



Research-based Teacher Education Curriculum Supporting Student Teacher Learning

10

Auli Toom and Jukka Husu

Abstract

Coherent research-based teacher education curriculum is of vital importance when educating student teachers for the teaching profession in the academic university context. It is essential that the characteristics and complexities of teachers' work are comprehensively taken into account in the curriculum. At the same time, the curriculum needs to prepare student teachers to learn an inquiring orientation towards teachers' work. It is essential that student teacher learning is at the core of teacher education programmes. This means that teacher education should have a clear research-based profile and organising theme, and that its curriculum should be coherent. In addition, pedagogical practices utilised in teacher education need to allow student teacher learning, collaboration with their peer students, active professional agency in a variety of ways, and allow for learning pertaining to taking care of their well-being. Teachers are in a key position in orchestrating pupils' learning in their own classrooms, as well as in supporting their peer teachers' learning, promoting pedagogical innovations, and developing schools. Pre-service teacher education should equip student teachers with strong professional agency, which

A. Toom (✉)

Faculty of Educational Sciences, University of Helsinki, Centre for University Teaching and Learning, Helsinki, Finland
e-mail: auli.toom@helsinki.fi

J. Husu

Faculty of Education, University of Turku, Turku, Finland
e-mail: jukka.husu@utu.fi

© The Author(s) 2024

G. Doetjes et al. (eds.), *Coherence in European Teacher Education*,
https://doi.org/10.1007/978-3-658-43721-3_10

173

allows them to learn continuously in the profession, support pupils and colleagues, as well as act professionally in continuously changing educational contexts.

Keywords

University education • Teacher education • Research-based curriculum • Curriculum coherence • Teacher education pedagogy • Student teacher learning

10.1 Introduction

In this chapter, we outline the importance of a coherent and constructively aligned (cf. Biggs, 1996; Floden et al., 2021) research-based curriculum for supporting student teacher learning for the teacher profession. We begin by elaborating the characteristics of teachers' work and the key capabilities based on current research. We then turn to the complexity of student teacher learning of these capabilities as well as the role of teacher education pedagogies in it. Our second aim is to discuss the wholeness of research-based and coherent teacher education curricula. The third aim is to suggest future considerations for supporting teacher learning, which includes the time in the profession after the pre-service education.

Researchers on teachers, teaching and teacher education have identified the characteristics of teachers' work and the essential capabilities needed in the teacher profession, for example, related to learning and teaching: well-being, interaction, and school development (Clandinin & Husu, 2017; Husu & Toom, 2016; Lampert, 1998; Toom, 2017). The research has defined core capabilities necessary in teacher's work but also identified current needs of the profession. More emphasis needs to be placed on teachers' capabilities in supporting the well-being of pupils, acting in the diverse and changing contexts, as well as continuous learning in the profession (Toom & Husu, 2022).

Earlier research has discussed some of the complexity of teachers' learning of these essential capabilities (van Eekelen et al., 2006; Bronkhorst et al., 2014; Heikonen et al., 2020). Earlier research has also emphasised the importance of high-quality teacher education and pedagogies when cultivating student teacher learning and supporting their development in the profession (Clandinin & Husu, 2017; Cochran-Smith et al., 2015; Toom et al., 2010). In addition, these have been continuously emphasised in educational policy papers, reports, and agendas related to teachers, schools, and pupils' learning (e.g. TALIS, 2018; Unesco, 2021). The discussion about teachers' capabilities arises because teachers have

a central role in enhancing pupils' learning as well as the developments and innovations of the educational system. Teachers are also in a key position with regard to enacting a school's educational task and their role in society (Juvonen & Toom, 2023).

While there is a consensus on the importance of supporting student teacher learning of key capabilities for teachers' work and the important role of high-quality teacher education programmes related to this, a crystal clear understanding of the essential and necessary characteristics of teacher education curricula does not exist (cf. Husu & Toom, 2016). While several principles, practices, and even empirical evidence can be found (e.g. Cochran-Smith et al., 2015; Toom et al., 2010), the earlier literature says surprisingly little about the importance of research-based characteristics and coherence of teacher education programmes in terms of student teacher learning (Grossman, 2007; Kansanen, 1991; Kansanen et al., 2000). The challenge in teacher education programmes is especially related to coherently supporting student teachers' learning to become teachers and doing it both collectively and individually throughout their studies in teacher education (Floden & Buchmann, 1993; Grossman, 2007). Furthermore, surprisingly little research exists on the relationship between student teacher learning and learning environments in teacher education, as well as how various components of the learning environment contribute to student teachers' learning (Heikonen et al., 2020; Soini et al., 2015; Toom et al., 2017). Learning key capabilities for teachers' work requires a variety of meaningful theoretical studies and activities, practical studies and practice related to teaching, versatile support, as well as continuous reflection and feedback.

