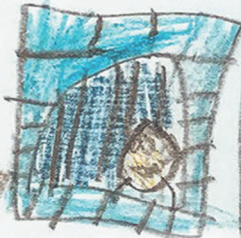
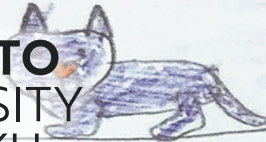




**TURUN
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AGENCY AS POLYPHONY

Student and primary teachers' narration
embedded in theory and practice

Mirva Heikkilä





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MIRVA HEIKKILÄ: Agency as polyphony: Student and primary teachers' narration embedded in theory and practice

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ABSTRACT

This dissertation examines student and primary teachers' agency in integrating theory and practice. To educate future citizens who act in a complex world of global challenges, primary teachers must learn to integrate research-generated knowledge taught in teacher education and their practical work in schools. Hence, more research-based teacher education programmes have been developed and learning research skills has been emphasised. However, the role of agency in this regard has remained understudied. Previous research has indicated that agency, referring to the power to act and choose one's actions, is important in learning and well-being in general. In this dissertation, a narrative approach to agency is used to examine how different linguistic expressions become used and selected in student and primary teachers' narration in their written texts and interviews.

The dissertation consists of three sub-studies in the context of Finnish research-based teacher education. These sub-studies utilised student teachers' study reports where student teachers reflected on the significance of research skills in their teaching practice period (studies I–II) and primary teachers' interviews on their teacher education and work (study III). *Study I* examined student teachers' agency when research skill studies and a teaching practice period were integrated. The study utilised a linguistic method to interpret expectations from text and the metaphor of voice by Bakhtin, bringing forth various voices. The study revealed that the student teachers utilised contradictory voices to make sense of research skills. The findings illustrated voices of enthusiasm, uncertainty, rejection, and anticipation, which implied enacted, limited, opposing, and open qualities of agency.

Study II utilised the concept of epistemic agency to examine how student teachers oriented themselves towards knowledge when engaging with research skills. The analysis was performed from the perspective of small stories, which also grasps the parts of narration that may not conventionally be understood as narratives. Student teachers were found to orient their epistemic agency to their own professional development, towards understanding the pupils and their backgrounds, to the educational research literature, and to the everyday life of school. The study revealed the multiple ways student teachers can utilise research skills and highlighted

the need to make epistemic agency and relationships to knowledge visible for student teachers in research courses.

Study III examined primary teachers' agency through relational sociology by exploring agency through relationships. The study analysed master- and counter-narratives to reveal how agency arouses from taking a stand on prevailing narratives. The study illustrated three relational aspects of agency: political, cultural, and epistemic. Finnish teachers have been claimed to be autonomous, but the study illuminated how their agency is not self-evident but forms through relationships with the prevailing circumstances.

The dissertation provides a theoretical contribution by conceptualising agency as a polyphony of multiple voices implying diverse qualities of action. This conceptualisation is especially needed in the development of Finnish primary teacher education. The programmes are popular, and only the most suitable candidates are chosen whence follows that all of them have good opportunities to succeed in teachers' work. Acknowledging that agency includes tensions and is always incomplete enables the analysis of issues that require development. In addition, the dissertation develops post-structuralist methodologies to examine agency in narration by bringing forth that teachers use various linguistic expressions that are not inherently personal but entwined with cultural narratives.

The dissertation illustrates the knowledge work that student and primary teachers do as they tailor knowledge for their own purposes and apply it from one institutional context to another. In conclusion, integrating theory and practice in teacher education requires taking into account student teachers' agency. In the integration, learning research skills plays a strong role because research skills help in understanding how research-generated knowledge is borne, what it signifies, and how it can be applied in teachers' work. In this sense, integrating theory and practice also enables agency.

KEYWORDS: Agency, narrative, student teachers, primary teachers, research-based teacher education; theory and practice; knowledge, research skills, higher education

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TIIVISTELMÄ

Tässä väitöskirjassa tutkitaan luokanopettajaopiskelijoiden ja luokanopettajien toimijuutta teorian ja käytännön yhteensovittamisessa. Luokanopettajan työ tulevien kansalaisten kasvattamisessa nykypäivän kompleksiseen ja globaaliin yhteiskuntaan edellyttää luokanopettajakoulutuksessa opettavan tutkitun ja luokanopettajan käytännön työn yhteensovittamista. Opettajankoulutuksen tutkimusperustaisuutta onkin vahvistettu ja tutkimustaitojen merkitystä korostettu. Siitä huolimatta toimijuuden merkitys on jäänyt tutkimuksessa vähälle huomiolle. Toimijuudella tarkoitetaan yleisesti ottaen mahdollisuuksia toimia ja valita toimintatapansa, ja se on aikaisempien tutkimusten mukaan tärkeää niin oppimisen kuin hyvinvoinninkin kannalta. Väitöskirjassa hyödynnetään narratiivista eli kerronnallista otetta ja tutkitaan opettajaopiskelijoiden ja luokanopettajien kielellisiä valintoja ja valikoitumisia heidän teksteissään ja haastattelupuheessaan.

Väitöstutkimus koostuu kolmesta osatutkimuksesta koskien suomalaista tutkimusperustaista luokanopettajakoulutusta. Osatutkimusten aineistoina oli opettajaopiskelijoiden harjoitteluraportteja, joissa he refleктоivat tutkimustaitojen merkitystä opetusharjoittelussa (tutkimukset I–II) sekä luokanopettajien haastatteluja opettajankoulutuksesta ja opettajan työstä (tutkimus III). *Tutkimuksessa I* selvitettiin opettajaopiskelijoiden toimijuutta tutkimustaitojen opiskelun ja opetusharjoittelun yhdistämisessä. Tutkimuksessa hyödynnettiin lingvististä menetelmää odotusten tulkitsemiseen kielestä sekä bakhtinilaista äänen metaforaa, joka tuo esille äänen moninaisuuden. Tutkimuksessa selvisi, että opiskelijat käyttivät osin ristiriitaisia ääniä hahmottaessaan tutkimustaitojen merkitystä. Aineistosta tunnistettiin innostuneisuuden, epävarmuuden, torjumisen ja toiveikkauden äänet, jotka ilmensivät toteutuneen, rajoittuneen, vastustavan ja avoimen toimijuuden sävyjä.

Tutkimuksessa II käytettiin episteemisen toimijuuden käsitettä, joka suuntaa toimijuuden tarkastelun tietoon ja tietämiseen. Analyysissä hyödynnettiin pienten kertomusten näkökulmaa, joka ohjaa tarkastelemaan myös sellaisia kerronnan kohtia, jotka eivät täytä vakiintuneita kertomuksen määrittelyjä. Tutkimuksessa havaittiin, että opettajaopiskelijoiden episteeminen toimijuus suuntautui heidän omaan ammatilliseen kehittymiseensä, heidän opettamaansa luokkaan ja oppilaiden taustojen ymmärtämiseen, kasvatustieteelliseen tutkimuskirjallisuuteen sekä koulun

arkeen. Tutkimus paljasti moninaiset tavat, joilla opettajaopiskelijat hyödyntävät tutkimustaitoja. Se toi esille tarpeen tehdä tutkimusopinnoissa näkyväksi episteemistä toimijuutta sekä opettajaopiskelijoiden tietoa ja tietämistä koskevia suhteita.

Tutkimus III lähestyi työssä olevien luokanopettajien toimijuutta relationaalisen sosiologian avulla: toimijuutta tutkittiin suhteiden kautta. Analyysimenetelmänä käytetty myötä- ja vastakertomusten analyysi paljasti, miten toimijuus ilmenee, kun opettajat ottavat puheessaan kantaa vallitseviin kertomuksiin. Tutkimuksen tuloksena esitettiin kolme kategorialla suhteista, joissa toimijuus ilmeni: poliittinen, kulttuurinen ja episteeminen. Tutkimus havainnollisti, miten suomalaisten, varsinkin autonomisessa asemassa olevien opettajien toimijuus ei ole annettua vaan muodostuu suhteissa vallitseviin yhteiskunnallisiin oloihin.

Väitöstutkimus luo uutta ymmärrystä käsitteellistämällä toimijuuden moniäänisyytenä, joka sisältää erilaisia toiminnan sävyjä. Tämä määritelmä on erityisen hyödyllinen suomalaisen luokanopettajankoulutuksen kehittämisessä. Luokanopettajan koulutus on suosittua ja sinne valitaan vain soveltuvimmat, minkä seurauksena kaikilla luokanopettajaopiskelijoilla on hyvät mahdollisuudet menestyä opettajan työssä. Huomioimalla, että toimijuuteen sisältyy jännitteitä, ja että se on aina keskeneräistä, päästään tarkastelemaan niitä kohtia, jotka vaativat kehittämistä. Samalla väitöstutkimus kehittää jälkistrukturalistisia kerronnallisia menetelmiä, joissa kielellisiä valintoja tai valikoitumisia ei nähdä pelkästään henkilökohtaisina vaan kietoutuneina kulttuuriin kertomisen tapoihin.

Väitöstutkimus osoittaa, miten luokanopettajaopiskelijat ja luokanopettajat työstävät tietoa muokkaamalla sitä omaan käyttöönsä ja siirtämällä sitä kontekstista toiseen. Johtopäätöksenä on, että teorian ja käytännön yhteensovittamiseksi on kiinnitettävä huomiota opettajaopiskelijoiden toimijuuteen. Yhteensovittamisessa tutkimustaitojen opiskelulla on suuri merkitys, sillä tutkimustaidot auttavat opettajaopiskelijoita hahmottamaan tutkitun tiedon merkitystä, syntymistä ja soveltamista opetuslalla. Tällä tavoin teorian ja käytännön yhteensovittaminen myös mahdollistaa toimijuutta.

ASIASANAT: Toimijuus, narratiivisuus, opettajaopiskelijat, luokanopettajat, tutkimusperustainen opettajankoulutus, teoria ja käytäntö, tieto, tutkimustaidot, korkeakoulutus

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List of Original Publications

This dissertation is based on the following original publications, which are referred to in the text by their Roman numerals:

- I Heikkilä, M., Iiskala, T., & Mikkilä-Erdmann, M. Voices of student teachers' professional agency at the intersection of theory and practice. (2020b). *Learning, Culture and Social Interaction*, 25, Article 100405.
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1 Introduction

This dissertation aims to examine how agency is manifested in student and primary teachers' narration embedded in theory and practice. In today's knowledge-intensive world, the need for teachers to integrate research-generated knowledge taught in teacher education and teachers' practical work in schools has been increasing. The perennial issue of theory and practice in teacher education (Korthagen, 2010) is timely in the world of global challenges such as climate change, pandemics, and inequalities, which require complex knowledge and action. The primary teacher profession is a basis for the development of society and societal change (Mikkilä-Erdmann et al., 2019) because primary teachers educate societies' future actors and decision makers (Koskela & Kärkkäinen, 2021). Today, professionals in general must learn to apply theoretical knowledge in their work, in this case teaching, and, in turn, to conceptualise phenomena using theoretical concepts (Tynjälä et al., 2014). This is also needed to overcome the limitations of gut feelings and non-scientific beliefs (Murtonen & Salmento, 2019) in the age of post-truth, as emotional and personal beliefs trump scientific expertise and academic values (Hauke, 2019; Hughes, 2019), and research-based knowledge is increasingly criticised (Jensen et al., 2012).

Historically, the research base for primary teacher education has been narrow in many countries (Aspfors & Eklund, 2017). Recently, strategies to increase the research base of teacher education programmes have been implemented throughout the world (Afdal & Spernes, 2018; Darling-Hammond et al., 2017). However, the Finnish primary teacher education has been a master's-level university degree for decades. Prior research has mainly indicated the benefits of the Finnish research-based teacher education to teachers' professional work (Aspfors & Eklund, 2017; Toom et al., 2010), whereas some studies have seen that science has been overemphasised (Puustinen et al., 2018; Sääntti et al., 2014).

However, understanding and supporting student and primary teachers' agency in integrating theory and practice have not aroused much attention. In a broad sense, *agency* refers to the power to act and choose one's actions. The concept of agency emerged from liberal humanism and romanticism in the eighteenth century, wherein the individual was viewed as an autonomous, stable, and rational being (Rainio,

2010). By the rejection of the binding power of tradition, agency became understood as the capacity of human beings to shape the circumstances under which they live (Emirbayer & Mische, 1998). This notion embedded agency in an individualist and calculative conception of action (Emirbayer & Mische, 1998), still prevailing but also seen as problematic and requiring updating, such as in this dissertation. However, from then on, the true notion of agency has been a persistent question, inspiring researchers and policy makers in many fields.

In general, agency has been associated with various terms such as selfhood, will, intentionality, freedom, and creativity (Emirbayer & Mische, 1998). In educational science, prior research has indicated the importance of agency in terms of learning and well-being (Eteläpelto et al., 2013; Paloniemi & Goller, 2017). Thus, accordingly, agency is important for primary teachers for many reasons.

First, agency is a prerequisite for both teachers' and their pupils' learning and well-being (Toom et al., 2021). Hence, to learn or feel well, one needs to have a sense of agency, which can be supported by pedagogical means. In teacher education, agency is linked to building teacher competences (Toom et al., 2021). Moreover, teachers' agency has been relevant in the development of educational and workplace practices (Vähäsantanen, 2015), change for sustainability (Koskela & Kärkkäinen, 2021), and managing teacher shortages (Leijen et al., 2021). Second, agency as such is also a long-time aim of learning in Western societies, as teaching strives for educating agentic humans and citizens on how to make a difference in their lives and in society (Rajala et al., 2016; Siegel & Biesta, 2021). In this sense, agency is an aim for both teachers' professional development and work in educating pupils.

Agency, in general, is a concept that has over time been defended and attacked and often conceptualised in contradictory and overlapping ways (Emirbayer & Mische, 1998). Accordingly, teachers' agency has been examined from various perspectives and understood, among others, as teachers' ability or capacity to promote learning (Toom et al., 2017) or a larger phenomenon referring to doing rather than to being (Biesta et al., 2015) and manifesting itself between person and practice (Edwards, 2017). However, despite these perspectives, many prior studies tend to over-simplify agency in categorising it as strong or weak. The nuances of teachers' agency should be examined and elucidated (Loutzenheiser & Heer, 2017). Thus, this dissertation takes a narrative approach (De Fina & Georgakopoulou, 2008, 2015; Hyvärinen, 2008) and investigates deeply student and primary teachers' written and oral narration. Thereby, it shifts the understanding of agency from being individualistic to being more entwined and relative in line with post-structuralist notions of humanity, knowledge, and language as fragmented and beyond universal truths (Hodgson & Standish, 2009).

