Balancing evidence-based and experience-based knowledge in education

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Introduction

The point of departure of our homage to Eva Forsberg is two central themes in her extensive academic scholarship, teachers’ professional development and evidence-based teaching practices (Forsberg 2014). In this chapter, we discuss how requirements for evidence-grounded practice in education can merge with professional requirements of contextual considerations and local engagement. We investigate and discuss this issue in connection with the future role of higher education and research in general and within a setting recognized by change, new political and public expectations and requirements, and turmoil. We argue that teacher education particularly is caught in a divergence that often has been thought of as more or less incompatible elements in academia. We discuss the concept of evidence in educational research and professional education and search for a constructive balance between evidence-based knowledge and experience-based practice.

The future role of universities?

At the beginning of this century, the European Commission questioned the future role of universities in Europe (European Commission, 2003). With reference to the lack of developments in the second half of the 20th century, the commission challenged European universities to consider what their contribution to society should be. The EU pointed towards current changes and raised the question: “Can the European universities, as they are and are organized now, hope in the future to retain their place in society and in the world?” (European Commission, 2003).

Education policy initiatives articulated in the international policy arena—such as the question posed by the Commission, the Lisbon Strategy (European Council, 2001), the Bologna Process (1999), and the development of European qualification frameworks—illustrate the eagerness to influence the development of European higher education. Research on European higher education focuses on how policy changes such as the Lisbon Strategy and the Bologna Process have affected institutional strategies and academic
scholarship (Musselin & Teixeira, 2014). A central aspect of these discussions is how the “new academic landscape” of competition, performativity, comparison, and accountability influences knowledge production, curricula, academic work, and professional education (Ball, 2003, 2011; Henkel, 2000). An interesting example is how traditional and disciplinary approaches to knowledge development in doctoral education are considered outdated and in need of change. Social, economic, and environmental challenges demand emphasis on more industrial, professional, and transdisciplinary or interdisciplinary approaches (Rensfeldt, 2013; Jongeling 1999; Khem 2007). This development, seen in Europe as well as in other parts of the world, is part of a more comprehensive trend that emphasizes more practice-oriented and relevant training in higher education. It also focuses on the need for stronger links between theory and practice and for collaboration between researchers and practitioners. The developments in external expectations, national and transnational policies, and institutional strategies are referred to as the applied turn in research, which is said to devalue the importance of basic research (Boucher, Smyth, & Johnstone, 2004; Huisman & Naidoo, 2007; Jongeling, 1999; Khem, 2007; Malfroy & Yates, 2003; McWilliam, 2004; Nerad & Heggenlund, 2011; Rensfeldt, 2013). Another interpretation of the new external expectations and demands is that it reflects necessary adjustments that enable higher education to respond to the complexity of “real-world” problems. The requirement of more practice-oriented and multidisciplinary approaches is pivotal in creating research-based knowledge for political and professional interventions (Boucher et al., 2004).

Higher education institutions are also under pressure from competing knowledge providers outside universities that are emerging within national borders as well as on the European and international arena. These non-university knowledge providers represent a challenge to academia because they often move fast, can rapidly adjust to societal needs and requirements, and offer research based evidence applicable to policymaking and practice (OECD, 2007; Gough et al. 2011; Davies 1999, 2000; Bhatti et al. 2006). A common trait among these knowledge providers is a persistent focus on the development of research-based knowledge for evidence-based practice (Hansen 2014, 2009). The expansion of new knowledge providers the last 15 years not only emphasizes the point made by the EU-question, it also displays how knowledge developed and provided by actors outside higher education institutions is taken seriously and affects decision-making in policy and practice. The strength of these providers seems to be precisely their ability to meet contemporary societal problems with relevant answers and evidence of what works.
Bridging the research–practice gap

Researchers have investigated the hardships of bringing research-based knowledge into the daily work of practitioners and professionals (Nutley et al., 2008, 2003; Levinsson, 2013). The research literature defines this as the theory–practice, or research–practice, gap and highlights the need for bridging that gap (Nutley et al., 2003). A recent example illustrating this situation is the Norwegian reaction to the internationally debated work of Hattie (2009) based on evidence from research synthesis. A range of actors in education, including politicians, educators, and researchers, participated in heated debates not only around the results, the knowledge, and recommendations in Hattie’s study, but also about what kind of evidence shaped the results and the basis of systematic review studies (*Aftenposten*\(^1\)).

