

Final thesis in teacher education: Orientations and practices

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The purpose of this article is to analyze final thesis practices in European countries within the context of teacher education orientations and research-based teacher education initiatives through conceptual and research literature. Teacher education orientations guide planning and organization of teacher education programs and provide implications for the professional competencies these programs should aim for student teachers. How research is perceived in relation to professional development of teachers and is integrated into their initial preparation has a bearing on how final thesis is organized and implemented in teacher education programs. Against this background, final thesis is analyzed conceptually in terms of various purposes and practices, and a model is offered to characterize the diversity in teacher education initiatives taken by the European countries as an outcome of the Bologna agreement on standardizing higher education.

Keywords: Teacher education, final thesis, teacher education orientation, research-based teacher education, research literacy

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Introduction

Teacher education is repeatedly the target of heated educational policy debates in many countries because the question of how student teachers should be prepared for the teaching profession is policy laden and exposed to different, and sometimes, conflicting arguments about the purpose of education (Beach & Bagley, 2013). These competing agendas have also been driven by different conceptions of “good teaching” leading to conflicting proposals to restructure teacher education (Spodek, 1974; Zeichner, 1983). The debates in teacher education today, too, are the consequences of these conceptions, influencing the organization of various teacher education components. One such component is the final thesis through which student teachers are expected to demonstrate their competencies in the areas defined as critical to their professional development (Råde, 2014). It is one of the recommendations the Bologna agreement promoted to bring synchronization in European higher education in line with the goal of making university education more scientifically based (Baldwin, 2013).

The purpose of this article is to analyze final thesis practices (e.g., the process through which it is carried out, written, supervised, examined, and disseminated) in the context of various teacher education orientations and research-based teacher education practices through a critical review of conceptual and research literature. Accordingly, we first discuss teacher education orientations, investigate how research literacy is integrated into teacher education, then analyze final thesis practices in primary and secondary teacher education both at bachelor and master’s levels to arrive at a conceptual model representing diverse approaches promoted and implemented in the European countries. Both teacher education orientations and the conceptual model serve as the framework for analyzing final thesis practices in the Nordic countries and Germany presented in the following articles in this special issue.

Teacher education orientations

A teacher education orientation (or “paradigm” as some authors such as Zeichner (1983) call it) can be defined as a conceptual framework consisting of assumptions, goals and principles that guide organization and implementation of teacher education practices. Such orientations might be critical in determining the whole curriculum as well as influencing certain components of teacher education such as courses, school experiences projects and thesis, and evaluation of student teacher competencies. Although “paradigms in teacher education tend to overlap, and contain contradictions, the principles that underlie them are helpful in analyzing the implications for reform efforts and debates in teacher education” (Delandshere & Arens, 2001, p. 549). Therefore, these orientations should not be perceived as distinct categories but rather broad perspectives or centers of attention that could be situated on a continuum ranging from research to practice, academic to professional or generic competencies to individual development.

In his widely cited article, Zeichner (1983) offers four teacher education paradigms: behavioristic, personalistic, traditional-craft and inquiry-oriented. He argues that “behavioristic paradigm” that is based on positivistic philosophy and behaviorist psychology has traditionally been, particularly in the Anglo-American world, the most influential orientation in teacher education resulting in the emphasis on specific and observable competencies in

teacher education and evidence-based curriculum and teaching in schools. In this paradigm, the teacher focuses primarily on using research-based principles and executing observable and measurable skills for effective teaching. Respectively teacher education curriculum and processes are arranged based on predefined competencies that teacher candidates are expected to excel through structured learning experiences and practices. “Personalistic paradigm” on the other hand emphasizes individual growth, based on self-awareness and personal experiences rather than standard principles and competencies. This orientation rests on phenomenological philosophy and humanistic psychology principles and requires an open and flexible approach to teacher education content and processes in line with student teachers’ experiences and professional identity development. The third paradigm, “traditional craft,” views teacher education as a process of apprenticeship where student teachers work with experienced teachers as “masters” to develop the desired skills and a conception of good teaching. In this view, practice through expert guidance establishes the foundation of the teaching profession, and pedagogical knowledge may be offered as enrichment on top of this foundation. The attempts to make teacher education school-based and training focused (such as the one in the UK in the 1980s) could be viewed as a reflection of this orientation (Furlong, 2002). The call for more practice in schools in teacher education also reflects the underlying principles of this paradigm. Finally, the “inquiry paradigm” highlights the importance of observing, questioning, reasoning, researching to assess and improve teaching skills and competencies. Good teaching requires the student teacher to learn to become an “active agent” both in his/her development as a professional and in making decisions on what knowledge to teach, how and under what conditions. This orientation values teacher inquiry and reflection; respectively, teacher education should be organized to provide student teachers with the tools of inquiry and reflective experiences (Zeichner, 1983).