Primary teachers' training and professional learning span from student selection to professional development in working life. Hence, in this dissertation, student teachers are viewed as future teachers, and referring to *primary teachers* or more broadly *in-service teachers* includes student teachers. The sub-studies covered different aspects of the theory-practice integration. In study I, the links between research skill studies and a teaching practice period were examined, whereas study II focused on the role of knowledge and knowing concerning research skills. Study III was conducted from the perspective of teachers' working lives. In study I, the concept of professional agency (e.g., Edwards, 2015) was used to highlight student teachers as future professionals. In study II, an emergent concept of epistemic agency (Damşa et al., 2010) was used to emphasise an active stance towards knowledge. Finally, an understanding of agency as manifesting in relations (Burkitt, 2016) was the focus in study III.

In all the studies, narration was understood as an action itself, revealing and creating agency. In studies I and II, the concept of narrative practice was used to withdraw from seeing narratives as merely text (De Fina & Georgakopoulou, 2008), whereas study III was focused on the negotiation between prevailing and alternative narratives, that is, master- and counter-narratives (Hyvärinen, 2020) in expressing agency. Table 1 summarises the key concepts of the sub-studies, which are discussed more profoundly in the theoretical and methodological chapters.

Table 1. Key concepts of the sub-studies.

STUDY	AGENCY	THEORY AND PRACTICE	NARRATION
I	Professional agency (e.g., Edwards, 2015)	Research skills (e.g., Tatto, 2015)	Narrative practice (e.g., De Fina & Georgakopoulou, 2008)
II	Epistemic agency (Damşa et al., 2010)		
III	Agency in relations (e.g., Burkitt, 2016)	Teacher training and work	Master- and counter-narratives (e.g., Hyvärinen, 2020)

The dissertation begins by introducing different perspectives from which teachers' agency can be understood and then reconceptualising agency to capture its nuances. Second, to further elaborate the nuanced understanding, the dissertation next discusses how agency is exercised in narration. Third, the last theoretical chapter links agency to the interconnections of theory and practice in the Finnish primary teacher education. The aims of the research based on this theoretical background are presented hereinafter.

1.1 Perspectives on Teachers' Agency

Both student and in-service teachers' agency have recently been studied from various perspectives in educational science, and theoretical work has been conducted. However, no universal definition has been established for teachers' agency. First, teachers' agency has been defined as teachers' capacity to effect change (Maclellan, 2017). Second, departing from the concept that agency is something that teachers can have, it can refer to something that teachers do, that is 'the quality of the engagement of actors with temporal-relational contexts-for-action' (Biesta et al., 2015, p. 626), and manifesting not only as change but also via oppositional stances and less progressive actions (Vähäsantanen, 2015). Third, in socio-cultural accounts, teachers' agency is a crucial element in the dialectic of person and practice, unfolding when 'actions are taken in activities, which are themselves located in institutional practices' (Edwards, 2017, p. 273).

Fourth, in the post-structuralist understanding, also used in this dissertation, agency does not signify merely individual teachers' will to act (Loutzenheiser & Heer, 2017). Post-structuralism, though a heterogeneous field as such, escapes the assumptions of clearly defined subjects and centring of human subjects as conscious, rational, and autonomous beings (Andreotti, 2014). Despite decentring of humans, agency is a relevant concept, signifying that agency is not denied but seen in a broader light (Allen, 2002). In teacher education, this means that agency is always incomplete and intertwined with and produced through the linguistic and narrative systems and relationships within which teachers act (Loutzenheiser & Heer, 2017).

These key definitions of teachers' agency are reflected in the studies presented in Table 1. The table summarises prior research on student and in-service teachers' agency by presenting selected examples and illustrating different themes and theoretical views of agency. The participants in the studies vary from student teachers (Brevik et al., 2019; Juutilainen et al., 2018; Toom et al., 2017) to in-service teachers, including primary teachers (e.g., Heikonen, 2020), early childhood educators (e.g., Melasalmi & Husu, 2019), and subject teachers, such as language teachers (Kayi-Aydar, 2019).

Some of the studies examined how a pedagogical practice such as home group working (Juutilainen et al., 2018) or a national policy such as the standardisation of teaching (Oolbekkink et al., 2017) affected agency. Some were rather interested in agency for a special purpose, such as agency for social justice (Pantić et al., 2019). Quantitative studies indicated how the sense of agency was related to the learning environment (Toom et al., 2017) or how weak agency was related to inadequacy in teacher-pupil interactions and intentions to leave the teaching profession (Heikonen, 2020).

The theoretical perspectives of the selected studies vary from socio-cultural understanding of learning as mediated by the context and culture to cognitive understanding of learning as an individual process of attaining capabilities. One

study emphasised the role of language and narrative in the formation of agency (Kayi-Aydar, 2019), and another viewed agency as a materialist formation, that is, as an assemblage that consists of not only human, but also nonhuman powers (Charteris et al., 2017).

Table 2. Exemplary studies on student and in-service teachers' agency.

AUTHORS	JOURNAL, YEAR	TITLE	THEORETICAL VIEW	TOPIC AND METHOD
Biesta et al.	Journal of Curriculum Studies, 2017	Talking about education: exploring the significance of teachers' talk for teacher agency	The ecological model of teacher agency (Priestley et al., 2015): Agency as a temporal and a relational phenomenon, shaped by the structures and cultures within which teachers work	A small-scale ethnographic study of teachers' talk in their achievement of agency in a reform of the Scottish education system
Brevik et al.	Teaching and Teacher Education, 2019	Transformative agency in teacher education: Fostering professional digital competence	Cultural-historical activity theory's concept of transformative agency as a capacity of breaking away from the given frame of action and transforming it, also involving the collective practice	A mixed-methods study on Norwegian student teachers' digital competence in integrating theory and practice in teacher education, conducted during an online course
Charteris et al.	Educational Philosophy and Theory, 2017	Heterarchical coaching for continuing teacher professional learning and development: A transversal analysis of agency	The ability to act emerging from sociomaterialist relations of bodies, objects, and discourses	New materialist analysis of collective biographies of continuous professional development work with teachers in New Zealand
Eteläpelto et al.	Teachers and Teaching, 2015	How do novice teachers in Finland perceive their professional agency?	Subject-centred socio-cultural (Eteläpelto et al., 2013): The sense of agency closely related to subjects' and communities' professional identities	Interview study on Finnish early-career teachers' perceptions of their professional agency, especially in relation to their professional identities
Heikonen	Doctoral dissertation, University of Helsinki, 2020	Early-career teachers' professional agency in the classroom	Professional agency as a capacity enabling active, intentional, and skilful management of learning in the classroom	Longitudinal surveys and stimulated recall interviews on early-career teachers' professional agency in the classroom and its relationships with inadequacy in teacher-pupil interaction and intentions to leave the teaching profession

AUTHORS	JOURNAL, YEAR	TITLE	THEORETICAL VIEW	TOPIC AND METHOD
Juutilainen et al.	Teaching and Teacher Education, 2018	Becoming agentic teachers: Experiences of the home group approach as a resource for supporting teacher students' agency	Socio-cultural, emphasising the interactions between people and their social, cultural, and physical contexts	Interview study on Finnish student teachers' experiences of ways in which studying in stable 'home groups' supported or restricted their agency
Kayi-Aydar	Journal of Latinos and Education, 2019	A Hispanic language teacher's agency in the development of her professional identities: A narrative case study	Agentic action as a component of one's professional identity (Ruohotie-Lyhty & Moate, 2016)	A linguistic and narrative case study of one language teacher's agency in the development of her professional identities
King & Nomikou	Pedagogy, Culture & Society, 2018	Fostering critical teacher agency: The impact of a science capital pedagogical approach	The ecological model of teacher agency (Priestley et al., 2015), and the model of teacher agency for social justice Pantić, 2015)	Interviews and reflections with teachers, focus groups with students, and observations of the lessons to examine the implementation of a teacher professional development programme of science capital approaches in England
Melasalmi & Husu	Teaching and Teacher Education, 2019	Shared professional agency in early childhood education: An in-depth study of three teams	Socio-cultural: agency as a temporal and relational phenomenon	Participatory action research on the collective nature of agency in three teams of Finnish early childhood educators
Oolbekkink-Marchand et al.	Teaching and Teacher Education, 2017	Teachers' perceived professional space and their agency	The ecological model of teacher agency (Priestley et al., 2015), added by an emphasis that teachers' perception of their professional space is a major feature in agency negotiation	Observations, interviews and storylines of how secondary education teachers in Israel, Norway, and the Netherlands use their professional space in terms of the standardisation of teaching
Pantić et al.	Teachers and Teaching, 2019	Roles, practices and contexts for acting as agents of social justice – student teachers' perspectives	Sociological theories of agency by Archer (2000) and Giddens (1984) with an emphasis that agency involves intentionality, competence, autonomy, and reflexivity	A mixed-methods study on how student teachers perceive their roles, practices and contexts for acting as agents of social justice in Scotland
Toom et al.	Teaching and Teacher Education, 2017	How does the learning environment in teacher education cultivate first year student teachers' sense of professional agency in the professional community?	Professional agency as 'teacher's cognitive, motivational and attitudinal resources as well as skills and abilities to promote and manage learning in professional contexts'	A survey of Finnish student teachers' sense of professional agency related to the learning environment

The table shows that the theoretical perspectives of prior research overlap. Consequently, scholars discuss the same phenomena in different terms and a concept can refer to different matters in different studies. However, accumulation also exists: many studies took as a point of departure an acknowledged theoretical model such as the ecological model of teacher agency (Priestley et al., 2015) or the concept of transformative agency by the cultural-historical activity theory (e.g., Sannino et al. 2016). Thereafter, they added more precise definitions to that theorisation, for example, ‘intentionality, competence, a degree of autonomy, and reflexivity’ (Pantić et al., 2019) or ‘perception of one's professional space’ (Oolbekkink et al., 2017).

Some studies mixed several theoretical ideas, such as Kayi-Aydar's (2019) study, which employed both the ecological model by Priestley et al. (2015), and the concept of identity-agency by Ruohotie-Lyhty and Moate (2016). Theory development is visible in King and Nomikou's (2018) study, which utilised Pantić's (2015) model of teacher agency for social justice. Compared with many socio-cultural studies, in their study, Toom et al. (2017) and Heikonen (2020) took a cognitive stance, as they viewed agency as a personal capacity and an ability rather than a phenomenon in social interaction. In turn, Charteris et al. (2019) drew from new materialism, maintaining that to examine human agency, nonhuman powers must also be taken into account.

All these perspectives are needed and valuable to understand teachers' agency because agency cannot be examined as such but is dependent on the perspective and context. Hence, the diversity of the studies results from their representation of different ontological and epistemological understandings of what agency is about. However, taking into account the aspects brought forth by post-structuralism, previous studies are partly insufficient to illustrate the dynamic and intertwined nature of teachers' agency.

First, quantitative methods in examining agency (Heikonen, 2020; Toom et al., 2017) are not themselves sufficient, as by using them, agency easily becomes a variable. Agency cannot be reduced to a variable because many researchers claim that it is not actually an attribute, which can be acquired (Edwards, 2017; Paloniemi & Goller, 2017). Quantitative methods can creditably gather self-report information on how large numbers of student or in-service teachers sense their agency, and even more creditably through a longitudinal design or mixed-methods research (Heikonen, 2020; Pantić et al., 2019). However, interpretation of agency from interaction and interdependencies requires textual material such as the text and interview data in this dissertation.

Second, research that explicitly elicits agency (e.g., by asking interview questions about the kind of agency one has; Eteläpelto et al., 2015) may neglect the nuances of agency that are implicitly communicated in interactions. Eliciting may also persuade both the participant and the researcher to understand agency as an

individual phenomenon, which has been criticised (Burkitt, 2016; Raffo & Roth, 2020). In this dissertation, the point of departure is that agency is visible at the language level without the researcher's eliciting.

Third, linking agency with identity (Eteläpelto et al., 2015; Kayi-Aydar, 2019) is partly useful because both involve negotiation. However, it might prevent researchers from seeing the highly situational nature of agency. Today's understandings of identities are fluid and situational, but identity concerns the self, whereas agency does not necessarily have a significant association with the self. The recent understandings of agency in the field of education seem to move agency further from the self, acknowledging the relativity (Raffo & Roth, 2020) and the materiality (Charteris et al., 2017) of human life.

Fourth, the ecological model of teacher agency (Priestley et al., 2015) utilised in many studies (Kayi-Aydar, 2019; King & Nomikou, 2018; Oolbekkink-Marchand et al., 2017) creditably brought forth the temporal nature of agency. However, in arguing that agency is shaped by the structures within which teachers work (Biesta et al., 2017), the sociocultural perspective may be problematic. Using the analytical divide into agency and structure may result in viewing agents as lone individuals who must deal with external structures that either enable or constrain that agency (Burkitt, 2016). This may result in listing these enabling and constraining factors or identifying agency as strong or weak. In this way, agency may become reified as consisting of individual properties, whereby the interdependencies of social processes may remain overlooked (Burkitt, 2016; Dépelteau, 2008). Hence, in this dissertation, the analytical divide into agency and structure was not used, and in study III, the relationships through which agency manifests were especially analysed.

Lastly, new materialist understandings of agency (Charteris et al., 2017) take a fresh perspective, acknowledging that agency is not merely controlled by humans but is also affected by inanimate material. They draw on thing-power materialism (Bennett, 2010), which treats materiality as vibrant or uses the concept of intra-action, which understands agency as not an inherent property of a human to be exercised but as a dynamism of forces in which everything is constantly influencing and working inseparably (Barad, 2007). Some post-structuralists withdraw from the traditional conception of agency, which refers to the exclusive capacity of humans (Eteläpelto et al., 2013). However, though not explicitly mentioning agency in their title, several studies utilised the concept of agency to examine teachers' work from the post-structural and new materialist perspectives (Anwaruddin, 2016; Heikkilä & Mankki, 2021; Nelson et al., 2021; Strom, 2015; Strom & Viesca, 2021). Though not used in this dissertation, those perspectives have the potential to enrich research on teachers' agency by better taking into account the role of material elements that, for example, campus- and school-based contexts hold.

