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*Published in:*  
Cogent Education

*DOI:*  
[10.1080/2331186X.2025.2465918](https://doi.org/10.1080/2331186X.2025.2465918)

Published: 17/02/2025

*Document Version*  
Final published version

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*Please cite the original version:*

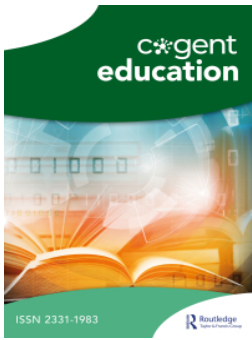
Fiskum, T. A., Jegstad, K. M., Aspfors, J., & Eklund, G. (2025). The goal of research-based learning in teacher education: Norwegian and Finnish teacher educators' perspectives. *Cogent Education*, 12(1), 1-13. Article 2465918. <https://doi.org/10.1080/2331186X.2025.2465918>

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**To cite this article:** Tove Anita Fiskum, Kirsti Marie Jegstad, Jessica Aspfors & Gunilla Eklund (2025) The goal of research-based learning in teacher education: Norwegian and Finnish teacher educators' perspectives, Cogent Education, 12:1, 2465918, DOI: 10.1080/2331186X.2025.2465918

**To link to this article:** <https://doi.org/10.1080/2331186X.2025.2465918>



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Published online: 17 Feb 2025.



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## The goal of research-based learning in teacher education: Norwegian and Finnish teacher educators' perspectives

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### ABSTRACT

Within research-based teacher education, there is still a lack of common understanding and consensus regarding what research-based learning means and how it should be organised. In this study, the aim was to explore how teacher educators perceive student teachers' research-based learning within teacher education in Norway and Finland. The study collected data through interviews with 22 teacher educators. The analysis was done in an inductive way, inspired by constant comparative analysis. The results are categorized into four main areas: 1) academic writing, 2) research competence, 3) critical and analytic thinking and 4) lifelong learning in the teaching profession. These categories represent how teacher educators envisage the development of student teachers' research-based learning. In the discussion, the theoretical framework of research-based-learning drives the reflection about the categories and the relationship between them. The study concludes that both narrow and broad views of student teachers' research-based learning, founded on the four categories, are necessary for the development of professional teachers. The narrow views lay the foundation for the broader ones, emphasizing that it is equally important for student teachers to achieve the goals of both perspectives.

### ARTICLE HISTORY

Received 30 August 2024  
Revised 4 February 2025  
Accepted 5 February 2025

### KEYWORDS

Research-based learning; research-based teacher education; teacher educators; Norway; Finland

### SUBJECTS

Initial Teacher Training; Teacher Training; Teachers & Teacher Education; Teacher Education & Training

## Introduction

In recent decades, research has been recognized as a key dimension for enhancing teacher education and the teaching profession (Spernes & Afdal, 2023). The number of initiatives to engage undergraduates in various forms of research has also increased (Boyer Commission, 1998; Hattie & Marsh, 1996). Additionally, there is an emphasis on the contribution of research approaches to positive learning outcomes for students (Spernes & Afdal, 2023). However, the concept of research within teacher education depends on political, institutional and ideological aspects, and its role has also been rephrased, debated and even criticised (Munthe & Rogne, 2015; Puustinen et al., 2018). Furthermore, different understandings of research exist (Cain, 2015; Flores, 2016, 2018; Matheson & Edwards, 2016); various concepts are used and the distinctions between them are not consistently well-defined (Burn & Mutton, 2015; Cochran-Smith & Fries, 2008; Munthe & Rogne, 2015).

To characterise scientific endeavours within teacher education programmes, concepts such as 'inquiry' and 'inquiry-based', as well as 'research' and 'research-based', have been used in various contexts (Gomez, 2013). These terms are often used interchangeably, although some researchers argue for nuanced differences in their meanings (British Educational Research Association (BERA), 2014). *Inquiry* may involve a systematic exploration of literature related to a research topic but does not necessarily aim to generate results for the broader research community. In contrast, *research* employs specific research methods and methodologies, draws on existing research literature and is designed to be accessible and applicable to other researchers and research contexts. Consequently, inquiry signifies

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adopting an investigative stance, while research extends to the subsequent publication of results with broader relevance (Munthe & Rogne, 2015; Rogne & Munthe, 2017).