10.2 Complexity of Teachers' Work

Teachers' work is highly complex, demanding academic and practical work (Lampert, 1998; Toom, 2017), which is not always considered as such due to its practicality as well as familiarity to everyone through their own personal school experiences and *apprenticeship of observation* (cf. Lortie, 1975). Teachers do their work in versatile interactions, social surroundings, and communities. The teacher profession is demanding in the sense that it is anchored to a long-term planning of education, teaching and learning in school and classroom in line with the national curriculum. It also assumes a thorough preparation of lessons on the classroom level and anticipation of support for each pupils' learning and growth (van Manen, 1991). In the Finnish context, the aim is to support the growth of every pupil towards finding their own strengths and learning-paths as well as

towards responsible citizenship in a democratic society (Finnish National Core Curriculum for Basic Education, 2014). This all happens and coincides with the curriculum and with respectful regard of the families' and guardians' worldviews and education at home.

An important aspect regarding the demands of the teacher profession is that it assumes the ability to solve complex problems and make quick decisions in changing situations in the classroom and in school interactions, which need to be aligned with the long-term plans (Shavelson, 1973; Toom, 2017). Teachers always need to consider the contextual and situational as well as collective and individual aspects of their decisions, and ensure that pupils' learning in school is always supported. Teachers' work presupposes *pedagogical tact* (Toom, 2012; van Manen, 1991) in the interactions in the classroom with pupils and the school community with colleagues.

Societal changes significantly influence schools and teachers as well as the teacher profession (Juvonen & Toom, 2023). Society sets explicit and implicit demands and expectations on schools and teachers, which are also assumed to be fulfilled (Buchmann, 1986; Toom & Husu, 2018). Some of these are related to the core professional responsibilities, an ethical code, and integrity (Day, 2021; Tirri & Kuusisto, 2022), whereas others are related to more recent changes in schools, e.g. diverse pupil composition and pedagogical developments. Schools are becoming much more diverse in all aspects due to a globalised world, and teachers also need to be able to take care of the learning needs of pupils with diversities and intersectionalities (Madden, 2015; PIONEERED 2021–24).

Current research on learning and instruction highlights placing pupil learning at the core of all instruction. In addition, pupil learning of both subject-specific skills and generic skills are emphasised (Finnish National Core Curriculum for Basic Education, 2014). This means that teachers need to understand pupil learning processes thoroughly and have skills to facilitate it in a variety of pedagogical methods and practices. These are currently mainstream in basic education curricula internationally. All these aspects are realised in individual teachers' work in everyday practice in schools.

It can be clearly stated that the teacher profession is complex and demanding as well as being relatively independent (Day, 2021; Niemi et al., 2018). Teachers are regulated in the educational system through their responsibilities and duties, and how their role is defined in the curricula (Toom & Husu, 2018). Teachers work throughout continuous changes, uncertainties and incompleteness stemming from inside and outside the school.

10.3 Learning to Become a Teacher

These characteristics of teachers' work need to be taken seriously when planning and enacting teacher education curricula and when supporting teacher learning. According to earlier versatile research, learning to become a teacher is a complex and non-linear process which takes time (Bronkhorst et al., 2014; Heikonen et al., 2020). The process includes identity development (Beijaard & Meijer, 2017), the learning of professional agency and capabilities for teaching (e.g. Soini et al., 2015; Toom, 2017; Heikonen et al., 2020), and development towards adaptive and collective expertise, which was found as an important resource for teachers' work (Leana, 2011; Vangrieken et al., 2015). Also, moral aspects and their learning are of vital importance (Tirri & Husu, 2002; Toom et al., 2015), which need to be a part of teacher education.

The core of teachers' expertise has been shown to consist of professional capabilities 1) in learning and instruction, 2) in interaction, 3) in well-being, and 4) in school development (Soini et al., 2016). These professional capabilities are necessary in teachers' major professional contexts: in classroom interaction with pupils and in professional community with colleagues. Professional capabilities in learning and instruction means that teachers have extensive research-based knowledge and skills to support pupils' learning, but also the ability to take care of their own learning and support colleagues' learning. Professional capabilities in interaction means that teachers know how to construct functioning interactions among pupils, among colleagues, and with parents and enhance learning and development. Professional capabilities in well-being means that teachers realise that well-being is an essential precondition for both their pupils' learning, but also their own and colleagues' learning, and they can build such circumstances in the classroom and school. Professional capabilities in school development means that teachers know the key factors of school development and they have skills for launching pedagogical innovations and promoting school improvement.

