

Exploring the role of research in teacher education and teachers' professional development

Explorar o papel da investigação na formação e no desenvolvimento profissional dos/as professores/as

Explorer le rôle de la recherche dans la formation et le développement professionnel des enseignants

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Abstract

This paper explores and discusses the role of research in teacher education and teachers' professional development. It does so by presenting some perspectives on research-based teacher education and conceptual frameworks for teacher professionalism. The relationship between theoretical and practical knowledge is discussed together with central dimensions of teacher professionalism. Three metaphors and figures of thought for the theory–practice relationship are introduced and discussed: research as a mirror, as a compass, and as a stone in the shoe. Against this backdrop, a couple of examples of models for teachers' professional development through critical engagement and enquiry are presented. Special attention is given to a critical dialogical model for teacher education and professional development that promotes reflective learning through sharing experiences and engaging with theoretical frameworks. This model integrates reflective-analogical, critical-analytical, and interactive self-building processes, enabling teachers and students to transform their knowledge and practices based on new insights.

Keywords: research-based teacher education, teacher professionalism, continuous professional development, theory and practice relationship

Resumo

Este artigo explora e discute o papel da investigação na formação de professores e no desenvolvimento profissional dos/as professores/as. Para tal, apresenta algumas perspetivas sobre a formação de professores baseada na investigação e quadros conceptuais para o profissionalismo dos/as professores/as. A relação entre o conhecimento teórico e prático é discutida juntamente com as dimensões centrais do profissionalismo dos/as professores/as. Três metáforas e figuras de pensamento para a relação teoria-prática são introduzidas e discutidas: a investigação como um espelho, como uma bússola e como uma pedra no sapato. Neste contexto, são apresentados alguns exemplos de modelos para o desenvolvimento profissional dos/as professores/as através do envolvimento crítico e da investigação. É dada especial atenção a um modelo dialógico crítico para a formação de professores e o desenvolvimento profissional que promove a aprendizagem reflexiva através da partilha de experiências e do envolvimento em quadros teóricos. Este modelo integra processos de autoconstrução reflexivo-analógicos, crítico-analíticos e interativos, permitindo que professores/as e alunos/as transformem os seus conhecimentos e práticas com base em novas perceções.

Palavras-chave: formação de professores baseada na investigação, profissionalismo dos/as professores/as,

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Résumé

Cet article explore et discute le rôle de la recherche dans la formation et le développement professionnel des enseignants. Pour ce faire, il présente quelques perspectives sur la formation des enseignants basée sur la recherche et les cadres conceptuels du professionnalisme des enseignants. La relation entre les connaissances théoriques et pratiques est discutée ainsi que les dimensions centrales du professionnalisme des enseignants. Trois métaphores et figures de pensée pour la relation théorie-pratique sont présentées et discutées : la recherche comme un miroir, comme une boussole et comme un caillou dans la chaussure. Dans ce contexte, quelques exemples de modèles de développement professionnel des enseignants par le biais de l'engagement critique et de la recherche sont présentés. Une attention particulière est accordée à un modèle de dialogue critique pour la formation et le développement professionnel des enseignants qui favorise l'apprentissage réflexif par le partage d'expériences et l'engagement dans des cadres théoriques. Ce modèle intègre des processus réflexifs-analogiques, critiques-analytiques et interactifs d'auto-construction, permettant aux enseignants et aux étudiants de transformer leurs connaissances et leurs pratiques sur la base de nouvelles idées.

Mots-clés: formation des enseignants fondée sur la recherche, professionnalisme des enseignants, développement professionnel continu, relation entre théorie et pratique

Introduction

Over the past decade, teacher education in Europe has aligned in terms of policy, largely due to the Bologna process for higher education. This process aims to standardize academic programs and degrees to enhance international mobility (Lawn & Grek, 2012; Nordin & Sundberg, 2014). Consequently, many European countries have transitioned their teacher education to university-based programs, creating a structural similarity across nations. However, significant national differences still exist despite this standardization. Academicization of teacher education has resulted in a stronger knowledge base, focusing on subject knowledge and pedagogical competence. These areas have become central to international research collaboration and the development of higher education for teachers (Harford, 2010).

