Knowledge in teacher education curricula

Examining differences between a research-based program and a general professional program

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The content and structure of teacher education are highly debated around the world. The recurrent questions are as follows. What knowledge is most valuable in preparing teachers for professional work? What is the best way to organize this knowledge in education to facilitate learning? What are the relationships between knowledge and social relations in teacher education? These questions bring focus to the curriculum as an important organizing device in teacher education. That is, they concern the principles that guide the organization of the content and activities of educational programs, as well as their inherent rationalities for professional learning.

The Nordic countries share a history of regulating teacher education programs at national level, through national curricula and guidelines. Although sometimes described as a Nordic model (Ostinelli, 2009), the countries and programs in the region differ considerably in how knowledge is organized and presented to students. Representing two programs for initial...
teacher education are the «research-based» and «general professional» programs.

The first model is often associated with Finland, where teachers have been educated through this model since the 1970s. Finnish teacher educators have agreed on common principles which shall serve as guidelines for research-based teacher education at Masters level. Niemi and Jakku-Sihvonen (2006, p. 40) summarize these as: (i) teachers need profound knowledge of the most recent advances in research on the subjects they teach, of how something should be taught and of interdisciplinary research on the two, (ii) teacher education itself should be an object of study and research, and (iii) the aim is that teachers should internalize a research-oriented attitude towards their work.

Until recently, the second program has been the common model in the Norwegian educational system. This program aimed «to qualify the students for work as a teacher in compulsory education, and promote personal development (bildung) of students». The course is described as «vocational and practice-based» and as being based on «the teacher’s work, on the principles of the Education Act for compulsory education and on the curriculum for primary schools» (Utdannings- og forskningsdepartementet, 2003, p. 12). In 2010, however, a new program was introduced in Norway that offers distinct programs for educating prospective primary and lower secondary school teachers that is presented as a research-based program. In this reform, the Finnish model was a core source of inspiration (Østrem, 2009).

However, what this change actually means is unclear. Although the concepts of «research based» and «general» teacher education are frequently used in debates and policy documents (e.g. Zeichner & Conklin, 2008), few have looked into their differences when it comes to the ways of organizing knowledge and learning and the ways of constructing the professional teacher. This article aims to contribute to these issues by examining the curricular compositions of a Finnish program (exemplified by the curriculum of the University of Helsinki) and the former Norwegian program (exemplified by the curriculum of Oslo University College). The main question raised is: What characterizes the two programs in terms of knowledge structures and knowledge relations?

Based on the differences identified by this question, the article also discusses challenges that can be imagined when it comes to transforming teacher education from one model to the other. Although a research-based program is currently followed at Norwegian teacher education institutions, collective habits, practices and logic do not change overnight.

A curriculum may also be understood as a projected history (Muller, 2009), and the challenges in introducing a new program are likely to be influenced by the degree of similarities and differences with respect to the rationalities and underlying logic of the respective models. By taking a step back and analyzing the knowledge structures and principles for knowledge organization that characterize the curricula documents in a general professional program and a research-based program the article also contributes to a better understanding of the present transition in Norwegian teacher education.

To examine the questions above, the article employs analytical perspectives developed by Basil Bernstein (1999, 2000) and his associates. Bernstein’s work focuses on the organization of knowledge in educational contexts. His conceptions of horizontal and hierarchical organized knowledge structures as well as the framing and classification of knowledge are employed as analytical concepts to examine the first question. To address the second question, the article also draws on Maton’s (2007) notion that with
every knowledge structure there is a knower structure. By identifying knowledge structures and knower structures in the two curricula programs, the article also discusses the kinds of challenges that may emerge when transforming teacher education from one model to the other.

This article is organized as follows. Firstly, the analysis is positioned in relation to previous research on teacher education curricula. Thereafter, the analytical framework and methodological approach are presented. The two curricula are then analyzed according to Bernstein’s conceptualizations. Finally, the possible challenges that may appear when transforming teacher education from a general professional program to a research-based program are discussed.

**Previous research on curricula and teacher education**

There is extensive research that addresses teacher education and questions about how professional knowledge for the teaching profession can be developed. One strand of research concerns the effectiveness and relevance of different forms of knowledge in preparing teachers for professional work (e.g. Darling-Hammond & Fickel, 2006; Darling-Hammond, Macdonald, Snyder, Whitford, Ruscoe & Fickel, 2000; Goodlad & Inkster, 1990; Howey & Zimpher, 1989).