Although Zeichner’s categorization is useful in underlying some of the common approaches in teacher education, it does not seem to be exhaustive of all orientations described in the literature. For example, Feiman-Neiser (1990) offers five orientations: “academic,” “practical,” “technological,” “personal” and “critical/social.” Two of these, “academic” and “critical/social,” are different from the orientations Zeichner (1983) offered. Feiman-Neiser describes “academic orientation” primarily through subject areas but also alludes to pedagogy, social, psychological, and philosophical disciplines. This orientation aims to equip student teachers with a well-founded understanding of the relevant disciplinary literacy they will need for teaching in schools. Practice is not prioritized as this would come naturally if discipline-based literacy is well developed within an academic teacher education program. “Critical/social orientation” highlights the importance of educating student teachers as critical thinkers and activists, prioritizing a problem-solving orientation in schools. Teachers are change agents in social transformation of students, thereby planning and implementing teaching and learning in accordance with such a goal. Social projects, community work and aligning teaching and assignments in line with the social constructivist perspective become critical processes in teacher education programs. The other three orientations, “technological,” “personal” and “practical,” are similar to Zeichner’s “behavioristic,” “personalistic” and “traditional craft” paradigms respectively.

Becker, Kennedy and Hundersmarck’s (2003) categorization for different teacher education orientations involves “content expertise,” “pedagogical expertise” and “personality/identity development.” The first is similar to the “academic” orientation in Feiman-

Nemser (1990) and prioritizes the teacher education function of equipping teachers with discipline-based knowledge. The “personality/identity orientation” is similar to “personalistic orientation” in Zeichner (1983), and “personal orientation” in Feiman-Nemser (1990). The “pedagogical expertise” highlights the importance of pedagogical competencies such as methods, material development, and guiding students.

Finally, Andersson’s (1995, cited in Furuhausen et al., 2019) categorization within the teacher education context of Sweden is worth mentioning since it reflects earlier models. It involves “vocational,” “academic,” “progressivist” and “personal development” orientations. “Vocational orientation” is like Zeichner’s “apprenticeship model” highlighting the significance of practical skills in classroom teaching learned through practices planned for novice teachers and led by expert teachers. “Academic orientation” focuses on content knowledge in the subject areas studied from a scientific and scholarly perspective through the guidance of university teachers who are experts in these areas. The purpose is to help student teachers become subject matter experts through content-oriented courses. “Progressivist orientation” in teacher education involves courses and experiences to help student teachers gain a progressivist attitude so they can look at their practice with a reformer’s perspective such as changing the content, creating new classroom environments, and helping their students act on issues/problems they observe in their lives. Project-based courses, group assignments, field trips, community services can be important experiences to provide student teachers with opportunities to develop a transformative and action-oriented attitude. A teacher is an educator but also considered as a change agent in school. Finally, “personal development orientation” establishes the core of teacher formation. This can be achieved through courses to develop self-awareness, and activities to develop their personal skills such as communication, presentation, and empathy.

Furuhausen et al. added (2019) a fifth orientation, “educational science,” to Andersson’s categorization in their analysis of teacher education in Sweden and Finland. This orientation is like “academic orientation” except that the priority is given to pedagogical courses to help student teachers understand educational processes and student development in an academic context. Again, courses such as curriculum development, classroom management, teaching methods, and educational psychology provide students with general pedagogical skills to apply to any subject area when they become teachers. So, the vocational dimension of the profession is left to the student teacher based on the assumption that pedagogical skills will provide them with the desired foundation to develop the practical skills later in schools. Andersson argues that “educational sciences orientation” also involves the development of research-based approach to teaching and learning through pedagogical courses, which brings this orientation closer to Zeichner’s “inquiry paradigm.”

