Erik Bratland

Nord University

PROFESSIONAL KNOWLEDGE IN EDUCATION: WHAT KIND OF ORGANIZATIONAL PRINCIPLES ARE BEHIND THE KNOWLEDGE PRACTICES, AND WHAT ARE THE CONDITIONS FOR DEVELOPING THIS KNOWLEDGE?

Abstract

The integration of theory and practice is the key element in research on professions and their knowledge. This topic polarizes researchers, and while some stress the importance of practical knowledge, for others theoretical knowledge is most important. At the same time, the ongoing neoliberal educational reforms have introduced a new and watered-down concept of knowledge in professional education. With a starting point in Karl Maton's Legitimation Code Theory, this article introduces a set of more nuanced concepts, suitable for studying professional knowledge in education. The article refutes the generic concept of knowledge used by educational authorities and argues that professional knowledge is based on knowledge practices that are informed by specialized knowledge.

Key words: professional knowledge, professions, teacher education, knowledge practices, Legitimation Code Theory, semantic gravity, semantic density.

WIEDZA PROFESJONALNA W EDUKACJI: JAKIE ZASADY ORGANIZACYJNE STOJĄ ZA PRAKTYKAMI WIEDZY I JAKIE SĄ WARUNKI DO ROZWOJU TEJ WIEDZY?

Streszczenie

Integracja teorii i praktyki jest kluczowym elementem badań nad zawodami i ich wiedzą. Ten temat polaryzuje badaczy, gdy jedni kładą nacisk na znaczenie wiedzy praktycznej, dla innych wiedza teoretyczna jest ważniejsza. Jednocześnie trwające neoliberalne reformy edukacji wprowadziły nową i rozwodnioną koncepcję wiedzy w zakresie kształcenia zawodowego. Wychodząc z teorii kodu legitymizującego Karla Matona, artykuł przedstawia zestaw bardziej zróżnicowanych pojęć, odpowiednich do studiowania profesjonalnej wiedzy w edukacji. Artykuł odrzuca ogólną koncepcję wiedzy stosowaną przez władze oświatowe i twierdzi, że wiedza profesjonalna opiera się na praktykach wiedzy, które są kształtowane przez wiedzę specjalistyczną.

Słowa kluczowe: wiedza profesjonalna, zawody, kształcenie nauczycieli, praktyki wiedzy, teoria kodu legitymizującego, ciężar semantyczny, gęstość semantyczna

Introduction

Research on professions has long been marked by considerable differences between the established theoretical approaches (Squires 2005). Sociological research on professions and

professional groups in society is based on the idea that professions are developed on the base of a specific form of specialized knowledge or competence, which is the source of their position in society. Research on professions has long been a sub-discipline of sociology. This research is a part of the wider field of labor sociology (Abbot 1993) and has focused on finding distinct markers of professions, differentiating them from other experts, as well as on how they work to secure their power and standing in society. The other approach, the more pedagogically oriented professional research, emphasizes the occupational challenges of the professions, assuming that they best can be met by acquiring a practically oriented form of learning including practical knowledge (Goodson 2003). Even though both positions imply theories about professional knowledge, they say little about the character of this knowledge, what kind of social and epistemic relations form the foundation of this knowledge. According to Squires (2005), these approaches have in common that they lack sufficiently differentiated concepts in to study professional knowledge adequately. Neither do these approaches answer the question of how the teachers and students' professional knowledge can be developed to a higher level, where knowledge can acquire a more generalized form.

The presentation of professions and their knowledge base, which separates professionals from other fields of work, has become more complicated through the advent of a new leadership ideology, known as New Public Management. The reforms informed by this ideology threaten the position and autonomy of professions in society (Slagstad 2014). This ideology, which has close links to the idea of the growth of a knowledge-based economy in Western societies, has introduced a new model of competence for education in general (Bratland et al. 2016), and for professions in particular. This model of competence focuses on what professionals can do rather than what kind of knowledge they have or should have. With the neoliberal educational reforms, erasing the difference between skills and knowledge, the concept of knowledge of the teaching profession has become more complicated than it used to be.