In what ways have the evolution and transition to university changed teacher education, and what does it mean to be a research-informed teacher? This paper explores and discusses the role of research in teacher education and teachers' professional development. Albeit teacher education and professional development are two different contexts, they share common features and can be seen as parts of the same pathway: the trajectory of 'becoming', 'being', and 'developing' as a teacher. It is also a fact that teacher education and teachers' work over the last decades have become almost inseparable entities within the global discourse on teacher quality and effectiveness (Cochran-Smith, 2012; Robertson, 2012). International reports (whose titles speak for themselves) like *Teachers Matter* (Organisation for Economic Co-operation and Development, 2005), *How the World's Best-Performing School Systems Come Out on Top* from McKinsey & Company (Barber & Mourshed, 2007) and *Creating Sustainable Teacher Career Pathways* (Natale et al., 2013) are all examples of works that have bolstered transnational policy discourse on teacher quality.

The idea of the effective and autonomous teacher has also been an argument in policy rhetoric, along with the increased attention to learner-focused and competence-based 21st-century curricula (Priestley &

Biesta, 2013). The problem here is not that teachers are put at the heart of society but rather how they, from a scientific rationalist logic, are expected to be effective civil servants. Education becomes production, quotas to be filled, and targets to be attained (Biesta, 2015). Teacher quality is then reduced to a question of national competitiveness, accountability, and student outcomes (see Ingersoll, 2011). As Cochran-Smith (2012) argues, making teachers ultimately responsible for the provision of human capital and economic growth turns questions concerning teacher education into “a policy problem, not a learning problem” (p. 34). In terms of teacher education and teacher professionalism, there are a couple of dangers lurking in the shadows. The first is that teachers as professionals are positioned and defined from a technical and instrumental discourse of “classroom ready teachers”. One would hardly argue that early career teachers must be prepared for classrooms, but the main question is, what kind of classrooms? Classrooms are diverse, and students have different backgrounds and needs. Teachers need critical and creative approaches and to be equipped with strategies and tools for developing their practice. However, the backside of the policy discourse of classroom-ready teachers is that it tends to deny research, theory and critique as vital components of teacher education and, ultimately, parts of the professional core of teachers’ work (Furlong et al., 2008).

The second danger concerns the erosion of core values of teacher professionalism. Traditionally, the internal qualities of subject content knowledge, pedagogical and teaching competences, ethics and moral responsibilities have been decided from within the teaching profession (Englund & Solbrekke, 2015; Evetts, 2013). With the influence of neoliberal policy discourses, such characteristics of professionalism are being replaced: to be a professional teacher is equalled with effectiveness, performativity, and compliance as ‘good’ values (Moore & Clarke, 2016).

In this paper, I will first present and discuss examples from research on the meaning of research-based teacher education and how research may inform teachers as part of their professional development. Secondly, I will offer three metaphors and figures of thought for the theory-practice relationship and provide some examples of approaches and models for teacher education and professional development. Finally, I will make some concluding comments.

Research and practice in teacher education and teachers’ work

We usually see theory and practice as two worlds apart and imagine there is a gap between them. The Greek philosopher Aristotle (384-322 BC) distinguished between three different forms of knowledge that, up until this day, remain illustrative: *episteme*, *techne* and *phronesis*. With *episteme*, Aristotle meant theoretical and propositional knowledge, that is, what can be known for certain and verified through reason and observations. *Techne* was defined as practical knowledge and connected to producing or creating things. This was the form of knowledge found in the arts or crafts. *Phronesis*, finally, was equalled with practical wisdom: the ability to make judgments and decisions that were justified, ethical and good for a

certain situation or the common good (Deng, 2020).