A growing body of research in Europe and North America accentuates the concept of a research basis and research-based teacher education as a requirement and goal of policies, educational research and teacher education practices (Afdal & Spernes, 2018). This is also the case in Norway and Finland, the two countries under scrutiny in this study. In Finland, teacher education has been at a master's level and research-based since the 1970s, while in Norway, the research-based approach has gained prominence over the last decade. This culminated in the shift to a master's-based teacher education for primary and lower secondary schools in 2017 (Jakhelln et al., 2019). However, previous studies show that there is still no common understanding regarding what research-based education means and how it should be organised (Aspfors et al. 2021, Jegstad et al., 2021; Munthe & Rogne, 2015). A shared consensus is thus necessary to promote successful models and practices in undergraduate research (Myers et al., 2018).

Teacher educators are key persons who play a central role in supporting the development of understanding and practice in relation to undergraduate research and inquiry (Brew & Jewell, 2012). However, their own research backgrounds and experiences influence the decisions and orientations of research activities (Brew & Saunders, 2020; Vaughan et al., 2017). Therefore, this article aims to explore how teacher educators view student teachers' research-based learning within teacher education in Norway and Finland. The research question asked is: *What characterises Norwegian and Finnish teacher educators' views on student teachers' research-based learning?*

In this study, we chose the concept of *research-based learning*. Research-based learning can be explained as a way of engaging students in inquiry and research, with a focus on students' active participation in the research process (Healey & Jenkins, 2009). It focuses on students' active roles and is thus suitable for a master's- and research-based teacher education design in which student teachers develop autonomous, rational and theory-based decisions and learn to integrate research and practice (Afdal & Spernes, 2018). This is elaborated on further in the following sections.

## Theoretical framework

### *Research-based learning – a background*

Although research-based learning is an established concept within higher education (Wessels et al., 2021), there are still different understandings of it and its role in teacher education (Brew & Saunders, 2020; Marín, 2021; Rijst, 2017). To capture research-based learning, we start with a short background focusing on American and German traditions. The concept of teachers as researchers has long roots in American teacher education history. In the 1980s and 1990s, the movement of teachers as researchers was quite visible in teacher education discussions, and the importance of an inquiry-based orientation in teachers' work was emphasised (Niemi & Nevgi, 2014). In 1998, the Boyer Commission in the United States called for more undergraduate research, meaning that bachelor's students should carry out their own research projects (Mieg, 2019; Walkington et al., 2011). This development characterises the trend from teaching to learning in higher education and the belief that students' own research activities enhance their learning and development (Mieg, 2019; Wilson et al., 2012).

Besides the American research approach, there is also a German tradition of an inquiry-based orientation dating back to Humboldt's educational ideal of "Bildung durch Wissenschaft" – learning and education through science (Mieg, 2019; Nikolov et al., 2020). Many within this tradition rely on inquiry-based learning, as developed by Huber (2009), emphasising students' own activities and autonomous learning. In metaphorical terms, this kind of learning could be described as the growth of a tree, meaning that expertise is developed in a meaningful way through research. The German tradition emphasises studying theory before carrying out research, which contrasts with the American tradition, where students are already involved in research at the bachelor's level. Thus, from a wider international perspective, the discussion concerns didactic issues about how research and teaching can be connected (Mieg, 2019).

The concept of research-based learning is based on a constructivist approach, signifying that students engage in research and both independently and in collaboration solve problems authentically (Wessels et al., 2021). Furthermore, research-based learning develops critical and reflective students, supporting

their ability to analyse, investigate and make decisions on a rational basis (Susiani et al., 2018). This research-reflective mindset is critical for teachers and their way of handling future challenges in everyday work in the classroom and the profession (Marín, 2021; Nikolov et al., 2020; Wessels et al., 2021). Consequently, research-based learning is one way of supporting student teachers in integrating theory and practice to develop professional teachers (Saunders, 2017).