Many theories, foundational studies, and empirical research also emphasise moral dimensions of teaching, professional ethics, and values as a pervasive factor in all teachers' work (Tirri & Kuusisto, 2022). This means that a teacher has a clear understanding of ethical aspects in the teaching profession, has clear ethical principles, is sensitive towards moral issues in teaching, and can act in dilemmatic situations. This allows teachers to take care of pupils' learning and support their growth towards responsible adulthood and citizenship.

Many researchers perceive teachers' professional capabilities as integrative and consisting of knowledge, skills, and dispositions to act (Blömeke et al., 2015; Toom, 2017). Toom and her colleagues (2021) also perceive professional agency

as a necessary capability for teachers to steer their own learning both in pre-service teacher education and afterwards in the profession. Professional agency for learning means that teachers need to become skilful learners during teacher education, i.e. they are willing to learn, they feel that they are able to learn, and they manage a variety of strategies to do so in practice (Pyhältö et al., 2015). Thus, it can be said that professional agency is a sort of “meta capability” which is necessary for teachers’ work (Soini et al., 2015; Toom et al., 2017).

It is essential to identify teacher’ necessary professional expertise and capabilities to be learnt during pre-service teacher education, but it is especially important that teachers are prepared to continue to learn and develop throughout their career. Toom and her colleagues (2021) note that professional agency is a necessary capability for teachers to steer their own learning. The transition from pre-service teacher education to teachers’ work as well as the first five early career teacher years have been shown to be challenging (cf. Berliner, 1994; Heikonen et al., 2020; E 2022). It is a phase when many teachers choose to leave the teacher profession. Early career teachers should be supported and mentored effectively (Toom & Husu, 2021a, 2021b) to be able to and willing to continue. Early career teachers need to increase their efficacy, develop professional practices and routines, and become engaged to the school community. They also need extensive support in school community, for example in issues related to pupils’ multiprofessional care, differentiation, administrative work in school, pupil assessment, and collaboration with parents (Heikonen et al., 2016).

10.4 Coherent Curriculum in Academic Teacher Education

Although the core characteristics of teachers’ work are relatively similar everywhere, the national educational policies influencing teacher education, teacher education contexts, teacher education curricula, and the pedagogical methods and practices applied in teacher education vary significantly internationally (Cochran-Smith et al., 2015; Zeichner, 1983). Teacher education can take place in academic university contexts, universities of applied sciences, colleges, or even schools; Depending on the country, teacher degree regulations and teacher qualification regulations can be very different (Kansanen, 1991; Kansanen et al., 2000; Zeichner, 2006). Teacher education can be controlled with various educational policies or programme accreditations, or it can be a more autonomous duty of the universities, as it is in Finland (Toom & Husu, 2021a, 2021b). Also, the respect towards the teacher profession, the attractiveness of teacher profession and the entrance examination requirements to teacher education vary depending on the context.

They have influence on the candidates applying to and studying teacher education programmes, and further to the enactment of teacher education curriculum.

In many countries, teacher education has been influenced by different turns or emphases, namely practice, research, and accountability turns (Toom & Husu, 2021a, 2021b). This means that at some point, practical aspects related to teacher education, like versatile connections to schools and professional practice, teaching practice in schools, or practical skills of teachers' work have been emphasised. During the research turn, academic aspects, research-based, and research-related elements to the teacher profession have been in focus in the curricula and practice of teacher education. The accountability turn refers to the teacher education institutions and teacher educators which have been controlled in a variety of ways, e.g. through policies, evaluations, or reports in a certain direction.

Research-based master's degree level teacher education in the university, in which research, practice, and accountability elements are in balance, has been chosen as a relevant way to educate teachers in many countries, e.g. Finland, Estonia, and Norway. Finland has over forty years of experience enacting academic research-based teacher education in university contexts (cf. Kansanen, 1991; Kansanen et al., 2000; Toom et al., 2010). Research-based teacher education in the Finnish context means that student teachers are supposed to learn an inquiring orientation towards teachers' work while learning to become teachers with strong professional agency and extensive pedagogical expertise. Teacher education curriculum contents are based on research; student teachers reading of research literature as well as utilising teaching methods and pedagogical practices have been shown to be effective for learning, therefore inquiring methods are used in teacher education. Student teachers also study a variety of research methods during their studies, especially such methods that allow them to engage deeply with teachers' work while working in the profession (cf. Antonsen et al. submitted). They also do theses focusing on relevant topics in teachers' work during their teacher education. In research-based teacher education, teacher educators also do research in, on, and for teacher education to further improve and develop it (cf. Cao et al., 2023). In the Finnish academic master's level teacher education programme (300 ECTS), the curriculum is constructed according to the principles of the university degree. The curriculum consists of main subject studies in educational sciences, minor subject studies, multidisciplinary studies in the subjects taught in school, teaching practice, and general language studies.

