

# Teacher Education and History Teachers' Powerful Professional Knowledge

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In order to stimulate powerful knowledge in history classrooms, teachers need to construct learning situations in which students learn the discipline, not just substantive knowledge or general competencies (Puustinen and Khawaja 2021). However, a common result of observation studies and a concern of teacher educators is that history teaching often focuses on transmitting a selected collection of factual knowledge (e.g. Cuban 2016; Nokes 2010; Saye et al. 2018). Teacher-centred methods and the memorization of a given narrative have dominated instruction.

Canadian historian Chad Gaffield (2001: 12–14) summarized the paradox of history education by comparing it to basketball. Gaffield describes how he and his classmates read about history at school, talked about history and wrote history, but never did history. This, he adds, would be akin to learning basketball after years of reading the interpretations and viewpoints of great players and watching them play, but never actually playing. Gaffield goes on to describe how university courses focused on various viewpoints of historians rather than getting to grips with the past. In sports terms, he began to play the game only at the doctoral-thesis level.

Before moving on to questions of the teaching discipline history, a few clarifications may be helpful. In the school context, 'learning the discipline' or 'historical thinking' does not refer, for example, to a deep understanding of research methodology. The aim is to widen students' understanding, not produce new knowledge like historians do (Husbands 1996: 26). The wide variety of academic historiography and paradigms may make it difficult to construct a universally shared model of 'historical thinking' used by historians (e.g. Thorp and Persson 2020). Moreover, history education research has several

traditions that stress different aspects of historical expertise (e.g. Seixas 2017). Still, these reservations do not make pedagogized disciplinary models like historical thinking meaningless. On the contrary, even though the 'historical thinking' in history instruction models may not capture academic history per se, it, like analogous models in other school subjects, can be seen as important epistemic tools needed to grasp the disciplinary ways of thinking.

In this chapter, I examine the challenges teacher education faces in promoting history teachers' powerful professional knowledge. Although I draw my data and examples from history education, many of the challenges are common to other school subjects. Based on recent studies I have conducted with members of the Research Group for Social Studies Education at the University of Helsinki, I discuss the implications for teacher education policy and practice that could support the strengthening of subject teachers' powerful professional knowledge. By subject teachers, I refer to teachers who study their teaching subject as their major and are oriented to teaching in secondary education.

In order to generate meaningful professional knowledge, a subject teacher needs knowledge about teaching subjects and their background disciplines, knowledge about education and school systems in general, and the ability to master different pedagogical situations (*knowledge about education and knowledge for educational practice*, Hordern 2018). Promoting powerful professional knowledge requires bringing these different types of knowledge together (Furlong and Whitty 2017: 49; Maton 2014: 181). As a consequence, the teacher should be able to theorize and reflect on schooling and learning situations with disciplinary concepts that are drawn from both educational science and the background discipline(s) of the teaching subject. This is not an easy task for student teachers, working teachers or teacher education systems.

Two reasons explain why teacher education in Finland offers an interesting case study. First, from an international perspective, Finnish teacher education has adopted a particularly strong theoretical emphasis in recent decades (Säntti et al. 2018). Second, the Finnish teacher education system has a distinctive feature in that the teacher training schools are affiliated to universities. Ideally, university-based training schools can offer a first-class platform for merging teachers' academic knowledge with day-to-day schooling.

The starting point for my analysis is the observed imbalance between Finnish history teachers' understanding of their subject and their pedagogy (Puustinen and Khawaja, forthcoming). In interviews, teachers acknowledged that history was an interpretative subject and favoured pedagogical methods that would promote disciplinary history. However, during observed lessons, their pedagogy

seemed to be reduced to transmitting facts without a disciplinary approach. I interpret these results by analysing the historical development and structure of teacher education. As a theoretical framework, I apply Erich Weniger's (1957) idea of two opposite, yet still similar, pitfalls in teachers' work: the tyranny of theory and the tyranny of experience. My main argument is that there is a need to re-innovate teaching practice periods as the connective glue between theory and practice in teacher education.