While this research is concerned with the development of models for teacher education programs, it also reflects different visions and conceptions of the effectiveness of teacher education programs and their knowledge base. Another strand of research contends that analyses of educational curricula in general often focus more on the way in which variations in educational content affect social stratification, inequalities and variation in student achievement than on the actual cultural content built into the curriculum (e.g. McEneaney & Meyer, 2000; Zeichner & Conklin, 2008).

The literature on teacher education in the Nordic context is broad, but few researchers have discussed the organization of knowledge in curricula. Some researchers, however, claim to have identified a distinct Nordic model of teacher education, emphasizing the professionality of teachers within a rigorous but flexible framework (Ostinelli, 2009), while other studies have found distinct differences between Nordic programs for teacher education in terms of volume, structure and content.

Rasmussen and Bayer (2010) analyze the different disciplines represented in teacher education and studies in education, comparing teacher education programs in Canada, Singapore, Finland and Denmark. They found that that teacher education programs in all these countries comprise a significant proportion of what the authors call professional knowledge that is, knowledge that is produced within the educational system, about the educational system, and for the educational system. They also found that Finland stands out with a program in which scientific knowledge (produced outside the educational system in a scientific mode) is most predominant.

With closer reference to to the present study, Rasmussen (2008) discusses the implication of transforming teacher education from a program holding a seminarium tradition (like the general professional program) to a research-based program. He argues that the seminarium tradition in teacher education that is salient in some of the Nordic countries seems to be a hindrance to the development of teacher education in research-based programs. Professional knowledge in the two cases holds different premises and relates to different systems with different preferences and criteria (Rasmussen, 2008, p. 331).
Knowledge in the seminarium tradition holds logics closer to the logics of practice (formative, fostering, focus on: upbringing; what works and «best practice»). The logics of a research-based program hold logics closer to the logics of science (explain phenomena rather than answer how to intervene, have theoretical anchoring, knowledge is developed according to specific methodical criteria). The two «logics of professional knowledge» differ substantially and the transformation to a research-based teacher education cannot be reduced to a simple question of academicization, but has to be built on deeper and more fundamental transformative processes (Rasmussen, 2008).

Taking this one step further, Muller (2009) argues that there is an important relationship between the forms of knowledge selected to be included in curricula and how the knowledge is organized for educational purposes. He also distinguishes analytically between «curricula which have conceptual coherence and those which have contextual coherence» (Muller, 2009, p. 216) to grasp the types of relations that are given primacy. Conceptual coherence increases the more conceptually tied the curricula are to the language of the academic discipline. Contextual coherence evolves when the curricula content is tied to the professional context. While professional curricula typically include both types of relations, they might differ in their emphasis.

This rather brief review shows that the inclusion and construction of knowledge in teacher education curricula are not straightforward processes; in fact, the selection and organization of knowledge construct rather different teacher education curricula content, and to some extent, so do the professional knowledge bases of teachers. To increase our understanding of teacher education, there is a need for more focused and detailed studies on specific aspects, such as the knowledge dimension, of teacher education curricula.

**Analytical framework**

Theoretically, there are many perspectives from which one can discuss professions (Krejsler, 2005). One major and commonly used characteristic of a profession is that it has a unique knowledge base. A professional knowledge base is «the kind of specialization considered to be both discretionary and based on abstract concepts and theories» (Freidson, 2001, p. 152). Knowledge within the teaching profession stands out as being different from knowledge in many other professions because the theoretical base is a synthesis of several academic disciplines.

This leads to a multiplicity of possible compositions, structures and relations in the development of teacher education programs. To analyze these issues, this article employs Bernstein’s (1999, 2000) concepts of horizontal and hierarchical organized knowledge structures as well as the framing and classification of knowledge and a selection of concepts from his theorization of the pedagogical device.

Let me start with the pedagogical device. According to Bernstein, «a potential discursive gap» and a site for alternative possibilities and realizations occurs when knowledge is relocated from its original field of production (research) to the field of re-contextualization (curriculum development; Bernstein, 2000, p. 33). However, there is no direct translation from the field of production to the field of re-contextualization (Luckett, 2009). This raises multiple possibilities for selecting and organizing knowledge, or in Bernstein’s conceptualization, re-contextualizing knowledge, when developing curricula.