From the viewpoint of characteristics of teachers' work and the capabilities and required expertise in the teacher profession, it is relevant to consider the characteristics of pre-service teacher education. Teacher education and its curricula can be organised in a variety of contexts in a variety of ways (Zeichner,

1983). Still, it is of vital importance that it has a clear organising theme and goals (Cochran-Smith et al., 2015), which are shared among all teacher educators involved in teaching and communicated thoroughly for the student teachers. It is essential that teacher education is coherent and constructively aligned (Biggs, 1996) with the organizing theme and learning goals set for student teachers studying in the programme. Coherence means that all study units in the curriculum are carefully planned and that they all contribute to the broad goals of the programme concerning student teacher learning to become a teachers (cf. Buchmann & Floden, 1992; Floden et al., 2021; Hammerness, 2006). It is essentially the collective duty of all teacher educators involved in teacher education in a teacher education institution to contribute to the construction, constant evaluation, and continuous revision of the teacher education curriculum. They are key persons who teach and supervise student teachers in theoretical and practical studies, and who also do research related to teacher education.

Thus, teacher educators' scholarship of teacher education, research capabilities and extensive pedagogical capabilities are of vital importance, since they are the ones who put the teacher education curriculum to practice (Ellis & McGuire, 2017; Floden et al., 2021). The enactment of teacher education curriculum depends on the teacher educators, their expertise, and the pedagogies they utilise in the practice of teacher education. It is not sustainable to build teacher education only on the current premises or on the details of the current national core curriculum for basic education (cf. Pantic & Wubbels, 2010; Korthagen, 2004; Juvonen & Toom, 2023), but rather, teacher education should cultivate teacher learning and learning of essential teacher capabilities (cf. Ball & Forzani, 2009). They should be included as a focus of teacher education.

Coherent research-based teacher education curricula can be structured in a variety of ways. The broader context in which teacher education takes place and teacher qualification requirements regulate the practices within teacher education. Teacher education curriculum in Finnish universities follow the same general structure as all other university curricula. The whole degree (300 ECTS) consists of a bachelor's degree (180 ECTS) and a master's degree (120 ECTS) in educational sciences. Faculties of education have broad autonomy in deciding about the content details of the curricula, and in practice, teacher education staff members construct the curriculum in detail. They negotiate the learning goals, research-based contents, and teaching and assessment methods in intensive collaboration. They also guarantee program coherence throughout the program and various courses (cf. Floden et al., 2021). Student teacher learning and development to become a teacher is at the core of the curriculum construction process. The aim is to provide students with a broad research base for the profession,

but also extensive practical skills through teaching practice periods. The aim is also to provide students with skills for continuous learning and professional development. The theoretical and practical studies in the curriculum vary in the different study years, and the demands placed on the students increases as students progress in their studies.

10.5 Supporting Teacher Learning in the Profession

There exist a variety of ways to support teacher learning in the profession and to organise in-service teacher education (Payne & Zeichner, 2017). It is also linked to the educational system, policies, resources, professional communities, and schools as well as characteristics of the pre-service teacher education in a certain context. Still, it is always of vital importance that it is relevant for teachers, it helps them to further develop their expertise, and it is coherent and of good quality. The most important things to keep in mind are the process and characteristics of teacher learning both individually and collectively.

A very essential, but difficult question related to pre- and in-service teacher education, is the coherence and continuum between them. In principle, it is clear that teachers would benefit from learning basic teaching skills and capabilities first in the in-service teacher education, and then, after some years in the profession, it could be beneficial for them to deepen their expertise further in the in-service teacher education in terms of more complex aspects together with their colleagues (cf. Leana, 2011; Vangrieken et al., 2015) and mentors from the same school. This would also allow them to develop their school community in a variety of ways. In practice, it is not always so easy to define which aspects of teacher expertise should be emphasised in pre-service teacher education and how to identify those that would be especially relevant in the in-service teacher education phase.

Increasing diversity in society and schools increases the complexity for the teacher profession and it further sets higher demands for teacher expertise. The themes related to diversity and intersectionality in schools (cf. PIONEERED, 2021–24) as well as moral and ethical aspects in schooling and education (Biesta & Burbules, 2003; Sanger, 2017) may require much more attention in teacher learning and in the in-service teacher education than before. There may be a need to support teacher expertise that allows them to build plural but equal schools which further develop society (Avalos & Rasquin, 2017; Cochran-Smith et al., 2009). Teachers need versatile capabilities for perceiving diverse pupils' learning needs and taking care of them (Noddings, 2010).