Table 3 summarises and typifies the different perspectives of teachers' agency covered in the exemplary studies in Table 2 by placing them in discussion with the four main theoretical conceptualisations of agency presented in the beginning of this chapter. Of course, the borders are unclear, and the different perspectives constantly interact with each other. However, the explorative typology indicates the various but distinctive ways in which prior research has approached teachers' agency and how this dissertation settles in that picture.

Table 3. Explorative typology of perspectives of teachers' agency.

CONCEPTUALISATION OF AGENCY	MAIN APPROACH	EXAMPLES FROM TABLE 2
Agency as a measurable capacity of an individual	Cognitive, post-positivist	Toom et al., 2017 Heikonen, 2020
Agency as temporal and relational actions of an individual within a structure	Ecological model of teacher agency and its applications	Biesta et al., 2017 Pantić et al., 2019 King & Nomikou, 2018 Oolbekkink-Marchand et al., 2017
Agency as intertwined with individuals' and communities' identities within a structure	Subject-centred socio-cultural	Eteläpelto et al., 2015 Kayi-Aydar, 2019
Agency as an element between the individual/collective self and the structure	Socio-cultural (including the cultural-historical activity theory)	Juutilainen et al., 2018 Melasalmi & Husu, 2019 Brevik et al., 2019
Agency consisting of both human and nonhuman elements and materials	Post-structural and material	Charteris et al., 2017
<i>Agency as a polyphony of multiple voices, implying diverse qualities of action</i>	<i>Post-structural and narrative</i>	<i>This dissertation</i>

In this dissertation, agency is conceptualised as a polyphony of multiple voices, implying diverse qualities of action (see the lowest row in Table 3). This narrative conceptualisation suggests that people can be agentic and vulnerable at the same time and that different qualities of agency can exist simultaneously. With the metaphor from the world of music, it illustrates the diversity and complexity of the linguistic resources and vocabularies used when expressing action. This definition withdraws from many other definitions used in the research on teachers and teacher education, which was focused on individuals. Rather, it resonates with post-structuralist understandings of humanity, which call for revealing the nuances of the complicatedness of agency (Loutzenheiser & Heer, 2017). It also resonates Bakhtin's (2002) dialogical perspective arguing against monological perspectives (Dufva &

Aro, 2014) in terms of elucidating internal tensions in teachers' agency. In addition, the conceptualisation has features common with those of Emirbayer and Mische's (1998) theoretical work, in which social actors can assume different simultaneous agentic orientations and in which agency is conceptualised as an internally complex temporal dynamic.

The conceptualisation requires a clarification of what post-structuralism means in this dissertation. Post-structuralism, in general, reflects a move beyond structuralist ontologies of the social world, in which core social, cultural, or psychological structures are considered to strongly constrain the possibilities of human action (Fox, 2014). Post-structuralists reject the belief in the possibility of universal truths (Hodgson & Standish, 2009) and completely individual ideas or identities (Rautio, 2021). Everything is seen to exist as entangled, as of the world and not external from it (Rautio, 2021). Post-structuralist notions also emphasise the role of knowledge and textual processes in achieving and sustaining relations of power (Fox, 2014). These conceptions of individual and language radically affect the ways teachers' agency can be thought and analysed because agency is no longer seen as possessed by individuals.

The question of conceptualising agency is not only a theoretical question. Through individualisation, people are held increasingly responsible and accountable for their actions, causing pressure on teachers, their pupils, and anyone. Learning and teaching are increasingly subjected to measurements and control, neglecting the complexity of those phenomena (Strom & Viesca, 2021), and resilience and competitiveness are strongly encouraged (Brunila & Ylöstalo, 2020). Throughout the world, educational policies have accepted the individualised self-authoring agency of the learner as foundational (Raffo & Roth, 2020). Thus, agency has a true risk of becoming a fashionable concept, serving the purposes of neo-liberalism.

Thus, emphasising the interdependencies of people of themselves and impersonal elements and reconceptualising agency in a more entwined way can resist tendencies that are harmful for teachers, pupils, and society. Prior research on student and in-service teachers' agency as centring on humans as clear-lined and rational subjects did not reach the levels of agency that function elsewhere rather than in the traditional subject itself. Therefore, we must update the conceptualisation of agency in teacher education and the methods to discover it. This is discussed more thoroughly in the next section.

1.2 Teachers' Agency in Narration

The focus of this dissertation is student and primary teachers' narration. It means a process of telling or writing one's accounts to someone else or by oneself (Meretoja, 2017). Contrary to a common-sense view, narratives are not merely stories of the

past but imply a practice, that is, narrative practice (De Fina & Georgakopoulou, 2008) that shapes agency. This is because the action in people's everyday narration implies a certain understanding of what is possible in a particular context as agents seize certain possibilities that are open to them and dismiss others (Meretoja, 2017). Thus, narration in our talk or text both reveals and creates agency (Bamberg, 2004; Squire et al., 2017). Narration serves for both representing and constituting reality (Bruner, 1991) because text not only mirrors the world but also creates the world (Denzin & Lincoln, 2018a).

Thus, teachers' power for action are fundamentally founded in the narrative choices they explicitly or implicitly make in their narration. This constituting nature of narration has also been acknowledged in prior studies on teachers' agency (Biesta et al., 2017; Lefstein, et al., 2018). However, little research exists based on this insight. In place, different narrative methodologies have recently been popular in various other topics of teaching and teacher education such as teachers' identity (Macías Villegas et al., 2020; Yuan et al., 2019) and teachers' learning (Márquez-García et al., 2020; Pulvermacher & Lefstein, 2016). Narrative has also been used as a pedagogical medium for teachers' learning (Estola et al., 2014; McIntyre Latta & Kim, 2010).

Narrative research, in general, is an expanding multilevel interdisciplinary field with a wide range of approaches and theoretical understandings (Squire et al., 2017). Beyond texts, it stretches its boundaries to image and embodied social performance. Hence, the meaning of narrative markedly varies. From a narrative perspective, ways of expressing oneself that are not very strong exist in a narrative sense, such as declaratory statements. However, people mainly organise their experiences in narrative form (Bruner, 1991), which supports a narrative approach.

In the field of teaching and teacher education, narratives have previously been studied under the rubric of narrative inquiry (Clandinin & Connelly, 2004), serving to emancipate teachers' voices and tell their autobiographic stories. The use of narrative in educational research is hoped to work as a deconstruction that empowers individuals by allowing them to tell their own stories (Hodgson & Standish, 2009). However, giving voice to diverse groups that concern educational research can result in constituting multiple versions of the same voice (Hodgson & Standish, 2009). On the contrary, story criticality (Mäkelä et al., 2021) is needed in today's world, where affective stories of personal experiences are utilised in persuading people in various fields. Narrative inquiry's frequent smoothing over of polyvocality in favour of univocal coherence has also been criticised as one-eyed and undemocratic (Cirell & Sweet, 2020). In research, the point should not be in telling teachers' narratives but in analysing them thoroughly to create new insights.

Hence, this dissertation draws on a different tradition often called narrative analysis, which considers narrative in a more analytical and functional manner (De

Fina & Georgakopoulou, 2008, 2015). It also takes into account the blind spots that are not covered if narrative is defined strictly (Lueg, Bager, & Lundholt, 2020). Sometimes narrative inquiry and narrative analysis can be mixed. This is implicitly demonstrated in Huber and Yeom's (2017) literature review on narrative research on teachers' agency, which does not separate narrative inquiry and analysis. However, narrative analysis of teachers' agency has rarely been used.

This kind of research used to be subsumed under broader linguistic fields as sociolinguistics or discourse analysis before the release of *The Handbook of Narrative Analysis* (De Fina & Georgakopoulou, 2015). In case discourse analysis is seen as a broad umbrella of methodologies to study language in use, narrative analysis still fits there well (e.g., Gee & Handford, 2012). Common to discourse analysis and narrative analysis is that both of them are, simultaneously, an analysis of language and one of practices in society. They also share the idea that, through speaking and writing in the world, we make the world meaningful in certain ways and not in others, and shape, produce, and reproduce the world through language in use (Gee & Handford, 2012). Although narrative analysis shares discourse analysis' interest in societal phenomena visible at the level of language, it differs from it by focusing on narratives and narration. Hence, narrative analysis can be defined as linguistically-minded research on narratives told by ordinary people in diverse environments (De Fina & Georgakopoulou, 2015).

Narrative analysis answers many calls presented in qualitative methodology. Rather than seeing agency as a steady state or finished product, its fluidity in time and space should be acknowledged (Dufva & Aro, 2014). In addition, the conventional tendency of qualitative researchers to smooth out the contradictions and ambiguities in data (Chadwick, 2021) and to control, thematise, and force fixed meanings (Koro-Ljungberg, 2016) has been questioned. Narrative analysis holds that people position themselves in various ways, sometimes as victims and agentic beings who assume control over events and actions, and that they shift constantly between these positions (Riessman, 2011). Hence, certain kinds of narratives are not inherently personal, and people use various linguistic expressions to make sense and create agency.

Thus, the starting point in this dissertation is that people do not simply have agency, but agency emerges through the narratives they tell and through the narratives told by others. In narration, a person's 'own' and other narratives are entwined and inseparable (Hyvärinen, 2008), highlighting the complex nature of agency. An agent as a separate entity has been suggested to be an insufficient unit of analysis to explore agency (Raffo & Roth, 2020). Concentrating not on individuals but on text and talk beyond individuals helps to examine teachers' agency not in lone individuals but as entwined in all the personal and impersonal relationships and connections they live in.

Emphasising narration instead of narratives can capture the interest in narratives that occur more or less naturally. In the research on teacher education, Pulvermacher and Lefstein (2016) divided three types of narratives: first, narratives constructed by researchers based on holistic qualitative research; second, narratives told by research participants in response to active researcher elicitation; and third, narratives embedded in research participants' naturally occurring interactions. The research on teacher narratives has overwhelmingly focused on the first two, whereby the social and collaborative nature of narrating and learning can remain hidden (Pulvermacher & Lefstein, 2016).

However, in educational research, in general, some studies traced agency in original linguistic situations. Not all of them explicitly mentioned narration but they came close to narrative analysis. Agency was traced as language that implies responsibility (e.g., pronouns, tense, verbs, or sentence structure) (Martin, 2016) or the modalities used in narrative semiotics (e.g., to want, know, feel, have to, be able, experience, appreciate, and have the possibility) (Hilppö, 2016). Teachers' agency was illustrated by concentrating on small stories, with a functional perspective on narrative and language use in general (Kayi-Aydar, 2019). Furthermore, linguistic ethnography was used to explore the ways teachers position themselves and one another and how they ratify or contest assertions of their own and others' agency (Lefstein et al., 2018). Teachers' agency was also analysed from their 'talk, discourses and vocabularies' (Biesta et al., 2017).

Contemporary qualitative research has questioned the existence of clean and linear tools that would result in predictability (Koro-Ljungberg, 2016). Narrative analysis is not such a tool. However, scholars who use it do share an interest in and an emphasis on how certain language usage or linguistic acts become selected in speech or text and the various qualities of agency they imply. This kind of methodology has potential in studying agency especially in the field of education because learners take words and ideologies from others and populate them with their own intentions (Dufva & Aro, 2014). From this perspective, our own voice – and our own agency – emerges from the interplay between various factors (Dufva & Aro, 2014). This insight will help understand the integration of theory and practice, a key challenge in teacher education, which will be discussed in the next section.

1.3 Theory and Practice in the Finnish Primary Teacher Education

Student teachers learn to become primary teachers in teacher education embedded in theory and practice, which is the context where agency is needed and should be supported. In this context, *theory* means educational theories and research-generated knowledge taught in teacher education, whereas *practice* refers to teachers' practical

work in classrooms (Hermansen, 2020; Korthagen, 2010; Leijen et al., 2015). In general, the notions of theory and practice date back to Aristotle's three-fold classification of human activity consisting of theoretical action, productive action, and practical action, which were later elaborated in several ways (Mahon et al., 2020). Thus, they are active and overlapping fields.

In the field of teacher education, a separation between theory and practice is popular but questionable (Hordern, 2019). Some scholars have been worried about the gap between theory and practice being too wide (Puustinen et al., 2018), causing student and newly qualified teachers' problems in linking theories to their work (Leijen et al., 2015). The focus has often been on the question of how practice can be better linked to theory than vice versa (Korthagen, 2010). Thus, in turn, others have claimed that the problem labelled as a 'gap' between theory and practice may derive from a lack of shared understanding between student teachers and teacher educators (Sjølief & Østern, 2021). In the same vein, some researchers have argued for knowledge-based professionalism in which teachers as practitioners have more control, and in which specialised knowledge is valued (Hordern, 2019).

In addition, some researchers have claimed that a narrow use of the term 'practice' as what happens in the classroom and making this the focus of a problem-solving research paradigm mistakenly places it as the opposite of theory (Hodgson & Standish, 2009). Indeed, the question 'How do student teachers implement the knowledge and skills learnt in teacher education in the practice of teaching?' is a manifestation of the 'practice turn' that has taken different shapes in the history of Finnish teacher education along with other turns (Toom & Husu, 2021). Thus, in this dissertation, theory and practice are not held as a problem to be solved, and the term theory-practice gap is found to mislead about the goals and values of higher education. Rather, it is more fruitful to focus on the process of *integrating* different knowledge domains (Hermansen, 2020) and seeing theory and practice as an acceptable tension for student and primary teachers.

Theory and practice are not static or passive entities, but both involve doing, action, and arouse further action. First, educational theories and research-generated knowledge are created in ongoing processes by researchers in academia. In that activity, epistemic governance by policy affects the researchers, causing them to balance between autonomy and control and creativity and accountability (Jacob & Hellström, 2018). Thus, how 'theory' evolves is shaped by teacher educators' possibilities to engage in research. Moreover, educational science is multidisciplinary in nature, interacting with other fields of science, and, thus, should be understood broadly.

Second, similarly, practice is constantly shaped, enabled, and constrained, and mediates, reproduces, and transforms other practices (Mahon et al., 2020). Thus, educational practice is not merely habitual practice and routine action in everyday

human activity but involves moral action and is formed through history (Mahon et al., 2020). Practice can also be understood as specific issues, for example, responding to the needs of diverse pupils or increasing social justice in schools. Views of the most important issues concerning that ‘practice’ of schools vary at times (Toom & Husu, 2021). Thus, the issue of theory and practice in teacher education seems to be much more complex than the usual assumption.