Moreover, this re-contextualization of knowledge is determined by historical and cultural ideas in the educational community,
which Bernstein calls re-contextualizing rules. Different ways of organizing knowledge in the curricula depend on the specific re-contextualization rules and can potentially create different knowledge discourses. These re-contextualization rules shape «how knowledge discourses reappear in curriculum» (Luckett, 2009, p. 443).

While Bernstein’s theorization of the pedagogical device deals with constructions of pedagogical discourses, his discussion of knowledge structures concerns different forms of knowledge discourses in the field of re-contextualization. Bernstein argues for a differentiation between «horizontal organized structure of knowledge» and «hierarchical organized knowledge structure» (Bernstein, 1999, p. 162). According to Bernstein, hierarchical knowledge structures are produced through explicit, logical systematic processes and develop in hierarchical structures.

This means that knowledge is accumulated through the integrating codes (Bernstein, 2000, p. 162), which, again, means an integration of knowledge at lower levels in more general knowledge and theories. Since hierarchical knowledge structures implicitly hold a discrete language and the distribution of knowledge is exclusive. Horizontally organized knowledge structures are based on «projects from the past» (Bernstein, 1999, p. 167), which means that knowledge develops through the integration of former languages and meanings in new understandings. Meaning is constructed through «serial codes» (Bernstein, 2000, p. 162), and knowledge is seen as agglomerative (Becher & Trowler, 2001). Knowledge is generated and legitimated in a social mode, which requires a knowledge community; knowledge is distributed through re-contextualization on a social basis. A diversity of languages, tools and infrastructures for the learning process is available.

Maton (2007) expands Bernstein’s conceptualizations of knowledge structures and adds a knower structure, to enable an understanding of the discursive practice of intellectual fields. His argument is that specific relations within knowledge itself specialize identity, consciousness, relations and pedagogical discourses (Maton, 2007). He distinguishes analytically between epistemic relations (emphasis on knowledge structures) and social relations (emphasis on knower structures). In this way he creates an opportunity to distinguish between how knowledge is legitimated based on whether the knowledge is justified on the basis of the possession of specialized knowledge, skills and procedures (strong on epistemic relations, weak on social relations) or on the basis of specialized dispositions, attributes and social locations (weak on epistemic relations, strong on social relations) (Luckett, 2009, p. 444). According to Maton (2000, 2006, 2007), it is the relative settings of these two relations that determine the legitimation of a particular knowledge form, and whoever controls the re-contextualization process has the means to shape the field of re-contextualization.

To further investigate how knowledge is organized for educational purposes, Bernstein introduces the concepts of classification and framing of knowledge. By classification, Bernstein means the extent to which disciplinary knowledge is delineated from the content of other disciplines. Different classifications of knowledge display different understandings of knowledge. Strong classification refers to knowledge domains that are highly insulated from other knowledge domains, whereas weak classification refers to domains that have a low degree of delimitation; for instance, in interdisciplinary education. The framing of knowledge refers to «the extent to which there is an explicit and agreed content to be transmitted to students and the degree to
which this transmission is under the control of academics» (Becher & Trowler, 2001, p. 37). Framing also deals with how the knowledge is communicated, for instance, using specialized language versus everyday language. In an educational setting with a strong framing of knowledge, the pedagogical profile will be visible and distinct, while when the framing is weak, the pedagogical profile will be more implicit, tacit and articulated in everyday language. In the context of this article, classification and framing are defined rather narrowly since knowledge elements are in focus, but the concepts may also refer to the distribution of roles and spatio-temporal organization as well.

Bernstein's concepts of horizontal and hierarchical knowledge structures and framing and classification of knowledge are operationalized in Table 1 particularly for the empirical analysis underlying the first research question concerning the knowledge structures and knowledge relations that the two teacher education programs reflect.