The heated debates succeeding Hattie’s study in Norway and elsewhere reflect well-known issues discussed in other academic disputes on the pros and cons of systematic reviews and research synthesis in education (Biesta, 2007; Hammersley, 2001; Gough et al., 2012; Davies, 2000; Hansen, 2014; Levinsson, 2013). Critics emphasize different issues in these debates. One lead argument is that the field of education diverges from other academic and professional fields due to its complexity, contextuality, and local variation (Biesta, 2007; Hammersley, 2001; Clegg, 2005). This leads to the argument that it is hard to generalize findings from specifically focused education research and develop universal recommendations for educational settings in general. Other aspects of the critique focus on an understanding of evidence predominantly grounded in studies of interventions and effects based on randomized control trials. One central position is that this represents an epistemological approach suitable for professional fields such as medicine, but less so for the field of education. Accordingly, the approach is considered not to be transferable to educational policymaking and practice.

Few, however, have questioned the concept of evidence in relation to variations between scientific and professional fields. What is evidence within different social and political fields and in different professions? If teachers have a need for a type of evidence that is different from that of physicians, nurses, and engineers, how do knowledge providers, researchers, and educational programs respond to this challenge?

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\(^{1}\) See a series of articles published in *Aftenposten* in Spring 2015 (for example, 28.5, 7.5, 4.5, 27.4).
Evidence-based policy and practice

On a general level, the increased focus on evidence-based policy and practice relates to several societal developments (Bhatti et al., 2006; Levinsson, 2013; OECD, 2007). One aspect is the increased production and availability to research, information, and data in a digital and global world. Another aspect is a current strong belief in knowledge and evidence as the best basis for policy development and professional decision-making within most fields.

The Organization for Economic Co-operation and Development (OECD) project Evidence in Education. Linking research and policy (2007) explains the expanded emphasis on evidence in education by pointing to a multitude of factors: a greater concern with student achievement outcomes; the explosion of available evidence due to a greater emphasis on testing and assessment; more explicit and vocal dissatisfaction with education systems nationally and locally; and the increased access to information via the internet and other technologies. The accentuation of evidence also references broader issues and focuses the policy-making processes on more legitimate factors (OECD, 2007). These broader issues relate to the introduction of decentralized decision-making within education in most OECD-countries, thus leading towards more responsibilities on the local level. The discourse of evidence has a more prominent role when there is more available information, less national control, a more informed public sphere, and an increase in numbers of authority levels for policy development. However, the OECD report considers a broad spectrum of different types of research, information, and data as evidence. Thus, the OECD operates with a broader understanding of the concept of evidence.

Another approach to evidence in education is to consider it as a “master idea” (Røvik et al., 2015). It is characteristic of master ideas that they travel widely, have an unclear origin, are self-referencing and eclectic, and often lead to reforms. Master ideas spread quickly and forcefully, creating a worldwide discourse among various types of actors at several levels simultaneously. Master ideas tend to be taken for granted; they seem to be self-evident and, as such, are often hard to criticize. For example, it is difficult, on a principal level, to dispute the importance of evidence. Master ideas often lead to reforms because they highlight contemporary problems. They also give a large degree of freedom for local application through high degrees of flexibility (Røvik et al., 2014). Within this perspective, evidence-based practice in education is defined by the type of incontestable knowledge that is produced by systematic review of intervention studies and “what works” studies. This implies, however, a narrow understanding of evidence as a concept. For the purpose of the discussion of evidence in this chapter it seems necessary to deconstruct the concept of evidence-based practice as master idea to reveal several meanings and to open up different interpretations in different political and professional fields. This deconstruct-
tion implies an epistemological discussion, but it also bears pointing out that there is a difference between evidence as a scientific concept and a practitioner’s understandings of evidence. (Røvik et al., 2014 Hansen & Rieper, 2009; Eurat, 2004).

The current advancement of evidence-based practice as a master idea is so expansive that it is characterized as a movement (Røvik et al., 2014; Hansen & Rieper, 2009). The expansion of the evidence-based-practice movement is legitimizing arguments for a more scientific approach in education, particularly in terms of the natural sciences. This points toward applying a rationalistic ideal in the search for truth through documentation of “what works” and emphasizes the universal and generalized nature of research-based knowledge. This may be well documented in medical research and practice; however, there are several reasons to problematize this issue in relation to the field of education, for example, when the aim is to introduce educational measures to resolve issues in varying school settings.