The “didactic” perspective (Erixon Arreman, 2008; Klafki, 1995; Seel, 1999) can also be offered from the Northern European tradition to the orientations discussed above as a way of viewing teacher education to improve teacher candidates’ competency to problematize teaching in relation to content, student and teacher under certain conditions to achieve educational goals. The didactical tradition is based on the pedagogical perspectives originally developed in Germany (Künzli, 1999) in the 17th century and has influenced theory and research on teaching since then throughout Europe. The interaction between Continental European and Anglo-American education traditions toward the end of the 20th century has provided impetus for bridging didactical and curriculum perspectives (Hopmann & Riquarts,

1999). In didactic orientation, teacher education adapts a problem-solving and critical thinking approach to didactical processes considering the specific context for leading students to desired outcomes. The didactic approach can be viewed as an integration of the Zeichner's "inquiry" and Furuhausen et al.'s "educational sciences" orientations for the purpose of prioritizing problematization of the teaching situations to arrive at contextualized responses based on professional experience and scientific knowledge. Such an approach requires organizing and implementing teacher education based on research knowledge and developing research competencies teachers need in analyzing the teaching situations and taking scientifically based actions to promote student learning. The discipline-based organization of courses is less of a priority in assessing teacher competencies in teacher education where the courses are organized with a holistic approach (interdisciplinary teaching), particularly in Nordic countries, which integrates pedagogical development, subject understanding, and contextualized practices.

How do these orientations relate to various efforts for reorganizing teacher education? First, the academization, moving teacher education to universities, in the 1970s and 1980s led to an academic orientation highlighting a discipline-based approach in teacher education courses and limiting school practice in Europe (Råde, 2019). The academic orientation also led to further debates over the priorities given to vocational and scientific bases of the teaching profession. In addition, the calls for performativity in various periods in the last 30 years have given way to competency-based teacher education models emphasizing the standardized knowledge and skills requirements of the profession (Ball, 2010; Ball & Olmedo, 2013). Reactions to these models in the same period have brought humanistic and progressivist orientations highlighting the importance of experience, personal growth, interaction, and collaboration in developing a teacher identity based on one's unique characteristics (e.g., Magnússon & Rytzler, 2022; Paulsrud, 2023). On the other hand, the demand for more school practice has always been part of the calls for changes in teacher education programs even though its position and weight have been determined by the major orientation giving shape to these changes.

The assumptions underlying these orientations might position subject matter content, pedagogy, and other disciplines (e.g., sociology, psychology) differently in shaping the knowledge base student teachers would need to become professional teachers. In addition, theoretical and practical aspects of this knowledge base play an important role in prioritizing what is most critical for one to be a teacher. In other words, the emphasis on professional and academic aspects of teaching can be observed in university courses, school experiences and community work. The focus on the teacher as an individual takes us to the orientation for personal development and identity. This can be contrasted with approaches to teaching as a set of competencies to be developed.

How can research-based teacher education be positioned in these orientations? How does the research literacy that student teachers are expected to develop relate to teacher knowledge areas (Shulman, 1986) in these diverse orientations? What does final thesis, which in Nordic countries is commonly perceived as a critical component in developing student teachers' research literacy, offer in line with these orientations? We discuss this diversity of perspectives in the next two sections.

Research-based teacher education

The transfer of teacher education to university in the 1970 and 1980s has brought in more attention to research among teacher educators, and scientific inquiry into professional knowledge and practice has become a focus in teacher education programs (Börjesson, & Dalberg, 2021; Larsson & Sjöberg, 2021). In addition, research orientation was strongly promoted in European higher education first through the Bologna Declaration in 1999, then other international calls to align teaching and learning in higher education with the results of scientific research (Commission of the European Communities, 2007; European Commission, 2018; Organization for Economic Cooperation and Development, 2013). Similar arguments were raised in other countries such as the US to tackle with the raising criticism of teacher education programs, and research has been portrayed as a way of increasing quality in teacher education as well as the quality of teaching in schools (Darling-Hammond, 2017). Several research studies have also concluded that student teachers' professional development can be stimulated by engaging them with research knowledge, skills and practice during teacher education (e.g., Ahlstrand & Bergqvist, 2005; Kowalczyk-Waledziak et al., 2020). In addition, research-based perspective has brought a problem-solving orientation to teacher education to consider multiple approaches in response to diverse requirements of teaching and learning both at pre- and in-service phases of the profession (Darling-Hammond, 2017; Eklund, 2018; Jakhelln & Pörn, 2019; Kowalczyk-Waledziak et al., 2020).

Defining teaching as a research-based profession and restructuring teacher education programs to prepare student teachers toward this goal has been on the educational policy agenda in several European countries. Finland, for example, makes this goal clear as a foundational principle of teacher education to prepare future “teachers who have the capacity to use research and research-derived competencies in their on-going teaching and decision-making” (Westbury et al., 2005, p. 477). The educational theory, pedagogical content, school practice courses are organized around this principle, and students are provided various opportunities such as course papers, small scale field work and thesis to develop their understanding and skills of research in relation to the requirements of their field of teaching (Puustinen et al., 2018). Similarly, in Sweden, final thesis reflects an important component in research-based teacher education (Råde, 2019). Students explore potential research ideas in methods courses through literature review and turn these ideas into small scale field studies in the final thesis course in the last year. In Netherlands, research became a compulsory component in teacher education in 2010 as a result of the declaration of Bologna and the European qualification framework (European Commission, 2018) with an assumption that professionalization in teaching requires research competency (Katwick et al., 2021).