Knowledge Integration

The dissertation views theory and practice in the light of knowledge (Hauke, 2019) because the formation and sharing of knowledge is core to the understandings of the definition and process of teaching (Campbell, 2018). This dissertation is especially focused on how knowledge is integrated in the domains of theory and practice. In the field of teacher education, the interrelationship between theory as generically framed research findings and the situated and contextual practices of teachers' everyday work is one strand in an increasing body of research on integration and coherence (Hermansen, 2020). Both concepts, integration and coherence, point in the same direction. Integration usually refers to relations between knowledge of different types, whereas coherence addresses more broadly different dimensions of teacher education, such as the interconnectedness between programme components or the interrelationships between professional education and work (Hermansen, 2020).

Thus, the concerns about the gap between theory and practice in teacher education may actually imply an ambition of better connectivity between teacher education and working life. Transitions between education and working life are always challenging and require attention and design because higher education students find education and work as two different worlds with conflicting assumptions on knowledge and rules (Kyndt et al., 2021). Therefore, higher education students benefit from the transformation of conceptual or theoretical knowledge to be applied in practice and vice versa; explicating and conceptualising practical or experiential knowledge acquired from teacher practice periods with the help of theoretical concepts and models (Tynjälä et al., 2014). Theory cannot be reduced to practice and practice cannot be reduced to theory; hence, they cannot be completely integrated. However, understanding the epistemic nature of both and acknowledging their different roles in learning to become a teacher will help both teacher educators and student teachers to rise beyond the ‘theory-practice gap’.

It is not only in teacher education, where students and educators struggle to integrate theory and practice. Also throughout higher education, very similar challenges in integrating different knowledge domains exist (Healey, 2005). Rather than the ‘theory-practice gap’, the literature of higher education discusses the

interconnections between research and teaching or, in other words, the research/teaching nexus (Clark & Hordosy, 2019), research-teaching relationship (Barnett, 2005), or research-learning relationship (Brew & Boud, 1995). All these discussions highlight the ways in which knowledge is generated, communicated, and learned in higher education (Brew & Boud, 1995). However, so far, research on teacher education has existed almost in isolation of the literature on higher education (Sjølie & Østern, 2021).

Paying attention to knowledge integration in teacher education opens up views where agency becomes an issue. Teaching requires continuous adaptation to emergent processes in the classroom and the exercise of professional judgment tailored to the specific characteristics of the situation (Biesta, 2007). In their work, teachers simultaneously draw upon multiple knowledge sources to support their practical action (Toom & Husu, 2018). Thus, agency is important because teachers must combine and develop knowledge in creative ways. Teachers' strong relations to knowledge are also constituents of their profession's autonomy (Hermansen, 2017).

However, becoming a teacher entails challenges that student teachers must be aware of. Higher education institutions, where student teachers study, orient towards production and dissemination of research-based knowledge, whereas teachers' work in schools orients towards educating children and youth (Risan, 2020). Higher education and schools represent distinct knowledge cultures that serve different purposes and hold different assumptions of what is considered legitimate knowledge (Knorr Cetina, 1999). Thus, the interplay of different knowledge cultures is an essential element in any professional field. It cannot be 'solved' but learned to be lived by.

Rather than individually 'accumulating' knowledge, student teachers can be supported to work with scientific concepts and tools to enable them to support children's learning in schools and develop their communities (Edwards, 2017). To deal with the unpredictable nature of life in schools, teachers cannot only respond to problems of practice based on prior knowledge but must recognise epistemic dilemmas and respond agentially to them to bring fresh knowledge (Hopwood, 2017). Therefore, teachers cannot be mere knowledge carriers but must be productive participants in the information society, pointing out to epistemic agency (Damşa et al., 2010).

Although opportunities to practice teaching are necessary, only adding more practice to teacher education programmes downplays both the potential of student teachers and the work of primary teachers. In place, student teachers can be supported to become epistemically productive by working with scientific knowledge and tools that strengthen their opportunities for creative engagement with professional knowledge. As the main objective of research is critical and productive

engagement with knowledge (Barnett, 2005), engaging with research can help student teachers understand how knowledge is produced and how it can be professionally applied. Thus, a fundamental premise of research-based teacher education is that research skills and student teachers' own research support them in seeing and interpreting their lived experiences in schools in ways that would otherwise not be accessible to them (Hughes, 2019; Mikkilä-Erdmann et al., 2019). Thereby, research skills as a key component of the Finnish research-based teacher education become central tools for integrating knowledge in teacher education.

Finnish Research-based Primary Teacher Education and Research Skills

Efforts to improve the research base of teacher education have been made worldwide (Afdal & Damşa, 2018; Afdal & Spernes, 2018; Darling-Hammond et al., 2017). According to prior research, research-based teacher education programmes seem to be more effective than traditional ones (Tatto, 2015). Several notions explain what makes teacher education programmes research based. Research-based teacher education can refer to the qualifications of teacher educators, their participation in research projects, and the goals of teacher education programme leaders (Munthe & Rogne, 2015). At the level of teaching practices, research-based teacher education can involve concentrating on both the research content itself and the research problems and processes, and, on the other hand, on both teacher and student focused practices (Healey, 2005).

Finnish primary teacher education programmes have been deemed research-based (Darling-Hammond et al., 2017). In Finland, primary teacher education is a 5-year university programme that leads to a master's degree. Upon graduation, teachers receive general teacher qualifications and are qualified to teach grades 1–6 (ages 7–13 years) in basic education. In Finland, the primary teacher profession is rather strong and primary teacher education is one of the most attractive university programmes (Mikkilä-Erdmann et al., 2019).

Research can be used as a conduit to support future teachers' learning to enact enquiry approaches into their teaching (Tatto, 2015). In Finnish primary teacher education programmes, student teachers' research projects and learning research skills form a constituent part of their studies. *Research skills* are of particular interest in this dissertation because they concern how knowledge is produced, maintained, and reproduced in society (Murtonen & Salmento, 2019), and refer to the concepts, tools, and embodied skills needed to apply those insights. They help to develop epistemic maturity and possibilities to realise that knowledge is always uncertain and created by humans (Murtonen & Salmento, 2019). In teaching, they help to complete the degree and observe pupils and analyse their thinking (Toom et al., 2010). Although commonly used as a term in Finnish teacher education (Niemi & Nevgi,

2014; Mikkilä-Erdmann et al., 2019; Stenberg et al., 2016), to define research as a skill in terms of learning to teach seems not established in international literature. Instead and along with that, researchers seem to use aligned terms such as enquiry orientation (Tatto, 2015) or research-based thinking (Toom et al., 2010).

In Finland, research skills have been recommended to be integrated with other parts of teacher education such as teaching practice periods and subject didactics, so that they can be practiced in real contexts (Niemi & Nevgi, 2014). For example, in the University of Turku, which is the site of the sub-studies conducted in this dissertation, student teachers begin to study research skills and conduct their own research projects in the first term (University of Turku, 2021). They also conduct them during the first teaching practice period in the university teacher training school. The aim of this 'research workshop' format is not to train student teachers to become researchers but to facilitate a learning process, which leads them to realise the significance of educational research in teachers' work (University of Turku, 2021). Later on, student teachers practice research and use research skills, especially in their empirical candidate and master's theses.

The particular courses on research skills in the primary teacher curriculum cover research methods, information seeking, research ethics, data analysis methods, and scientific writing (University of Turku, 2021). However, knowledge integration is an overarching principle, also encompassing subject didactics and teaching practice periods. For example, during the teaching practice periods in the university teacher training schools, student teachers are supposed to observe interconnections between theory and practice in teaching and learning (University of Turku, 2021). Moreover, one implication of a pursuit of coherence in Finnish primary teacher education is the multi-dimensional adapted process (MAP) model of teaching (Metsäpelto et al., 2021), which brings together and conceptualises the competencies needed in teachers' work. The model is used in, for example, the assessment of the suitability of teacher candidates into the programmes and the development of teacher education curricula.

One could presume that these thorough integrations of theory and practice implemented in the Finnish primary teacher education would produce agency, in this sense, the power to act and choose one's actions in complex and changing knowledge environments of the information society. However, a poststructural and narrative perspective arouses to take account of the complexity of agency. Teachers' agency cannot be taken for granted or only grasped through external factors but requires a more nuanced approach.

Although the status of Finnish teacher education is high, it has developed through historical contingencies; therefore, it is open and vulnerable to changes (Simola et al., 2017). Likewise, in Finland, student teachers must navigate across different borders or gaps of education such as curricular divides between academic disciplines

and subjects, education foundation and method courses, and the major separation between university and school as two different learning arenas (Sjølie & Østern, 2021). The two contexts carry different institutionalised practices of what kind of knowledge matters. Thus, overcoming these invisible borders to become a professional teacher calls for agency.

2 Aims of the Research

The main aim of this dissertation is to examine *how agency is manifested in student and primary teachers' narration embedded in theory and practice*. 'To manifest' is a common verb used in research aimed at investigating agency beyond individuals (Rainio, 2010; Rajala, 2016; Vähäsantanen, 2015). The sub-aims of the dissertation include different aspects of theory-practice integration. Along focusing on empirical manifestations of agency, the dissertation develops conceptual understanding of teachers' agency and methodology for examining it at the language level.

Study I concerns a format in the teacher education programme where research skill studies and a teaching practice period are integrated. In study I, the research questions asked, *'How is Finnish first-year student teachers' professional agency manifested as narrative practice in primary teacher education when research skill studies and teaching practice are integrated?'*

Study II covers the role of research skill studies from the viewpoint of knowledge in higher education. The specific aim in study II was, *'How is epistemic agency manifested in student teachers' expressions when they engage with research skills?'*

Study III moves the focus to the links of teacher education to teachers' working lives and in-service teachers' accounts of their teacher education and work. The aim in study III was to answer the question, *'How do Finnish teachers negotiate agency in their narratives when discussing their teacher training and work?'* In the whole dissertation, *teacher education* and *teacher training* are used as synonyms.

In the sub-studies, slightly different main concepts were used. *Professional agency* was discussed in study II; *epistemic agency* in study II; merely *agency*, although manifesting in relations, in study III. Additional definitions are widely used (e.g., relational agency [Edwards, 2005] or bounded agency [Evans, 2008] and point to specialised directions. However, as such, they tell very little; thus, they are not emphasised in this summary part. Next, the methods of the dissertation are presented, consisting of accounts of the research design, data collection, data, analysis methods, ethical considerations, and evaluative reflections.

3 Methods

3.1 Research Design and Data Collection

In designing the study, both student and primary teachers' narrations were relevant. This was because understanding agency in teacher education embedded in theory and practice requires not only accounts by student teachers but also links to teachers' working lives. Data from first-year students were chosen because previous research indicated that the beginning of studies is an epochal and fragile phase in becoming a teacher (e.g., Juutilainen et al., 2018).

Agency in narration can be traced in various formats. Hence, to explore agency in narration in teacher education, the research design included both textual and interview data. Textual data, which were not collected for research purposes in the first place but as part of student teachers' coursework, offered a chance to explore narration embedded in more naturally occurring situations (Pulvermacher & Lefstein, 2016), which in this case covered reflections. In turn, interview data provided a different perspective to narratives in terms of interaction between the participating teacher and the researcher. In this case, too, neither agency nor narratives were elicited not to forcefully extract ready-made conceptions for both the interviewees and the researcher. In place, agency was interpreted. However, it is important to take into account that the data in all cases were not 'freely' accrued but institutionalised as student and primary teachers were writing and talking in their roles in the university.

Data Collection in Studies I and II

In studies I and II, textual data were collected as part of student teachers' coursework in the 'class teacher education programme' at the University of Turku. The student teachers had just finished their first teaching practice period in the university teacher training school. In their reports, they were instructed to reflect on their experiences in that period. The instructions included questions on several topics. In coherence with the research questions, only the topics concerning the use of research skills during the teaching practice period were retrieved. The other parts concerned other features of teaching practice such as the interaction with the pupils neither written in

a general manner nor relating to research skills (e.g., describing the atmosphere of the particular group or discussing classroom management in the particular classroom). In study I, the data were received in a separate document from the teacher educator teaching that course. For study II, the instructions and questions concerning the research skills were designed in accordance with the aims of this dissertation. Thus, the questions were modified to arouse more reflexive accounts instead of practical matters such as using videoing that was part of the student teachers' task. Thus, the origins of the data in studies I and II were slightly different, both providing for its part rich insights for the topic and aim of each sub-study and in terms of highly detailed narrative analysis.

In both years, nearly all student teachers returned their reports. In study I (N = 79), all the reports were used. In study II (N = 73), the data were not anonymous first, whereby research permissions were asked. In that case, the analysis consisted of 90% of the reports of the student teachers enrolled in that course. In both studies, the lengths of the parts used varied between approximately 100 and 300 words. The assignments to student teachers in both studies I and II are presented in Appendix I.

Data Collection in Study III

In study III, the data, consisting of 186 pages of rich narration, were collected from ten teachers' interview responses on their teacher education and work. The interviews were part of a development project on teacher education entitled Student selection to teacher education in Finland – Anticipatory work for future (2021). The teachers had begun their studies between 2010 and 2013 in the said programme and had been working as teachers for approximately 3 to 5 years after graduating. This was beneficial, as they had work experience as teachers but could still remember their training. The interviews were semi-structured, including an outline of the topics to be covered and suggested questions (Kvale, 2007), presented in Appendix II. This method was chosen to gather themes from the teachers' perspectives and to obtain descriptions of their lived worlds (Kvale, 2007) to interpret agency.

Initially, one pilot interview was conducted with a newly qualified primary teacher. The pilot interview helped to prepare for the interviews and showed that the themes were appropriate. Then, seven teachers who began their studies in 2010 were interviewed in the spring of 2019. In the spring of 2020, three teachers who began their studies in 2013 were interviewed. The transcribed text (186 pages, Arial 12) provided rich insights. To pursue a highly detailed narrative analysis, the data were considered to be sufficient because qualitative research focuses on unpacking how people construct the world around them in terms that are meaningful and that offer rich insights (Kvale, 2007).