Theory and practice are different forms of knowledge but depend on each other (Deng & Luke, 2008). It is like what Frank Sinatra sings in the song “Love and Marriage”: you can’t have one without the other. Still, in history, the relationship between theory and practice has been considered a contest between two powers, where theoretical knowledge stands as the victor (Carlgren, 2015). An analogy of the relationship has been used by Göranson (2009), who described it through the characters Prospero and Caliban in Shakespeare’s *The Tempest*. Prospero – who represents science and theoretical knowing – is stranded on an island where the creature Caliban lives. Caliban represents practical knowledge. He masters the ways of surviving on the island. Prospero is afraid of Caliban but manages to enslave him. In one of the songs, Caliban curses Prospero for having taught him a language that makes him unable to *think* as he used to. In another manner of speaking, thinking in a different language has ‘corrupted’ and alienated Caliban from thinking and doing as he used to.

What Göranson (2009) proposes is that we need to approach the question of the relationship between propositional knowledge, practical knowledge, and knowledge of familiarity as parts of professional knowing from a different perspective. By being active in a practice, the skilled worker is familiar with theories, regulations and methods as integrated dimensions of that practice. However, there might be friction with peers on how to perform a certain task or take on a specific problem due to different perceptions, experiences and examples. This friction caused by differences in experience is essential because the continuous dialogue opens for knowledge exchange, interruption and reflective enquiry. Göranson (2009) states that

[b]eing professional means extending one’s perspective to encompass a broader overview of one’s own skills and that a holistic conceptual understanding is necessary, because if we remove all the practical knowledge and knowledge of familiarity from an activity, we will also empty it of propositional knowledge. (p. 128)

The psychologist Kurt Lewin (1890-1947) once said “there is nothing as practical as a theory”. This statement is easy to sympathise with because it holds an essential truth: engaging with and conducting research is a practice in itself. It is easy to see ‘doing’ and a practical perspective as the heart of teacher education. As Westbury et al. (2005) have claimed, teacher students should not only participate in activities of the daily lives of teachers, such as planning lessons, but also be offered ways of mentoring students and dealing with social conflicts. Research is a way of providing perspective to practical aspects and expanding knowledge into teachers’ work. Theory is perceived as a backbone, not only in teacher education, and highly valued by students (Moreira & Ferreira, 2014), although they may have difficulties in seeing the point of engaging with research. They generally look for practical and concrete examples that may help them as future teachers. In a comparative study between initial teacher education in Portugal and England, Sousa et al. (2021) found differences in how the teacher students related the importance of research in relation to their professional competence as teachers. The Portuguese students tended to emphasise the significance of research to inform practice more than their English peers. This can, to some extent, be explained by structural

and institutional factors: Portuguese students require a master's degree to graduate, while this is not the case in England. Sousa et al. conclude:

When invoked in the context of teacher education and the teaching profession, research is seen as a means of continuous professional development, particularly in the forms most associated with improving teaching, through action research processes or a praxeology informed by reflection. However, training and schools have found it difficult to put into practice the intentions behind this problematisation. (p. 172)

Healy and Jenkins (2009) speak of four different ways students acquire/participate in research activities based on the mode of student engagement and whether content-related or process-related dimensions are emphasized. If the students are 'listeners' and the subject disciplinary content is focused, they are research-led and learn about research results. If the research process and methodical issues are highlighted, students learn how to conduct research and become research-oriented. When students are actively and practically engaged around the question of disciplinary research content, they are research-tutored and participate in discussions on research. Finally, when students conduct their own research according to the scientific process and methodological considerations, they are research-based (Healy & Jenkins, 2009). Another way of putting the role of research in teacher education was presented in a report from the British Educational Research Association and the Action and Research Centre (BERA & RSA, 2014). The report claimed that teachers and teacher educators should research their own practice and be both participants in research programmes and consumers of research. Other important dimensions were that the content of teacher education programmes should be immersed with research-based knowledge and that research should inform the design and structure of these programmes (cf. Munthe & Rogne, 2015; Raminho et al., 2021). These views ring well notions that students should develop critical examination and enquiry as an approach (The Swedish Higher Education Authority, 2015), which is seen as a prerequisite for engaging in pedagogical thinking and reflection for professional development (Toom et al., 2010).