This article addresses this challenge and uses Karl Maton's (2014) Legitimation Code Theory (LCT), in particular its concepts semantic gravity and semantic density. This theory allows analyzing the characteristic qualities of professional knowledge and shows how professional knowledge can be understood as being contextual and abstract at the same time. The article refutes the neoliberal version of professional knowledge and argues that the practices of teachers and teacher training students should be informed by specialized knowledge.

Professional knowledge and teacher education

Professional knowledge is assumed to be a form of knowledge with distinctive characteristics, in comparison with discipline knowledge. Professional knowledge is formed by a specific form of professional activity, which implies a compounded form of knowledge. What this compounded knowledge consists of and how the single elements can be evaluated and integrated is part of an ongoing debate. This is a debate between different positions that to varying degrees have been influenced by the authorities' reform of professional education. In this section there will be a discussion of central positions, with a special emphasis on teacher education.

The debates about teacher education are to a large degree about the tension between theory and practice and about how the relation between teacher education and the professional

field should be. Despite the ideal that those dimensions should be integrated and should lead to development, they in fact are marked by polarization. Squires (2005, p. 128) has earlier described the dichotomy and identifies two positions, sociological research on professions and pedagogical research, where knowledge has a mental function, often linked to learning through practice. Sociological research on professions has a long history and encompasses theories and sociological analyses of distinct professions, but are marked by a limited focus on the internal relations and specific character of professional knowledge. Vilhelm Aubert (1976, p. 176), the founder of Norwegian research on professions, has earlier defined a profession as „an occupational group with an academic education, a monopoly to execute certain tasks, and with a high degree of follow-up of professional and technical norms". Sociological research is interested in the position of a professional group in society, its power and influence. In his standard work. *The System of Professions*, Abbott (1988) develops a theory about the political and economic influence of professions, how the groups control expert knowledge, and how attention is directed towards the rights and privileges of professions in society. For Abbot (1988, p. 53), professional knowledge can be specified as being „academic" and „diagnostic". Academic knowledge classifications refer to subjects or to disciplines and produce relations and bonds between ideas. Diagnostic classifications are a resource developed for tackling occupational challenges in the profession. All professions have a specific resource bank, a set of taxonomies guiding occupational practice. According to Abbot, the two mentioned classifications are used in occupational practice and in specific cases and comprehensively they provide a specific definition of the profession's knowledge.

There is an alternative version of professions and professional knowledge, rooted in constructivism and sociocultural learning theory, emphasizing practice and practical knowledge (Goodson 2003). Knowledge here is understood as a mental condition, as knowing rather than knowledge, providing competence to the profession and suitable for solving the professional challenges in the field. This approach has in many ways informed pedagogical research on professions, including teaching, and it implies a dawn toning of specialized academic knowledge. The relation between theory and practice is here interpreted with the assumption that a teacher's professional knowledge can be developed based on learning in practice. Donald Schön's book (1990) *Educating the Reflective Practitioner* is a strong defense of this position. With concepts such as „reflection in action," Schön links professional knowledge to the teacher's everyday practice, but at the same time ignores the role of theoretical knowledge. Lave and Wenger's (1991) sociocultural learning theory is a corresponding central contribution in this field. Concepts such as „situated learning" and „community of practice" demonstrate the social character of learning. It is assumed that learning develops in social practices, in interaction with others in a specific context. Situated learning emerges through participation in communities of practice, where learners are involved in collective processes, supervised by more experienced and knowledgeable members. If this process is successful, learners will move from being legitimate peripheral participants to being full participants in the community of practice. This development, from novice to expert, requires the ability to take responsibility for and to solve central work-related tasks in the community of practice.