## Theoretical Framework

While schooling has arguably changed over the last century, the changes are often other than intended (Tyack and Cuban 1995). Terms like 'habitual blindness' (Cassirer 1944, cited in Ertsas and Irgens 2017) and 'persistent tradition' (Cuban 2016) conceptualize how the structures of schooling and teachers' daily routines include different historical sediments descended from earlier times. If these habitual practices are not questioned, teachers may merely be repeating the routines adopted from previous generations.

German scholar Erich Weniger (1957: 18) used the concept of the tyranny of experience to criticize views that mere experience would be enough to justify practical actions. If a teacher's understanding is solely grounded in experience, it leads to prejudiced and fortuitous actions, namely, poor practice. Like many later scholars, Weniger emphasized the interaction between educational theory and practice. According to Weniger, we should avoid dichotomist thinking because both theory and practice will always exist *per se* and mutually depend on each other. There is no theory without educational practice, and practice always includes some kind of theoretical elements.

Weniger's analytical model (1957: 10–11) is based on three grades of theory. The theory of the first degree is hidden and non-articulated. It can be identified through action, not through arguments (Argyris and Schön 1978). The theory of the second degree can be expressed as arguments which are based on experience or theorems. Detecting the theory of the second degree requires reflecting on the premises of actions. A teacher who recognizes this can formulate her own theoretical basis.

The theory of the third degree refers to reflective and generic meta-theoretical thinking that is based on context-independent knowledge (Weniger 1957: 19) and is a theory that can be used for analysing practice. However, this requires reflection that is thoroughly open towards one's own actions, as well as analytical

distance. Such thinking makes it possible to generate practice that is more rational. In this regard, Weniger's thinking resonates with Young (e.g. Young and Muller 2014), who emphasizes the context-independent nature of powerful knowledge. I argue that for subject teachers Weniger's meta-theoretical thinking needs to combine the different types of knowledge that comprise powerful professional knowledge.

Ertsas and Irgens (2017) re-develop Weniger's ideas in the context of professional theorizing. They understand the theory of the third degree as a means for generating context-independent professional knowledge. In order to theorize professionally, a teacher must be able to develop her practice without being restricted to primary experiences only (Ertsas and Irgens 2017). By drawing on the theory of the third degree, a teacher can legitimize practice, make implicit theories explicit through the theory of the second degree and critically reflect on the theory of the first degree. This can help teachers theorize their own work in a way that questions the traditions and habitual blindness inherent in the theory of the first degree.

Connecting theories of the first and third degree highlights the importance of the second level of Weniger's model. In this sense, teacher education's aim would be to develop intentional theory and articulate it explicitly. As powerful professional knowledge would bring different types of knowledge together, successful teacher education would create connections between theoretical educational knowledge and everyday work in classrooms. This requires engaging practice, the experience of the practitioner and theory. If theory loses touch with practice, its impact declines or ceases (Weniger 1957: 22).

## The Reduction of Disciplinary Thinking

As noted, an observation study carried out in Finnish history classrooms indicated a clear discontinuity between teachers' intentions and pedagogical choices (Puustinen and Khawaja, forthcoming). The results revealed a somewhat traditional approach to history teaching with teachers on average lecturing for 40 per cent of the time. While lecturing, they used PowerPoint slides and occasionally asked some questions. These were usually closed questions in the sense the teacher had a specific correct answer in mind. Most classroom activities did not encourage open-ended enquiry or challenge conventional narratives. The nature or use of historical knowledge was rarely considered. Most observed lessons guided students to move information from one place to another in order

to memorize it. Many student-centred activities appeared engaging at first sight, but eventually did not support disciplinary learning (Puustinen and Khawaja 2021; also see Fordham 2015). However, despite fact-based teaching, teachers acknowledged in the interviews that history was an interpretative subject and that they favoured pedagogical methods which would promote disciplinary history.

These results are consistent with other studies in which observed history instruction has often appeared to be merely emphasizing facts (Cuban 2016; Nokes 2010; Saye et al. 2018). At the same time, the results resonate with those studies in which teachers were interviewed or a discrepancy between interviews and classroom practices was observed (e.g. van Nieuwenhuysse and Wils 2019; Rosenlund 2016). While some teachers presumably say what they think the researcher wishes to hear, and some may be unfamiliar with disciplinary history, the educational background of Finnish history teachers suggests there is a need for a more coherent interpretation.