It is not surprising that the arguments for a research-based teaching profession are like those that have been raised regarding teacher education and what teacher students need to know. The social, cultural, and technological changes in society, the increasing complexity of how students learn and the challenges with classrooms characterized by diversity and special needs require teachers to be prepared to collaborate, share knowledge and be research literate to master and adapt to changes (Darling-Hammond, 2006). For example, action-research approaches have been suggested as a key factor for how theory and research can stimulate enquiry into practice and enhance teachers' own learning through increased awareness of the relation between deepened knowledge and their own actual teaching practice (Colucci-Gray et al., 2013). However, research-based content is no guarantee and in a Swedish study by Alvunger and Wahlström (2017), it was clear that students typically do not encounter original research, except for scientific journal articles, which constitute about 10 per cent of the literature. The course literature in teacher education programs mainly consists of textbooks, a format that, on the one hand, can hinder students from developing critical arguments but, on the other hand, help them explore current research fields and areas through

overviews (Wahlström & Alvunger, 2015).

Sachs (2016) emphasizes fostering a dialogue that encourages a collaborative and research-oriented teaching profession. She advocates for developing a professional teacher identity that is enriched and shaped by consistent classroom research, a perspective also supported by Cochran-Smith and Lytle (1999). Drawing from Evetts' (2011, 2013) two discourses of professionalism – occupational (democratic) professionalism and organisational professionalism – and between the aim of developing functional competences or attitudinal development, Sachs (2016) distinguishes four types of teacher professionalism. In a modified figure based on Sachs' model and typology (Figure 1), different categories of teacher professionalism are identified, each of which highlights distinct aspects of knowledge related to both teacher professionalism and teacher education:

FIGURE 1

Four typologies of teacher professionalism based on Sachs (2016, p. 421)

Aim: Development of instrumental and functional competences

Organisational professionalism	<p><i>Controlled professionalism</i></p> <ul style="list-style-type: none"> - Skills-focused - Accountability and performativity, standards and measurement of outputs - Receiver of knowledge 	<p><i>Professionalism as performance</i></p> <ul style="list-style-type: none"> - Reforming of practice slow - Role-modelling and learning through imitation/iteration - Knowledge transfer 	Occupational professionalism
	<p><i>Collaborative professionalism</i></p> <ul style="list-style-type: none"> - Teacher networks, collegial groups - Processes for developing practice for organisational purposes and ends - Knowledge as reflective learning 	<p><i>Research-engaged transformative professionalism</i></p> <ul style="list-style-type: none"> - the teacher as practitioner researcher - critical enquiry - generation of new knowledge for reshaping practice 	

Aim: Development of approaches and mind-set

In the first category, labelled as controlled professionalism, the focal point is the responsibility of the government and the local school authority to provide and ensure the quality of education. The understanding of teacher professionalism is foremost shaped by the aims and values of the organization, expressed in policy documents and guidelines. Within this category, we may find neoliberal notions of teacher effectiveness and performativity, which were raised in the introduction of this paper. Here, knowledge concerning teachers' competency development primarily revolves around the skills they need to acquire to improve as educators from a technical and instructional point of view. In this context, teachers are seen as rather passive recipients of knowledge, being upskilled to increase student performance and attainment. The second category, professionalism as performance, builds on values of occupational professionalism, shaped within professional communities and relying on collegial authority. This discourse

rests on mutual trust between practitioners, employers, and clients. It hinges on practitioners' autonomy, discretionary judgment, and assessment, especially in intricate cases (see Evetts, 2013). However, this category leans towards functionality and performance and is largely compliant with government reform agendas. This implies that teachers are viewed as professionals adapting their teaching practices to effectively impart the required knowledge to students. Compared to controlled professionalism, this perspective likens the teacher's role to that of a craftsman modifying existing methods to meet specific educational goals.