Critics of the evidence-based-practice movement emphasize how contextual variations seem to be ignored and question whether evidence-based practice in principle can be used within the field of education (Biesta, 2007; Clegg, 2005). Others have criticized the linear and top-down logic that underpins and follows the evidence movement (Hammersley, 2001; Biesta, 2007). The main arguments of this criticism are that education, teaching, and learning take place in contexts characterized by unpredictability and complexity and by decision-making grounded in professional judgment and normativity. A fundamental consensus in this critical literature is that evidence-based knowledge, which focuses on studies of “what works,” cannot meet the need for a broader focus in thinking about the relation among research, policy, and practice (Biesta, 2007; Hammersley, 2001; Clegg, 2005).

A study of research and practice relations in education

Education policy expresses high expectations for the use of research, information, and data in schools by teachers and school leaders (OECD, 2007; SKOLFORSK, 2014). On the other hand, research shows how difficult it is to “bridge” the research-practice gap (Nutley et al., 2008). Several theoretical perspectives on the relation between theory and practice have been developed. As discussed by Rasmussen and Holm (2012) and Nutley et al. (2008), we can identify at least five well-known and overarching approaches to the relation between research and practice: 1) the pipeline, rational-linear perspective; 2) the Mode 2 research perspective; 3) the boundary research perspective; 4) the structural coupling perspective; and 5) the interactive perspective (Figure 1).
Figure 1. Perspectives on the relationship between research and practice.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>The pipeline/rational-linear perspective (Rasmussen &amp; Holm, 2012; Nutley et al., 2008)</th>
<th>Mode 2 (Gibbons et al., 1994)</th>
<th>Boundary work (Gieryn, 1995)</th>
<th>Structural coupling (Rasmussen &amp; Holm, 2012)</th>
<th>Interactive perspective (Nutley et al., 2008)</th>
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<td>Research can be directly transferred from research to practice.</td>
<td>Emphasizes solutions to real-life practice problems; main task of research is to be applicable to solving practice problems.</td>
<td>The boundary work between education research and practice is a trading zone over boundaries and what kind of relations that can be established.</td>
<td>Describes how systems relate to other systems and tries to maintain its own independence towards other systems.</td>
<td>Emphasizes the need to adapt and adjust results of research to various contexts through dialogue with and involvement of practitioners.</td>
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The five perspectives in Figure 1 present a range of perceptions\(^2\) of the research–practice relationship in education. For the discussion in this chapter, we present the results of a recent multi-method study of different models and concepts used to map and synthesize research, information, and data within the field of education using the five different perspectives (see Prøitz [2015] for a more detailed description of the study\(^3\)).

The study focuses on international perspectives on research mapping and knowledge synthesis for dissemination of knowledge, as well as scientifically approved methods to improve teaching and learning in education. The research question guiding the study is: What concepts and models for research mapping and knowledge synthesis are in use internationally within the field of education? The study investigates a broad selection of examples of organizations from several countries\(^4\) working with evidence-based practice and their products. The summarized findings of the study can be presented along two dimensions: 1) variation and difference and 2) commonalities and similarities.

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\(^2\) These perspectives are not mutually exclusive.

\(^3\) The study was a part of the Swedish SKOLFORSK inquiry into evidence-based practice in education commissioned by the Swedish Ministry of Education and the Swedish Research Council.

\(^4\) Centre for the use of research & evidence in education (CUREE), Iterative Best Synthesis Programme (BES), Swiss coordinating centre for research in education (SKBF), WZB Berlin Social Science Center, German institute for international Educational Research (DIPF), The Organisation for Economic Co-operation and Development (OECD)
Variation and difference

The study shows that a multitude of different types of institutions work within this line of knowledge brokerage in an attempt to bridge the gap between research and practice. Their products resulting from mapping research and synthesizing knowledge display great and noticeable variation. Characteristics of the bridging work and the products presented seem to vary among countries. The study indicates that there is a divide between more Anglo-Saxon approaches, which are characterized by systematic review and meta-analysis, and more Continental European approaches, which are characterized by various types of synthesis of information, data, and research. The study demonstrates how working for the enhancement of evidence-based practice is influenced by differences in understanding of what evidence means in varying educational settings. It also seems to vary according to differences in research traditions between countries and regions, as well as with what kind of research is available.