The idea that practical knowledge is a central category for the professions has been supported by the current neoliberal reforms of the educational sector. The occupational focus of professional education has become a slogan, often used in connection with warnings against academic development of professional education. However, the authorities' new concept of knowledge does not fully match what is defined as practice as the core element of professional knowledge in teacher education. The current neoliberal educational reforms are rooted in what Rune Slagstad (2014, pp. 44-45) has described as the new „leadership ideology" of the authorities. According to Slagstad, these reforms have weakened the professions by replacing professional subject knowledge with other principles and by introducing new mechanisms of leadership and control in the public sector. The educational reforms, which are a part of the new ideology of leadership, have diluted the concept of knowledge in education. The new concept of knowledge encompasses a set of categories with a focus on competence and skills (Bratland et al. 2016). During the preparation of the Norwegian school reform Knowledge Promotion, the teacher's professional knowledge was defined in terms of five fundamental forms of competence: subject-oriented competence, competence of change and development, competence of professional ethics, didactic competence, and social competence (NOU 2003: 16, p. 273). This model of competence, with its focus on skills and generic forms of knowledge, appears to be more concerned with the action competence of teachers than with what kind of knowledge they should have. This concept of knowledge obfuscates the difference between official guidelines, skills, and knowledge. This concept can be called generic (Young 2008), and can be defined as a general form of knowledge lacking conceptual knowledge. According to Abbot (1988, p 103), generic knowledge is a form of classification knowledge, opening a back door for „numerous claimants," exposing professions and professional education to political demands, bureaucratic guidelines and ideologies that in many ways are empty concepts, poorly suited for developing knowledge and for making good decisions. This trend is part of an international wave of reforms and is a threat to teachers' professional knowledge (Young & Muller 2014).

This trend makes it more challenging to identify the characteristics of professional knowledge of teachers. Political intervention in the field leads to a situation where the old dichotomy between practical and theoretical knowledge is being supplanted by a new definition of knowledge in education, emphasizing what teachers can do and de-emphasizing epistemic knowledge. The next section will take up this challenge and introduce a more differentiated framework suitable for uncovering the organizational principles underlying the knowledge practices of the teaching profession.

Conceptualization of professional knowledge: An analytic framework

The aim of this section is to provide a theoretical framework that illuminates the organizational principles underlying the knowledge practices and that provides a more differentiated insight into the forms of knowledge that characterize teachers' professional knowledge. The theoretical development in the field of educational sociology can be characterized as social realism, and particularly Karl Maton's (2014) Legitimation Code Theory (LCT) contains a set

of dimensions and concepts suitable for the analysis of the legitimate codes underlying the knowledge practices of the agents. In this section I focus on the semantic dimension, where practices are illuminated with a background in semantic codes, describes as semantic gravity and semantic density. According to Maton (2011, p. 65-66), semantic gravity can be describes as the degree to which meaning relates to its context, whether that is social or symbolic. Sematic gravity may be relatively stronger (+) or weaker (-) along a continuum of strengths. The stronger the semantic gravity (SG+), the more closely the meaning is condensed within symbols; the weaker the gravity (SG-), the less dependent meaning is on its context.

In a similar vein, semantic density is described as the degree of condensation of meaning within symbols (terms, concepts, phrases, expressions, gestures, clothing, etc.) Sematic density may be relatively stronger (+) or weaker (-) along a continuum of strengths. The stronger semantic density (SD+), the more meaning is condensed within symbols; the weaker semantic density (SD-), the less meaning is condensed.