Moving on to the third category, collaborative teacher professionalism, teachers operate within a framework shaped by organisational aims and values, and governance. Organisational professionalism incorporates rational-legal forms of authority and hierarchical decision-making structures. It emphasizes standardized work procedures, practices, and managerial oversight and relies on external regulations and accountability measures, including target setting and performance reviews (Evetts, 2011). The emphasis is, however, to develop approaches among teachers/teacher students. Thus, this approach emphasizes process-oriented knowledge and encourages teachers to collaborate within networks. Central themes include revisiting and renewing teaching methods, fostering reflective practices, and promoting professional independence. Lastly, the fourth category, research-engaged transformative professionalism, portrays teachers as independent actors who freely reshape their practices based on new knowledge. They may function as consumers or producers of research, demonstrating autonomy in modifying their teaching methods and embracing innovative approaches. This is not to say teachers are to be described as 'lone wolves'. Collaboration and engagement in critical enquiry are essential. Foremost, it is important to see teacher learning and teachers' professional development from a holistic perspective. Sachs (2016) concludes that:

Under the right conditions, teacher learning will be inquiry oriented, personal and sustained, individual and collaborative. It needs to be supported by school cultures of inquiry and be evidence based: in such cultures where evidence is collected and the complex nature of teachers' worlds of learning and teaching is valued and where simple questions provoke thoughtful action. (p. 423)

What Sachs (2016) highlights is that in suitable environments, teachers' learning becomes enquiry-focused, personalised, and continuous, encompassing both individual and collaborative efforts. This also requires a school culture that focuses on questioning and relies on evidence.

Three metaphors for theory-practice relationships: Mirror, Compass, and Stone in the shoe

In this part of the paper, I will continue to explore the role of research in teacher education and teachers' professional development but from a somewhat different angle by presenting three metaphors. While metaphors may reduce meanings and complexity, they are also powerful and helpful vessels for providing perspective and encouraging divergent thinking (Cochran-Smith, 2002). They offer ways to share human

experience through figures of thought and enable us to talk about practice and delve into the conceptual integrity of professional language. In the following, I will use three metaphors for theory-practice relationships: mirror, compass and “stone in the shoe”.

Characteristic for talking about one’s practice is the use of examples, and examples constitute essential elements for our understanding and the ways we make sense of the world (Nordenstam, 2009). Examples and metaphors thus allow us to approach the world of practice from a practical point of view, or as Åberg (2008) has phrased it:

To study a practice is basically an ambition to enhance one’s repertoire of ways to handle the surrounding world. If the world is ambiguous, then the language that will describe the practitioner’s relationship to this world must be able to express the inherent contradictions we are interested in. In this commitment, we have no use of a formal concept that we have provided with a metaphysical content as the basic pattern of reality. It is rather the ambiguity we want to experience, through examples, whether they are expressed in words or in actions that we can observe and reflect on. (p. 100)

Åberg (2008) suggests that we must come close to practice by actively listening and including concepts and repertoires. Against this backdrop, firstly, I argue that research may provide *a mirror* for students and teachers, something that they can reflect themselves and their practice. Teachers must make complex decisions based on the purpose and goals of education, content, contextual conditions, knowledge about the learner and pedagogic methods. The balancing of content and context in teachers’ curriculum-making rests on conscious choices of actions where teachers are perceptive and aware of the next steps. However, due to classrooms’ contingent and situational character, we also know that teachers sometimes must act intuitively (Alvunger, 2021). When they do and are asked to account for their actions, they use examples or analogies to capture and express experience. As Sachs (2016) puts it, this can be a part of collaborative professionalism – discussing examples and dilemmas with peers for reflective learning.

An essential aspect is that teachers’ practice needs to become visible and that tacit dimensions are articulated. The “dialogue seminar method” is a way of doing this. The method is crucial in professional development and knowledge acquisition across various fields today. Professionals often communicate their skills using personal, reflective, and narrative language, employing examples, metaphors, and analogies to convey meaning. This approach involves analogical thinking rather than hypothetical or abstract theorizing (Johannessen, 2002). Through the dialogue seminar method, professionals can articulate and express specific aspects of their practice and experiences. Typically, a group of 6-8 participants convenes, engaging with designated ‘impulse texts’ such as dramas, poems, novels, philosophical excerpts, pictures, or movies. These texts stimulate associations, images, memories, reflections, and work-related experiences. Participants prepare by actively reading the text and jotting down spontaneous thoughts and reflections in the margins. These notes are then compiled into a personal text, which is shared during the seminar. During the seminar, participants openly discuss their personal texts without criticism. Emerging central themes, patterns, and concepts are documented in an ‘idea protocol,’ summarizing and interpreting the seminar’s discussions. This protocol, along with new impulse texts, guides subsequent seminars, creating a reflective and hermeneutic