### ***Research-based learning as part of research-based teacher education***

Research-based learning is especially visible in the process of writing scientific theses on both the bachelor's and master's levels, and involving students in their own research projects facilitates their understanding of and participation in research (Bauer & Bennett, 2003). Students engaging in research-based learning develop research competencies, such as elaborating research methods and analyses, discussing data and connecting previous research to their own research (Afdal & Spernes, 2018; Yan, 2017). As Lambert (2009) noted, research-based learning has the potential to situate students at the heart of the university, where students are producers rather than consumers, giving opportunities for collaborative relationships between students and teachers within teacher education. Jacobsen et al. (2018) confirmed that collaborative approaches to research-based learning support students' learning and engagement in educational research.

The connection between research and teaching has been recognised internationally, and the research activities students undertake during their studies depend on different traditions, disciplines and universities (Gomez, 2013). A well-known model by Griffiths (2004) defines research related to teaching in terms of four dimensions: research-led, research-oriented, research-based and research-informed. The *research-led* dimension focuses on student teachers' understanding of research findings, mainly originating from research projects carried out by the teacher educators themselves. The curriculum content is influenced by the teacher educators' own research interests, and information is mainly transmitted to students during teaching. In line with the *research-oriented* dimension, both scientific knowledge and the research process are emphasised. Student teachers not only learn scientific knowledge based on research findings but also gain insight into the processes by which knowledge is produced. As in the previous dimension, teaching is teacher-focused but aims to engender a research ethos by developing student teachers' inquiry skills. Concerning the *research-based* dimension, student teachers play an active role in the learning process, and teaching is student-focused. The curriculum is directed towards inquiry-based activities, and student teachers learn these kinds of activities rather than subject content. Student teachers often participate in research projects led by teacher educators, where they share common research experiences. As for the *research-informed* dimension, which Healey (2005) further identified as *research-tutored*, teaching is student-focused. Student teachers engage in discussions on research, for example, with their peers, and the focus is on the research content.

The relations between the four dimensions have been described by two axes (Griffiths, 2004; Healey, 2005). The horizontal axis goes from an emphasis on research content to an emphasis on research processes, while the vertical axis goes from teacher-focused activities to student-focused activities. In accordance with Healey (2005), the model does not envisage one kind of activity as better than another, and all four dimensions should be seen as valuable. Student teachers' active role in research varies, and their research-based learning emerges in different ways within the model. Thus, the context, in terms of different disciplines and teacher education designs, plays an essential role and places the focus variously.

In relation to teacher education in Norway and Finland, it is evident that the four dimensions in Healey's model emerge in various degrees in both countries. In Norway, the emphasis has been on teacher-focused activities (Munthe & Rogne, 2015), i.e. research-led and research-oriented dimensions. This result has also been confirmed in later studies (Aspfors et al., 2021). Finnish teacher educators have a more homogeneous view compared to the Norwegian ones, with a focus on student-focused activities, i.e. research-tutored and research-based dimensions. The long tradition of research-based teacher education in Finland can explain this result (Hökkä et al., 2017; Kansanen, 2014; Krokfors et al., 2011; Maaranen et al., 2019; Niemi et al., 2006).

## Methods

This study is part of a larger comparative research project in Norway and Finland focusing on research-based teacher education from the teacher educators' perspective (Aspfors et al., 2021; Jegstad et al. 2021). The study is qualitative to its character and based on interviews carried out in Autumn 2019. The interviews were conducted in line with the requirements for autonomy, anonymity and confidentiality set by the Norwegian Research Ethics Committees (2016) and the Finnish Advisory Board on Research Integrity (2016).

### *Research context and participants*

In this section, we briefly introduce the two research contexts. In 2017, Norwegian teacher education programmes for the primary and lower secondary levels changed from four-year programmes to five-year master's degree programmes (Ministry of Education & Research, 2017). With this reform, education became even more research-based, with the ambition to educate teachers who have an enquiring attitude towards teaching. The reform and its focus on research further resulted in a national process in which several university colleges merged with or into universities (cf. Smith & Flores, 2019, p. 434). Consequently, there are different cultures for teaching and research within these institutions, which also influence the development of a strong research-based approach to education.