Semantic gravity describes the external relations to knowledge practices, while semantic density describes the internal relations of these practices. Together they form two relations along a horizontal and a vertical axis, producing a set of semantic possibilities.
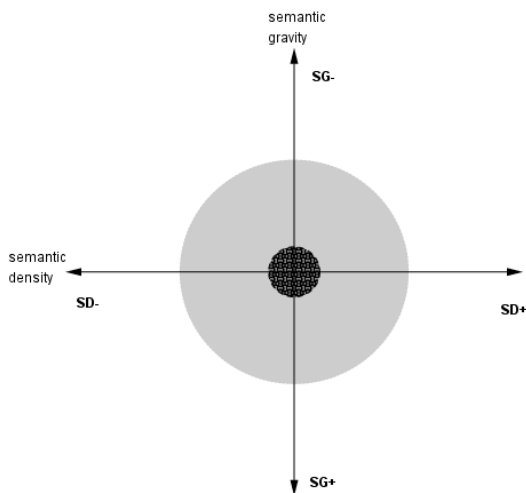

Figure 1. Sematic codes of legitimation (adopted from Maton 2011, p. 66).

All practices encompass both semantic gravity and semantic density, whose degree of strength varies empirically in dependence on the problem situation. Semantic gravity refers to the question of to which degree meaning depends on context. The context-dependency of meaning allows an almost infinite gradation of strength, where strong semantic gravity (SG+) refers to meanings that depend on context while weak gravity (SG-) refers to context-independent meanings. When teacher education students refer to the conditions in a specific school, the words and concepts these students use will be strongly context-dependent. However, to understand and to explain the specific conditions in that school, students will need more decontextualized concepts and theories. Semantic density refers to the degree of condensation of meaning to a concept. A concept that condenses many meanings will have

a relatively strong semantic density (SD+), while a concept that encompasses few meaning will show a weak density (SD-). For example, the concept of social class has a stronger semantic density because it refers to complex ideas, while the concept of classroom will encompass fewer meanings and will thus show a weaker density.

Maton's theory is suited to study the structuring principles behind different concepts of knowledge and knowledge practices. However, as Shay (2013) has pointed out, professional knowledge is the result of processes of re-contextualization of knowledge, formed through education and the curricula that regulate education. With a starting point in analyses of several curricula, Shay has developed Maton's model and distinguishes between four principally different modalities:
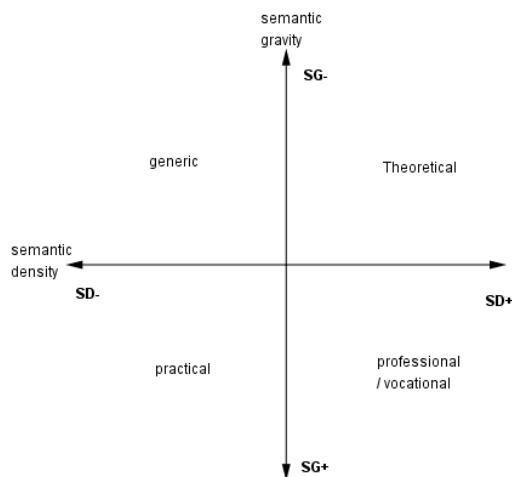

Figure 2. Forms of curricula (adopted from Shay 2013, p. 572).

This model develops a conceptual framework that allows differentiating between different qualification requirements in the curricula: theoretical, practical, generic, and professional. Professional education may require one or more of these qualification requirements, which has influence on knowledge practices. Shay's analysis of the curricula in combination with Maton's (2014) LCT-theory allows defining the principles behind the different concepts of knowledge in professional education:

–   Theoretic knowledge (SG-, SD+), where basic achievements are characterized by relative context-independence and highly complex meanings
–   Practical knowledge (SG+, SD-), where legitimacy is linked to more context-dependent practices with simpler meanings
–   Generic knowledge (SG-, SD-), where meaning of legitimate practices is relatively context-independent, with relatively simple meanings
–   Professional knowledge (SG+, SD+), where legitimacy is related to context-dependent practices that condense abstract and variable meanings.