spiral. This process can also be enriched with lectures, drama, and music (Hammarén, 2002; Hammarén & Göransson, 2006).

The “dialogue seminar method” encourages the exploration of universal traits and the unique characteristics of each profession within an intersubjective context. Ultimately, it rests on a practical epistemology developed by Schön (1987). Schön sees knowledge as embedded in – and thus inseparable from – practice. Experts do not apply theoretical knowledge to solve practical problems but display a ‘knowledge-in-action’ where a repertoire of previous examples of actions is used as models for dealing with new practical situations. Linked to these new situations, Schön proposes that professionals engage in ‘reflecting-in-action’, allowing them to contemplate unforeseen situations and carry out ‘experiments’ that result in a fresh comprehension of the experience and a transformation in the scenario. Thus, when actions do not help to handle a certain situation or solve a problem, the need for reflection-in-action becomes vital. It is a way of practically experimenting that makes thoughts and ideas visible. This is also why the mirror is a tangible metaphor for how teachers and teacher students engage with research.

Secondly, an approach based on research and critical enquiry may provide a *compass* for a heading and focus. It may direct our attention towards something or help us navigate a complex landscape. However, teacher students might experience difficulties when applying the knowledge they gained in academic courses in practice. Sometimes, they feel that their education does not adequately prepare them for their future profession (e.g., Klette, 2002). There are similar observations regarding how teachers experience research. Studies show that they find it too abstract and difficult to translate to their own context and practice – the so-called lost-in-translation problem (Hultman, 2018). How should research results be interpreted and understood? What practical use is there for theory? An important aspect here is that practice is not applied theory. As Ryle (1949) claimed, it is possible to distinguish between ‘knowing that’ – which Ryle defined as propositional knowledge – and ‘knowing how’ – practical knowledge. However, thinking and acting are inseparable. Therefore, it is wrong of us to think that propositional knowledge precedes intelligent actions because using it is a practical operation.

A problem with the *compass* metaphor is that the needle of research can sometimes point both towards the north and south at the same time. It is rare that research results clearly point in the same direction, at least not if researchers use different concepts, theoretical points of departure and different methods for their studies. From such a point of view, it is wise to consider if the research task really is to develop ready-made solutions with universal claims to be enacted on a large scale, a point that is raised regarding applying evidence-based and clinical research on teachers’ work (Alvunger & Wahlström, 2017). This is a fundamental critique of the evidence-based teacher movement (Biesta, 2015). However, if we consider the *compass* metaphor from a perspective of being research-oriented and research-based (Healy & Jenkins, 2009), there is an emphasis on the process of using theory and research to provide perspective and explore potential changes to practice.

Drew, Priestley and Michael (2016) have developed a model for what they call Curriculum Development through Critical Collaborative Professional Enquiry (CCPE). This model is a good example of how research