In Finland, teacher education for primary schools has been university-based and attached to a five-year master's degree programme for decades. The aim is to educate autonomous, responsible and reflective professional teachers who can successfully use research principles to make decisions and solve pedagogical problems (Tirri, 2014; Toom et al., 2010). The research-based approach means that the entire education system is permeated with an established scientifically oriented approach, which, for instance, influences education in both an external and internal way (Aspfors and Eklund, 2017).

Data were collected through interviews with 22 teacher educators. Sixteen interviews were conducted at two Norwegian teacher education institutions, and six interviews were conducted at one Finnish teacher education institution. The institutions were selected based on the pragmatic principles of convenience. The criteria for recruiting the individual participants were that they were educators who had worked in teacher education for at least five years and that, as a group, they represented different subjects and work positions. The Norwegian participants had pedagogy, natural science, music, social science, first language or a foreign language as their subject backgrounds and included five university lecturers, two senior lecturers, six associate professors, two docents and one professor. Thus, seven teacher educators possessed a PhD. The six Finnish informants included four university lecturers, one associate professor and one professor, all of whom possessed a PhD. Their subject backgrounds were pedagogy, arts and crafts, physical education, first language and foreign languages. Thus, the study included many interviews and a large amount of data, providing a good basis for the analysis.

### *Data collection and analysis*

The interviews followed a semi-structured interview guide (Kvale & Brinkmann, 2018), composed of four main topics: Research-based teacher education, Teacher educators' professional knowledge and development, Student teachers' professional knowledge and Collaboration between the campus and the field of practice (Appendix A). In this study, the main emphasis is on the data concerning student teachers' professional knowledge, i.e. research based learning. The data were analysed, inspired by constant comparative analyses (Strauss & Corbin, 1998), in three coding phases. In the first phase, the first and second authors jointly analysed the data inductively in NVivo in an open coding process, indicating data-driven coding. This resulted in many initial codes. In the second phase, these codes were grouped into 14 sub-categories through an axial coding process. In the third phase of coding, all the authors discussed the sub-categories in relation to the empirical material and with the research question in mind, and the sub-categories were integrated into four main categories. All of the authors were included in the discussions about the categories. The identified categories are elaborated on in the next section, together with

illustrative quotes from the interviews. The quotes are labelled according to country, informant number and work position (e.g. Norwegian Informant 7, University Lecturer).

## Results

Four main categories characterising Norwegian and Finnish teacher educators' views on student teachers' research-based learning within teacher education were found: academic writing and understanding, research competence, critical and analytic thinking and lifelong learning in the teaching profession. In the following, we describe the results according to the four categories.

### *Academic writing*

The first category is *academic writing*, and it is mentioned in 14 interviews (5 Finnish and 9 Norwegian). Some teacher educators, especially those from Norway, emphasised the importance of academic writing, particularly in the context of the master's thesis. They typically question the focus on academic writing per se, believing that it is necessary only for researchers: 'We have been occupied with [student teachers] writing academically, but why?' (Norwegian Informant 14, Associate Professor)

However, most teacher educators from both countries have a broader perspective on academic writing and connect it to understanding and assessing academic texts and the methods on which an academic text is founded:

[It is] important to be able to relate to different types of information and to different types of articles. And they need to be able to orient themselves in research literature and be able to assess different types of research literature. (Norwegian Informant 2, University Lecturer)

This view is related to future tasks in general, such as orienting themselves in the research literature and finding information within topics of interest.