Commonalities and similarity

In spite of the variations in types of organization and approaches to synthesizing knowledge, some common traits among the organizations studied can be observed. Organizations with a strong and explicit ambition to improve research-based practice put a lot of emphasis on knowing the contextual situation of the practice field and how research findings can be applied. These organizations show resentment toward the philosophy of “one size fits all,” and the recognition of the need for local adaptation and flexibility have a strong position in their work. Another common feature of the knowledge brokers in education is that they put a lot of effort into work that systematically activates and integrates the knowledge they develop in realistic situations or through structural arrangements. The study’s results imply that organizations that work closely with practice assume a position within the perspective of boundary work claiming a hybrid role, which involve both scientific practice and the use of scientific knowledge. This positioning can be seen in how they synthesize and present relevant knowledge and the tendency to seek a balance between research-based evidence and practice-based evidence. This implies a multi-level and complex working situation located at the boundary between research and practice that contrast the more superficial understandings of evidence-based practice often characterizing policymakers.

At a general level, the organizations studied all have an explicitly stated evidence-based practice objective, but how this is played out varies. Very few of the organizations studied can be placed in relation to only one of the five perspectives presented above (Figure 1). None of the organizations can be placed solely within the pipeline perspective. On the other hand, most of
the organizations work within the perspective of boundary work. In particular, most of the brokers include the interactive perspective, which pays attention to both scientific documentation and the application of scientific knowledge in educational practice. This means that “they in one way or another denote the process of translation from one field to another” (Rasmussen & Holm 2012). This underscores the need for research results to be more applicable to practice—not as something that is being done by academics for or to be transmitted to the practice fields, but in interaction with practitioners and professionals as underlined in the fifth perspective of interaction by Nutley et al. (2008).

Knowledge brokering in particular and evidence-based practice in general addresses the competence and perspective of the knowledge provider. However, evidence-based practice also is dependent on knowledge-creating processes within academia and the competence of the professional teacher.

The knowledge creating processes

Initially we examined how critics argue that European higher education institutions do not promote knowledge-creating processes and educational programs with relevance to social and professional challenges. This critique was also put forward in an evaluation of the Norwegian doctoral programs in 2012 (Thune et al., 2012). The evaluation showed that the programs were of high quality and held a higher rank than those of other countries. The biggest challenge, however, appeared to be the relevance of the doctoral programs to assignments and careers outside the research. The evaluation of the Norwegian doctoral programs shows that few institutions work systematically with innovation in organization and content to meet students’ expectations, the needs of society, and labor requirements. Most higher education institutions do not have strong policies or tools to enhance relevance. Accordingly, more attention on the institutional level should be directed towards the role of education and research in a knowledge-driven society.

Doctoral programs traditionally have been perceived as knowledge creation directed towards academic subjects or disciplines. At the same time, professional programs such as medicine, dentistry, law, engineering, economy, and psychology have a long tradition as academic practice sciences, with research and doctoral programs targeting the development of professional uniqueness and knowledge demand. In recent years, similar demands have been expressed within what we may refer to as the welfare state professions, such as education, health, and social care (Aasen & Rye, 2013).

Strengthening research education and research within teacher education requires that higher educational institutions strive for research embedded in the international research front and draw attention to the social and educational challenges and interests. The institutions must make certain that edu-
cation and research meet the quality expectations of the academic norm and, at the same time, confirm relevance through addressing the professional’s needs, applicability, and practical problem solving.

Accordingly, profession-oriented doctoral programs that focus on teacher education must assure quality and relevance in educational research and meet the educational sector’s need for evidence-based practice. Higher education institutions must establish a balance between discipline-based research and professional-oriented and practice-based research. Furthermore, these institutions must facilitate cooperation between various prominent academic groups and realize that advances in disciplines and specific academic fields on the one hand and profession-oriented knowledge development and applied research on the other hand are mutually dependent. The practice-oriented research draws on the research discipline, but also research in applied contexts contributes to disciplinary development.

We argue that educational research providing evidence for improved practice should be based on some sort of collaborative research design (Tikunoff & Ward, 1983; Kyle & McCutcheon, 1984; Allen & Shockley, 1996; Clark et al., 1996). Evidence to underpin educational practice requires an applied approach. The knowledge-creation process should be characterized by interactive cooperation (Jonsson, 2001). At the same time, we will warn against drawing a too sharp a line between basic and applied educational research (Dahllöf, 2000). New general knowledge in the education field is often gained through more applied and contextual research.