The changing landscapes of societies and schools as well as the teacher profession show that teachers need to learn *academic* and *practical* capabilities in the profession in the future, but also further recognize the need of *moral*, *situational*, and *contextual* capabilities (Ellis & McNicholl, 2015; Kelchtermans & Vanassche, 2017). This highlights the goals and tailoring of in-service teacher education to meet teachers' and schools' needs. Various institutions and communities have important roles in teachers' learning and in-service teacher education, because the learning needs can be versatile and none of the institutions can respond to them alone.

Academic university teacher education institutions have responsibility in producing and delivering *research* knowledge in pre- and in-service teacher education. *Schools as practical communities* have a central role in supporting teacher learning throughout their career and also in-service teacher education. Schools can support teachers' learning in the workplace and maintain professional networks. *Local communities and foundations* can support teachers' and school communities' learning and development by connecting them to the local contexts and surroundings. This can increase the relevance and coherence of teacher learning (cf. Moon, 2016).

10.6 Conclusion

Teachers' work is complex and challenging academic, social, interactive and moral work. A teacher works in versatile contexts and situations where long-term and hopeful educational goals and ideals must be taken into account while making quick decisions in constantly changing situations. The expertise and capabilities needed in the teaching profession are many, and it takes years to become a professional and expert teacher. Teacher learning is a complex and relatively slow process, which requires enough time and possibilities to concentrate on learning. Teacher expertise is constantly challenged, since many of the changes and needs of an increasingly diverse society occur in schools and in classrooms. The professional knowledge, skills base, and expertise therefore need to be solid and strong.

Thus, it is important to consider the characteristics and qualities of teacher education: What are reasonable organising themes and goals? Where should teacher education take place? How is it possible to maintain quality teacher education programmes? Academic master level research-based teacher education organised in the university context has been considered as a relevant way of organising teacher education in many countries. The research-based approach as

an organising theme, and the presence of research and inquiry in its versatile and various forms need to be guaranteed. More importantly, student teacher learning needs to be placed at the heart of the programme and all study units, practices and assignments need to support it. This means that the teacher education programme needs to be coherent in all its details. Teacher educators have a key role in building research-based and pedagogically coherent curricula for teacher education programmes, and thus, they are the ones whose research expertise and pedagogical skills actually matter in a significant way.

Teacher learning is likely to continue throughout the years during professional practice, so it is critical to consider how teacher learning can be best supported. The continuum between pre-service and in-service teacher education should also be learning-focused, coherent, and aligned. The teachers would benefit from collaboration of various institutions linked to them and to school. They would also benefit from collaboration with their peers, structures which enhance their learning continuously, and support from mentors (Toom & Husu, 2021a, 2021b). The support during the early career years of the teacher profession is especially critical (Meristo, 2016; Heikonen et al., 2020). The possibility to constantly steer one's own professional learning and development together with peers throughout the career both in the pre-service and in-service teacher education is crucial. This should be supported coherently and in a variety of ways (Ilomäki et al., 2017; Leana, 2011; Vangrieken et al., 2015).

Funding This article has been prepared in association with the PIONEERED project, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004392; and SCIREARLY project, which has received funding from the European Union's Horizon 2021 research and innovation programme under grant agreement No 101061288.

References

- Antonsen, Y., Toom, A., Ulvik, M., Drageset, O. G., Olsen, K. R., Hjørdemaal, F. R., & Sæther, K. (submitted). *(Dis)Engaging teacher students in constative, critical and constructive research during teaching education*.
- Avalos, B., & Razquin, P. (2017). The role of policy as a shaping influence on teacher education and teacher educators: Neoliberalism and its forms. In D. J. Clandinin & J. Husu (Eds.), *The SAGE Handbook of research on teacher education* (Vol. 2). Sage.
- Berliner, D. C. (1994). Expertise: The wonder of exemplary performances. In J. N. Mangieri & C. Collins Block (Eds.), *Creating powerful thinking in teachers and students* (pp. 161–186). Holt, Rinehart & Winston.