Bernstein's conceptualization has been criticized for being too dichotomous (Maton, 2009) or locked in an early metaphorical stage of discussion and thus it should be used more suggestively than explanatorily (Muller, 2007). Bernstein often seems inclined to «pair together» analytically different theoretical categories. Often classification and framing are treated as pairs (weak classification and framing, strong classification and framing); sometimes the polar concepts of «weak» and «strong» are identified with the polar concepts of «invisible» and «visible»; and sometimes horizontal and hierarchical knowledge structures are associated with weak and strong classification/framing. Such «pairing» may be empirically meaningful and warranted, but the pairing is not in all cases logically necessary, and it sometimes blinds the view of other possible combinations. However, this article finds that Bernstein's conceptualizations are still analytically very useful in addressing the problems discussed in this article, and argues that it offers a different and additional contribution to the analysis of knowledge in curricula. The strength of Bernstein's analytical concepts is their «ability to objectify knowledge, enable theoretical progression and to offer concepts that lend themselves to concrete operationalization» (Luckett, 2009, p. 445).

### Analytical approach

This study is limited to analyzing how the knowledge base for teacher education is represented in curricula documents, excluding the level of interpreted curricula (teacher educators) and experienced curricula (student teachers). Thus, this study employs a qualitative and comparative research approach to teacher education curricula docu-
ments. This means looking into how different knowledge areas and activities are represented, reflected and formulated. To do this a content analysis is employed using Bernstein’s vocabulary; that is, «focusing on the underlying structuring principles» (Maton, 2007, p. 90) of the curricula texts.

This approach also emphasizes fluctuating between the parts and the whole in the analysis in order to approach a deeper understanding. This strategy aims to reach beyond helping the reader to understand the diverse and complex texts (Martin, 2003) in order to participate in a theoretical discussion beyond the immediate contexts of this study. The comparative mode is regarded as a process of making the familiar strange through a contrasting mode. Comparison, in this case, makes hidden characteristics more visible and enables a closer look at contextual features, knowledge structures, systems and beliefs (Blömeke & Paine, 2008) in the two teacher education curricula. Methodologically, this article also relies on Prior’s (2004) notion that a document should be approached in terms of what it contains as a medium for thoughts and expressions and what claims the text seems to make for action.

To answer the first question raised concerning the knowledge structures and knowledge relations reflected in the two programs, the two curricula were first read inductively. An overview of the structure of both programs was developed based on initial illustrations and textual explanations in the two curricula (Table 2 and Table 3). The focuses were on the aims, goals and content formulations in the introduction sections; the sections dealing with studies in education/pedagogy; and the sections about practicum. The selected portions of the texts from the two curricula were grouped together systematically under the following categories: selected subject matter (content); arrangement of subject matter (sequencing); knowledge skills and attitudes to be learned (professional ideal and purpose); practicum parts and (types of) learning activities.

These were then compared (and analyzed) across the two programs. After that, the curricula texts were read deductively according to Basil Bernstein’s analytical framework on horizontal and hierarchical organized knowledge structures and the classification and framing of knowledge. The textual identifications for the three analytical concepts are summarized in Table 1, and the analysis is presented in Section 5. The question concerning possible challenges in the transition from a general professional program to a research-based program are addressed in the final section, building on the analysis of the curricula documents. Throughout the whole analysis, emphasis is placed on differences, although similarities are also pointed out. Identifying differences in the curricula and the two teacher education programs will provide learning opportunities, especially for the present transition phase in Norwegian teacher education.

Knowledge structures and knowledge relations reflected in the two teacher education programs

Introducing the curricula

The two curricula documents analyzed are «the general professional program» from Oslo University College (2005) and «the research-based program» from the University of Helsinki (2005). The latter curriculum is identical to the curriculum at the University of Helsinki, effective from 2008–2011. The two curricula analyzed and discussed are quite similar in structure and form. They have a similar main composition: (i) an introductory section setting out the aims and goals of the education program, (ii) a section
with the core curriculum for each school subject taught in teacher education, including pedagogical studies, and (iii) a section presenting the practicum component (student teachers practicing in schools with professional supervisors).

The sub-topics and issues also addressed in both documents include an overview of the program structure, main objectives for the entire education program; distribution of ECTs (the European Credit Transfer System), study methods, assessments and exam structures. The introductory sections, the section with the core curricula for educational studies/pedagogy and the section describing the practicum are included in the following analysis. These components broadly apply to educational theory and practice. Tables 2 and 3 provide an overview of the overall structure and main content of the two teacher education programs, and Table 4 provides an overview of the content of educational studies in the two programs.

**Knowledge included in the curricula**

In the first inductive readings of the two curricula, the following topics were developed as a first structuring device of the analysis: **content** (selected subject matter), **sequencing** (arrangement of subject matter), **professional ideal and purpose** (knowledge skills and attitudes to be learned), **practicum parts and learning activities**.

