

1 Transforming teacher education through innovation

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Introduction

Teachers are key agents in educating citizens for the future, and they face challenges related to equity issues and in preparing students to handle complex environmental, economic, and societal challenges related to sustainability both today and in the future. Sustainability calls for transformative teacher education (TE) that can make a difference and promote self-transformation and the transformation of schools and societies (Wolff & Ehrström, 2020). A transformative perspective on learning, teaching, and education emphasizes the importance of an inquiring attitude to challenges and acting based on acquired knowledge about what will be the best solution (Mezirow, 2009). A transformative perspective encourages a research-oriented, proactive, and forward-thinking mindset. Thus, a transformative TE implies that educational programs are subject to continuous quality development and that they foster transformative agency among teacher educators and prospective teachers (Lund & Vestøl, 2020). Moreover, transformative agency is a vital competence for school leaders and teachers to act as change agents in schools “who can successfully transform aspects of how organizations operate. In education, teachers as change agents are increasingly seen as vital to the successful operation of schools and self-improving school systems” (Brown et al., 2021, p. 1).

Transforming teaching quality in schools through university-based teacher education

Internationally, there are two main strategies for designing TE programs. One aims to strengthen the dominant university-based system of TE and professionalize TE, while the other promotes greater deregulation and privatization, with shorter teacher training routes taken in schools (Hoban, 2004; Zeichner, 2014). In several countries, there are training colleges that hold a lesser academic standing than universities where universities have only a minor role or are excluded. For instance, some countries appoint unqualified people to teach in schools and then provide teacher training in schools (Menter & Flores, 2021). Orchard and Winch (2015) point out that, in England, the place of

educational theory and research in TE is in serious jeopardy. They draw attention to the observation that, in recent years, there has been “a concerted and systematic move toward a school-led system of initial teacher training,” where “the role of universities, and particularly their part in engaging new teachers with theory, has been radically challenged” (p. 5).

TE in Norway has developed with a strong emphasis on the research-based and practice-oriented professionalization of TE programs led by universities and university colleges. In the past decade, reforms have emphasized the development of research competence for student teachers, enabling them to continually develop their own and the school’s collective practices (Norwegian Ministry of Education and Research, 2018). Simultaneously, the Norwegian government started a new program for developing centers of excellence in teaching in higher education. The first center was to work with the development of TE in that TE programs were seen as fragmented and not responsive to the ideas of program coherence for all involved participants, including student teachers, university staff, and mentors in practice schools. With the government calling for more research-based TE relevant to practice, the inclusion of a research strand culminating in a master’s degree became an important innovation area for combining these ideas. Societal changes, including the introduction of digital resources in higher education and in schools, as well as issues related to sustainability, democracy, and classroom diversity, were also important to be introduced into TE programs.

National Center of excellence in teacher education: A driving force for transforming teacher education in Norway

The first National Centre of Excellence in Higher Education in Norway was awarded on December 15, 2011, to the University of Oslo (UiO, the host) and UiT The Arctic University of Norway (UiT). The center, called ProTed (Center for Professional Learning in Teacher Education), was created to stimulate the development of excellence in teaching while contributing to a knowledge base on quality features in teaching and learning. Established in 2012 as a consortium between the two universities, ProTed’s goal was to develop “excellent” research-based TE in cooperation with partner schools. The timing of the award was strategic because Norway moved toward implementing five-year TE programs starting in 2017. ProTed was funded for a 10-year period (2012–2021) as a developmental unit, as a national provider of insights, and as an internationally recognized partner for the development of a knowledge base for TE. Center funding was used to initiate and organize the internal development of innovation and allow staff time to evaluate and disseminate successful ideas. The center was housed within the structure of the two participating TE institutions such that all teacher educators and program leaders were connected to activities within the center.