Six interviews in 2019 were completed live, and the seventh was conducted by telephone. All three interviews in 2020 were conducted via Zoom video conferencing because of the COVID-19 pandemic. These three interviews were conducted at an early stage of the pandemic, when the extent of its length and effects were not yet realised. In addition, the interview themes were general, whereby not affected by the pandemic as much as they might have been if a more day-to-day topic was used. The interview themes were ‘teachers’ work in general’, ‘teacher education/training’, ‘continuous education’, ‘work satisfaction as a teacher’, and ‘research base of teacher education’. The last topic was added for the three interviews in 2020 because the experiences from the previous interviews indicated that it was needed. The interviewees were informed about ethical issues related to the research such as storing the data and the interviewees’ rights. The interviews lasted from 26 to 78 minutes. The total length of the interviews was 490 minutes; thus, on average, they lasted 49 minutes each. The interviews were recorded and transcribed verbatim.

Seven interviewees were female, and three were male. Their ages ranged from 26 to 52 years (mean: 34 years). Some interviewees had begun their studies quickly after high school, while others had worked in different fields before entering primary teacher education. From among those who began their studies in 2010, six teachers were in permanent teaching posts or had been accepted to such posts. All three teachers who had begun their studies in 2013 were working in fixed-term positions. Most of the teachers had taught regular classes during the term, but one teacher had taught a class preparing immigrant pupils for regular instruction, and another had taught a class for special-needs pupils (an interviewee who had also graduated as a special needs teacher).

3.2 Analysis Methods

The studies presented in this dissertation utilised different forms of narrative analysis, as presented in chapter 1.2. Narration was understood as an action itself that both reveals agency and has the potential to create agency. Thus, the emphasis was not on traditional storylines, but rather on atypical, small stories, with a functional perspective on narrative and language use in general (Bamberg & Georgakopoulou, 2008; De Fina & Georgakopoulou, 2008). It was acknowledged that the narration was not, for all parts, clear and consequential. Thus, short answers were also valuable.

In each study, before the specific analysis, an overall view of the narration was taken, and the data were handled as a whole entity, instead of concentrating on individuals. This provided an opportunity to grasp a wider picture of what the student and primary teachers were telling as a whole when answering the questions and how

and why they told it (Hyvärinen, 2008). Furthermore, each study used more specific analysis methods; however, they were used as general guidelines to aid in theory-inspired reading of the data rather than strict or exclusive instructions (Koro-Ljungberg, 2016; Rautio, 2021). Table 4 presents a summary of the data and the particular analysis methods.

Table 4. Data and analysis methods in sub-studies.

STUDY	DATA	TIME OF COLLECTION	ANALYSIS METHODS AND THEIR PURPOSE
I	Written texts (N = 79) of first-year primary teacher students that were retrieved from their reflexive teaching practice reports	2017	Analysis of small stories (Bamberg & Georgakopoulou, 2008; De Fina & Georgakopoulou, 2008), expectation analysis (Hyvärinen, 2008; Tannen, 1993), and metaphor of voice (Bakhtin, 2002) to examine the plurality of orientations to research skills
II	Written texts (N = 73) of first-year primary teacher students retrieved from their reflexive teaching practice reports	2018	Analysis of small stories (Bamberg & Georgakopoulou, 2008; De Fina & Georgakopoulou, 2008) to examine the dimensions of epistemic agency in student teachers' narration
III	Interviews of primary teachers (N = 10) who had begun in the primary teacher education programme in 2010 and 2013	2019–2020	Analysis of master- and counter-narratives (Hyvärinen, 2020; Lueg, Bager et al., 2020) to examine the relations of teachers' agency

In study I, the metaphor of voice (Bakhtin, 2002) and the expectation analysis (Hyvärinen, 2008; Tannen, 1993) were used as general guidelines. First, the metaphor of voice (Bakhtin, 2002) was used to discover the kinds of orientations the students expressed. The idea behind this metaphor is that the expressions people use have formerly been others' expressions, transferred through a dialectic process (Bakhtin, 2002). In this analysis, certain points were identified to denote a certain voice. The advantage is that the focus is not on a single student teacher but on wider speech genres that manifest different qualities of agency. On the basis of a data-driven analysis, four distinct voices that were agentic in different ways were identified. The voices were intertwined with each other, and the phase revealed how a single student teacher used several contradicting voices.

Second, after the voices were defined, the expectations in the texts were analysed to examine how student teachers negotiate between their own and cultural expectations (Hyvärinen, 2008). Tannen (1993) has summarised a list of 'evidence

of expectation'. In all parts including some of the four voices, especially all repetitions, hedges, negatives, contrastives, evaluative language, and evaluative verbs were analysed as general principles (Hyvärinen, 2008; Tannen, 1993).

In study II, the small stories approach (Bamberg & Georgakopoulou, 2008; De Fina & Georgakopoulou, 2008) was used. In the light of the concept of epistemic agency (Damaşa et al., 2010), these small stories appeared to be stories of knowledge creation using research skills in the teaching profession. In their texts, the student teachers directed epistemic agency towards different dimensions of their professional practice. The concept of dimension was chosen to illustrate how epistemic agency was not a clear-lined entity but multi-dimensional and reached several simultaneous scopes of professional practice. The concept of dimension has been used in the literature of teaching in the same vein for example in the multi-dimensional adapted process (MAP) model of teaching (Metsäpelto et al., 2021).

In each text, the dimensions that were present were marked. After that, all the parts clearly illustrating some of the dimensions (one or several) were transferred to another document, where they could be examined in depth. Some of the parts pointed to two or even three dimensions. For the sake of clarity, these were transferred to the most suitable dimension; thus, in other words, the categories were treated as mutually exclusive for analytical purposes. Thereafter, the epistemic agency in each dimension was closely examined, and the narrative nature of the parts was analysed more thoroughly (i.e., how the matters in question were linguistically expressed). In the narration, special notes were, again, taken on repetitions, hedges, negatives, contrastives, evaluative language, and evaluative verbs (Hyvärinen, 2008; Tannen, 1993) to discover how the language use shaped the expressions of agency. Epistemic agency was found to be rich especially in the verbs the student teachers used, which were analysed thoroughly.

In study III, the counter-narratives approach (Hyvärinen, 2020; Lueg, Bager et al., 2020) was used to examine the relations of teachers' agency. Master- and counter-narratives were considered critical features in creating and constraining agency (Bamberg, 2004), as people negotiate the self in relation to culturally dominant models (master narratives) and produce personal narrative versions (counter-narratives), challenging these models (Meretoja, 2020). The analysis focused on how counter-narratives took stances about master narratives, and on the word choices teachers used to oppose master narratives and justify the counter-narratives. Master- and counter-narratives as a method of agency negotiation were identified and summarised, giving strong attention to the teachers' word choices and language use. This phase led to the insight that the counter-narratives contained, and could be categorised into, three relational aspects of agency.

Therefore, the second phase involved identifying each of the aspects within the counter-narratives and analysing the relationships they included. Both personal and

impersonal relationships (Burkitt, 2016) were analysed and summarised. Thereafter, all the aspects, namely political, cultural, and epistemic, were gathered into another document. The topics of these aspects and the relations they included were listed in a table so that they could be examined separately. Finally, to attain a more coherent picture, different sub-aspects within the political, cultural, and epistemic categories were gathered into larger entities, including the relationships.

The multi-phased process in study III illustrates the data-driven narrative analysis in this dissertation in general. The phases were not known in advance and included several and thorough rounds of reading, identifying particular narrative elements, organising, and categorising, added with much reading and reflection of prior literature. The findings originated from this dynamic process, which was both rigorous and creative at the same time.

The master- and counter-narratives' perspective in study III aroused from linguistic interests to examine agency as a phenomenon of interaction by innovative methodology. In case the focus were in revealing power relations, another methodological option would have been utilising rather discourse analytic methodologies and examining socially hegemonic narratives. According to Lueg, Graf, & Powell (2020), they are stories told in favour of those holding power over social matters, told by those who are in power or benefit from that power structure, and outlining moral rules that prevent and oppose the imagining of any other power structure. However, instead, master narratives are often used simply to describe such types of dominant narratives that occur in and around organisations or other communities (Lueg, Graf et al., 2020), not having a direct link to examining power relations.

3.3 Ethical Considerations

Ethical matters are important in this dissertation because in qualitative research diverse interpretations are possible (Chadwick, 2021; Cirell & Sweet, 2020). Ethical considerations are not limited to the methods of data collection. They also concern methodological issues of how to code, reduce, and categorise 'data' that have initially been participants' texts or voices (Chadwick, 2021). By forcing data into strict categories, researchers can harm the diversity of interpretations (Cirell & Sweet, 2020). Moreover, in qualitative research, the responsibility of the researcher also concerns the questions of how to approach uncertainty and not-knowing (Koro-Ljungberg, 2016). Despite the pressure to extract clear results and practical conclusions from research, it is ethical to acknowledge the boundaries of one's work.

Several guidelines help researchers to protect participants and avoid harm. In conducting the present research, those were especially The Ethical Principles of Research with Human Participants and Ethical Review in the Human Sciences in

Finland, published by the Finnish National Board on Research Integrity (2019). According to these guidelines, a formal ethical review statement from a human sciences ethics committee was not required for this kind of study. However, many other aspects of this research followed these guidelines, including the treatment and rights of the participants, processing of personal data, and protecting privacy in research publications.

Concerning the consent of the participants, the data in study I were anonymous from the beginning. They had been collected by the teacher educator responsible for the course in question and were handed without any biographical information to be used in this specific dissertation. In study II, consent was obtained from the participants. In study III, the participants had first voluntarily answered a questionnaire in which they had informed if they wished to participate also in an interview. To protect the integrity of the participants in all the sub-studies, pseudonyms were used, and all parts containing any biographical information were modified in the research publications.

During the research process, the regulations given by the officers of the University of Turku regarding the European Union's General Data Protection Regulation were followed. For example, all the materials of the studies were stored in an electronic form in a net folder of the University of Turku with limited access. Study I did not involve a privacy notice because the data were handed without any biographical information. However, for studies II and III, privacy notices were adequately made, and the participants were informed of them.

In some studies, the accuracy of the researcher's interpretations can be discussed with the participants. However, in a narrative analysis, this is not the case because narratives are not static, and the meanings of the experiences told in narratives shift as researchers interpret the narratives (Riessman, 2011). Of course, the interpretations drawn from the narratives have to be reasonable and convincing, involving profound ethical considerations concerning how to categorise the data (Chadwick, 2021). However, naturally, the same events can be narrated in radically different ways (Riessman, 1993). This is not a weakness of narrative research, which might result in unethical action. Instead, critically and carefully analysing narration embedded in the webs of cultural narratives can reveal several options for different narratives to be told or untold. It is ethical to bring forth the different and heterogeneous qualities that narration always implies.

Finally, research ethics is not merely a duty but a natural responsibility of researchers (Koro-Ljungberg, 2016). This responsibility concerns every part of research because power elements and possibilities for perpetuating oppression are present in everything people do. Research is always about power and values, and the question of whose knowledge is considered legitimate is an ethical one (Rainio, 2010). Data are not innocent and passive, but can serve unethical purposes (Koro-

Ljungberg et al., 2018). A researcher must question one's motives and theoretical, data-related, and methodological choices to pursue better ethics because many unethical actions are unconsciously initiated. In research that does not openly aim at social justice but at understanding and developing learning and teaching, ethical matters may not be explicit. However, the motives in this dissertation are also subject to open scrutiny. In this case, a central question is what counts as a valuable direction of change concerning agency in integrating theory and practice in teacher education.

3.4 Self-evaluation of the Methodology and the Research Process

To assess the quality of research, the idea of trustworthiness has been widely used to provide a better reflection of the ethos of qualitative research instead of validity and reliability, which refer to quantitative research (Lincoln & Guba, 1981). The sub-concepts of trustworthiness, which are credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1981), can, to some extent, benefit in establishing guidelines for assessing the quality of qualitative research. However, they have also been criticised for presupposing a realist epistemology and the correspondence theory of truth (Huttunen & Kakkori, 2020). These presuppositions hold that a statement is true if it corresponds with states of affairs in an outer reality, which is objective and not affected by the subject (Huttunen & Kakkori, 2020). This epistemology does not sit well with narrative research such as this study because the purpose is not to find a 'real world' that exists separately from language or narrative.

Thus, nowadays, three basic positions on the issue of evaluative criteria in qualitative research exist: foundational, quasi-foundational, and non-foundational (Denzin & Lincoln, 2018b). Non-foundationalists accept the absence of theory-free knowledge and that the criteria for evaluating qualitative work are rather moral, relating to concrete situations (Denzin & Lincoln, 2018b). This narrative dissertation agrees with the nonfoundational aspect, seeing the truth as 'aletheia', or unconcealment, introduced by the philosopher Martin Heidegger (1992). Thus, the value of analysing agency in narration is not in its ability to reproduce the outside world, but in its capacity to evoke new kinds of thinking and seeing (Huttunen & Kakkori, 2020) and re-orient thought to experiment and create new forms of thought and life (St. Pierre, 2021).

In consequence, clear guidelines for the quality of qualitative research are difficult to established, not meaning that the research itself would be of uncertain quality (Hammersley, 2007). However, many actions such as adequate planning, familiarising oneself with and applying theoretical and methodological literature, aiming at consistency, reading the data several times, and documenting the phases of the process increase the quality of this dissertation. In research drawing from post-

structuralism, the analysis is fragmentary and multivocal rather than unifying and systematic (Fox, 2014). Narrative is not meant to be read as an exact record of what happened or happens (Riessman, 1993) because there is no external world against which a narrative should be assessed (Denzin & Lincoln, 2018a). Researchers who develop post-qualitative inquiry also emphasise that data or methodologies should not be taken for granted, but creativity should be embraced (Koro, 2021).

The methodological choice to analyse agency in narration holds specific issues that are relevant to the quality of the dissertation. They concern the focus on language, the context-dependence of narration, the applicability in educational research, and the balance between adequate design and a highly qualitative, data-driven approach.

First, narrative methodologies focus on language, and this may bypass agentic processes that are not tied to language. To provide a clear focus on language, bodily sensations, positions, and gestures were delineated outside the scope of this dissertation. However, looking simultaneously into language and emotionality or embodiment within narratives and analysing the tone of voice, pauses, eye movements, facial expressions, body postures, and gestures are recommendable in future research (Lueg, Bager et al., 2020; Squire et al., 2017). In addition, new materialist approaches (e.g., Bennett, 2010; Heikkilä & Mankki, 2021), which also acknowledge agency as other than human or more than human, were not presented in this dissertation because it concentrated on humans. However, in the future, they can bring alternative perspectives for research on teachers' agency by shifting the view from humans to materials that affect humans. Moreover, using those approaches often includes some attention to language, as material encounters often appear in human talk or text (Feely, 2019).