The conditions for the selection of content and sequencing differ due to the length and level of study (see Table 2 and Table 3). The general professional program is a four-year course of study. The course «Pedagogy» (pedagogikk) consists of 30 ECTs, while a more extensive part of the program is reserved for in-depth studies of school-relevant subjects. Half of the course credits comprise compulsory courses (the first two years), while the rest are selected by the individual student.

The research-based program is a five-year course of study at Masters level. The program includes an in-depth study of the science of education and research methods in addition to designing and carrying out an independent research project. «Education, major subject» (Kasvatustieteen pääaineopintojen) has 140 ECTs. The name of the course underlines the important role that the discipline of education plays in the research-based program. More than two-thirds of the ECTs are compulsory. The research-based program is a multi-module program, opening up for individual progress as long as the requirements for each course are fulfilled. All 19 modules in the program are marked with the requirements of former modules and exams (see Table 4).
The overall professional ideal and purpose in the general professional program is described as «basic professional competence and professional ‘bildung’» (Oslo University College, 2005, p. 5). «Bildung» has philosophical as well as ideological connotations. In the context of Norwegian teacher education, it refers to the process of cultivation toward realizing one’s full potential. In this curriculum, emphasis is placed on norms, traditions and common activities in ways that highlight the teachers’ capacity to exercise professional autonomy and judgment. The «bildung» of the prospective teachers is «based on their own experiences» in a way «that they can analyze and assess different approaches to the

Table 2: Overview of the General Professional Program.

<table>
<thead>
<tr>
<th>Year</th>
<th>ECTS</th>
<th>MATHEMATICS 15 ECTs</th>
<th>NORWEGIAN LANGUAGE 15 ECTs</th>
<th>PEDAGOGY 15 ECTs</th>
<th>CHRISTIANITY, RELIGION AND PHILOSOPHY («KRL») 5 ECTS and LANGUAGE, ARTS/BASIC MATHEMATICS («GLSM») 5 ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td>MATHEMATICS 15 ECTs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>60</td>
<td>OPTIONAL COURSES (30+30 ECTs)</td>
<td>The students can select between 9 different courses (physical education, home economics, music, arts and crafts, English, German, Norwegian as a second language, natural science, social science and multicultural education )</td>
<td>At least 60 ECTs must be courses equivalent to subjects studied in primary education</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>60</td>
<td>OPTIONAL COURSES (60 ECTs or 30+30)</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Table 3: Overview of the Research-based Program.

<table>
<thead>
<tr>
<th>The Research-based Program</th>
<th>BA ECTS</th>
<th>MA ECTS</th>
<th>Total ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMUNICATION AND ORIENTATION STUDIES (Introduction course)</td>
<td>studies on the basics of curriculum planning (planning their studies), academic writing and ICT, language and communication skills, media education</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>MAJOR SUBJECT STUDIES, Education</td>
<td>140 ECTs</td>
<td>19 modules (11+8)</td>
<td>40</td>
</tr>
<tr>
<td>CULTURAL, PSYCHOLOGICAL AND PEDAGOGICAL BASIS OF EDUCATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESEARCH STUDIES IN EDUCATION</td>
<td>(including thesis)</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>PRACTICING TEACHING</td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>COMPULSORY MINOR SUBJECT STUDIES</td>
<td>Subject didactics</td>
<td>120 ECTs</td>
<td>The didactics of school subjects are studied during the first year. Math and Finnish the entire year; other subjects less. The students cannot go through the practice before they have completed the subjects’ didactics courses.</td>
</tr>
<tr>
<td>OPTIONAL MINOR SUBJECT STUDIES</td>
<td>Choice of course(s) in school subject education</td>
<td>40</td>
<td>35</td>
</tr>
</tbody>
</table>
content, tasks and methods of the school» as well as hold extensive knowledge about the steering documents of the school (Oslo University College, 2005, p. 56).

In the research-based program, the objective, professional ideal and purpose, is to educate the «inquiry-oriented teacher» and pursue «inquiry-oriented expertise» (University of Helsinki, 2005, p. 17). Inquiry-oriented or research-based teacher education in Finland aims to combine all studies with research. The curriculum states that the student teachers shall develop pedagogical thinking, personal practice theory and argumentative problem-solving by studying the cultural, psychological and pedagogical bases of education. Also important for the student teachers’ professional development is their own research (University of Helsinki, 2005, p. 18) and their development of research-based argumentation in everyday practice.