- Ball, D. L., & Forzani, F. (2009). The work of teaching and the challenge for teacher education. *Journal of Teacher Education*, 60, 497–511.
- Beijaard, D., & Meijer, P. C. (2017). Developing the personal and professional in making a teacher identity. In D. J. Clandinin, & H. Jukka (Eds.), *The SAGE handbook of research on teacher education* (Vol. 1, pp. 177–192). SAGE Publications Ltd.
- Biesta, G. J. J., & Burbules, N. C. (2003). *Pragmatism and educational research*. Rowman & Littlefield.
- Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education*, 32, 347–364.
- Blömeke, S., Gustafsson, J., & Shavelson, R.J. (2015). Beyond dichotomies: Competence viewed as a continuum. *Zeitschrift für Psychologie*, 223(1), 3–13. <https://doi.org/10.1027/2151-2604/a000194>.
- Bronkhorst, L. H., Meijer, P. C., Koster, B., & Vermunt, J. D. (2014). Deliberate practice in teacher education. *European Journal of Teacher Education*, 37(1), 18–34. <https://doi.org/10.1080/02619768.2013.825242>
- Buchmann, M. (1986). Role over person: Morality and authenticity in teaching. *Teachers College Record*, 87(4), 529–543.
- Buchmann, M., & Floden, R. E. (1992). Coherence, the Rebel Angel. *Educational Researcher*, 21(9), 4–9.
- Cao, Y., Postareff, L., Lindblom-Ylänne, S., & Toom, A. (2023). A survey research on Finnish teacher educators' research-teaching integration and its relationship with their approaches to teaching. *European Journal of Teacher Education*, 46(1), 171–198. <https://doi.org/10.1080/02619768.2021.1900111>
- Clandinin, D. J., & Husu, J. (Eds.) (2017). *The SAGE Handbook of research on teacher education* (Vol. 1 & 2). Sage.
- Cochran-Smith, M., Barnatt, J., Lahann, R., Shakman, K., & Terrell, D. (2009). Teacher education for social justice: Critiquing the critiques. In W. Ayres, T. Quinn, & D. Stovall (Eds.), *The handbook of social justice in education* (pp. 625–639). Taylor & Francis.
- Cochran-Smith, M., Villegas, A., Abrams, L., Chavez-Moreno, L., Mills, T., & Stern, R. (2015). Critiquing teacher preparation research: An overview of the field, Part II. *Journal of Teacher Education*, 66(2), 109–121. <https://doi.org/10.1177/0022487114558268>
- Day, C. (2021). The New Professionalism? How good teachers continue to teach to their best and well in challenging reform contexts. In E. Kuusisto, M. Ubani, P. Nokelainen & A. Toom (Eds.), *Good teachers for tomorrow's schools: Purpose, values, and talents in education* (pp. 37–56). Brill.
- E, L., Toom, A., Sullanmaa, J., Pietarinen, J., Soini, T., & Pyhäältö, K. (2022). How does teachers' professional agency in the classroom change in the professional transition from early career teachers to more experienced ones? *Learning: Research and Practice*. <https://doi.org/10.1080/23735082.2022.2076148>
- Ellis, V., & McGuire, M. (2017). Teacher education pedagogies based on critical approaches: Learning to challenge and change prevailing educational practices. In D. J. Clandinin & J. Husu (Eds.), *The SAGE Handbook of research on teacher education* (Vol. 1). Sage.
- Ellis, V., & McNicholl, J. (2015). *Transforming teacher education: Reconfiguring the academic work*. Bloomsbury.