Student teachers' research literacy is expected to develop through various processes in teacher education ranging from critical readership of research to developing methodological skills as well as to carry out small scale research. Healey and Jenkins (2009) categorize undergraduate research and inquiry under four categories: research led, research tutored, research oriented and research based. This model provides a useful framework for describing various approaches in integrating research literacy in teacher education as well. Positioning research literacy as one of the fundamental knowledge areas teachers need has critical implications for organization of teacher education through courses, school experiences and projects respectively. When the emphasis is on research content, relevant research could be

brought into courses for student teachers to read, discuss and relate to teaching competencies they establish. If the emphasis is on research problems and ways to address them, then student teachers would need to develop research skills and undertake research. In this orientation, students become practitioners of research.

Final thesis orientations

Although research-based teacher education has become a common goal in most European countries due to the Bologna process as discussed above, how a final thesis should represent this goal is often a matter of debate. The conflicting practices mostly arise from the priority given to each of the two major orientations in teacher education: professional and academic (Hesslefors et al., 2008). The former advocates professional knowledge and skills while the latter focuses on theory-based research competency and problematization of the evidence in line with previous research and educational context. Toom et al. (2010) argue that the main purpose of the final thesis in teacher education should be to carry out research that has relevance to student teachers' professional teaching tasks rather than producing "new knowledge or novel results" (p. 333). This purpose calls for final theses that address both academic and professional aspects, however, Erixon Arreman and Erixon (2015) argue that such theses generally suffer from not meeting the demands of the one of these aspects fully.

Råde (2019) in his review of final thesis work in European teacher education programs identified two models: "thesis" and "portfolio." While the former focuses on theory and research methods to establish a scientific approach to teaching and learning, the latter emphasizes the importance of pedagogical dimensions of teaching such as methods, materials, and practices. Earlier Meesus et al. (2004) identified four final thesis models in the Belgian teacher education context involving "action research," "literature study," "didactic work" and "portfolio." In the Swedish context Mattsson (2008) described four final thesis types including "thesis," "portfolio," "illustrative case example" and "practicum performance" (cited in Råde, 2019). In an earlier study, Råde (2014) categorized final thesis work in European countries under "portfolio," "thesis" and "action research," and argued that all had the potential to integrate academic and professional knowledge dimensions of the teaching profession. These models indicate that final thesis work may focus on areas ranging from primary research to secondary research and from practicum performance to developmental work in line with the requirements of one's subject orientation. Reflection is considered an important component of the final thesis regardless of the models adapted in the programs.

The literature presents diverse arguments on these models in terms of their contribution to various competencies student teachers are expected to develop such as research skills and pedagogical knowledge. For example, Meesus et al. (2004) argue that practice-oriented final thesis approach is more relevant to bachelor level teacher education programs than theory-oriented one. Even at the master's level, the approach to the thesis appears to be diverse ranging from theory-oriented research study (Thomas & Brubaker, 2000) to practice-oriented work (Duke & Beck, 1999; Garman, 2001). When presented in traditional research models, the descriptions of bachelor and master final theses are often similar except that the expectations in relation to the quality and size might be lower for the bachelor thesis. The assessment of final theses is another area of debate as there are studies that show there is a variance in the way criteria are understood and applied in grading the theses among

student teachers and teacher educators (Lundström et al., 2016; Price et al., 2011; Rinne, 2023).

Meeus et al. (2004) concluded that “portfolio approach” to final thesis is the most appropriate option for preparing student teachers professionally. They suggest that final thesis can incorporate elements of “action research” and “didactic box” approaches based on the requirements of subject area and individual professional development needs. However, a theory-oriented research thesis was the least recommended one in teacher education programs, particularly at the bachelor level, by the teacher educator and student participants in their study in Belgium. However, a more recent study by Willegems et al. (2018) found more positive attitude toward research among student teachers who were involved in collaborative teacher research in Belgium.