### *Research competence*

The category of *research competence* relates to the research methodology and how to conduct research. This category is mentioned in 12 of the interviews (2 Finnish and 10 Norwegian). Half of the Norwegian informants point to student teachers learning fundamental research methods and the craft of writing a master's thesis. Some of them point to specific research methods, while others warn against a too-narrow focus on research competence:

In teacher education, they need both to learn the craft of research but also to participate in developmental processes. And I think that the focus sometimes is placed too much on the research part, and maybe in teacher education, we facilitate for instrumental practice and fail to emphasise developmental work enough. (Norwegian Informant 1, Docent)

This teacher educator points out how too much focus on research competence can lead to instrumental practices. She does not embrace the connection between research competence and developmental work in the teaching profession.

The remaining informants view research competence as being able to assess and choose different research methods and working in an inquiry-driven way to understand what knowledge is and how it is created. Some even connect research competence to school development, while accentuating that one gets tools for developing praxis and they connect research competence to the future profession:

Right from the start, they must in some way gain an ability to understand and absorb what research says about learning in various subjects, and to be able to be critical is, of course, one thing. One must be able to learn, in the long term, to assess what makes research credible, and so on. (Finnish Informant 1, University Lecturer)

These teacher educators make connections between research and having an enquiring stance towards the teaching profession. They also link it to supervising pupils in the teaching situation and even to making them able to understand and work for changes in society in general.

### ***Critical and analytical thinking***

The category of *critical and analytical thinking* is evident in 19 of the interviews (6 Finnish and 13 Norwegian) and is related to assessing information critically. It is, in other words, having a critical and analytical stance towards the information surrounding us and the knowledge we are presented with:

They need to know how knowledge is created and developed. Among other things, they need to relate critically to textbooks, documents and constructed truths, and they need to know how information and science are created – understand the process. I also think that by conducting a research task themselves, it will be much easier for them to orient themselves in research later, which is important to develop their own practice. (Norwegian Informant 2, University Lecturer)

Some teacher educators also connect critical and analytical thinking to how student teachers, in turn, should develop pupils' abilities to think critically and be aware of information overload in society and that this information is not necessarily true and based on facts.

Further views of critical and analytical thinking exceed reflecting on information and alleged truths. They are also about relating to absoluteness and indisputable topics and having an attitude to assess the situation and be open to change:

They should not take teaching or knowledge for granted. They should not argue that the school is constant, something that lasts forever. They need to understand that the school has constantly changed because society is in change. (Norwegian Informant 12, Senior Lecturer)

Critical and analytical thinking are also about being updated on knowledge and wanting to examine what research says about a topic and how it will affect the profession and the specific teacher's classroom.

A step further in the views of critical and analytical thinking is to use the assessment and reflections in a way that creates a foundation for one's own ideologies:

When they enrol in teacher education, they need to be more critical, be able to select the central part of what they learn and be able to shape their own ideology within their teacher role. And I think that they do this best by reading others' research, discussing with peers, discussing and analysing together with teacher educators and conducting their own development work, ranging from coursework to scientific theses. (Finnish Informant 2, Professor)

### ***Lifelong learning in the teaching profession***

The category *lifelong learning in the teaching profession* is evident in 14 of the interviews (6 Finnish and 8 Norwegian) and relates to the aspects of research-based learning that student teachers further develop in their future profession. The category is recognised by a focus on developing as teachers during the profession, and it could be for student teachers to learn how to learn and further develop their knowledge within a given topic after graduation, since the teacher education programme is limited in duration, and academic development within a subject must continue after graduation:

Now, they gain a certain amount of knowledge based on their 30 or 60 ECTS credits. But the time spent on the subjects is limited. So, the focus is on giving them the competence to be able to develop themselves later. And it's impossible to give them all the knowledge they need to be able to teach the subject for eternity. (Norwegian Informant 6, Associate Professor)

This category includes the aspect of keeping updated in the future profession, but it also includes a more holistic development within the profession, being able to see the necessity and having the motivation for development:

We hope to be able to increase the student teachers' ability to develop themselves, actually – possibilities for further development. And then this is the way to proceed. To develop more flexible lines of thought, to be able to analyse things and to be able to reveal what is important – and what is not. (Finnish Informant 3, University Lecturer)

This also reflects a perspective on the development of lifelong education and professionalism.