- Floden, R. E., & Buchmann, M. (1993). Between routines and anarchy: Preparing teachers for uncertainty. In R. E. Floden, & M. Buchmann (Eds.), *Detachment and concern. Conversations in the philosophy of teaching and teacher education* (pp. 211–221). Cassell.
- Floden, R. E., Carter Andrews, D. J., Jones, N. J., Marciano, J., & Richmond, G. (2021). Toward new visions of teacher education: Addressing the challenges of program coherence. *Journal of Teacher Education*, 72(1), 7–10.
- FNCCBE. (2014). *Finnish National core curriculum for basic education*. <https://www.oph.fi/en/education-and-qualifications/national-core-curriculum-basic-education>
- Grossman, P. (2007). The teaching practice in teacher education. In J. Butcher & L. McDONald (Eds.), *Making a difference: Challenges for teachers, teaching and teacher education* (pp. 55–65). Brill.
- Hammerness, K. (2006). From coherence in theory to coherence in practice. *Teachers College Record*, 108(7), 1241–1265.
- Heikonen, L., Pietarinen, J., Pyhältö, K., Toom, A. & Soini, T. (2016). Early career teachers' sense of professional agency in the classroom: Associations with turnover intentions and perceived inadequacy in teacher-student interaction. *Asia-Pacific Journal of Teacher Education*. <https://doi.org/10.1080/1359866X.2016.1169505>.
- Heikonen, L., Pietarinen, J., Toom, A., Soini, T., & Pyhältö, K. (2020). The development of student teachers' sense of professional agency in the classroom during teacher education. *Learning: Research and Practice*. <https://doi.org/10.1080/23735082.2020.1725603>
- Husu, J., & Toom, A. (2016). *Opettajat ja opettajankoulutus—suuntia tulevaan*. Selvitys ajankohtaisesta opettaja- ja opettajankoulutustutkimuksesta opettajankoulutuksen kehittämissohjelman laatimisen tueksi [Teachers and teacher education—future directions. Research review for the teacher education development programme]. *Opetus- ja kulttuuriministeriön julkaisuja 2016, 33*. <http://urn.fi/URN:ISBN:978-952-263-425-2>
- Ilomäki, L., Lakkala, M., Toom, A., & Muukkonen, H. (2017). Teacher learning within a multinational project in an upper secondary school. *Education Research International*. <https://doi.org/10.1155/2017/1614262>
- Juvonen, S., & Toom, A. (2023). Teachers' expectations and expectations of teachers: Understanding teachers' societal role. In M. Thrupp, P. Seppänen, J. Kauko, & S. Kosunen (Eds.), *Finland's famous education system—Unvarnished insights into Finnish schooling*. Springer.
- Kansanen, P. (1991). Pedagogical thinking: The basic problem of teacher education. *European Journal of Education*, 26, 251–260.
- Kansanen, P., Tirri, K., Meri, M., Krokfors, L., Husu, J., & Jyrhämä, R. (2000). *Teachers' pedagogical thinking. Theoretical landscapes, practical challenges*. Lang.
- Kelchtermans, G., & Vanassche, E. (2017). Micropolitics in the education of teachers: Power, negotiation, and professional development. In D. J. Clandinin & J. Husu (Eds.), *The SAGE Handbook of research on teacher education* (Vol. 1). Sage.
- Korthagen, F. A. J. (2004). In search of the essence of a good teacher: towards a more holistic approach in teacher education. *Teaching and Teacher Education*, 20, 77–97.
- Lampert, M. (1998). Studying teaching as a thinking practice. In J. Greeno & S. G. Goldman (Eds.), *Thinking practices* (pp. 53–78). Lawrence Erlbaum.
- Leana, C. (2011). The missing link in school reform. *Stanford Social Innovation Review*, 9(4), 30–35.
- Lortie, D. (1975). *Schoolteacher: A sociological study*. University of Chicago.

- Madden, B. (2015). Pedagogical pathways for Indigenous education with/in teacher education. *Teaching and Teacher Education, 51*, 1–15.
- Meristo, M. (2016). *Personal and contextual factors shaping novice teachers' early professional career*. Tallinn University. Dissertations on Social Sciences.
- Moon, B. (2016). The issues and tensions around teacher education and training in the university. In B. Moon (Ed.), *Do universities have a role in the education and training of teachers? An international analysis of policy and practice* (pp. 1–18). Cambridge, UK: Cambridge University Press.
- Niemi, H., Toom, A., Kallioniemi, A., & Lavonen, J. (Eds.) (2018). *The teacher's role in the changing globalizing world*. Brill.
- Pantic, N., & Wubbels, T. (2010). Teacher competencies as a basis for teacher education – Views of Serbian teachers and teacher educators. *Teaching and Teacher Education, 26*, 694–703. <https://doi.org/10.1016/j.tate.2009.10.005>.
- Payne, K., & Zeichner, K. (2017). Multiple voices and participants in teacher education. In D. J. Clandinin & J. Husu (Eds.), *The SAGE Handbook of research on teacher education* (Vol. 2). Sage.
- PIONEERED: Pioneering Policies and Practices Tackling Educational Inequalities in Europe (2021–24). <https://www.pioneered-project.eu/about/key-facts>
- Pyhältö, K., Pietarinen, J., & Soini, T. (2015). Teachers' professional agency and learning from adaption to active modification in the teacher community. *Teachers and Teaching: Theory and Practice, 21*(7), 811–830. <https://doi.org/10.1080/13540602.2014.995483>
- Sanger, M. (2017). Teacher beliefs, teacher education, and the moral work of teaching. In D. J. Clandinin & J. Husu (Eds.), *The SAGE Handbook of research on teacher education* (Vol. 1). Sage.
- Shavelson, R. (1973). What is a basic teaching skill? *Journal of Teacher Education, 24*, 144–151.
- Soini, T., Pietarinen, J., Toom, A., & Pyhältö, K. (2016). Haluanko, osaanko ja pystynkö oppimaan taitavasti yhdessä muiden kanssa? Opettajan ammatillisen toimijuuden kehittyminen. In H. Cantell & A. Kallioniemi (Eds.), *Kansankynttilä keinulaudalla—Miten tulevaisuudessa opitaan ja opetetaan?* (pp. 53–75). PS-Kustannus.
- Soini, T., Pietarinen, J., Toom, A., & Pyhältö, K. (2015). What contributes to first-year student teachers' sense of professional agency in the classroom? *Teachers and Teaching: Theory and Practice, 21*(6), 641–659.
- TALIS. (2018). *OECD*. <https://www.oecd.org/education/talis/>
- Tirri, K., & Husu, J. (2002). Care and responsibility in “the best interest of the child”: Relational voices of ethical dilemmas in teaching. *Teachers and Teaching, 8*(1), 65–80.
- Tirri, K., & Kuusisto, E. (2022). *Teachers' professional ethics: Theoretical frameworks and empirical research from Finland*. Leiden: Brill.
- Toom, A. (2012). Considering the artistry and epistemology of tacit knowledge and knowing. *Educational Theory, 62*(06), 621–640.
- Toom, A. (2017). Teacher's professional and pedagogical competencies: A complex divide between teacher's work, teacher knowledge and teacher education. In D. J. Clandinin & J. Husu (Eds.), *The SAGE Handbook of research on teacher education* (Vol. 2). Sage.
- Toom, A., Pietarinen, J., Soini, T., & Pyhältö, K. (2017). How does the learning environment in teacher education cultivate first year student teachers' sense of professional agency in