An important goal of the final thesis in traditional research form is to promote student teachers’ research understanding and skills so that they can use this competency later in their professional work with curriculum and teaching (Niemi & Nevgi, 2014). Action research is one of these approaches that integrate practical and research knowledge in line with the problems faced in teaching. At the same time teachers would be informed readers of research as a way of keeping up with new knowledge in their field and reflecting it in their practice. Along with developing research skills and readership, there are other benefits of carrying out final thesis research for professional development. Student teachers develop critical thinking into the concepts and principles they learn during teacher education, reflect on how they might be put into practice and potential consequences, improve skills of working autonomously and collaboratively, develop insights into linking theory to practice as result of carrying out research based final thesis (Ahlstrand & Bergqvist, 2005; Jakhelln & Pörn, 2019; Maaranen, 2010). At the same time, there are studies that report student teachers’ criticism of final thesis in relation to disconnection to their professional tasks and frustration they experienced in managing the process of carrying out the research (Eklund, 2010; Jakhelln & Pörn, 2019).

Research orientation in teacher education programs in general and its positioning in final thesis is more apparent in several Nordic countries. In Finland for example, developing student teachers’ understanding of research and competencies for carrying out research is a high priority because all teachers are expected to have an inquiry approach to their teaching and continuously reflect upon and improve their practices (Toom et al. 2010). Research-based thesis is also the common practice in most teacher education programs in Sweden (Alvunger & Wahlström, 2018). In Norway, the concurrent emphasis on research and relevance for future practice (Norwegian Ministry of Education and Research, 2013) opens possibilities to alternative final thesis practices including portfolios, but research-based thesis currently is promoted more than practice-based portfolios which were more dominant in the past (Skagen & Elstad, 2023). Action research-based thesis is viewed as a way of integrating research and practice expectations in some teacher education programs. However, in other European countries, the final thesis takes different shapes ranging from research to practice. There are also countries where final thesis is not compulsory in teacher education programs (Ahlstrand, 2002), and instead student teachers are expected to develop their research understanding and skills through various methods courses and assignments as requirements in these courses (e.g., Turkey). However, the debates on these varied

implementations continue in terms of their contribution to student teachers' formation and the positioning of research-based teacher education approach in training of future teachers.

Kowalczuk-Wałędziak et al. (2020) studied the impact of carrying out a final thesis at the master's level on teachers' professional development in Poland, Portugal, England, Latvia, Romania. They described final thesis from a "traditional" research-oriented perspective in terms of independent research carried out under the supervision of teacher educator involving all essential phases of doing scientific research such as literature review, research questions, methods, data collection and analysis, and presentation of results and discussion. Most teachers in these countries valued their thesis research and found it relevant to their subject, research interests, and current educational practices. The thesis also led to new perspectives in education, helped them link research to practice and improved their academic writing. The positive results (less positive with Polish and English teachers) in this study provide justification for the need for final thesis in professional development. These results at the same time support the research findings in the Nordic context whereas contrast the findings in the earlier Belgian study by Meeus et al. (2004).

Although there are different implementations of research tasks in preservice teacher education in the US, research indicates benefits for student teachers in terms of more informed reflections on their teaching practice and student needs, positive attitude toward innovation and collaboration in teaching, and more evidence-based decisions in practice (Hagevik et al., 2012). Studies in other countries have also shown contribution of student research to preservice teachers' professional development (e.g., Flores, 2018 in Portugal; Gray, 2013 in UK; Ion & Iucu, 2016 in Romania, cited in Katwijk et al., 2021). However, what type of research literacy or final thesis leads to professional development is still a matter of debate leading to various orientations in organizing teacher education programs and implementing final thesis with different goals. This is elaborated further within the context of a conceptual framework for final thesis in the next section.

A conceptual framework for final thesis orientations

The diverse practices in organizing final thesis in teacher education can be further clarified in relation to how they are oriented toward a "research," an "inquiry" or a "practice" orientation. The terms "inquiry" and "research" are often used interchangeably in literature. However, these terms are also used for processes that may not be applicable to both terms in the same way. For example, Levy and Petrulis (2012) use the term "inquiry" to describe both learning and research processes. In the former, inquiry becomes a way of exploring existing knowledge whereas the latter refers to a process to build new knowledge, which is similar to the meaning the term "research" carries. On the other hand, the former is more like searching for knowledge for the purpose of learning or expanding an understanding, and it does not necessarily refer to the scientific processes that the term "research" requires. In this sense, these two terms can be distinguished from each other in relation to their positions for scientific processes to produce new knowledge. Accordingly, Reid (2004) differentiates the terms "research" and "inquiry" in relation to what characterizes the type of search they involve. Reid argues that research is based on scientific investigation involving evidence whereas inquiry focuses on search and analysis which does not necessitate scientific process to answer questions.