ProTed worked as a catalyst for research and development through systematic interventions, evaluation, and dissemination within integrated five-year

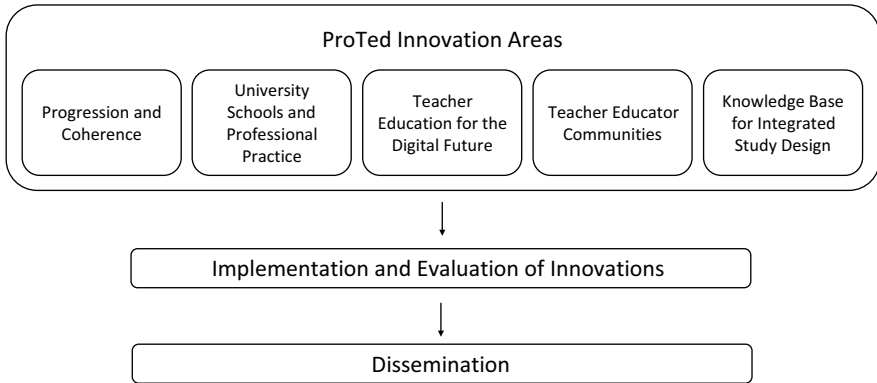


Figure 1.1 The ProTed model for transforming teacher education through innovation and dissemination.

TE programs. Based on the challenges facing TE, the ProTed center identified five thematic areas during its 10-year funding period (2012–2022): 1) progression and coherence in program design, 2) development of a knowledge base for integrated program design, 3) university schools (partnerships) and professional practice, 4) TE for the digital future, and 5) building TE communities. Implementation and evaluation, followed by the dissemination of successful innovations to other TE institutions, both at the national and international levels, was an important part of the mandate of the center. Figure 1.1 illustrates ProTed’s model for transforming TE through innovation and dissemination.

This anthology presents a selection of ProTed’s innovations. Thus, this book is part of an international dissemination of knowledge derived from ProTed’s innovations aimed at transforming TE.

Thematic areas in the anthology

The anthology is presented in five thematic sections to help the reader navigate through different types of innovations: 1) development of integrated TE, 2) research literacy in TE, 3) bridging the gap between the university campus and schools (theory and practice), 4) development of professional identity, and 5) video as a means of connecting coursework to teaching practice.

Development of integrated teacher education

TE has been criticized for being disconnected from professional practice (Caspersen & Raaen, 2014; Jakhelln & Lund, 2019; Jensen et al., 2018), and on-campus teaching has been criticized for being fragmented (Haug, 2010; NOKUT, 2006; Trippstad et al., 2017). These challenges have gained the attention of research on coherence, emphasizing increased program coherence

in TE between learning on campus and during practice periods in schools and between courses on campus with different knowledge bases and traditions (Hammerness, 2013; Klette & Hammerness, 2016). Program coherence includes a clear and shared vision of good teaching among teacher educators (conceptual coherence), a program design where the various components in TE build on and reinforce each other (structural coherence), and opportunities to enact teaching (Klette & Hammerness, 2016). In describing coherent programs, coherence and integration are used as closely linked concepts. Vestøl (2016) points out that integrated programs have a “coherent study design where scientific subjects, school subjects, pedagogy, subject didactics, theory, and practice constitute a whole as a basis for teaching as a profession” (p. 74).

Chapters 2–5 represent the coherence and integration of TE and its background. Chapter 2 provides a theoretical framework of quality features for professional TE programs internationally that serve as the basis for designing and transforming the TE programs at UiT and UiO. Chapter 3 describes Norwegian TE and how it is designed and the context while outlining UiT and UiO’s current models for integrated TE programs. Chapters 4 and 5 represent two cases of research-based TE reforms at UiO and UiT; thus, these chapters provide insights into reform processes.