- the professional community? *Teaching and Teacher Education*, 63, 126–136. <https://doi.org/10.1016/j.tate.2016.12.013>
- Toom, A., Pyhältö, K., Pietarinen, J., & Soini, T. (2021). Professional agency for learning as a key for developing teachers' competencies? *Education Sciences*, 11. <https://doi.org/10.3390/educsci11070324>
- Toom, A., & Husu, J. (2018). Teachers' work in changing educational contexts: Balancing the role and the person. In H. Niemi, A. Toom, A. Kallioniemi, & J. Lavonen (Eds.), *The teacher's role in the changing globalizing world* (pp. 1–9). Brill.
- Toom, A., & Husu, J. (2021a). Classroom interaction challenges as triggers for improving early career teachers' pedagogical understanding and competencies through mentoring dialogues. In J. Mena & A. Clarke (Eds.), *Teacher induction and mentoring. Palgrave Studies on Leadership and Learning in Teacher Education*. Palgrave Macmillan. https://doi.org/10.1007/978-3-030-79833-8_9
- Toom, A., & Husu, J. (2021b). Analyzing practice, research, and accountability turns in Finnish academic teacher education. In D. Mayer (Ed.), *Teacher education policy and research: Global perspectives*. Springer. https://doi.org/10.1007/978-981-16-3775-9_6
- Toom, A., Husu, J., & Tirri, K. (2015). Cultivating student teachers' moral competencies in teaching during teacher education. In C. J. Craig & L. Orland-Barak (Eds.), *International Teacher Education: Promising Pedagogies (Part C): Advances in research on teaching* (Vol. 22C, pp. 13–31). Emerald. ISSN: 1479-3687. <https://doi.org/10.1108/S1479-368720150000026001>
- Toom, A., Kynäslähti, H., Krokfors, L., Jyrhämä, R., Byman, R., Stenberg, K., Maaranen, K., & Kansanen, P. (2010). Experiences of a research-based approach to teacher education: Suggestions for future policies. *European Journal of Education*, 45(2), 331–344.
- UNESCO. (2021). *Reimagining our futures together: A new social contract for education*. Report from the International Commission on the Future of Education.
- Vangrieken, K., Dochy, F., Raes, E., & Kyndt, E. (2015). Teacher collaboration: A systematic review. *Educational Research Review*, 15, 17–40.
- Van Eekelen, I. M., Vermunt, J. D., & Boshuizen, H. P. A. (2006). Exploring teachers' will to learn. *Teaching and Teacher Education*, 22, 408e423. <http://dx.doi.org/10.1016/j.tate.2005.12.001>.
- van Manen, M. (1991). *The tact of teaching. The meaning of pedagogical thoughtfulness*. The Althouse Press.
- Zeichner, K. A. (1983). Alternative paradigms of teacher education. *Journal of Teacher Education*, 34(3), 3–9.
- Zeichner, K. (2006). Reflections of a university-based teacher educator on the future of college- and University-based teacher education. *Journal of Teacher Education*, 57(3), 326–340.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