This differentiation between “inquiry” and “research” might be useful in describing various final thesis approaches in relation to their position to scientific investigation. With this perspective all categories in Healey and Jenkins (2009) model except research-based, could be defined as inquiry-based approaches and may involve discussion of the literature, analysis of content and materials or examples of teaching competence in a portfolio. A “development and practice” orientation could also be added to this categorization to highlight the importance of production of a material or designing a new method to try out and write the results without having a scientific concern for knowledge production. Accordingly, Figure 1 displays these approaches to final thesis in teacher education programs on a continuum of orientations ranging from research to practice, thesis models in line with these orientations and examples of theses written based on these models.

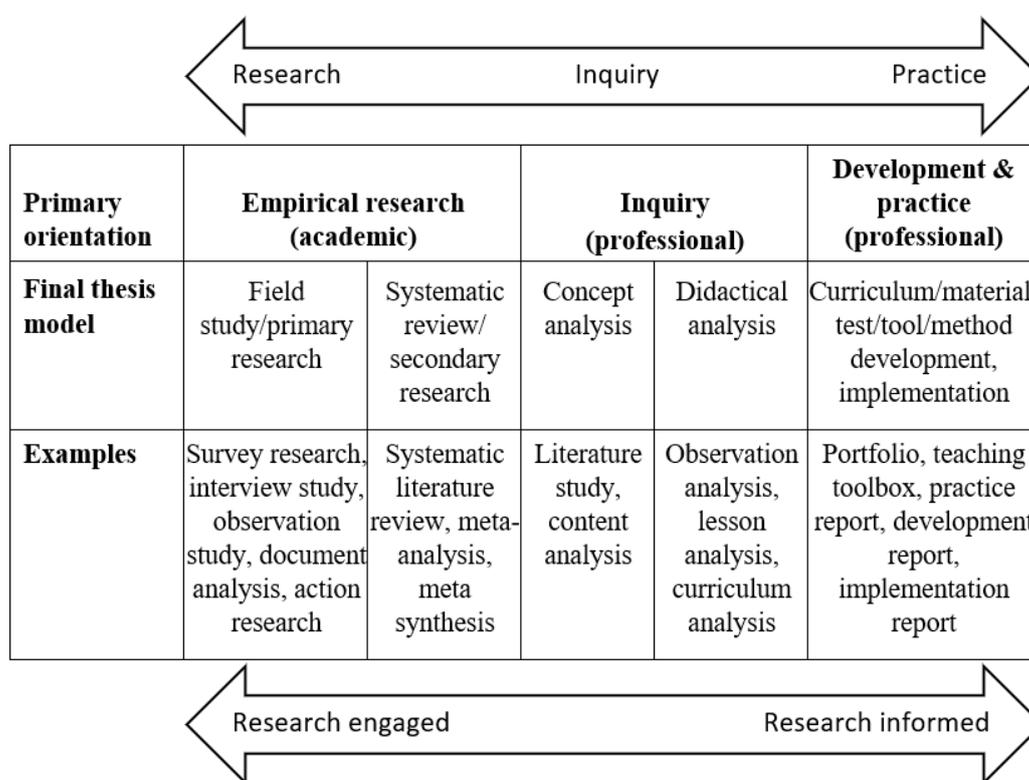


Figure 1: A framework to represent various final thesis orientations in teacher education

As Figure 1 shows, a final thesis might be exclusively research based requiring pre-service teachers to collect empirical data to answer their research questions. Preservice teachers have the option to collect data in the field through various tools such as surveys, interviews, and observations, do document analysis (e.g., curriculum, textbooks) or carry out systematic literature reviews. In all options, the thesis is established through a recognized methodology in line with the research purpose of the study. We use “primary research/field study”

and “systematic review” to differentiate between primary and secondary research as research-based models in final thesis. In some countries, e.g., Finland, systematic reviews are not accepted as final thesis research as preservice teachers are expected to carry out primary research based on data collection in the field (Personal communication, 2023). This decision might have to do with discussion in the research literature in relation to different approaches in positioning systematic reviews as research or conceptual work. We place systematic reviews under research based final thesis orientation because they also have a methodological basis and the process takes place similarly to a research study in terms of research questions, theoretical bases, methods of selection of studies, data analysis, etc. (Alexander, 2020; Grant & Booth, 2009; Snyder, 2019). The distinction in terms of “primary” and “secondary” offers a way to differentiate these two research-based approaches to final thesis. It is also important to note that systematic reviews in this category are different from a literature review which is conceptual and does not have to be carried out based on a recognized methodology involving research questions, selection criteria for studies, strategies for data retrieval and analysis for the purpose of reaching meta or secondary level findings as answers to research questions. Systematic reviews have the potential to address critical questions in education, and “shape the future of research and practice” (Murphy et al., 2017, p. 4). They are considered empirical research even though their data is based on previous research studies, which makes them secondary research. Therefore, they are placed under empirical research in the model but as a different category to differentiate it from primary research.