Research literacy in teacher education

Research is identified as a key dimension for enhancing the teaching profession and improving the quality of TE (Menter & Flores, 2021; Tatto, 2015). This means that TE “is seen as a key space for developing a research stance” (Menter & Flores, 2021, p. 122) and “should be an educative process that develops thoughtful, informed, and highly able professionals” (Loughran et al., 2016, p. 416). Menter and Flores (2021, p. 122) and the BERA-RSA report (Furlong et al., 2014, p. 5) proposed a broad and inclusive perspective on the role of research in teaching and TE:

- 1) The content of TE is informed by research-based knowledge and scholarship.
- 2) Research is to be used to inform the design and structure of TE programs.
- 3) Teachers and teacher educators should be equipped to engage with and be discerning consumers of research.
- 4) Teachers and teacher educators should be equipped to conduct their own research, both individually and collectively, to investigate the impact of particular interventions or explore the positive and negative effects of educational practice.

Menter and Flores (2021) propose a research agenda connecting research and professionalism in a way “that should shape our approaches to all aspects of teacher education” (p. 124). For several decades, a research-oriented approach

to teaching in Finland has been grounded in the idea of the teacher as a “professional,” in which research-based TE is about educating autonomous, professional teachers who take an inquisitive stance to their own professional practice (Toom et al., 2010; Westbury et al., 2005). In Finland (Niemi, 2016), as well as in Norway and Ireland (Conway & Munthe, 2014), student teachers should develop an inquiry-based stance toward their own teaching and should make autonomous, professional choices based on research-informed reflection. Eriksen and Brevik (2022) discuss how research literacy can enrich TE by allowing for the development of a research literacy way of thinking. They conceptualize research literacy as more than an engagement with research through research-based education and argue that “to enrich the understanding of how to develop research literacy in teaching and teacher education, emphasis should be placed on connecting research and education by actively engaging students in research” (pp. 1–2).

Chapters 6–10 present the innovations related to the development of the research-based five-year TE program, ending in a master’s degree thesis related to the practice field. Examples show how programs may be organized to include the research and development component needed to promote research at the master’s degree level. The chapters show how researchers integrate student teachers into research projects as they work with their master’s degree thesis and give examples of the relevance of the master’s degree. Chapter 6 shows how research and development contribute to establishing coherence in TE programs. Chapter 7 accounts for the relevance of the master’s thesis for becoming a professional teacher. Chapter 8 is about student teachers as coresearchers. Chapter 9 focuses on multilingualism as a theme for the master’s thesis investigation and Chapter 10 shows how master’s theses act as boundary-crossing mediating artifacts.

Bridging the gap between the university campus and schools

Transformative and equal partnerships between TE institutions and a few selected schools have been identified as a prerequisite for good TE that can contribute to making teaching on campus and research in TE practice oriented (Darling-Hammond, 2006; Jakhelln & Postholm, 2022; Lillejord & Børte, 2014, 2017). Equal partnerships are referred to as a paradigm shift or reconfiguration of the relationship between universities and the school sector (Ellis & McNicholl, 2015). We recognize that the teachers in our partner schools are also teacher educators. In 2013, ProTed commissioned a systematic review of partnerships in TE from the Knowledge Centre for Education in Norway. The review highlights a range of preconditions and elements of successful partnerships between TE institutions and schools (Lillejord & Børte, 2014, 2016) that have guided UiO’s and UiT’s collaboration with university schools. Inspired by UiO and UiT working within the ProTed center, closer collaboration between schools and universities in TE has been a central prioritization for TE in Norway (Norwegian Ministry of Education and Research, 2018).

Chapters 11 and 12 present the innovations related to the links between campus instruction and classroom practice. Chapter 11 outlines ProTed's model for transformative partnerships with university schools and gives examples of various collaborations. Chapter 12 presents school-based mentoring tools that combine research knowledge, student teacher needs, and teacher professional judgment.