This overview shows how the different form of knowledge are regulated by different codes. While the debate about knowledge in the teaching profession has been marked by a dichoto-

my between practice and theory, this model demonstrates a dichotomy between generic and professional. Shay's model shows some blind spots in the old debate. This debate eradicates the difference between generic and theoretical knowledge, and it becomes clear that the choice between theoretical and practical knowledge is a false choice for professional knowledge. The semantic codes show that professional knowledge practices are not only regulated by a practical form of knowledge, but that they also encompass abstract and highly condensed meanings. Professional knowledge is characterized by a relatively strong semantic gravity and a high semantic density. The underlying semantic codes create a clear distinction between practical, generic, and theoretical knowledge. Even though practical knowledge has a capacity for density through the development of systematic or principal knowledge, this knowledge cannot turn into theoretical knowledge (Gamle 2004). Respectively, generic knowledge cannot be converted to professional knowledge. The underlying codes create insurmountable barriers between the different types of knowledge, what Young & Muller (2010, p. 15) call the „irreducible differentiatedness of knowledge".

Members of a profession must be capable to combine theoretical and practical knowledge in a number of contexts. In order to be able to solve problems in different contexts, it is crucial that students in teacher education have access to specialized knowledge, which is a prerequisite for „the confident embedding of theoretically informed action in practice" (Clarke & Winch 2004, p. 511). The current neoliberal educational reforms, with their stressing of generic knowledge and their tendency to erase the bonds between the different forms of knowledge, create problems for the professional knowledge of teacher education students. This problem leads to a situation where teacher education students are in peril to develop a knowledge base of a quasi-professional character. This problem will be illustrated below, with examples from an investigation of student papers in social science as part of the Norwegian teacher education.

Generic knowledge or professional knowledge: Some examples from research

To uncover what kind of knowledge students in teacher education develop in their studies, I conducted a case study of student papers delivered in social science at Nord University in spring 2017. In the guidelines that were provided to the students by their teachers, students were asked to write a paper in social science, discussing „selected aspects of school." In the fall term of 2016, twelve student papers were delivered in the module social science 1A. The data from these student papers were analyzed with the aim to identify the semantic codes that inform the students' knowledge practices. Even though several forms of knowledge are expressed in the same paper, the analysis of internal and external relations emphasized the dominating semantic code. An analysis of the papers showed considerable differences regarding the students' understanding of knowledge in social science and showed the following results:
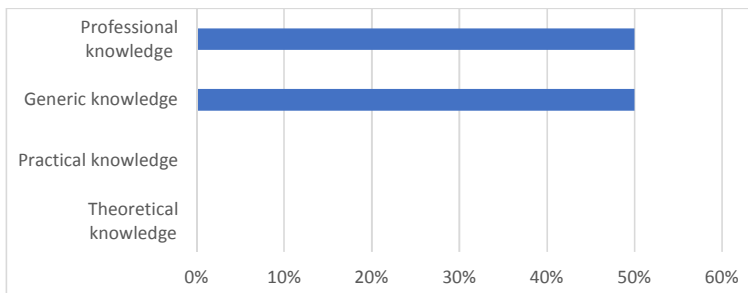
Figure 3. Differences in the students' relation to knowledge in social science.

Figure 3 shows that two semantic codes, generic knowledge and professional knowledge dominate the students' relation to knowledge. A further analysis of the student papers showed a number of differences in the relations to knowledge.

Tabell 1. Differences in the students' perceptions of legitimate forms of knowledge in social science

Generic knowledge (SG-, SD-)	Professional knowledge (SG+, SG+)
Competence	Subject knowledge
Knowledge practices are informed by political documents, laws, and curricula	Knowledge practices are informed by specialized knowledge, retrieved from social science disciplines
Subjective reflections of practice experiences	Experience from practice is interpreted by using concepts
Attitudes, values, and morality	Value-based actions require knowledge
Data have weak or no link to theory	Data are linked to theory

This overview of students' understanding of legitimate forms of knowledge in social science, expressed in their papers, shows how knowledge practices are regulated by different semantic codes. The papers that are regulated by a generic knowledge code are characterized by a relatively weak context dependency (SG-) with relatively simple meanings (SD-), which are of a context-transgressing character. In these papers, political documents, laws, and curricula were understood as „theory." For example, discrimination in school and the work with combatting discrimination was in one paper discussed in the light of various laws and parliamentary reports. Furthermore, there is a tendency that the topic or the problems defined in the paper are understood based on assumed correct attitudes and morality. The papers refer to data retrieved from various national and international reports, however without making a connection to theories and concepts. In these papers, theories are replaced with political documents.