Second, limitations result from the context dependence of narration. Narratives are always told in a specific situation and to a certain need or on someone's initiative. However, rather than seeing context dependence as a deficit, a limitation may be if the context dependency is not wholly acknowledged and articulated. Writing this dissertation has been a process of understanding how context-dependent and performative the agency interpreted from textual or auditory expressions is. This also concerns translating quotations of the data and other material into other languages. Narration never appears in a vacuum but is tied to the situation in which, for example, student teachers have written their reports, the instructions they have been given to write the report, and the historical and cultural assumptions of being a student teacher. In this way, agency is realised in the situation of expressing oneself. Thus, the research context was carefully explicated in this study. Moreover, context dependence affects the way in which the findings are perceived, as they do not attempt to point out universal 'patterns' of student and primary teachers but to make visible new ways of thinking and seeing (Fox, 2014; Huttunen & Kakkori, 2020).

Third, using specific narrative methods such as expectation analysis, the small stories approach, or master- and counter-narratives without a background in linguistics might limit the interpretations of the findings. However, performing narrative analysis always means balancing because it is a multidisciplinary field and has no clear guidelines on how to do it (Squire et al., 2017). In addition, to escape conventional humanist assumptions, methods should not be thought of as mechanistic tools but as dynamic and generative thinking patterns that do not replace theory-based thinking but help it (Rautio, 2021). This dissertation has also been guided by the idea that using methodologies and methods that are not common in educational science enriches the field by bringing alternative perspectives.

Fourth, including texts from both student and primary teachers and interviews from both student and primary teachers in different stages could have given a chance to understand the development of agency in integrating theory and practice. However, a comparative or developmental pursuit was beyond the scope of this research, which is highly qualitative and data-driven. A comparative or longitudinal study would have required a different kind of design from the start and assuming a different kind of paradigm.

The contemporary literature on qualitative methodology holds that although planning is important, it should not become a neatly lined set beforehand because this would allow only little room for the unexpected and the unknown (Hodgson & Standish, 2009; Rautio, 2021). The status of data in qualitative research can also be challenged because data still seem to exist independently of the researcher's interpretations or be seen intrinsically connected to the participants who 'give' them, for example, in the form of interviews (Koro-Ljungberg et al., 2018). Following these thoughts, only by looking back does the researcher identify the material that contributed to the insights formed (Rautio, 2021). This applies to this dissertation, as it does not strive to be linear but insightful concerning student and primary teachers' agency embedded in theory and practice.

4 Summary of the Findings

4.1 Voices Reflecting Enacted, Limited, Opposing, and Open Agency (Study I)

The main findings of the study are presented in these sub-chapters, and thereafter the findings of the three sub-studies are discussed altogether. In study I (Heikkilä et al., 2020b), professional agency was interpreted from the narration in student teachers' texts concerning research skills. The context was a format where research skill studies and a teaching practice period were integrated. Research skills were viewed as means for mediating the agency needed in integrating theory and practice.

The findings presented four distinct voices, which implied different qualities of agency. First, by using *the voice of enthusiasm*, student teachers manifested *enacted* agency as research skills had been appropriated. Second, *the voice of uncertainty* illustrated research skills as complicated and thus *limited* the sense of agency. Third, *the voice of rejection* was used when research skills were viewed as an obligation for teachers, manifesting agency that was *opposing*. Fourth, by using *the voice of anticipation*, student teachers manifested *open* agency. In this voice, the role of research skills was seen as important but not yet mastered.

The study illustrated the plurality of agentic voices in learning research skills as a single student teacher used several agentic voices. This reveals that student teachers' agency does not concern static either-or categories. Hence, on the one hand, the student teachers gave positive connotations to research skills in teachers' work, such as depicting them as tools or lenses, which implies taking responsibility for their own expertise and independently transforming the received instruction on research skills into their own resources as they become teachers (also Edwards, 2017). These expressions illustrated possibilities and opportunities to make choices in given situations, noted as indicators of agency (Hilppö, 2016). The student teachers not only assumed the idea of research skills but also made the tool their own in developing their professional interests and needs (also Clark & Hordosy, 2019).

However, on the other hand, opposite signs were observed when the student teachers believed that the research skills in teachers' work were a burden. In this case, they saw those skills as only resulting in conducting and publishing research, for which they did not have time or resources. This could be concluded from the student

teachers' expressions of obligation and its synonyms, detailing restrictions that either other people or they themselves have set (also Hilppö, 2016). Furthermore, the transformative learning process of the student teachers partly remained unrecognisable to them, restricting their agency.

The study indicated that the student teachers were not entirely agentic or passive, accumulating merely strong or weak agency. On the contrary, they expressed enthusiasm, uncertainty, rejection, and openness as they integrated theory and practice by making sense of the role and usability of research skills in teachers' work. The study emphasised that agency is always incomplete (Loutzenheiser & Heer, 2017), and that teacher educators should embrace this plurality. In addition, the study has implications for programme development and curriculum design, wherein productive formats to produce agentic teachers and integrate theory and practice are scrutinised. The study indicates that no format in itself brings about agentic teachers, however agentic voices can appear when research skill studies and teaching practice periods are integrated. Agency can and should be fostered by carefully planned learning environments that integrate theory and practice. However, in the end, it is always complex, requiring space and guidance to personally shape the significance of the integration and make something one's own out of it.

4.2 Epistemic Agency Directed to the Self, Class, Research Literature, and Everyday Life (Study II)

Study II (Heikkilä et al., 2020a) was aimed at examining the epistemic agency (Damşa et al., 2010) in student teachers' expressions when they engaged with research skills. The point of departure was that the age of post-truth (Hauke, 2019; Hughes, 2019) affects schools and teaching by confusing valid knowledge, and requires attention in primary teacher education, where student teachers engage with scientific knowledge and its production. By concentrating on small stories in student teachers' texts, four dimensions of epistemic agency appeared through which research skills helped the student teachers orient themselves towards knowledge. All the dimensions revealed a distinct way of exercising epistemic agency through research skills.

First, the dimension of the *self* concerned the student teachers' professional development as the epistemic agency was directed to one's own teaching. Research skills served as a tool for questioning oneself and one's teaching practices. Second, in the dimension of the *class*, epistemic agency was aimed outwards, towards what occurs in the classroom and the characteristics of the children. Here, research skills related to systematic observation and analysis in understanding the pupils and their backgrounds. Third, the *research literature* dimension concerned critically relating

oneself to existing research-based information. Research skills were used for interpreting educational knowledge and assessing its validity. Fourth, the dimension of *everyday life* emphasised the student teachers' needs to see the teachers' work in a larger context. Research skills were used to support the teachers when transmitting knowledge to their pupils and to show connections between school learning and life outside of schools.

The study has implications for primary teacher education and, in general, teaching in higher education by showing how fostering agency requires attention to student teachers' relationships towards knowledge. The study arouses thinking about the purposes of research courses, which have become increasingly crucial since research-generated knowledge is increasingly challenged (Jensen et al., 2012). The study indicates that those purposes are several: to learn to reflect oneself as a professional, to observe one's surroundings more clearly, to get more out of what has been written about the field, and to cope with the outside world with fake news and 'alternative facts', which require a critical and active relationship towards knowledge. According to this study, all of these are relevant for student teachers.

Although some student teachers mentioned several dimensions, most of them seemed to focus on only one. The conclusion of this study is that epistemic agency gained through all four dimensions could be made visible for student teachers, implying a great potential that has not been attained in teacher education. These efforts can also answer the claims of student teachers missing the relevance of studying research skills, although they mainly concern subject teacher students (Puustinen et al., 2018). Primary teachers' epistemic agency (Damşa et al., 2010) is also crucial in terms of fostering pupils' epistemic agency in the post-truth age when expert knowledge is threatened (Hauke, 2019; Hughes, 2019). If student teachers are not provided with research skills or do not adopt these tools, they are at risk of going through teacher education without gaining significant epistemic agency.

4.3 Agency Negotiation Embedded in Political, Cultural, and Epistemic Aspects of Teachers' Training and Work (Study III)

Study III (Heikkilä et al., 2022) was aimed at understanding how primary teachers negotiate agency when discussing their teacher training and work. It revealed how this negotiation emerged through personal and impersonal relations (Burkitt, 2016; Dépelteau, 2008). It illustrated how individual narratives contained many relations, visible, for example, in expressions such as 'a lot of people' or 'somebody else' as the primary teachers negotiated in their interview speech with both real-life and imagined encounters. The analysis of master- and counter-narratives (Hyvärinen,

2020) revealed that these relations were not always harmonious and included comparisons, illustrating the highly relative nature of agency.

As the content of the agency negotiations, three categories of relationships were presented: political, cultural, and epistemic. They were intertwined in terms of reflecting broader societal impacts, however having their own characteristics. The *political* category showed how political and societal matters were present in primary teachers' narration, although the interview questions did not ask about such matters. Teaching is embedded in the interdependencies of society, that is, in societal changes and political decisions, and teachers form relationships with these factors. Agency was negotiated, for example, through colleagues by imagining how teachers would respond to various demands such as increased workload, multicultural teaching, or digital tools.

The *cultural* category illustrated agency negotiation in relation to the cultural images that prevail for teachers and their work in society. This was most clearly visible in narratives concerning how the public image of schools and teachers' work did not reflect reality. Although the primary teachers were confident in themselves as teachers, they simultaneously suffered from this negative image and viewed their work through the eyes of imagined others. Concerning the *epistemic* aspects, the primary teachers' relationships to knowledge involved both their training and working lives. Agency arose from setting oneself against 'the man in the street', who could legally work as a substitute teacher in Finland but did not have the knowledge or skills because of a lack of qualifications. Thus, agency was visible in verbalising one's expertise, arguing for the complexity of teaching and learning, and finding a personal balance between educational theory and practice.

The study has several implications for teacher education. First, the political category indicated how political matters were negotiated, whether consciously or, rather often, unconsciously. Viewing teaching and learning as neutral and without vested interests is dangerous because it separates teaching and learning from their societal, historical, and philosophical frames (Biesta, 2015). Therefore, teacher education programmes should include the sociology of education so that teachers' understandings of learning and teaching do not remain decontextualised (Simola et al., 2017).

Second, concerning the relationships to cultural aspects and the themes of publicity and privacy in teachers' work indicate that student teachers should be prepared to act in this world, in which the already public nature of teaching is further heightened by social media. Teachers must be trained for epistemic agency (Damşa et al., 2010) to help them navigate in the changing knowledge cultures featured in fake news, troll targeting, and hate speech.

Third, the epistemic category indicates that primary teachers' relationships to knowledge should be considered. Student teachers need discussion of how they form

relationships with knowledge, negotiate between theory and practice, and personally apply theoretical knowledge in usable forms. The study illustrates how increasing the research base of teacher education (Afdal & Damşa, 2018; Darling-Hammond et al., 2017) does not automatically bring about positive consequences, but its meanings are constantly negotiated and re-negotiated by student and primary teachers. However, the research emphasis of the programme brings the epistemic aspects to the centre of primary teachers' work. In this sense, identities are central. The study raises a question of supporting teachers' identities in seeing oneself as a professional working in highly complex knowledge environments.

4.4 Summary of the Main Findings

The main aim of this dissertation was to examine how agency is manifested in student and primary teachers' narration embedded in theory and practice. To summarise the findings of the sub-studies, agency has been manifested as a polyphony of multiple voices that implies diverse qualities of action concerning theory and practice. In study I, particularly these voices were analysed, in study II certain dimensions towards which agency was directed to, were discerned, and in study III, the relationality of agency negotiation was revealed.

First, the findings indicated that student teachers can use enthusiastic, limited, rejecting, and open voices simultaneously to express agency when reflecting research skills in their teaching practice period (study I). Agency could not be depicted as something owned by the student teachers but as something manifested relationally between the empowering and rejecting narratives on research skills. The quality of agency was not unanimous but enacted, limited, opposing, and open agency intersected.

Second, the findings indicated the variation of how student teachers' epistemic agency can be directed to. Student teachers directed agency towards themselves and their professional development, the pupils of the class and their backgrounds, the educational research literature, and the links between school and the outside world (study II). Thus, student teachers exercised epistemic agency creatively to integrate theory and practice in their teacher education.

Third, diverse qualities of action were observed in the primary teachers' narration in study III as the teachers made sense of the interconnections of theory and practice by political, cultural, and epistemic aspects of agency. In this study, agency was characterised as negotiation between master- and counter-narratives of teacher education and teachers' work.

In this dissertation, agency has manifested itself in voices, dimensions, and negotiation as student and primary teachers make sense of the interconnections of theory and practice in terms of using research skills and between teacher training and

work. These voices, dimensions and negotiation concern the ways in which knowledge is produced and can be transferred and utilised in a way that it becomes personally meaningful. In this sense, integrating theory and practice has signified knowledge work that both requires and enables agency. In light of this dissertation, preparing the grounds for this personally meaningful knowledge work becomes a key aim for developing teacher education, further elaborated in the Discussion.

5 Discussion

5.1 Theoretical Contributions

Teachers' agency is increasingly examined and supported as an influential factor for teachers' professional learning and sustainable educational change (Cong-Lem, 2021). However, how agency can be understood in the context of teacher education requires a theoretical contribution made in this dissertation and based on the sub-studies. The explorative typology presented in this dissertation helps understand different perspectives on teachers' agency, which intersect and partly disagree with each other. Furthermore, the sub-studies showed nuances of agency. Thus, the conceptualisation of agency as a polyphony of multiple voices implying diverse qualities of action emphasises that the power to act and choose one's action always includes tensions. Thereby, the conceptualisation moves beyond dichotomies of strong or weak agency (also Vähäsantanen, 2015), acknowledging that people often tend to be simultaneously agentic and vulnerable as they act in relations (Burkitt, 2016) and entwined with cultural narratives (Meretoja, 2017). Although this conceptualisation is rooted in teacher education, it can be applied in other fields of higher education and working life.