Development of professional identity

Developing a sense of professional teacher identity is an important component in the process of learning to become a teacher. A sense of professional identity is related to teachers' self-efficacy, motivation, commitment, and job satisfaction—and, therefore, is essential in becoming and being an effective teacher (Flores & Day, 2006). The development of teacher identity can be understood as a process that integrates personal perceptions, attitudes, and values with the profession-specific demands of teacher training and working in school (Beijaard et al., 2004). Previous research highlights the need to address teacher identity effectively as a component of TE (Beauchamp & Thomas, 2009). A focus on the development of teacher identity during teacher training is important in terms of how the student teachers learn during their course (Heggen, 2010), their later professional work, and their subsequent professional development (Beijaard et al., 2004; Caza & Creary, 2016; Hammerness et al., 2005). As a result, a need exists for research that describes ways to foster teacher identity development in TE. Chapters 13 and 14 present the innovations developed to help student teachers on their path to becoming professional teachers. Chapter 13 describes a voluntary profession-oriented mentoring program, with teachers as mentors on campus, that promotes social and academic integration, students' sense of program coherence, and professional identity development. Chapter 14 describes an introductory program for all new student teachers that focuses on the motivation to become teachers and stimulates their awareness for the effort that is required to become good teachers.

The digital future: Video as a means of connecting coursework to teaching practice

A decade ago, research indicated that there was a gap between newly qualified teachers' ICT competence and the requirements they meet in their first years (Gudmundsdottir et al., 2014). In addition, the development of student teachers' professional digital competence was rarely rooted in the educational programs and a research-based approach. Instead, much depended on enthusiasts and more accessible expertise among teacher educators (Tømte et al., 2013). ProTed wanted to address this; thus, one of the center's main objectives is digital learning methods in TE, both as a tool to improve the quality of education in TE and enable future teachers to use such tools in their teaching. In its early phase, the center contributed to a national boost in digital competence for

teachers by publishing scientific and more popularized representations of digital competence for teachers and contributing to the development of digitalized environments and learning methods for student teachers through several projects related to the study programs (NOKUT, 2014; Rindal et al., 2015).

In addition, research stresses the need to anchor TE in practice to a greater extent than has previously been the case (Jenset et al., 2018) and to develop and use practice-based forms of learning and teaching in on-campus teaching (Forzani, 2014; McDonald et al., 2013). Research representing an enactment approach to practice-based TE has identified the “core practices” (Grossman et al., 2009) that student teachers should master before taking on responsibility for classroom teaching. Jenset (2017) underlines that an enactment approach to practice-based TE implies that teacher educators need the following:

... to develop instructional practices (i.e., pedagogies of teacher education) that represent, decompose, and approximate central practices of teaching within the coursework on campus. It simultaneously rests upon an understanding of teaching practices as something that can be learned, rehearsed, and developed, as well as routinized, over time and with support. It sees such routinization as a steppingstone for being able to improvise and adapt to the situation. Finally, this development of professional practice demands not only rehearsal and enactment, but also examination and critical reflection informed by research or theory, experience, and literature to develop and change practice.

(p. 23)

In this anthology, we report on ProTed’s contribution in developing digital exams (see Chapter 4) and digital school-based mentoring tools (see Chapter 12). Chapters 15 and 16 draw on ProTed’s work using digital innovations, such as classroom video of practice to improve campus-based instruction. Chapter 15 describes an innovation using video as a tool to prepare student teachers for professional practice, grounding TE in the practical work of teachers. Chapter 16 examines how a TE program has adopted a video-based formative assessment design to promote student teachers’ reflection and learning about teaching.

Lessons learned

The intention of this book is to inspire the reader to see new possibilities in innovation for promoting transformative TE. Throughout this anthology, we share examples from Norway’s first center of excellence in teaching (ProTed) and how our work has transformed our TE programs. Along the way, we have learned some important lessons. First, university-centered TE programs have a clear advantage in providing a research-based TE for the professionalization of teachers as change agents in schools. However, university teaching alone is

not enough in TE. Recognizing that teachers in schools are also teacher educators is essential for providing a coherent TE program for our students and staff. Second, transformative TE needs to continuously meet the societal changes reflected in the school curriculum. TE programs should have mechanisms for the development and evaluation of innovation, involving leadership in implementing new ideas when they are necessary to improve programs. As teacher educators, we need to be involved in teaching, research, and innovation. We were privileged to have funding for a center for innovation to work with transforming TE. However, additional funding to drive innovation should not be necessary if it is made a priority by leadership through connections to research and teaching.

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