are left with the question of what the specific role of a university-affiliated school is. Firstly, the data attest to the type of knowledge and skills a pre-service teacher typically constructs. Snow et al. (2005) proposed that one cannot expect much more from student teachers than we have found in this study. Students know about teaching and they know 'how to' teach and plan. Practice in the schools has given them a footing for the development of their own practical wisdom and it is also a threshold to 'becoming' a teacher, specifically with regard to learning teaching methods, planning lessons, getting to know learners and learning from each other and, to some extent, from the mentor teachers and the university lecturers with whom they interact. They also learn from the pupils. This was especially evident in the South African data. Considering that the students get to know the school very well and also focus on a specific pupil over 4 years, is clearly a strong contributing factor.

This is, for us, one of the main benefits of a teaching school - specifically the one in South Africa where students are closely involved with the school over the duration of the programme during which they also track the development (and learning) of a specific pupil. We would argue that it is the in-depth and extended chronology of the students' experiences in the university-affiliated school that sets them apart from learning in practice solely at different schools and for short intense periods only, as is the general modus operandi in South African placements in work-integrated learning. The modality of the teaching school is in itself the core of their learning.

However, one could argue that most pre-service teachers would develop in the same way. The question remains, though, what special affordances a teaching school has. We would argue that the teaching school gradually becomes a second academic home for South African students as well as for their Finnish counterparts. For South African students, the school is a place where they can experiment with ideas for teaching and where the teachers of the school are specifically trained to also be teacher educators and mentors. This is especially evident in the strength of responses about GPK, including classroom management and lesson planning - with Finnish with Finnish students emphasising the aim of their work and South African students focusing on the format of lessons.

In terms of the transfer of a Nordic educational innovation to the Global South and whether this was to begin with a feasible notion, it is evident from the data that the South Africans have learnt from the Finnish model, but that this, in turn, has informed areas of improvement for the original model. The risk for such a contextually different setting for teacher education was, of course, substantial. Currently, with the student data in the interviews, students in the two locations differ in their reporting, but they also agree. It is notable that where they agree is also what teacher educators claim: that one – that one cannot be fully prepared for practice in the pre-service years, but that one can learn from being in a school (which is a safe space) with mentor teachers, a functional management system and multiple opportunities to plan and teach lessons with guidance and to reflect on lesson performance and planning.

Notable differences in the interview data arise from the substantial differences in the education systems of the two countries. The national curriculum in South Africa is prescriptive. The Finnish curriculum is a core, but teachers and schools interpret the core curriculum as they independently plan teaching. South African teachers enjoy far less freedom. The assessment and evaluation structures in South Africa require that students must learn to be 'obedient' teachers, while the Finnish students learn to be autonomous teachers.

What, then, has made the adoption of elements of the Finnish model successful in South Africa and does the South African model, in turn, offer the Finnish teacher education system something in return? Successful transfer requires strong collaboration development within an open and trusting atmosphere depending on the local characteristics of the context (Spyrtou et al. 2016). In their article about transferring an educational innovation from one context to another, Spyrtou et al. (2016) argued that the success of transfer can be evaluated along two dimensions: the feasibility and the usefulness dimensions. The feasibility aspect includes extracting the essential characteristics of the innovation(s) in order to make the implementation possible and evaluating how the transfer works in practice. In this case, it included, for instance, adopting a research orientation to teacher education and the mentoring of student teachers as well as implementing targeted training for mentors. It was also an initial part of the South African project, working from Finnish literature, in the establishment phase of the teaching school (that has now operated for 7 years) and when the aims for teaching placement period were generated. According to Spyrtou et al. (2016), the feasibility aspect affects the usefulness aspect, as the former determines the latter. In other words, the transfer must first be within limits of feasibility and only then its usefulness can be evaluated.

In this research, usefulness is evaluated with the interview data about what student teachers have gained, especially in terms of GPK, PCK and knowledge of learners. The South African students were even more successful in combining theoretical views related to learning, development and engagement than their Finnish peers – a finding which surprised both research teams.

With respect to the origins of the student teacher knowledge, we argue that practice ruled over other sources of knowledge. Finnish students even mentioned finding their university studies distant to the teaching placement period. The South African data showed students' stronger alignment with university coursework and their practice at the school which has been mentioned in the fact that they share a campus and that they 'walk this way and that' easily. We see this almost as symbolic of the interwoven nature of the university theory studies and the school practice – they are indeed on the same campus.

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Competing interests

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Authors' contributions

All authors designed and implemented the data collection collaboratively. A.L. and J.L. were responsible for analysing the Finnish data. N.P. was responsible for analysing the SA data. All authors conducted writing of this article collaboratively. A.L. coordinated the writing process.

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Annexure 1

Interview protocol

Tell the students before the interview what the practicum includes – provide a definition of what the practicum includes – the planning the week before you teach and the week in which you teach.

1. Learning the domains of knowledge during the teaching practice
1.1. What has been most important for you in the teaching practicum?

Possible prompts: Where did you learn this? What do you mean by that? Tell me more about … especially from the point of view of planning and teaching? Can you be more specific? Was it useful? In what way was it useful?

i) What was your most important learning while you planned the lesson?
ii) What was your most important learning while you taught the lesson?
iii) What was your most important learning after you had taught the lesson?

Possible prompts: Where did you learn this?

1.2. In your view, what was missing in your learning in the practicum?

2. Origins of knowledge in the teaching practice
2.1. You mentioned many things you learned. In your view, where did you get most of your knowledge from during the teaching practice?

Possible prompts: Can give the student examples: From books … from your mentor … from other students? Can focus on skills if the student doesn't address it.

2.2 Which of these a)... b)... c)... Did you learn the most from?

3. Mentoring
3.1. Have you thought about why you are doing your teaching practice?

Possible prompts: Tell me more…

i) You are saying ... so, have you learned anything from this?
ii) You say that you come here to learn the following ... (to do teaching practice or to learn about children)… So is this what you think the university wants you to learn here?
iii) Who guided you the most during your teaching practice?
iv) Could you think more broadly than the topics/ subjects … only?
v) So tell me more about how they guided you? So how did this help you in your learning?

3.2. How do you see the theory you learn in the university classroom connecting with the practice?
Possible prompts:

i) Can you tell me a little more about this?
ii) What was the influence of discussions or reflections after the lesson for your learning?