## Discussion

The aim of this article is to explore how teacher educators view student teachers' research-based learning within teacher education in Norway and Finland. In line with the objective of research-based teacher education (Kansanen, 2014; Krokfors et al., 2011; Maaranen et al., 2019), student teachers should learn to integrate research and practice and develop their critical thinking for them to make autonomous, rational and theory-based decisions as professional teachers. Research-based learning further promotes an attitude among student teachers to seek continual professional renewal (Afdal & Spernes, 2018; Niemi & Nevgi, 2014). Based on the analysis of the interviews with teacher educators in Norway and Finland, four main categories were identified related to student teachers' research-based learning: academic writing and understanding, research competence, critical and analytical thinking and lifelong learning in the teaching profession. In the following, we will discuss the four categories in relation to the theoretical framework on research-based learning, as part of research-based teacher education, including Healey's model (Griffiths, 2004; Healey, 2005; Healey & Jenkins, 2009). Thereafter, we discuss the four categories in relation to each other and across the two countries. As a part of this discussion, we highlight two different goals of research-based learning permeating the results: the goal that the student teachers should be able to write master's thesis, and the goal that teachers develop as lifelong learners.

### *The results discussed in terms of research-based learning*

In relation to research-based teacher education and Healey's model (Griffiths, 2004; Healey, 2005; Healey & Jenkins, 2009), a narrow take on research-based learning is visible in the research-led and research-oriented dimensions. Both dimensions are teacher-focused, meaning that student teachers have a subordinate role. The student teachers encounter scientific texts and research conducted by teacher educators through teaching, and in this way, they get insight into research content. The first category, *academic writing*, can be related to the research-led dimension with its focus on academic texts. Furthermore, the emphasis on the methods on which an academic text is founded, can be related to the research-oriented dimension. In line with the latter dimension, student teachers learn research skills during courses in research methodology, while teacher educators focus on research processes and problems. Moreover, teacher educators provide the basis for critical and analytical thinking when teaching and presenting research in their courses and assignments. The category of *research competence* also connects to this research-oriented dimension. Student teachers learn research methods and the craft of writing a master's thesis. In addition, they learn to assess and choose different research methods to understand what knowledge is and how it is created.

In relation to Healey's model (Griffiths, 2004; Healey, 2005; Healey & Jenkins, 2009), the broader view in all categories can be related to the research-tutored and research-based dimensions. The categories are student-focused, and student teachers play an active role in learning. This aligns with Lambert's (2009) notion that research-based learning has the potential to position students at the heart of the university, where they are producers rather than consumers. In line with both dimensions, student teachers understand research, conduct research projects, make presentations and have discussions with each other (Marín 2021; Susiani et al., 2018). As previous research has shown, students' own research activities support their learning and development, further connecting to the American tradition of research-based learning (Bauer & Bennett, 2003; Mieg, 2019; Walkington et al., 2011; Wilson et al., 2012). In addition, students collaboration with each other develop their research-based learning (Wessels et al., 2021).

The category of *critical and analytical thinking* is closely connected to both these dimensions in Healey's model. Student teachers develop a critical and analytical stance towards information and knowledge in society. They further examine what research says about a topic and how it will affect the profession and the specific teacher's classroom, which is supported by previous research (Nikolov et al., 2020; Saunders, 2017; Wessels et al., 2021). Finally, the research-based dimension is crucial for the development of lifelong learning in the teaching profession, thus closely connected with the category (i.e. *lifelong learning in the teaching profession*). This category focus on teacher's development during the

profession, and for student teachers to learn how to learn and further develop their knowledge within a given topic after graduation.