The aims for the practicum parts are rather similar and overlapping in the two curricula. When it comes to working methods, the students, according to both curricula, have to plan, carry out and evaluate their own practice in schools. Furthermore, the students must analyze and reflect on their own abilities and development, classroom activities, the school context, the curriculum and the theoretical perspectives connected to practice. One significant difference concerning this analysis is that in the general professional program, the first practice period occurs almost at the beginning of the first semester. The research-based program requires the students to have completed the basic studies in subject didactics (approximately one year of study) before entering the field of practice. The former program argues that experience from the field of practice is a necessity for professional reflection, while the latter suggests that a minimum amount of professional knowledge is necessary to be able to reflect in and on practice.

Knowledge structures
In both curricula, knowledge is organized and sequenced from a multi-disciplinary point of departure toward a more in-depth, narrow focus at the end of the program. In the general professional program, the student teacher has to study pedagogy and the other compulsory courses in the first two years. These first two years constitute the foundation of further professional «bildung» in the last two years, which consist of two or three subject studies based on individual choice.

This indicates that the general professional program can be rather individually composed (50 percent of the ECTs). One teacher can graduate with a rather different education from another. The knowledge base of the prospective teachers will, to some extent, be individualized. This suggests horizontal knowledge structures and is equivalent to what Bernstein describes as «serial codes». The knowledge base is segmentally connected when it comes to the program structure. The courses are not necessarily related to each other, but each of them is explicitly related to the field of practice. Another indication of a horizontal knowledge structure is that the «language of practice» is used in the curriculum, especially in the section on the elaboration of educational studies. This will be further discussed below.

The research-based program is composed of modules. In the first year, there are several modules of subject didactics along with educational studies. The educational studies continue throughout the whole program, progressing from the general to the more specific. «Education, major subjects,» comprises nineteen modules (see Table 4) with separate ECTs distributed between the following areas: «Cultural basis for education,» «Psychological basis for education,» «Pedagogical basis for education» and «Research studies in education.»
However, all the modules are compulsory. An introduction course is also compulsory (see Table 3). The research-based program can be characterized by what Bernstein’s calls «integrating codes». This means that the knowledge from one course is a building block for the next course. The curriculum language is, largely, the language of educational science or, in Bernstein’s terms, «discrete» or «specialized.» In sum, this indicates a hierarchical knowledge structure.

The insulation of knowledge domains
The curriculum for the general professional program describes it as a professional, integrated, and trans-disciplinary teacher education program (Oslo University College, 2005). Extensive space in the curriculum document (two out of six pages in the introduction) is used to describe the trans-disciplinary and integrative character of the program. Individual sections listing bullet points under the headings «trans-disciplinary competencies», «integrative areas and tasks», «trans-disciplinary subject areas and tasks» and «trans-disciplinary content» are included. Some illustrative examples on trans-disciplinary subject areas and tasks are topics such as «inclusive education», «collaborations with parents», «gender equality in education» and «ICT in education».

The trans-disciplinary competencies listed are competence in general and subject didactics; social, cultural, and esthetic competence; expertise to assess fundamental questions; and change and development expertise (Oslo University College, 2005, p. 5 f.). The trans-disciplinary competencies are not further specified in the curriculum. The trans-disciplinary content is related to both the trans-disciplinary subject areas and tasks, and approximately 1,000 pages of readings are designated as trans-disciplinary compulsory literature. The bachelor thesis is also required to have a trans-disciplinary design, depending on the individual student teacher’s interests.

Interestingly, the trans-disciplinary focus is strong in the general professional program text, but not equally strong with regard to how it should be organized. The responsibility for the trans-disciplinary profile is left to all the specific subject matters to organize and teach and to select and discuss problems of interest common to all the subject courses. This indicates that even though a strong inter-disciplinary profile is articulated, the curriculum display is somehow unsettled with respect to how it should be organized.

The research-based program displays a more explicit insulation between knowledge areas. In the core curriculum for «Education, major subject» (see Table 4), specific academic disciplines (e.g., pedagogy, psychology and special needs education) are identified and separated into different modules. Specific areas within disciplines, e.g., development theory, curriculum theory and qualitative and quantitative research methods, are also organized in separate modules.