Moreover, the novel conceptualisation is needed because it reveals that neo-liberalist pursuits (Brunila & Ylöstalo, 2020; Strom & Viesca, 2021), which tend to emphasise individuals' separation from each other are not self-evident. It maintains that agency can be thought of as a phenomenon beyond individuals, still manifesting in individual teachers' narration. The new conceptualisation is especially important for developing the Finnish primary teacher education because all student teachers are potentially competent and skilful to succeed in teachers' work. This is due to, among others, the advanced suitability assessment before the training and the large amount of applicants (Mikkilä-Erdmann et al., 2019). Thereby, to develop primary teacher education, a nuanced picture of the different qualities and tensions of agency is productive.

This nuanced picture was developed through the sub-studies. In study I, the metaphor of voice (Bakhtin, 2002) proved useful in examining student teachers' agency. Initially, it set the dialogical point of departure, according to which people do not have a single voice but many voices that can be discerned, analysed, and

thematized. Consequently, four different manifestations of agency could be explored: enacted, limited, opposing, and open. In study II, the nuanced picture was further developed by revealing different dimensions where student teachers directed their agency. Hence, by presenting these four different qualities of action, the study highlighted that what matters might not be agency as such but rather what it enables. In study III, the perspective of relational sociology further developed the conceptualisation by concentrating explicitly on relationships. As relationships always are tensioned, the perspective helped to reveal teachers' agency as a phenomenon of interaction and action itself. It indicated how agency negotiations involve both realised and imagined encounters with colleagues, families, and pupils as well as social demands and societal expectations. Agency as polyphony was borne out of all this.

Studies I and II used additional definitions of agency, which were 'professional' (study I) and 'epistemic' (study II). As agency is a contradictory concept (Emirbayer & Mische, 1998), the additional definitions can, to some extent, help to specify the meaning of agency in the respective studies. However, for example, professional agency can be interpreted from various perspectives, referring to a capacity or a larger phenomenon within the professional field, involving doing rather than being (Paloniemi & Goller, 2017; Vähäsantanen et al., 2020). Similarly, epistemic agency (Damşa et al., 2010) requires further explanation of the concept in the research in question. Thus, as such, the additional definitions of agency do not solve the theoretical challenges in conceptualising agency but further theoretical work on different assumptions of humanity and action in terms of education is needed.

The conceptualisation of teachers' agency in this dissertation differs from the cognitive definitions that view agency as a capacity (Heikonen, 2020; Maclellan, 2017; Toom et al., 2017). It also departs from socio-cultural definitions, which by pointing out structures or contexts (e.g., Edwards, 2017), similarly seem to separate agency from them. However, in the approach to learning, it shares many ideas from a socio-cultural perspective. It acknowledges that language plays a strong role in learning and that different items, in this case research skills as tools to create knowledge, can act as mediators of agency (Hopwood, 2010). Thus, it shares the understanding of the importance of contextual factors in the formation of teachers' work but not the analytical divide into agency and context or structure (Burkitt, 2016), thereby shifting to post-structuralism (Loutzenheiser & Heer, 2017).

In post-structural notions of agency, different stances can be discerned in whether they see identities as possible or not (Eteläpelto et al., 2013). For strong post-structuralists there is nothing outside texts, whereas in the intermediate post-structural approach the lived experience of individuals is taken into account (Eteläpelto et al., 2013). In this dissertation, the role of identities is acknowledged and identities are seen relevant especially in how teachers include or do not include

research in their teacher identities. However, research-related teacher identities are rather seen as a target of teacher education than a focus of this research as such. The perspective of this dissertation also holds that in research on teaching and teacher education, the notion of agency as a capacity has been overemphasised and, thus, there is a true need to pay more attention to linguistic choices and relationships rather than subjects themselves. Thus, the dissertation has shown less individualistic ways of thinking about agency, simultaneously acknowledging personal possibilities for agency to integrate theory and practice.

Acknowledging that the research on teacher education and higher education have so far existed apart from each other (Sjølie & Østern, 2021), has also been an important point of departure for this dissertation. It has attempted to bridge them to deepen the understanding of both because, first, teacher education is part of higher education and, second; advances in teacher education can benefit a wider range of audiences in the development of higher education. In this dissertation, research on the theory-practice topic in teacher education has been developed from the viewpoint of knowledge integration (Hermansen, 2020; Risan, 2020). Thus, in this dissertation, theory and practice have been understood as a knowledge-related relationship characteristic of higher education, which student teachers learn to live by during their training and throughout their working lives. Thus, rather than striving to remove the dichotomy of theory and practice (also Risan, 2022), the dissertation has brought the role of agency into discussion, arguing for accepting polyphonic voices in integrating different knowledge domains.

Although not focusing on teacher identities, the novel conceptualisation of teachers' agency also relates to understanding them in research-based teacher education. According to an established understanding (Eteläpelto et al., 2013; Kayi-Aydar, 2019; Ruohotie-Lyhty & Moate, 2016), agency is closely intertwined with identity. Teacher identity, for its part, is at the core of the teaching profession and teacher development (Beauchamp & Thomas, 2009). It refers to how teachers construct their own ideas of being, acting, and understanding their work and place in society (Sachs, 2005). In teacher education, identities are mediated during the five years of training. As teacher education is part of higher education, it is desirable, or rather necessary, that prospective teachers link their identities to research and build strong, personal ties to their major, educational science. Equally important is that this research base is connected to teaching practice periods for the perspective of identity. Then applying theoretical knowledge in one's teaching and conceptualising phenomena using theoretical concepts (Tynjälä et al., 2014) becomes a part of their identity.

However, even in research-based teacher education, this is not self-evident because of competing discourses and images of what teachers should be like and what they should do. There agency becomes an issue. The polyphonic understanding

of agency highlights that there are constant and simultaneous possibilities to build and crumble student teachers' identities concerning research. Student teachers need to be allowed the sense of purpose, that is, that research skills are for them and not just another obligatory accomplishment. In this way, theory and practice can truly intersect.

5.2 Methodological Contributions

Post-structuralist narrative methodologies in the field of teaching and teacher education have been developed by this dissertation. Narrative methodologies have been common in this field, emphasising teachers' personal accounts (Clandinin & Connelly, 2004). However, bringing post-structural elements to these discussions can disturb the assumptions of clear-lined subjects telling their 'own' stories. Narration, the process of telling or writing one's accounts to someone else or by oneself, encompasses the notion that teachers use various linguistic expressions, which are not inherently personal but entwined with cultural narratives (Meretoja, 2017; Riessman, 1993). Thereby, in line with discourse analysis, it is study of the meanings teachers give language and the actions they carry out when they use language in specific contexts (Gee & Handford, 2012). This is a key element in beginning to discuss agency and vulnerability in the same sentence, in line with the idea of agency as a polyphony.

A central methodological quest undertaken through this dissertation has been the interpretation of agency from language. In previous research, the role of narration in agency has been deemed central with multifaceted meanings (Bamberg, 2004; Squire et al., 2017). A key idea is that anytime we speak or write we – often unconsciously – make choices that indicate agency. These narrative and linguistic choices can be examined with a particular focus. Versatile methods have been applied in this study, illustrating how the analysis can focus on expectations (Hyvärinen, 2008; Tannen, 1993), voices (Bakhtin, 2002), small stories (De Fina & Georgakopoulou, 2008), and master- and counter-narratives (Lueg, Bager et al., 2020). Moreover, the use of rather naturally occurring narratives (Pulvermacher & Lefstein, 2016) has been emphasised by strengthening the view that in examining agency, researchers do not necessarily need to elicit agency. On the contrary, possibilities to trace and interpret agency are present almost anywhere in text or talk.

Moreover, the dynamic view of narratives in the field of teaching and teacher education has been strengthened by this dissertation. A traditional understanding of narratives assumes that narration depicts past experiences. However, in contemporary research, narration is increasingly viewed as shaping prospective action (Andersen et al., 2020). How we narrate implies a certain understanding of what is possible for us as we seize certain possibilities that are open to us and dismiss

others (Meretoja, 2017). Accordingly, in this dissertation, narratives have not been understood merely as stories of the past but as stories strongly orienting to the future, also resonating the concept of narrative practice. This means that student and primary teachers' action is always intertwined with their understanding of the past and the present. This dynamic view provides increasing possibilities for research on teaching and teacher education because that research is often driven by the interest in developing practices for the future.

5.3 Educational Implications

A key conclusion of this dissertation is that integrating theory and practice in a profound and personally meaningful way requires taking account of agency. From this perspective, agency becomes a desired feature that should be supported instantly as student teachers enter the teacher education programme; however, it cannot be restrained. Thus, in developing teacher education, the grounds for agency for knowledge work can be prepared but as it always includes tensions, a certain kind of agency cannot be assumed, also reflecting the verb 'to manifest'.

The ambition of supporting agency leads thoughts to knowledge and skills that teacher education programmes aim to produce. Agency has been deemed important in teacher education in developing student teachers' competencies (Toom et al., 2021). In the MAP model of teaching, agency is mentioned under professional identity as part of teachers' personal orientations (Metsäpelto et al., 2021). However, agency can be relevant in any competencies. Agency cannot be easily considered as a competence itself because it is not an attribute that can be acquired (Edwards, 2017; Paloniemi & Goller, 2017). However, teachers' agency and competencies have much in common, as both emphasise the importance of the professional knowledge base for teaching (Toom et al., 2021).

In terms of integrating theory and practice, agency especially connects to cognitive skills. Cognitive skills are differentially relevant to teachers' work, especially higher-order thinking skills, which refer to skills for analysing, evaluating, creating, and applying knowledge (Metsäpelto et al., 2021). This closely resembles integrating theory and practice and the way research skills are defined in higher education (e.g., Murtonen & Salmento, 2019). In addition, the framework specifying the higher-order thinking skills relevant for teachers and teacher education (Häkkinen et al., 2017) is the generic skills described in the 21st century skills (Binkley et al., 2012), bringing forth critical thinking, creativity, effective communication, and metacognition as skills needed in working life. Studies I and II have illustrated the important role of research skills as generic skills in teachers' work.

Adopting cognitive skills involves agency because the interconnections of theory and practice are not static entities that could be digested as such or at once but are involved in ongoing knowledge work. Rather, in line with recent literature, the aim should be in embracing and making use of the special characteristics and tensions that the different knowledge domains can offer (Risan, 2022). The narrative approach has brought forth possibilities to observe those interconnections. Agency to integrate theory and practice is enabled daily as student teachers, for example, write their reflexive reports or collect data for their research projects during their teaching practice period. Similar interconnections are also lived and acted every working day when primary teachers make sense of problems in their classrooms, on the basis of their recurring background during their 5 years of training. Without taking agency into consideration, one might suppose integration of theory and practice to refer to policies forced from above and strictly tied into what ‘works’ according to certain types of research (cf. Siegel & Biesta, 2021). On the contrary, highlighting the role of agency in the integration brings a personal and intimate aspect to the picture, leaving room for hesitancy and new insights.

Another conclusion of this dissertation is that learning to build interconnections between theory and practice can enable new agency. Agency is not only a resource that is needed to integrate theory and practice but also an aim in itself that is realised once teachers enrich their work by using research skills. Then, they can step aside from the here-and-now of school life and look at it from a wider perspective (Stenberg et al., 2016). Student teachers' role is challenging because student teachers position themselves as both students and teachers (Edwards, 2017). They have to learn to distance themselves from the view of the teachers' work that they have had as pupils and create teacher identities as professionals of education. Thus, providing them opportunities to learn and practice research skills can integrate theory and practice from the aspect of their agency because, thereby, they can personally discover how the research-based knowledge in their field emerge and how it relates to teaching. Finding enthusiastic and open voices to speak about research skills (Heikkilä et al., 2020b), seeing several dimensions to direct epistemic agency (Heikkilä et al., 2020a), and understanding teachers' work from political, cultural, and epistemic aspects (Heikkilä et al., 2022) pave the way for agency.

Supporting Agency at Different Levels to Integrate Theory and Practice

Supporting agency to integrate theory and practice can operate at several levels from teacher educators to higher educational organisations and national and international policies. The teacher educators' role is important because through pedagogics, they can mediate student teachers' interconnections between cultural tools, such as concepts, and practical issues (Edwards, 2017). Taking into account the tensions and

hesitancy in student and primary teachers' narration, teacher educators should be sensitive to different voices of agency. Moreover, the narrative approach that emphasises the choices made at the language level elucidates the interconnections between theory and practice made and 'lived' every day repeatedly. This point can help release the pain of uncertainty and create an approving atmosphere for student teachers. Thus, not a single 'relationship' exists between theory and practice, but these knowledge-laden interconnections are ambiguous. Prior research has highlighted the creative and constructive work required by teacher educators to make linkages between theory and practice transparent (Risan, 2020). Although learning to integrate theory and practice is often complicated, it can be progressively developed by building research skills over a programme (Hughes, 2019). Teacher educators should be optimistic that already first-year student teachers could build versatile connections between theory and practice, as illustrated in study II, although they may speak in different, ambiguous voices, as in study I.

At the levels of programme development and curriculum design in primary teacher education, the findings generate a two-fold view. The tensioned picture implies that student teachers do not self-evidently exercise agency to integrate theory and practice, although Finnish teacher education has received much attention and new formats have been developed to bridge theory and practice. However, the findings support previous research that has mainly been favourable of the efforts made for Finnish research-based primary teacher education (Aspfors & Eklund, 2017; Toom et al., 2010). More student-engaged activities have been demanded to compensate teacher-led training (Eklund et al., 2019). Giving student teachers responsibilities and chances to apply the research skills taught at the campus during their teaching practice periods in the school context in the teacher training school alleviates the risk that theory and practice are seen as separate (also Stenberg et al., 2016). At the best, student teachers internalise research as a practice that they do for their own academic and everyday purposes and generate their own research questions and new knowledge (Clark & Hordosy, 2019).

The efforts depicted above may not be easy to implement. Multiple discourses are present in the Finnish primary teacher education. Although increasing the research base of the programmes is a global tendency (Afdal & Spernes, 2018; Darling-Hammond et al., 2017), usually including student teachers' own research, Finnish primary teacher education is sometimes criticised for turning its back on practical schoolwork by increasing its research base (Säntti et al., 2014). This view can be reflective of the assumption that practitioners need knowledge that works in practice, arising from practical experience instead of general knowledge and skills that work beyond the immediate situation (Kvernbekk, 1999). Thus, recognising different discourses and agendas is required to develop teacher education. In addition, the financial resources of research-based teacher education must be ensured

because student teachers learn to do their own research in small group teaching with a personal contact with the teacher educator.