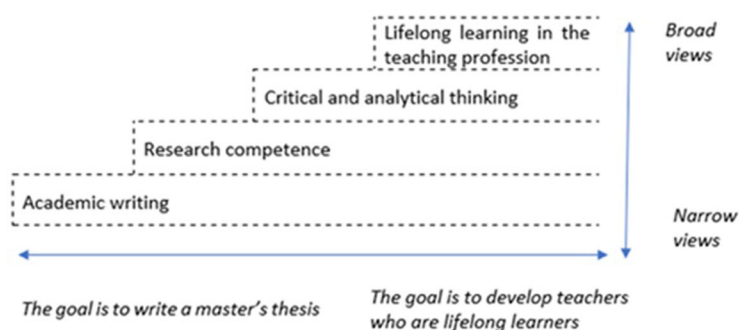
### **The four categories in terms of the implied goals of research-based learning and across the two countries**

In alignment with the four categories, two distinct goals of research-based learning were identified as permeating the results: the goal that the student teachers should be able to write a master's thesis, and the goal that teachers develop as lifelong learners.

Among some teacher educators, the goal of writing a master's thesis is most prominent, leading to a narrow view of the goal of research-based learning in teacher education. This is especially visible in the categories academic writing and research competence. Within the category of *academic writing*, some of the informants describe the work with academic writing as something that student teachers mainly need for writing a master's thesis and not something they need as professional teachers. It becomes somewhat instrumental, related to student teachers' needs during studies and for writing scientific theses. Thus, this view underpins scepticism about research-based teacher education, which has been shown previously as well (Munthe & Rogne, 2015; Puustinen et al., 2018). A narrow take on the category of *research competence* is also characterised by an instrumentalist view. Student teachers develop research skills and learn to use different research methods and analyses, which are mainly needed for writing a master's thesis (Afdal & Spernes, 2018; Yan, 2017).

Other teacher educators have a broader take on the goal of research-based learning in teacher education and emphasise the goal of developing teachers who are lifelong learners. In the category of *academic writing*, this view includes understanding research and various types of texts, something student teachers will benefit from when writing the master's thesis but primarily in their future profession. Similarly, the broader view of *research competence* is transferable to both teachers' development work and continuous assessment in schools. This way of looking at the role of research in teacher education clearly emerges in the category of *critical and analytical thinking*, since it is connected to assessing information critically and knowing how knowledge is created, relevant for both the teacher's own work and teaching this ability to pupils in school. A particularly broad view within this category also deals with forming one's own ideology as a teacher. When collaborating and reflecting with peers, students' critical and analytical thinking further develops and is put into practice (Marín, 2021; Nikolov et al., 2020; Susiani et al., 2018; Wessels et al., 2021). Thus, student teachers are mainly research producers rather than consumers (Lambert, 2009). Finally, the category of *lifelong learning in the teaching profession* relates to the career after completing teacher education and the ability to constantly be reflective and have a developmental stance (Mieg, 2019; Saunders, 2017; Walkington et al., 2011; Wilson et al., 2012).

To reach the level of lifelong learning in the teaching profession, all the other categories are useful and important components of research-based learning. Huber (2009) metaphorically illustrated the development of expertise as the growth of a tree. We have illustrated this evolution as a staircase, as shown in Figure 1, where the staircase illustrates that all steps are needed and that the upper steps depend on those below. Thus, when student teachers work on developing their competence in the



**Figure 1.** Teacher educators' views of the development of student teachers' research-based learning, visualised as a staircase.

lower steps, they initially focus mostly on the goal of writing a master's thesis. At the same time, this is necessary for them to reach the highest goal of developing as lifelong learners in the teaching profession, which continues throughout their careers.

Looking at the trends in teacher educators' views of student teachers' research-based learning within teacher education across the Norwegian and Finnish contexts, all the Finnish and many of the Norwegian teacher educators focus on the goal of developing teachers who are lifelong learners. This is evident in the emphasis placed by teacher educators on lifelong learning in the teaching profession, as well as the numerous teacher educators focusing on academic writing, research competence and critical and analytical thinking in more general terms, all related to future tasks. Since the categories are given increasing adherence as we go from the narrowest to the broadest view (i.e. the research-based and research-tutored dimensions in Healey's (2005) model), this means that these teacher educators, to a larger extent, acknowledge the long duration and broad effect of research-based learning. In contrast, half of the Norwegian informants do not connect research-based teacher education to lifelong learning. These typically emphasise academic writing and research competence with the purpose of writing the master's thesis, thus risking an instrumentalist view on the student teachers' work with research in the teacher education programme.