Boundaries between knowledge domains and everyday knowledge
When it comes to how knowledge is framed, three issues are analyzed: the language used to
formulate the objectives and content of the pedagogical studies; the profile of the school subjects taught in the two programs; and the professional literature listed in the curricula. The main themes listed in the general professional program’s core curriculum for pedagogy are formulated in close convergence with important aspects of teacher practice (see Table 4): «the student and the teacher in the classroom,» «the teacher in the school – cooperation and development» and «the school as an institution» (Oslo University College, 2005, p. 56 f.).

The way in which «bildung» is used in the general professional program creates a close relationship between teacher education and the field of practice:

More specifically, this [bildung] means that the teacher’s competence is seen as a formative process, i.e. a process in which knowledge, attitudes, judgments and skills are constantly challenged and transformed in changing practical-pedagogical contexts and in the face of different and often conflicting views on teachers’ work and school life» (Oslo University College, 2005, p. 56).

The language used to formulate the main objective and aims is to a much greater extent everyday language and concepts from the teacher’s everyday life. It is simultaneously contemporary in character. This means that the objectives take to some extent traditions and «how it is done in practice» as their point of departure. The general professional program is formulated in more of a «common sense language», which, by definition, is recognizable by and available to everybody (Kvernbekk, 2001, p. 8). A more particular, profession-specific language, constituting a particular, professional knowledge base, has a minor role. This indicates a weaker framing of professional knowledge in the general professional program.

Concepts from the science of education are used when describing the core curriculum of educational studies in the research-based program (see Table 4). The aim is to «offer the students tools to be able to structure and operationalize teaching at school» (University of Helsinki, 2005, p. 17). Kansanen (2007, p. 133) argues that one decisive aim for the Finnish research-based teacher education is that it «has to be so general that it is useful in the future, when conception of good teaching, perhaps, will have developed and changed». Such perspectives point toward both present and future-oriented foci. The character of knowledge is manifold and can branch off in unknown directions depending on the teacher’s mode of inquiry. These perspectives indicate a stronger framing and insulation of professional knowledge in the research-based program than in the general professional program.

When scrutinizing literature listed in the two curricula, major differences appear. First, only one international publication is listed in the general professional program, while in the research-based program, almost half of the literature is international. Second, the majority of the literature listed in the general professional program consists of textbooks, written especially for student teachers, and of methodically and practically oriented literature. The research-based program literature includes a higher percentage of research-based literature, introducing the students to a variety of research topics concerning education and teachers’ work. In sum, this indicates a weaker framing of, and mainly context-specific knowledge in, the general professional program and a stronger framing of, and more context-independent knowledge in, the research-based program.
Summing up

In sum, the general professional program emphasizes school subject studies, is constructed segmentally, is practice-oriented, and uses commonsense language. Related to Bernstein’s argumentation, such programs are in danger of creating a diffused knowledge base and weaker manifestation of teachers’ professional knowledge as unique and autonomous. Pedagogical studies are constructed along the same line as, and are similar to, the other school subject studies.

The general professional program aims to educate professionals to adopt an interpretative role in the field of practice. The main approach is to understand and interpret the practice of teaching in a historically continuous and ongoing professional context. The underlying assumption seems to be that the teaching profession is developed through subject knowledge and continuity in the interpretations of and reflections on practice.

The research-based program emphasizes subject didactics and research competence. The program is sequentially organized and formulated in a scientific language. This suggests a more pointed focus, aiming at integrating the complex knowledge field through educational studies and research competence. This manifests the teacher knowledge base as scientific, unique and differing from commonsense knowledge. The research-based program provides an opportunity for an inquiry-oriented attitude toward the teaching profession. Teacher education aims for prospective teachers to not only understand a more or less given practice, but also to develop, renew and change the teaching practice based on existing and developing educational research. Even more, the teacher him/herself is expected to have a researcher’s attitude towards the practice in which he/she participates.

Employing Bernstein’s concepts of horizontal and hierarchical organized knowledge structures and the classification and framing of knowledge in this analysis shows that the general professional program is more horizontally organized and has weaker classification and framing than the research-based program, which has more hierarchically organized knowledge structures and stronger classification and framing (summarized in Table 5).