In Finland, student subject teachers study for five to six years before graduating and taking up a teaching position (Puustinen et al. 2018). Most of this time is spent in the subject department where students also complete their master's thesis. In an international comparison, the Finnish system resembles those found in many other countries, with 75 to 80 per cent of the emphasis on the teaching subject rather than general educational knowledge being comparable to the European average (Ecker 2018). Hence, the conclusion that teachers simply do not understand the discipline appears to fall short. Most history teachers should master their discipline, even though they may not necessarily participate in the production of new scientific knowledge (Fordham 2015). However, there is considerable variation among teacher education systems, universities and emphases across Europe, which makes more specific comparisons difficult.

In order to become certified teachers in Finland, students must complete pedagogical studies, which include two teaching practice periods (Puustinen et al. 2018). Teachers' pedagogical studies consist of about twenty separate courses, ranging from educational psychology to historical and philosophical aspects of education, amounting to a total of 60 ECTS credits. Generally, subject student teachers complete their pedagogical studies in one academic year and may complete these studies at any stage of their major studies. At the heart of history didactics are concepts like historical thinking and historical consciousness.

Considering the observation results and Finnish history teachers' education, it seems that teachers' disciplinary knowledge is connected neither to their

educational knowledge nor to their pedagogy. In order to understand where and why disciplinary aims are lost, I now examine the historical development of Finnish teacher education in the light of Weniger's thinking.

## The Changing Emphasis of Finnish Teacher Education

In recent decades, Finnish teacher education has developed from a prescriptive and practice-oriented model towards a research-based orientation (Säntti et al. 2018). The foundations of Finnish teacher education were laid in the nineteenth century. Class teachers, who taught at the primary level, were educated in teacher training colleges. Subject teachers, who worked on the secondary level, studied their major through their subject departments and participated in teaching practice periods at the university's training school. The whole teacher education system was reformed during the 1960s and 1970s. While the decision to educate primary school teachers to master's level marked a significant departure from the international trend (Simola and Rinne 2015: 262), the education of subject teachers continued to follow nineteenth-century structures. Yet, common to both education paths is an increased emphasis on educational research competencies (Puustinen 2018; Säntti et al. 2014; Sitomaniemi-San 2015).

During the first phase of the development, teaching was seen as a craft. Drilling ready-made teaching methods offered a fixed version of knowledge and practical tools that a teacher would need. Against this background, the message of reformers during the 1960s was quite clear. The theoretical basis of teacher education and a teacher's work were unequivocally inadequate (Committee Report [CR] 1967, 1968, 1969). However, at the same time, teacher educators were warned against providing an overly theoretical education for prospective teachers (CR 1969: 36). The connection between theory and practice was fragile.

During the 1970s, plans to reform Finnish universities ignited debate. Intentions to create a polytechnic model that would combine theoretical and practical knowledge in the spirit of multidisciplinary and critical thinking (CR 1972) were rejected by more conservative academic staff (Kivinen and Rinne 1996). As a result, teacher education was eventually organized according to more traditional academic guidelines. The emphasis on theory continued (Säntti et al. 2018) and the ability to think scientifically was presented as being characteristic of a teacher, as encapsulated in the suggestion that 'practical decisions should derive from research-based facts, not beliefs' (CR 1975: 41). Nevertheless, the committees of the time admitted that teachers were not supposed to be 'real

researchers' and that there was not (as yet) a generally accepted theory of education or instruction (CR 1975).

The decision to educate all teachers to master's level was mainly driven by political decision-making and the general degree reforms pertaining to Finnish higher education (Simola and Rinne 2015). Consequently, on the practical level, teacher education was not ready to engage theory-based learning. The academization process of Finnish teacher education took several decades. For example, during the 1990s questions arose as to whether class teachers needed studies at master's level. The defensive reaction was to stress the theoretical aspects of teacher education more strongly. One implication of the new status was the rhetorical choice to present teachers' tasks more broadly than earlier: teachers were to be 'educational experts', not only schoolteachers (Säntti et al. 2018). This brought about a significant change in teacher education in the mid-1990s. Simply put, more theory and research methodology were added and teaching practice periods became shorter (Puustinen 2018; Säntti et al. 2014).