While traditional knowledge creation takes place in a disciplinary, primarily cognitive context, collaborative research occurs within broader, interdisciplinary, social, and applied contexts. Traditional research is characterized by issues raised and resolved through cognitive and social norms of academic sciences, while issues that form the basis for collaborative research primarily originates from complex application contexts (Tinkunoff & Ward, 1983; Gibbons et al., 1994).

The primary purpose of knowledge achieved through applied and collaborative research is to be relevant outside academia, and this aspect should be included in the knowledge-creating process from the very beginning. However, collaborative research does not imply a purely instrumental production of knowledge. The issues in a particular setting targeted by the research should not be addressed merely in neutral terms. The research must take in account different choices, values, and preferences of various stakeholders and users. This means that the application context of the research is assumed complex; it is shaped by broad spectrums of intellectual and social needs. This fact guides the knowledge-creating process from the very beginning and puts the research in a broader context.

In collaborative and interactive efforts to build bridges between theory and practice, the roles of researchers and practitioners sometimes get confused for example in action research designs. Action research often empha-
sizes that practitioners must participate in the research process as researchers. In research, which aims to support, direct and legitimize educational practice, it is necessary to involve teachers in various stages of the research process. However, research requires scholarly competence, and a research-based teacher education should not be mixed up with research education. The strength of professional teaching has its grounding in different forms of knowledge, where knowledge generated through research is important, but not the only form of knowledge that provides the foundation for professional practice. Accordingly, when teachers are involved in research to merge academic knowledge production with professional requirements of contextual considerations and local engagement, it is critical that they participate as teachers and not as researchers. Teacher training as other professional programs should however, qualify for postgraduate research education.

Hence, research that aims to define and give evidence of best practices in the field of education should include different values and preferences. The research process should take into account that in social settings there are various legitimate choices to be made in terms of how knowledge should be generated and interpreted. Thus, research for evidence-based practice cannot be understood in terms of creating and delivering a neutral package of knowledge.

Knowledge facilitators working within the evidence-based practice paradigm accentuate the importance of making sure that the knowledge they provide is relevant and can be used and integrated in situational practices. This challenges the conventional models of research mapping and knowledge synthesis applied in natural sciences and medicine. As we have argued above, in education it challenges the research process and the knowledge-creating process itself.

Research aimed at evidence-based recommendations implies having knowledge and information about the contexts in which the knowledge is created. This presupposes continuous dialogue between the different parties and a process in which various values, interests, and needs are taken into account. In social settings, such as educational practice, research-based evidence should be a product of processes in which demand and supply factors come into play.

Teacher education and evidence-based practice

Evidence-based practice in education challenges the competence of the knowledge broker and the design of the knowledge-creating processes within academia. It also describes demands on the competence of the users of evidence, the professional teachers.

Education as a field in general and teacher education, in particular, have become the center of attention in several countries, where relevance and
quality have been questioned. To strengthen the knowledgebase for teacher education, many countries have concentrated on developing new professional master’s and doctoral programs. Often these developments focus on the need to strengthen the evidence on which teachers ground their classroom practices (OECD, 2007). In Scandinavia, educational and research policy endorses renewed teacher education and quality development in schools through educational research to stimulate research-based practices (for example, SKOLFORSK in Sweden and FINNUT in Norway). Significant in these efforts are concepts like evidence, evidence-based, and evidence-informed practice.

Tension between long-standing traditions of academia and the more practice-, relevance- and professional-orientated approaches is not new within the field of education and teacher training (Aasen, 2008; Aasen & Proitz, 2014). In teacher education, these tensions reflect cross-disciplinary interests and practices and strains between the area of disciplinary pedagogy and the area of professional training. Education is characterized as a re-contextualized scientific field, structured by vertical and horizontal discourses (Bernstein, 1999), where the vertical discourse is grounded in disciplinary pedagogy and the horizontal discourse is grounded in the teaching profession (Sundberg, 2004; Beach, 2011). How these discourses are played out in real life varies. One example, as described earlier, is the introduction of distinctions between professional teacher education with specialized graduate schools focusing on more praxis-orientated research, and disciplinary educational programs, emphasizing basic research in pedagogy (Angervall & Gustafsson, 2015).