can be seen as a compass providing orientation and direction but also for interruption, which means elaborating with a conceptual framework based on academic readings for testing different approaches and strategies in practice. The initial stage in the CCPE model is a conceptual phase where the teachers discuss and seek to make sense of the 'big ideas' and central concepts of the curriculum or to an area or phenomenon related to, for example, school development. The methodology is inspired by action research, and the next stage encompasses three phases: focusing, interrupting, and sense-making. Drew et al. argue that current policy, by emphasizing the teacher's central role, often excessively stresses individual capacity, overlooking the cultural and structural aspects of education that significantly influence agency. In the first phase of focusing, participants engage in professional discussions about developing a school-based curriculum to pinpoint specific areas of interest or concern in their teaching methods, subject matter, or assessment techniques. Throughout this stage, they refine their focus by critically analyzing research and academic literature. This critical engagement helps them formulate the enquiry to challenge current practices. In the second phase of interrupting, CCPE groups disrupt their existing methods by experimenting with new approaches. They continue to adjust their conceptual framework through ongoing critical discussions and readings while implementing changes in their practices, observing shifts in their knowledge, understanding and teaching methods, and their students' learning experiences. Sense-making – the third phase – focuses on collaborative sense-making by critically analysing gathered data and interpreting evidence. During this phase, the CCPE group evaluates the impact of their interventions and prepares a 'report' for dissemination within their educational community.

The CCPE model not only stands as an example of how a research-based approach may serve as a compass but also clearly emphasizes the significance of sense-making and interruption. This brings me to my third point: research may be characterised as *a stone in the shoe* in that it provides interruption and critical engagement in terms of questioning existing practices or "truths". Dewey (1929), for instance, argued that teachers should adopt a critical stance and use research as an intellectual tool for developing one's own practice, that is, an approach to use actual and available knowledge to observe, investigate and draw conclusions from the own teaching to improve it.

Together with a colleague, I have experimented with a critical dialogical model for teacher education to enable an intersection between critical theoretical analysis and meta-reflection on experiences and best practices to generate new knowledge. The aim is to foster a 'critical self', providing a foundation for developing teacher professionalism (Alvunger & Adolfsson, 2016). We build our argument on the same epistemological foundation with an integrative view of 'knowing that' and 'knowing how' as Ryle (1949) and assert that theory and propositional knowledge can be seen as a reference point that, at any given moment, which allows individuals to navigate and establish a direction among various possible paths. In this sense, theory possesses epistemological significance by virtue of its outsider perspective. It provides analytical concepts and a systematic framework that facilitate abstraction and problematization of a specific practice and the ongoing activities associated with it. Concurrently, the theory relies heavily on experiences and context-specific knowledge derived from the same practice. This practice serves as the basis for the

content and the current focal issues, such as those in teacher education. Additionally, practice is essential for continually applying, testing, and revising the existing theory (Alvunger & Adolfsson, 2016). Following Kögler's (1996) argument, this process can be likened to a dialogue between theory and practice, aiming to collaboratively enhance the understanding of the practice coherently. In essence, the critical dialogical discourse involves a discussion and scrutiny of specific content originating from practical experiences, where the practitioners themselves play a central role in this dialogue. Its primary objective is to establish a reflective distance among the practitioners, enabling them to engage in new thinking and gain fresh insights into the practice: a process of "reflexive incorporation and differentiated fusion of both perspectives in one and the same agent" (p. 267). The main three elements of the critical dialogical model are illustrated in Figure 2:

FIGURE 2
The critical dialogical model

Source: Alvunger and Adolfsson (2016, p. 69).

The processes in the critical dialogical model are intricately connected and correspond to the diverse modes of knowledge mentioned earlier: explanation, understanding, and change in teaching and learning. While these modes of knowledge are conceptually distinct, in practice, they merge into a unified whole. Besides fostering a critical self, the rationale of the model aligns with Cochran-Smith and Lytle's (1999) conceptualizations of knowledge in teacher learning: 'knowledge-for-practice,' 'knowledge-in-practice,' and 'knowledge-of-practice', which are ways of reconciling the importance of university-based knowledge and the significance of teachers' locally situated knowledge.

The first process is the reflective-analogical process, which delves into students' and teachers' experiences, reflections, memories, and thoughts, both individually and collectively. It aims to enable them to engage with their professional experiences (for students during placement studies) or practical situations and dilemmas (Alvunger & Adolfsson, 2016). This process can be compared with the typology of collaborative

professionalism that Sachs (2016) has identified, meaning that it promotes reflective learning through sharing experiences. Reflection, a potent tool for accessing tacit knowledge acquired through socialization, is employed. This tacit knowledge isn't something hidden within individuals; it must be articulated, drawing upon the creative and sensitive aspects of the human mind. Dialogue seminars – as described above – are used, complemented by personal logs, to make thoughts and emotions related to professional experiences explicit. This process involves analogical and metaphorical thinking, revealing universal dimensions through examples and metaphors shared in the seminar discussions (Alvunger & Adolfsson, 2016).