Unlike in earlier decades when the relationship between theory and practice was seen as problematic in one way or another, teacher education reports from the 2000s and 2010s do not recognize ambivalence (Säntti et al. 2018). On the contrary, a report from 2007 declares that 'a research orientation and teachers' day-to-day work are inseparable' (CR 2007: 37). The proposed solution to the decades-long challenge to combine theory and practice was personal practical theory (PPT), which every student teacher was encouraged to develop. The concept of PPT, as well as some analogous labels, refers to the interaction between the knowledge, beliefs and practices in the minds of teachers (Puustinen et al. 2018). The Finnish system shares these definitions, but places more emphasis on academic studies and scientific elements. The stated aim of PPT is to combine different elements experienced by students during their education. Yet, for some – possibly rhetorical – reason, the degree requirements of the teacher education programmes at the University of Helsinki do not define PPT.

While it is clear that the idea of PPT resonates with Weniger's aim to avoid the tyrannies of theory and experience, the vagueness of PPT raises questions. For example, if these personal and practical theories comprehend everything that a pre-service teacher (or qualified teacher) has met in pedagogy during their lives, do they actually say anything specific? Are there any criteria for PPT? Finally, if PPT is generated by experience and has no criteria, how does it differ from the everyday knowledge that represents the tyranny of experience?

These uncertainties relate to the educational knowledge of teachers. As noted, teachers are probably unable to generate powerful professional

knowledge if the disciplinary knowledge of their teaching subject, knowledge about education and knowledge about educational practice are not connected. A somewhat open question relates to whether teaching practice periods have followed the theorization process of Finnish teacher education and, respectively, whether the theoretical aspects of pedagogical studies have a solid connection to teachers' everyday work (Puustinen et al. 2018). In an effort to understand this uncertainty, I next examine the history of Finnish teacher education from a different angle.

## Decontextualized Educational Knowledge

Before the 1970s, teacher training colleges promoted a prescriptive and conservative orientation to teaching (Säntti et al. 2018). An uncontentious interpretation of this is that strict ideas of good instruction led to an understanding of the theorizing of everyday work as superfluous. Non-academic teacher education could be characterized as the tyranny of experience. Subsequently, the intensified emphasis on a research orientation presented a different scenario. In their analysis of the academization of Finnish teacher education, Simola and colleagues (Simola et al. 2015: 122) argue that the theoretical emphasis created a decontextualized and 'school-free' approach, namely, the 'science of how the teacher should teach and how the pupil should learn in school – as if it were not in school'.

The balance between theory and practice in Finnish teacher education has been turned upside down since the 1960s and 1970s (Säntti et al. 2018). The fixed views and drilling of ready-made teaching methods have been replaced by undefined personal practical theories. This development resembles the shift from curriculum Future 1 to Future 2, as described by Young and Muller (2010). Pedagogical knowledge that is based on undefined PPT seems to depend on the knower. Further, school-free pedagogy, namely, theorizing teaching without any connection to actual school, appears to be an illustrative example of the tyranny of theory.

Regarding teachers' powerful professional knowledge, the alienation of practical and theoretical educational knowledge makes it more difficult to bring different knowledge bases together. However, it is important to note that the tyranny of theory in teacher education does not automatically lead to the tyranny of theory at the practical level. On the contrary, I suggest that it leads back to the tyranny of experience in classrooms.



As mentioned, teacher training schools are a distinctive feature of Finnish teacher education in that they are administratively connected to the faculties of education. Ideally, this connection would prove highly valuable. Yet research suggests that the academization of Finnish teacher education has thrown these connections off track. As a consequence of the scientification process, the guidance during teaching practice periods was left to lower-level staff, namely, to teachers in university training schools (Simola 1997), while stronger pressure to produce publications persuaded teacher educators to focus on research, loosening connections to daily work in schools (Säntti et al. 2014). Today, professors are seldom involved in day-to-day classroom practice and most lecturers do not have the possibility to take part in teaching practice guidance. In this sense, the message from surveys completed by subject teacher students is clear: the theoretical and practical aspects of teacher education are not related (Puustinen 2018).