The dissertation also has implications for organising teaching practice periods. University teacher training schools play a strong role in supporting agency to integrate theory and practice. In Finland, along with providing education for neighbourhood children, their special responsibility is to organise teaching practice periods for student teachers, provide supervision for student teachers during the periods, and develop these (Toom & Husu, 2021). Outside Finland, close collaboration between teacher education units and partnership schools where student teachers practice teaching has been acknowledged to contribute to mobilising knowledge between those two learning arenas (Lillejord & Børte, 2016). The sub-studies of this dissertation also provide grounds to think that alteration of campus- and school-based modules helps to progressively develop the interconnections of theory and practice as a routine that was visible in primary teachers' narration of epistemic aspects in study III.

Lastly, the dissertation makes educational contributions to programme leaders in primary teacher education. The lay impression of the term 'theory' tends to be negative, referring to an opposite of practicality. Populist claims and misinformation (Hughes, 2019) and personal stories (Mäkelä et al., 2021) increasingly displace research-generated knowledge. In addition, the status of educational science is not strong enough among other sciences (Siegel & Biesta, 2021). Thus, supporting and making visible the research made by teacher educators also reflect the level of student teachers, helping to integrate theory and practice. Agency-promoting leadership practices include seeing teacher educators as influential actors in the professional community, facilitating active participation, and allocating enough time for research activities alongside teaching duties (Vähäsantanen et al., 2020). Teachers and teacher educators are sometimes pushed to blindly follow the allegedly most effective teaching interventions and specified methods (Campbell, 2018; Siegel & Biesta, 2021), and educational reforms are sometimes imposed on a top-down basis (Vähäsantanen, 2015). This is not the true theory-practice integration but, vice versa, diminishes the autonomy and agency of teachers and underestimates teachers' abilities to understand the complexity of education (Siegel & Biesta, 2021). Thus, teacher educators should be perceived as fully-fledged researchers besides teaching and supervision to support their professional knowledge and expertise in research-based teacher education (Jegstad et al., 2021).

Finally, globally, the dissertation emphasises that primary teacher education should be viewed as an arena within higher education, where theoretical and practical issues enrich each other in the pursuit of educating skilful future teachers whose profession involves complex knowledge work. The dissertation emphasises the widely acknowledged notion that teachers are not merely policy actors but are active

agents in adapting and resisting policies (also Cong-Lem, 2021). As social practices and professional discourse usually breed conformity rather than autonomy (Campbell, 2018), teachers' agency in integrating theory and practice becomes a delicate issue that requires true attention. In this regard, efforts to build epistemic infrastructures for accessing, circulating, developing and critically assessing knowledge in the professional field of teaching (Hermansen, 2017) should be supported. By creating an environment where teachers can research, develop, and create their own practice in unique, personal ways, teachers can become agents of social and educational change (Campbell, 2018).

In Finland, teacher education is a mixture of educational science, research skill studies, a rich array of subject didactics, and practical training in the classroom. This combination provides a stable foundation for primary teachers' agency in integrating theory and practice, albeit requiring constant concern. Supporting student teachers in working on the interconnections between theory and practice and helping them to bring knowledge from one context to another both requires and generates agency, which is vital and necessary in the world of unpredictable circumstances and challenges.

5.4 Future Directions

Several suggestions for further research arise from this dissertation. Thorough theoretical understandings of teachers' agency embedded in theory and practice are needed. Educational science has emphasised problem-solving and practical usability at the cost of theoretical and philosophical understandings (Hodgson & Standish, 2009). The notion of agency cannot be implemented easily because it deals with humanity and action, which are both broad phenomena. It requires problematising the assumptions about being human, what it means to act, and how this all relates to learning. Clarifications between different perspectives on agency as indicated in chapter 1.1, and perspectives on learning (e.g., cognitive or sociocultural) and their mutual relationship are needed. If agency is seen as a desired feature, it raises the question of how people might be enabled to reconstruct their agentic orientations (Biesta & Tedder, 2007). On the other hand, learning *about* one's agentic orientations (Biesta & Tedder, 2007) is one way of utilising the concept of agency in terms of learning, illustrated in study II as a conclusion of making visible student teachers' relationships towards knowledge.

Future research should acknowledge the contradiction that while the interconnection of theory and practice is a common and everyday topic of conversation in teacher education (Korthagen, 2010), it relates to abstract and broad concepts, requiring thorough theoretical contributions to clarify where assumptions are derived from and how to think about the interconnection in new ways. The

concepts of epistemic agency and knowledge integration provide fertile ground for that work.

In addition to the theoretical work, the role of agency in integrating theory and practice is a versatile empirical research theme. Various data such as written texts, interviews, observations, group interviews, data from teacher educators, curricular texts, and policy documents can provide new approaches on the topic. Survey data, for example, on epistemic beliefs of student teachers can be used to explain differences in approaching research-generated knowledge. Intervention designs can provide opportunities to examine how certain pedagogical actions affect agency and the depth of knowledge integration. In addition, as teachers' agency is tied to the interaction with other people, especially pupils, the methodologies of research on learning in interaction can be used. The collection of student teacher data is beneficial as part of student teachers' ordinary coursework. This supports the integration of research and teaching in higher education, which is a long-standing concern (Brew & Boud, 1995). It also enables researchers to trace agency in narration that occurs in more natural situations than by researchers' elicitation (Pulvermacher & Lefstein, 2016).

Although this dissertation has included in-service teachers' accounts, it has mainly focused on initial teacher education. Professional development for teachers has proven to be effective in enhancing teachers' agency (Cong-Lem, 2021). Thus, future research should also particularly contribute to in-service teachers' professional development in terms of agency in theory-practice integration. It should develop models of continuous education that enable teachers to integrate research-generated educational knowledge and their work. In this process, enabling easy access to fresh scientific knowledge and possibilities for teacher research are vital.

Finally, the topic of this dissertation can be combined with other concepts and specific contexts in future research. First, as teachers' agency relates to how teachers perceive their identities, future research would benefit from combining these concepts in the light of knowledge integration. Second, agency in terms of power relations in teacher education can be traced by utilising methodologies of discourse analysis. Third, teachers' agency in integrating theory and practice can be seen as a prerequisite for increasing participation in science and citizens' scientific literacy (e.g., King & Nomikou, 2018). Thus, the concept of science capital can be relevant. On the other hand, student and primary teachers' own scientific literacy in terms of integrating theory and practice requires understanding. This is vital because to work against complex challenges, particularly climate change, teachers will increasingly have to engage critically with the evidence base, uniting environmental and civics education (Lundholm, 2019). In any case, the concepts of agency and knowledge integration provide a beneficial point of departure for all these suggestions.

Finally, as teachers are not separate from other professionals trained in higher education, comparative designs that look at different fields and programmes are needed. Actors in both teacher and higher education in general will need a novel understanding of the strategies to support agency in integrating scientific knowledge and professional work.

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Appendices

Appendix 1. The assignments on the theme 'research skills' for student teachers for writing their teaching practice reports, studies I–II, a) the assignments translated from Finnish into English b) the original assignments in Finnish.

a) *Study I*

How did the conducting of research during the teacher practice succeed? What did I learn? How does it affect my professional growth as a teacher? How do I see the role of research in developing teachers' work?

Study II

What conceptions did you have on research skills before entering teacher education? Why?

What was it like to conduct research during the teaching practice and what kind of thoughts did it arouse in you?

What insights did you have and what conclusions did you draw on teachers' work / the teaching profession during teaching practice?

How do you think the research skills you are practising will show in your future work as a teacher?

b) *Tutkimus I*

Kuinka tutkimuksen toteuttaminen harjoittelun aikana onnistui? Mitä opin? Kuinka se vaikuttaa ammatilliseen kasvuuni opettajana? Millaisena näen tutkimuksen roolin opettajan työn kehittämisessä?

Tutkimus II

Minkälaisia käsityksiä sinulla oli tutkimustaidoista osana opettajan työtä ennen koulutukseen tuloasi? Miksi?

Millaista oli toteuttaa tutkimusta harjoittelun aikana, ja millaisia ajatuksia se sinussa herätti?

Minkälaisia oivalluksia ja päätelmiä teit opettajan ammatista/työstä harjoittelun aikana?

Miten arvelet, että nyt harjoiteltavat tutkimustaidot näkyvät tulevaisuudessa opettajan työssäsi?

Appendix 2. The interview frame, study III, a) the interview frame translated from Finnish into English b) the original interview frame in Finnish.

a)

Demographic questions

- Teaching experience in years
- Age

Teachers' work in general

- Please tell me in your own words what it is like to be a teacher.
- What kind of school do you work in?
- What kind of class do you teach? (If you have a class of your own, but if you do not, what kind of classes have you taught?)
- What kind of challenges do you face in your daily work?
- What about advantages in teachers' work?
- What kind of principles do you follow in your teaching?
- What comes to your mind when talking about 'teacher expertise'?

Teacher education/training

- Please tell me about your teacher training in your own words.
- What do you think about it now?
- What about during the training, what did you think about it at that time?
- How would you develop teacher education?
- The society is facing great changes, such as climate change, digitalisation (and now the pandemic). How do you think teacher education could prepare teachers to act in the changing world?

Continuous education

- In Finland, continuous learning is a current topic. In your view, what kind of skills and knowledge do teachers accrue during their career?
- How could teachers' continuous education promote these issues, and what kind of continuous education would you like to have?

Work satisfaction as a teacher

- Are you satisfied with your work? Which matters are you satisfied with, which ones not?
- Please tell me about stressful matters or situations in your work.
- How do you feel about the appreciation of teachers' work?
- How could the appreciation be increased? (at personal, organisational, and societal levels)
- What kind of resources do you have for your work and where do you get them?
- What kind of skills do teachers need in their work?

Research base of teacher education

- In Finland, primary teacher education is said to be research-based. What does it mean to you?
- How has it manifested in your training? (in the major subject educational science, subject didactics, minor subjects, teaching practice periods, bachelor and master thesis studies)
- Do you appreciate the research base of teacher education? If yes, in which studies do you find it essential? In which studies not?
- What kind of skills concerning research did you learn during your training? Please tell me about your experiences.
- What kind of role does the research base have in teachers' work, in your view?
- Do you use these skills in your work? How? (If not, why is that?)
- In university education, you have learned theoretical and abstract knowledge. What does this kind of knowledge mean to you now as a teacher?
- How would you wish the research base of teacher education to be in the future?
- Finally, we have discussed teacher education, how to develop it, continuous education, work satisfaction, and the research base of teacher education. Would you like to add something to any of these themes?

b)

Taustakysymykset

- Kuinka kauan työskennellyt opettajana
- Ikä

Opettajan työ yleisesti

- Kerro ihan vapaasti, millaista on olla opettaja.
- Millaisessa koulussa työskentelet?
- Millainen luokka sinulla on? (jos on oma luokka, mutta jos ei, millaisia luokkia olet opettanut?)
- Millaisia haasteita näet päivittäisessä opettajan työssäsi?
- Entä mitä hyviä puolia opettajan työssä on?
- Millaisia periaatteita sinulla on opetustyössäsi?
- Mitä sinulle tulee mieleen sanaparista ”opettajan asiantuntijuus”?

Opettajankoulutus

- Kerro ihan vapaasti täällä saamastasi koulutuksesta.
- Mitä ajattelet saamastasi koulutuksesta tällä hetkellä?
- Entä mitä ajattelit siitä koulutuksen aikana?
- Miten kehittäisit opettajankoulutusta?
- Yhteiskunnassa on meneillään suuria muutoksia kuten ilmastonmuutos, digitalisaatio (ja nyt pandemia). Millaista opettajankoulutuksen pitäisi sinusta olla, jotta se parhaiten valmistaisi toimimaan opettajana muuttuvassa maailmassa?

Täydennyskoulutus

- Nykyään puhutaan jatkuvasta oppimisesta. Millaista osaamista mielestäsi kertyy opettajalle työuran aikana? (tietoja, taitoja)
- Miten täydennyskoulutuksella voitaisiin näitä asioita edistää/auttaa? Eli millaista täydennyskoulutusta toivoisit, jos saisit päättää asioista?

Työtyytyväisyys opettajana

- Oletko tyytyväinen työhösi? Mihin asioihin olet tyytyväinen, mihin tyytymätön?
- Kerro stressaavista asioista tai tilanteistasi työssäsi.
- Miten koet opettajan työn arvostuksen?
- Miten opettajan ammatin arvostusta voisi mielestäsi nostaa? (yksilötason, organisaatiotason ja yhteiskunnallisen tason toimenpiteet)
- Mitä voimavaroja sinulla on työhösi? Mistä ammennat voimavaroja?
- Mitä taitoja sinusta opettaja tarvitsee työssään?

Opettajankoulutuksen tutkimusperustaisuus

- Suomessa luokanopettajan koulutuksen sanotaan olevan tutkimusperustaista. Mitä se sinusta merkitsee?
- Miten tämä on mielestäsi ilmennyt saamassasi koulutuksessa? (Ilmenikö se esim. pääaineopinnoissa (kasvatustieteen perus- ja sivuaineopinnoissa), monialaisissa opinnoissa, sivuaineopinnoissa (mitä sivuaineita teit), harjoitteluissa, kandi- ja graduopinnoissa)
- Arvostatko koulutuksen tutkimusperustaisuutta? Jos kyllä, missä em. opinnoissa se on mielestäsi olennaista? Miksi? Entä missä ei olennaista?
- Millaisia tutkimukseen liittyviä taitoja opit koulutuksen aikana? Kerro kokemuksistasi.
- Mikä merkitys tutkimusperustaisuudella on sinusta opettajan työssä?
- Hyödynnätkö näitä taitoja nykyisessä työssäsi? Miten? (Jos ei: Miksi et?)
- Yliopistokoulutuksen aikana olet oppinut teoreettista, abstraktimpaa tietoa. Mitä tällainen tieto merkitsee sinulle nyt opettajana?
- Tuleeko sinulla vielä mieleen jotain, mitä tutkimusperustaisuus sinusta mielestäsi merkitsee?
- Millaista toivoisit opettajankoulutuksen tutkimusperustaisuuden olevan tulevaisuudessa?
- Lopuksi: Olemme keskustelleet opettajankoulutuksesta, ja miten sitä voisi kehittää, täydennyskoulutuksesta ja työtyytyväisyydestä opettajan työssä sekä opettajankoulutuksen tutkimusperustaisuudesta. Tuleeko sinulle vielä mieleen jotain, mitä haluaisit lisätä johonkin aiheeseen?



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