The second process, the critical-analytical process, serves a different goal and is similar to the interrupting phase in the CCPE model described previously (Drew et al., 2016). Here, students and teachers explore recent research, create overviews, construct problems, and develop theoretical-analytical frameworks. By integrating research findings, they build propositional knowledge about specific topics or content. In this analytical process, students and teachers distance themselves from the object of study, adopting an observer's role. They critically analyse phenomena, experiences, examples, texts, etc., from an external perspective informed by theory and research. The use of theoretical perspectives elevates discussions from concrete examples to abstract and general theoretical levels, employing critical-analytical thinking as a way of creating interruption and questioning (Alvunger & Adolfsson, 2016).

The third process, the interactive and critical self-building process, involves the interplay between the reflective-analogical and critical-analytical processes. This meta-level process is challenging to explicitly describe. It encompasses the interaction between knowledge of and knowledge in, transforming into knowledge for change. This knowledge is the foundation for action, judgment, and questioning, grounded in informed decisions and theoretically and conceptually robust arguments (Alvunger & Adolfsson, 2016). To conclude, the interactive and critical self-building process can be largely related to Sachs' (2016) typology of research-engaged transformative professionalism, where teachers as researchers reshape their practices based on new knowledge.

Concluding comments

Research in teacher education and teachers' professional development serves multiple roles: it provides perspective, expands knowledge, and stimulates inquiry into practice. It nurtures a research-oriented mindset among teachers, encouraging them to be both participants and consumers of research. However, integrating research into teacher education also presents challenges, particularly in providing practical and concrete examples to students. The balance lies in fostering critical examination and enquiry, which is crucial for pedagogical thinking and professional development. In this respect, Sachs' (2016) typology of teacher professionalism offers a nuanced view, where the ideal scenario involves teachers engaging in enquiry-oriented, personal, sustained, and evidence-based learning within supportive school cultures.

Metaphors may be powerful tools for understanding the complex relationship between theory and

practice in the field of education. The *mirror* metaphor represents how research can reflect teachers' and students' practices. Teachers often make complex decisions based on various factors, and research acts as a mirror, enabling them to reflect on their actions. The dialogue seminar method plays a significant role in making the tacit dimensions of teaching visible, allowing professionals to articulate and share their experiences through examples, metaphors, and analogies. This reflective process, akin to Schön's (1987) concept of 'reflection-in-action,' helps teachers navigate ambiguous classroom situations. The *compass* metaphor signifies research as a guiding tool, providing direction and focus in the complex education landscape. However, research findings are not always straightforward; they can point in different directions due to varying methodologies and theoretical perspectives. Despite these challenges, research can still offer orientation and facilitate critical collaborative professional enquiry. The CCPE model (Drew et al., 2016) exemplifies how research can guide teachers through phases of focusing, interrupting, and sense-making, allowing them to challenge existing practices and make informed decisions.

The metaphor of the *stone in the shoe* represents research as a disruptive force that questions existing practices and beliefs. Teachers are encouraged to adopt a critical stance, using research as an intellectual tool to improve their teaching methods. The critical dialogical model for teacher education promotes reflective learning through sharing experiences and engaging with theoretical frameworks. This model integrates reflective-analogical, critical-analytical, and interactive self-building processes, enabling teachers and students to transform their knowledge and practices based on new insights. In essence, bridging the gap between theory and practice in education requires embracing research as an integral part of the teaching profession. Teachers need to be active participants in shaping their own knowledge, continuously engaging in research, enquiry, and critical reflection. Through this dynamic interplay between theory and practice, educators can navigate the complexities of modern education, adapt to societal changes, and provide meaningful learning experiences for their students (Alvunger & Adolfsson, 2016).

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