Table 5: Main characteristics of knowledge structures and knowledge relations in the two curricula.

<table>
<thead>
<tr>
<th></th>
<th>GPP*</th>
<th>RBP**</th>
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</thead>
<tbody>
<tr>
<td>Knowledge structures</td>
<td>Horizontal</td>
<td>Hierarchical</td>
</tr>
<tr>
<td>Classification of knowledge</td>
<td>Weak</td>
<td>Strong</td>
</tr>
<tr>
<td>Framing of knowledge</td>
<td>Weak</td>
<td>Strong</td>
</tr>
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</table>

* GPP - General professional program,
** RBP – Research-based program.

Related to Muller’s distinctions, it can be argued that the research-based program emphasizes conceptual coherence, while the general professional program is characterized by contextual coherence. What consequences does this have for the teacher education programs and prospective teachers’ knowledge base? According to Muller (2009), curricula like the research-based program (with an emphasis on conceptual coherence, a stronger disciplinary focus and more scientifically developed concepts) are more likely to educate professionals with a strong academic identity.
These professionals will typically be better qualified to bind the social to the cognitive and to create innovative professional environments. The contextually coherent general professional program, on the other hand, has a weaker disciplinary foundation and generates identities founded in professional practice rather than in the academic knowledge domain. However, both programs have a strong focus on profession-specific knowledge and teachers’ professionalism.

### Potential challenges in transforming teacher education from a general professional program to a research-based program

The analysis of the curricula document displays different epistemological and ontological positions that must be discussed in a transition phase from a general professional program toward a research-based program. While the general professional program emphasizes contextual coherence (namely the cultural aspects of the profession), the research-based program emphasizes conceptual coherence (that is, the cognitive aspects of the profession).

Both coherence and professional aspects have to do with how the curricula are composed, concerning epistemic and social knowledge relations. The general professional program emphasizes social knowledge relations and individual educational trajectories, while the research-based program emphasizes epistemic knowledge relations and more common and explicit educational trajectories.

This shows that even between the two programs of teacher education, a different «grammar» of the discourse on professional knowledge occurs, different «re-contextualization rules» (Bernstein, 2000) are brought into play and different «logics» (Rasmussen, 2008) appear. Knowledge is legitimized differently. The first one asks immanent questions and legitimates knowledge claims on the basis of empirical evidence and opens up for more space for the knower’s individual dispositions, while the latter asks more transcendental questions in search of legitimacy through theorizing scientifically-based decisions (Luckett, 2010; Maton, 2007; Rasmussen, 2008).

The two represent different solutions for how the teacher’s professional knowledge is «maintained, reproduced, transformed and changed» (Maton, 2007, p. 96). This analysis of the underlying structures in professional curricula texts indicates that a transition from a general professional program towards a research-based program is more complex than changing the curriculum text. The knowledge is re-contextualized in quite different ways. As underlined earlier, historical, political, institutional and cultural forces influence the re-contextualization process.

The analysis shows that the two curricula reflect different «deep structures» containing different rationalities and «rules», e.g., coherence and professionality. Agreeing with Rasmussen (2008), changing the curricula text will not necessarily change the contextual forces and actors involved and/or the institutional structures. Therefore, I will argue that the introduction of a new teacher education program most likely also requires work on these underlying structures and logic in order to change the experienced and practiced curricula. Such underlying structures and logics concern different ways of developing professional knowledge and different ways of communicating professional knowledge and the knowledge is selected on the basis of different argumentations.

The two models specialize practitioners/professionals in different ways, hold different perceptions of the student teacher, represent
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Notes

1 Due to a lack of an adequate English translation of the Norwegian word «danning», I prefer to use the German concept «bildung», which is an idiomatic translation that has scholarly resonance. «Bildung» is a rich, complex and widely discussed concept. However, in this article it strictly refers to how it is used in the general professional program. In the context of Norwegian teacher education, «bildung» refers to the process of cultivation towards realizing one’s full potential. In teacher education, emphasis has been placed on norms, traditions and common activities in ways that highlight the teachers’ capacity to exercise professional autonomy and judgment. It is based on professional experience. This differs from a more academic «bildung tradition» where the emphasis has been on probing into the scientific mode of thought.

2 The translations of the general professional program excerpts were done by the author, while those of the research-based program were done by a representative from the Department of Teacher Education at the University of Helsinki.
Literature