The legitimacy of teacher education is that it supplies teachers with a knowledge base and skills that a school needs at a given historical moment. Teacher training has thus a reactive function through the expectation at any given time to mirror the school’s needs and requirements. However, teacher education also has a proactive task in the sense that it should educate teachers who can shape the future of the school. Teacher training should be a mirror for school development and hence for social development. Both of these expectations of teacher education have historically been the basis for political reform initiatives (Hallsén, 2013).

As we have pointed out above, higher education in general is expected to enhance relevant research-based knowledge to strengthen professional practice and interventions. Teacher education is expected to provide a research-based education that draws upon new and relevant national and international research. Educational programs should convey and engage students in scientific work methods, critical thinking, and recognized scientific knowledge. Research-based learning processes promote students' independence, analytical skills, and critical reflection. Through research-based teacher education, future teachers continuously adopt new research-based knowledge and con-
stantly develop themselves, their profession, and their workplace (Aasen & Proitz, 2014).

Teacher education traditionally has had relatively weak research anchoring (NOKUT, 2006). The professional elements of the programs have given priority to practice-based and experience-based knowledge. Accordingly, in teacher education there is a challenge to establish a balance between the different forms of knowledge; research-based and experience-based knowledge must be vetted against each other.

We definitely have the educational research that can provide didactical imperatives. We have research-based findings and knowledge that point towards solutions to practical problems that one should expect in teacher training and in professional practice. Professional autonomy and freedom to choose appropriate methods cannot overrule research-based documentation. At the same time, it is necessary to emphasize that research does not always give immediate pre-packed solutions, even more rarely within the teaching profession. Research often raises more questions than it provides answers. In relation to professional practice in schools, research can draw a clearer picture of an often complex and contradictory social reality, but it cannot remove it.

Research-based teacher education requires a balance between the three main responsibilities of educational research. First, the research implies an analytical exercise. Problems and phenomena documented must be discussed in relation to more general scientific concepts, theories, and empirical findings. Second, educational science as social sciences in general is a critical exercise. It should problematize and conduct critical discussions of established schemes and patterns in schools and professional practice in relation to various values, positions, and patterns of social interaction, power relations, and social organization.

Thirdly, education science is a constructive exercise. Education, teaching, and training knowledge that is gained through research is the basis for initiating and promoting specific forms of educational practice. This, as we have previously argued, is not necessarily an instrumental or technocratic understanding of research applications. Educational research, for example, cannot depoliticize educational policy and educational issues. Education is inherently an ethical and political act (Apple, 1990). Everyone who has been in a classroom knows that solutions to educational problems and dilemmas often depend on value choices. Often decision-making is a trade-off that favors some over others. Research-based knowledge may prescribe, verify, and standardize solutions, but just as importantly, it helps develop a critical and reflective knowledge base for professional conduct.
The future role of the teaching profession

Higher education institutions are expected to take a stronger position to enhance relevant professional training and research-based practice (Aasen & Proitz, 2014). They are expected to focus on the need for stronger links between theory and practice, and collaboration between researchers and practitioners. In this chapter, we have discussed how requirements for evidence-grounded practice in education can merge with professional requirements of contextual and local engagement.

To retain their place in society higher education is expected to emphasize more practice oriented training and more practice-oriented research generating research-based knowledge for political and professional interventions. In this chapter we have discussed the concept of evidence in educational research and how professional education must search for a constructive balance between evidence-based knowledge and experience-based practice. We have argued that evidence-based practice in education challenges the competence and the perspectives of both the knowledge brokerages and research in higher education. With reference to the findings in a study focusing on the research and practice relations in education, we have acknowledged the importance of how evidence-based organizations understand their role as knowledge providers. In synthesizing knowledge and knowledge facilitation, knowledge providers underscore the importance of making sure that the knowledge they provide is relevant and can be integrated into specific situational practices. Evidence based recommendations imply having knowledge and information about the context in which the knowledge, information and data are to be applied. Likewise, the design of knowledge-creating processes within academia should not only seek evidence for what works, but also for when and for whom it works. However, equally important in bridging research and practice, is the competence of the users of evidence-based knowledge – the professional teacher.

Schools develop through national policy priorities, research-based knowledge, its teachers' professional judgment and discretion grounded on both research-based and experience-based knowledge, and value-based assessments and priorities. Hence, the challenge is how higher teacher education can strengthen the research-based and value-based professionalism, and how teacher training can ensure that the profession is developing a coherent conceptual framework, a common language, a unified theory, an intellectual community, and a frame of reference for value-based and knowledge-based reflection and action.
References