The Norwegian teacher educators had not yet had the same opportunity to see the positive results of the five-year master's programme at the time of the data collection, and there is a larger discrepancy among these informants, where several teacher educators focus mostly on the goal and barriers of writing a master's thesis, and, hence, more instrumental practices. This result aligns with previous research on Finnish and Norwegian teacher educators (Aspfors et al., 2021, Jegstad et al., 2021). Even though there are studies showing positive learning results from research-based teacher education (Spernes & Afdal, 2023), there still seem to be discussions among both Norwegian and Finnish teacher educators on how to implement this approach (Munthe & Rogne, 2015; Puustinen et al., 2018). Nevertheless, teacher educators play a pivotal role in preparing and supporting the next generation of teachers (Brew & Jewell, 2012).

### Methodological reflections

A limitation of this study is the larger number of participants from Norway. As in the previous studies conducted as part of this research project (Aspfors et al., 2021; Jegstad et al., 2021), the Finnish data set was smaller than the Norwegian data set. A reason for this skewness is the differences in backgrounds among the teacher educators in Norway; while all teacher educators from Finland possess a PhD in education, only seven of the Norwegian informants hold a PhD. Furthermore, some of these possessed a PhD within their subject discipline (e.g. history) rather than education. Thus, the Norwegian informants were more heterogeneous as a group, while the Finnish were more homogeneous and fewer informants from Finland were therefore chosen (cf. Saunders et al., 2018). Due to the teacher education reform in Norway in 2017, the Norwegian informants had less experience with working with research-based teacher education than the Finnish. However, this can be seen as a strength since it was a current issue in the teacher education context of Norway. As a consequence, looking into those two groups together is fruitful for the development of research-based learning within teacher education in Norway specifically, but may also have broader relevance to other contexts with a research-based education, which can be described as naturalistic generalisation (Stake & Trumbull, 1982).

### Conclusions and implications

The analyses of teacher educators' views of student teachers' research-based learning highlight two overarching goals: the goal that student teachers should be able to write a master's thesis, and the goal that teachers develop as lifelong learners. These two goals represent both narrow and broad views of the development of student teachers' research-based learning. Thus, the staircase in Figure 1 can be seen as an implication of the study and as a foundation for developing research-based learning within teacher education. All the steps in the staircase are necessary to reach the top level, including both narrow and broad views, and the lower steps are fundamental for reaching the higher steps. Therefore, we would like to emphasise three implications from this study: 1. For the policy level enough time and resources will be needed to implement research-based learning in teacher education. 2. For the

institutional level it will be important to appreciate different competences within academic writing, research skills, critical thinking and competence about the teacher profession. 3. For the teacher educators and student teachers it is important to prioritize the lowest steps in the staircase and address the barriers associated with them, as overcoming these steps is crucial to reaching the highest level and goal. This does not mean that student teachers should lose sight of the overarching goal of research-based learning: to develop teachers who are lifelong learners.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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## **Appendix A**

### **Interview-guide, semistructured**

#### ***Topic 1: Research-based teacher education***

1. What do you understand by the term research-based teacher education?
2. Why do teachers need a research-based education?
3. What significance do you think research and scientific practices should have in teacher education?
  - a. What could this mean for you/us as teacher educators?
  - b. What could this mean for the students?
  - c. What could this mean for the practice field and practice teachers?
4. What opportunities and challenges do you find associated with research-based teacher education?

#### ***Topic 2: Teacher educators' competence and professional development***

5. What kind of competence do you think is important to have to conduct research-based teacher education?
  - a. How can it be facilitated so that one can benefit from the various types of competences within the institution?
  - b. What competence do you need to be able to contribute to research-based teacher education?
6. How do you understand research competence?

#### ***Topic 3: Student competence***

7. What research-based competences are important to develop in a student teacher?

#### ***Topic 4: Collaboration between campus and practice field***

8. What role does practical training in school play in research-based teacher education?
9. What kind of competence do practice teachers need to support students' development of research-based competence?