There is no all-inclusive research data to reject or confirm the discontinuity between pedagogical studies and teaching practice periods. However, some case studies focusing on history imply that teachers who mentor student teachers seem to be somewhat critical of the ideal of historical thinking (Norppa 2019; Veijola 2013). For example, didactical efforts to implement more evidence-based learning have been criticized for usurping the time that could be spent teaching substantive knowledge. Yet promoting students' powerful knowledge would require them to grasp the way in which historical knowledge is produced, and thus to understand how historical narratives are always created by someone (Puustinen and Khawaja 2021).

As noted, many or most history teachers seem to understand this at a theoretical level, but are unable or unwilling to implement disciplinary aims. Based on the historical development of Finnish teacher education, I suggest that the decontextualization of educational knowledge makes it hard for an individual teacher to combine disciplinary and educational knowledge and hence to critically reflect on the traditions of schooling. In the section that follows, I concretize how decontextualized educational knowledge can hinder history teachers' ability to break the tyranny of experience, and unpack the external influences that push teachers towards memorizing.

## The Tyranny of Experience Dominates History Instruction

The nineteenth-century origins of school history as a national narrative transmitter are still deeply rooted in many school systems and public opinions.

Thus, curricula and assessment practices may at least to some extent reflect an emphasis on the substantial aspects of historical knowledge. This was also noticeable in the actions of the teachers who participated in our observation study. Even though the national core curriculum of that time (2016–21) obliged teachers to promote historical thinking, it also defined thirty-six substantive items that students are expected to learn (Finnish National Agency for Education 2015). The observed teachers duly had to juggle the content demands as well as disciplinary practices.

A particular challenge with respect to disciplinary intentions seems to arise if a large quantity of substantive knowledge is tested by multiple-choice questions (e.g. Smith et al. 2018). Still, essay-based tests can also be problematic. For example, although the matriculation examination that Finnish students must pass at the end of upper secondary school includes only essay-based questions, history tests have barely supported disciplinary aims (Puustinen et al. 2020). Only a minority of assignments have been document-based, and most of these have required analysing only one document. Sourcing and contextualization (Wineburg 1991) have been inconsistently required. Finally, the essential historical literacy skills have not been a requirement in the grading rubrics.

At the classroom level, curricula and testing requirements merge with the teacher's professional knowledge. A long tradition of research suggests that many teachers tend to teach in the same way that they were taught in school, even though their experiences may be at odds with their pedagogical education. In the case of history teaching, teachers and student teachers may have never experienced disciplinary pedagogy as students. Teaching at university level has traditionally involved lecturing. VanSledright (2010: 188) argues that students absorb what it means to learn and teach history during their time at university: 'Historians talk, students listen and take notes on the usually accurate assumption that they will soon be tested on their capacity to make sense and recall the scholarship [ . . . ] to which they were exposed.'

In a recent study (Puustinen and Vesterinen, forthcoming), we observed the teaching in two Finnish history departments. While the general approach was multidimensional, on many occasions the stress was on transmitting substantive knowledge. In another study (Veijola and Mikkonen 2016), approximately half of novice history students saw history as a collection of facts and fascinating stories. An equally sized group perceived history as a tool for understanding the world. These students emphasized causal relations and stressed the importance of sharing knowledge about history with other people in order to educate them. Very few students saw historical knowledge as the result of interpreting evidence.

An indirect sign of the continuous tradition of fact-based history instruction in schools is that the last perspective represents the orientation that national core curricula have emphasized since the 1990s.

Hence, it seems that many Finnish history teachers may only have learning experiences that focus on substantive knowledge and no concrete idea of how disciplinary pedagogy could be implemented. In their pedagogical practices, they follow what they know, namely, the fact-based tradition. Similarly, in a study conducted by Rosenlund (2016: 119) the Swedish teachers who were interviewed made references to their own time as students, as well as the advice given to them by more experienced colleagues. Rosenlund (2016: 177) argues that they were guided by a strong tradition based on teachers' and their colleagues' experiences.

Overall, while many history teachers and student teachers seem to hold an understanding of history as an interpretative discipline, they still have a strong perception that teaching history means passing on substantive knowledge about history (also see Sears 2014). This tradition is absorbed, not articulated, making it problematic to discuss and criticize. In Weniger's terms, history teachers seem to have difficulties in making non-articulated actions visible and thus transferable. To create a more disciplinary pedagogy, teachers should be able to understand how the National Core Curriculum and learning materials (e.g. textbooks) relate to each other and further the didactical ideals (i.e. supporting disciplinary history). Finally, all of these should be compared to school traditions and the teacher's own pedagogical thinking.