The second category in the framework involves an “inquiry” orientation to final thesis with a purpose of carrying out concept or pedagogical/didactical analysis in student teacher’s area of interest. A concept analysis (e.g., art criticism in art subject, modernism in philosophy, sustainability in science, democracy in social studies, beauty in literature, equality in mathematics) can be done in relation to specific content considering curriculum goals, student developmental level, inquiry level required or misconceptions (see for example, Baldwin, 2008; Firth & Bellanti, 2015; Nuopponen, 2010). A didactical analysis (e.g., teaching, games, groups) or philosophical discussion of a pedagogical approach in the subject area may consist of substantial reflections based on observation of a teaching moment, relevant research, and conceptual literature (see for example, Aguirre & Zavala, 2013; Ndi-hokubwayo, 2022). The inquiry orientation does not require an empirical approach but may use research and conceptual literature to support the analysis approach to deepen the understanding and offer new concepts or recommendations for alternative pedagogies or models of teaching and learning as a result of such analysis.

The last orientation in the framework focuses on development rather than research or analysis. Development of curriculum, unit, teaching material, learning tool, method, or a combination of these might be the target of such a thesis. These developmental activities might also have an implementation in relation to these developmental activities before or after the developmental phase. Then the thesis typically consists of reporting of the developmental activity with or without an implementation phase. When several developmental activities are the target, the thesis might be presented like a portfolio together with a discussion of their bases and uses in practice.

It should be noted that the orientations and models in the framework do not represent distinct categories or criteria to describe the borders of a final thesis but rather they point to the central focus that guide the student work toward field study, analysis, and reporting.

There might be cases where a final thesis represents the characteristics of more than one orientation, e.g., combination of development and testing as part of an empirical study, a combination of concept analysis and teaching material development or a combination of systematic literature review and concept analysis.

The final thesis orientations and models presented in Figure 2 could be helpful for teacher education programs to consider research and professional development competencies that preservice teachers are expected to develop and how the selected model/s contribute to these goals. For teacher education programs that promote multiple final thesis models, the framework can serve as a basis for analyzing various types of final theses already submitted in relation to the goals of teacher education programs.

Discussion

A critical analysis of the literature shows that there are differences among the European countries in positioning final thesis in teacher education programs in relation to the school level preservice teachers are trained for and whether the program is offered at the bachelor or master's level. Professional development-oriented thesis is written more in preschool and primary school teacher education programs and in programs at the bachelor level while research-based thesis is expected in programs training subject area teachers and at master level programs (Meeus, 2004). Still, there are countries that fall beyond these trends. For example, research-based thesis is a requirement at both long (4-5,5 year) and short (1,5 year) teacher education programs in Sweden. It is also the case that final thesis is not compulsory in teacher education programs in some countries (Ahlstrand, 2002).

Final thesis practices are often influenced by teacher education orientations that are driven by the assumptions of who a good teacher is and how such a teacher can be developed. These orientations are mostly described around specific competencies, practice-based experiences, personal development, inquiry, disciplinary knowledge, and pedagogical skills (Andersson, 1995; Becker et al., 2003; Feiman-Neiser, 1990; Furuhausen et al., 2019; Zeichner, 1983). Specific competencies are often the driving force behind the restructuring efforts of teacher education programs based on scientifically proven good teaching practices. These efforts are promoted by key terms such as “evidence-based teacher education” and “competency-based teacher training” particularly in the Anglo-American countries (Hiebert et al., 2002). Whenever such a technical approach is taken toward teacher education, humanistic positions are also taken as a counter argument to highlight the importance of personal development and professional identity construction in dealing with the challenges of the profession. Similarly pedagogical and didactical approaches to teacher education are presented as counter arguments to academic approach which focuses exclusively on subject matter and disciplinary knowledge as the driving forces in shaping the program. A craft- or apprenticeship-based approach to teacher education views good teaching as a matter of developing and sharpening skills through practice under the guidance of an expert or mentor in the real context, the school. Good teaching can also be viewed as didactical problem-solving process in which case teacher education should be geared toward developing preservice teachers' inquiry skills so that they can collect relevant data from a teaching situation and make decisions informed by scientific research.