The papers that are characterized as being dominated by professional knowledge are regulated by a different semantic code, providing them with a quite different semantic profile. These papers are relatively context-dependent (SG+) and relate to different contexts in education, linked to concepts and theories with abstract and complex meanings (SD+). Examples

are concepts such as social class or social background; where some of the papers explains why students with well-educated parents do better in school. By connecting social science theories and concepts to educational contexts, concepts become more context-sensitive and form their own complex meaning, resulting neither in discipline knowledge nor in practical knowledge but form organizational principles of their own for the knowledge practices of the profession.

The semantic codes that regulate generic knowledge (SG-, SD-) and professional knowledge (SG+, SD+) are different and provide different platforms for the further development of the students' knowledge. A stronger semantic density implies an integration of concepts into levels with a progressively strong degree of generality. A weaker semantic density implies that the concepts are more loosely integrated and more segmented. Generic knowledge means that concepts are not related to theory and they thus can be characterized as empty concepts, where meanings are linked to the political current of the day. This is knowledge with weak semantic gravity because it is a knowledge that can be applied across different contexts. According to Shay (2013, p. 576), this form of knowledge can be called a „recontextualization of pseudo-practical knowledge" because it is not anchored in specific practices. Professional knowledge has a much stronger semantic density (SD+), with access to conceptual knowledge informing students' knowledge practices. Professional knowledge is characterized by knowledge practices that are informed by theory, providing new ways of knowledge building in education. While generic knowledge has limited potential for further development of knowledge and may lead to segmentalism, professional knowledge allows developing an increasing generalization of that knowledge, which is a prerequisite for knowledge building in education (Bratland et al. 2017).

Conclusion

Research in professional education has long been marked by the dichotomy between theoretical and practical knowledge (Squires 2005). Sociological research on professions starts with the assumption that professions operate based on specific knowledge bases, but without further analyzing this knowledge. Instead, focus is directed on the profession's power and position in society. On the other side, there is an important pedagogical current stressing practical knowledge. Here theory is subordinated to practice and the practice community. Practice and the reflections belonging to it thus become a category defining what we understand as professional knowledge (Schön 1990). The authorities' neoliberal educational reforms, with their introduction of an expanded and generic concept of knowledge, represent a complicating element that creates the need for a more differentiated analysis of the organizational principles underlying professional knowledge in education.

This article introduces an alternative perspective on professional knowledge practices. Maton's (2014) LCT theory, introducing the concepts of semantic gravity and semantic density, allows unveiling the semantic codes underlying different knowledge practices. The forms of knowledge that are unveiled show that the established educational dichotomy of theory vs. practice is a simplification. This dichotomy obscure generic and professional knowledge in

the curricula, and erasing the differences between theoretical and generic knowledge. The debate between the proponents of practical knowledge and of theoretical knowledge creates a form of knowledge blindness. For professional education, this dichotomy of theory and practice presents a false choice. Professional knowledge combines context proximity with conceptual knowledge, developing an increasingly stronger degree of generality. At the same time, semantic codes make us aware that the different forms of knowledge have inherent characteristic traits, a distinction organized by their own organizational principles. Between the different forms of knowledge, there are insurmountable barriers. While practical knowledge can lead to principled knowledge, generic knowledge, as it is found in social science, only provides access to concepts with simple meanings, whose legitimacy is derived from shifting political regimes. Professional knowledge in education is different from these forms of knowledge. Professional knowledge is a form of knowledge created through integrating theory and practice, where specialized knowledge informs professional practice and develops the knowledge base of professions.

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