To conclude the Finnish case, the historical development of teacher education has not supported merging history teachers' educational and subject-specific knowledge with daily pedagogy. The fragmentary structure of subject teachers' education and the alignment of the theoretical and practical parts of the education may even have reinforced the status of the tradition that predominated in the classrooms in our observation study. In the final part of this chapter, I discuss how re-innovating the nineteenth-century idea of university-based teaching practice schools could go some way towards overcoming this persistent tradition.

## Discussion: Re-innovating Teaching Practice Periods as Interaction between Theory and Practice

I have sought to understand how the development of Finnish teacher education can explain why history teachers are unable to implement disciplinary teaching

despite their intentions to do so. One would presume that Finland's teacher education system, which emphasizes theoretical knowledge about education, and where all teachers are educated to master's level and teacher training schools are part of university organizations, would have overcome persistent traditions. Nonetheless, at least in the case of history teaching, traditional teacher-centred and fact-based pedagogy seems to play the dominant role. Why is the tradition so powerful and how can teachers' powerful professional knowledge be strengthened in order to aim for a more disciplinary pedagogy?

History teachers and student teachers face conflicting messages. On one hand, teacher educators and parts of the national curricula for both basic education and general upper secondary education emphasize the disciplinary aspect of history. On the other hand, the dominant teaching tradition, assessment practices and many learning materials emphasize the substantive knowledge that is expected to be memorized. In many ways, the controversy culminates during teaching practice periods. I argue that if the actual learning and teaching situations are not theorized with educational and subject-specific knowledge the tradition continues to supersede disciplinary views. The interpretative aims of teachers are reduced by decontextualized educational knowledge, which opens classroom doors to the tyranny of experience.

Weniger's theorization offers an analytical framework for examining these challenges. Regardless of the differences between national contexts, teachers are the bosses of their classrooms. They are gatekeepers who have enough freedom to make instructional decisions irrespective of curricular or administrative regulation (Tyack and Cuban 1995: 135). If teachers as gatekeepers lack the capability of meta-theoretical and context-independent thinking, they are more likely to be subject to the tyranny of experience, namely, to follow tradition.

Weniger's framework emphasizes the non-dichotomous understanding of theory and practice. While, according to Weniger, neglecting new ideas by stating that 'experience shows that . . .' usually means legitimizing lacklustre or poor practice (Ertsas and Irgens 2017), on the other hand theory is meaningless without a connection to practice. Hence, the aim is the ability to theorize, not merely accumulate knowledge about theories (Ertsas and Irgens 2017). The ability to think reflectively is also a publicly stated goal in the Finnish teacher education system. The notion of the reflective teacher is closely connected to the agenda of research-based teacher education, which aims to educate teachers not simply as the recipients of professional knowledge but as autonomous actors who also participate in knowledge production (Puustinen et al. 2018).

However, as I have argued, the development of Finnish teacher education in recent decades raises the question of whether the heavy emphasis on research abilities (Sitomaniemi-San 2015), and the loosening ties to classrooms, will support theorizing classroom experiences. While there would be little point criticizing the Finnish aim to support making theorizing and reflection visible by emphasizing PPT, it would be a mistake to think that merely vocalizing one's own theories would create a better practice. Theory in the form of 'school-free pedagogy' may not offer meaningful tools for a practitioner. As Rosenlund (2016: 183) notes in the context of history teaching, if teachers are supposed to re-design their instruction on their own or in discussion with colleagues, there is a risk that it will further strengthen the already dominant tradition. Similarly, Ertas and Irgens (2017) refer to Ryle (1949), who pointed out that theorizing is something that everyone does, and that it can be done both intelligently and stupidly.

Translating the aforementioned considerations into powerful knowledge discourse means that there is no point in reflecting on everyday knowledge about teaching without disciplinary concepts and understanding. Given the tradition and non-articulated theory of first degree parallels to everyday knowledge as defined by Young and Muller (2014), in order to make theorizing meaningful and to duly extend and transform everyday understanding, subject teachers should be able to use theoretical concepts and other thinking tools drawn from both educational science and the background discipline(s) of their teaching subject.