Among these, inquiry (Zeichner, 1983) and didactical orientation (Klafki, 1995) primarily call for a research-based approach in teacher education which has been promoted in

the last 20 years in many countries, but particularly in Northern European. This movement initially started with the reorganization of teacher education under higher education which focuses on research to produce scientific knowledge but also to make this knowledge the basis of education in all fields. Teacher education programs were also expected to take this dimension into consideration in training future teachers. In addition, recent calls for teaching as a research-based profession require employing research literacy and competency both in teacher education and in the profession.

One of these priorities is the integration of research literacy both as a source of professional development for future teachers and a consequence of their scientifically based activities in teacher education. Healey and Jenkin's (2009) categorization of various types of research literacy presents good insights into integration of these competencies into teacher education programs, that is, using research-based knowledge as source of content, research articles as representations of how scientific knowledge in specific areas of teacher education can be produced, research methods courses to develop research skills and projects preservice teachers undertake to use these skills to produce their own research-based knowledge. Within this framework, final thesis can be positioned as a research activity preservice teachers carry out to produce knowledge to the research questions they pose. Such a final thesis ideally builds on prior research-informed and research-oriented competencies which Healey and Jenkins (2009) outline.

A research-based final thesis has been promoted as a critical component of research-based teacher education in many Northern European countries, particularly in Finland (Eklund, 2018), a consequence of efforts to position teaching as a research-based profession. However, there are essential differences in descriptions of what a research-based final thesis involves in terms of data sources and analysis. For example, systematic literature reviews can be viewed as research considering the previous studies as data sources, using methodological criteria to select them, and employing a content analysis approach to arrive at responses to the research questions determined for such a study. A counter argument for not counting it as research might assume that data collected from previous studies are not primary, and secondary use of such data can only be considered as conceptual literature review.

Another point of difference in positioning final thesis in research-based teacher education results from the research roles attributed to the professional work of teachers. One assumption is that research informed and oriented teacher education supports teachers to use scientific knowledge in their work and to judge which research is of "good quality" based on the research literacy (e.g., methodological competencies) they develop, however, this expectation does not require them to be researchers and carry out research in their work. Such a view has a critical implication for repositioning research in final thesis from carrying out research and producing new knowledge to the employment of research knowledge for professional development such as developing curriculum or material, analysis of subject content or didactical situation. The labeling of these diverse orientations, such as "academic" and "professional" or "research-based" and "action-oriented" (Mattsson, 2008; Meeus et al. 2004; Råde, 2014), indicates that final thesis is not always a research study, but it can also be based on student teacher's developmental work or subject oriented analysis. When a final thesis is not a research study, that does not mean it is not promoting research-based teacher education goals because preservice teachers might still be expected to use research literacy in writing a conceptual or development-oriented thesis.

Although references to “research-based teacher education” and “teaching as a research-based profession” are made in educational policy documents in most of the Northern European countries, how final thesis is positioned regarding these goals is not clear. Is research-oriented teaching best achieved by the teacher carrying out research on the teaching situation or using research-based knowledge to establish an effective teaching and learning process? How can a developmentally focused final thesis be made relevant to the goal of research-based teaching? How can a research-based thesis be made relevant to the professional development needs of the teacher? How should the courses or activities before preservice teachers start their final thesis project be organized to promote research-based teacher education? These are some of the questions that will be relevant to positioning final thesis with different orientations in relation to achieving research and developmental goals in teacher education.

In addition to diverse orientations to final thesis, the process through which it is carried out, written, supervised, examined, and disseminated is also critical in assessing how it contributes to research and professional competencies of preservice teachers. Carrying out research in collaboration with teacher educators (e.g., as part of an ongoing research project), teachers in school (e.g., practitioner research), mentors and peers (e.g., collaborative research) are other strategies to make final thesis more meaningful for preservice teachers and support other professional goals such as collaboration and learning from experts. Dissemination of final theses through presentations at conferences, professional meetings, media, and other platforms can also be way to motivate preservice teachers further toward final thesis and its meaning for their professional development.

The conceptual model developed in this article (Figure 1) also offers implications for studying final theses. The academic orientation leading to primary and secondary research, and professional orientation leading to concept and didactical analysis as well as development of practice theses can serve as a thematic basis for studying final theses carried out in teacher education programs at different school (pre, primary and secondary) and levels (bachelor, master’s, short programs) in relation to the teacher education goals and teacher knowledge in use in schools. These studies can both be qualitative and quantitative for the purpose of mapping the practices and understanding what it means to write a specific type of thesis for the preservice teachers. The articles presented in this Special issue discuss what characterizes the final thesis, its orientation and organization in the Nordic countries and in Germany within the context of this model, providing a basis for further discussion both for the model and the final thesis practices in these countries.

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