Even classic sociological studies about schooling paid attention to the primitiveness of teachers' professional language (e.g. Lortie 2002). Teachers seem to lack the analytical tools to conceptualize the complexity of education amidst societal and institutional purposes, obligations and expectations. Concepts like the grammar of schooling (e.g. Cuban 2016) may enhance understanding about the stability of rituals, procedures and structures that are reflected in the teaching of particular subjects, and define the possibilities of an individual teacher. At the same time, an understanding of the structures and societal expectations could support the context-independent reflection and transformation processes of disciplinary knowledge.

From the perspective of subject teachers' professional knowledge, the theorization of pedagogical situations should not be separated from broader knowledge about education and teaching subjects. Regardless of theoretical expertise, every teacher needs some practical tools to implement pedagogical ideas. If a novice teacher cannot construct connections between education

and the acute challenges she faces in the classroom, usable solutions have to be found somewhere. A likely, and safe, source for these solutions is the tradition that is familiar from one's own time as a student, or that is passed down from more experienced colleagues (Rosenlund 2016). As Dan Lortie (2002) noted in the 1970s, teachers spend most of their professional career alone in classrooms full of students. There is no one at hand to help in questioning the tradition and to support the development of professional knowledge. Without a strong epistemological foundation and professional knowledge, a novice teacher can easily lapse into traditional pedagogical methods. This requires training which draws together knowledge about education, subject-specific knowledge and knowledge about pedagogical situations.

Here, teaching practice periods are crucial. Mentor teachers who coach student teachers should be able to justify their own actions as well as give feedback on student teachers' work based on relevant theories and scientific knowledge, not on experience (Ertsas and Irgens 2017). In order to overcome the tyranny of experience, an unbeatable innovation would be re-innovating the initial idea of Finnish university-based teacher training schools. During the 1970s, when the existing teacher education system was established, and even in the mid-nineteenth century, when systematic teacher education began, developers emphasized the interaction between academic studies and practical training. University-based teacher educators, including professors, were assumed and recommended to participate in the guidance of teaching practice periods. These aims have gradually diminished in view of advances in the identification process of Finnish teacher education.

In this chapter, I have used history education and Finnish teacher education as an example to analyse the challenges associated with promoting subject teachers' powerful professional knowledge. In Finland, the theorization of teacher education and emphasis on research methods during education have been salient. The message of this chapter is that adding more theory will probably not break persistent traditions if the connections to schooling and teaching practice periods decline. On the policy level, this would call for careful consideration of the way in which academic meriting through publications and actual teaching work with student teachers could be meaningfully balanced in the teacher education context.

The discontinuities in history teaching may well resonate with other school subjects. For example, working with primary sources would ideally strengthen students' historical thinking, but can likewise be used as another means for memorizing historical details or as a trivial group activity that does not support

learning the discipline. Similarly, in physics, lab activities can be used merely to reproduce known results or just as a fun activity, instead of subject-specific sense-making (e.g. Sickel et al. 2015). In both cases, without sufficient professional knowledge, teachers are unable to design activities that would demonstrate knowledge production in their respective disciplines.

It is noteworthy, however, that the situation may be more complex in those school subjects that do not have a clear background discipline. Social studies, for example, which draws its content from several academic fields, typically lacks a coherent knowledge structure, conceptual network and disciplinary basis that would define rules for knowledge production (Hansen and Puustinen 2021). Considering the aim of combining subject teachers' educational and subject-specific knowledge, social studies and other multidisciplinary subjects may pose a greater challenge for teacher education and curriculum development than those subjects which rely more heavily on particular disciplines.

I began this chapter by comparing learning history without engagement in doing history to learning basketball without actually playing the game. To conclude, I would like to apply Gaffield's example to teacher education: On one hand, learning to teach without actually doing any teaching in a real classroom will separate theory from practice and strengthen the tyranny of experience. On the other hand, learning to teach only by imitating others will do the same. The re-innovating of teaching practice periods would mean bringing theory into classrooms in a way that leads to theorizing practice and justifies actions based on theory, not on habit.

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