

## Research Article

# A Strategy for Collaboration Between Educational Institutions and the Field of Practice, Aimed at Profession-Relevant Teacher Education

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**Abstract:** The purpose of this article is to present and discuss a strategy for collaboration between educational institutions and the field of practice, aimed at profession-relevant teacher education. The article is based on the results of a comprehensive action research project on teacher education schools at Oslo Metropolitan University (OsloMet) in Norway. The main goal of the project was to develop a collaboration that could enhance the quality of student teachers' practical training as well as the professional relevance of teacher education programs. The conceptual framework of the study is grounded in epistemological analyses of what constitutes teachers' professional competence, based on pragmatic and critical epistemology. The methodological approach is action research and emphasizes practitioner research and dialogue-based action research. The development activities that were carried out were organized around collaboration between the teacher education institution and schools on a 30-credit school-based continuing and further education program for mentor teachers. The results provide examples of how educational institutions, and the field of practice can jointly plan and implement education that focuses on developing teachers' professional competence through experiential, participatory learning and research. A main principle is that the parties must collaborate to anchor the educational content in ongoing practical experience with professional tasks as a teacher or mentor. The collaboration must also involve the creation of opportunities for teachers and student teachers to develop professional competence by learning to conduct research in their own teaching practice, and to contribute to the development of the school as a learning, participatory organization. The findings also indicate that the development of teacher educators' competence and organizational learning within teacher education institutions is crucial for achieving profession-relevant teacher education.

**Keywords:** action research, profession-relevant teacher education, teachers' professional competence, organizational learning, collaboration between the teacher education institutions and schools

## 1. Introduction

Extensive Norwegian and international research shows that teacher education is not sufficiently profession-relevant, and that close collaboration and coherence between educational institutions and the field of practice is necessary to achieve relevance and quality (Canrinus et al., 2019; Darling-Hammond, 2017; Heggen & Thorsen, 2015; NOKUT, 2023, 2024; Schaug & Herudsløkken, 2019; Sylte & Jahanlu, 2017). The research highlights the need for increased professional relevance in teacher education and stronger collaboration between teacher education institutions

and schools.

The Norwegian political initiative Teacher Education 2025 (L-2025) emphasizes the need for enhanced quality and professional relevance in teacher education through closer collaboration between educational institutions and the field of practice (Ministry of Education, 2017). L-2025 outlines a broad initiative that focuses on what are known as teacher education schools, where schools and teacher education institutions collaborate to improve the quality of teacher education. Emphasis is placed on strengthening both student teachers' practical training and the development and research collaboration between schools and universities that are responsible for teacher education. There is also a focus on ensuring that "teacher education programs offer relevant continuing education" (Ministry of Education, 2017, p. 6).

The aim of this article is to present and discuss a strategy for collaboration between educational institutions and the field of practice aimed at profession-relevant teacher education. The article is based on the results from an action research project on Teacher Education in School (LUSY), in which participants included the Department of Vocational Teacher Education (YLU) at Oslo Metropolitan University (OsloMet) and three upper-secondary schools: Strømmen, Rud, and Kuben. The goal of the project was to develop knowledge about how collaboration between teacher education institutions and the field of practice can contribute to strengthening professional relevance in teacher education. The research question in this article is:

*What are the central principles for the content and organization of collaboration between educational institutions and the practice field aimed at professionally relevant teacher education, and what are the opportunities and barriers in the collaboration?*

The project is based on analyses of pragmatic and critical epistemological perspectives on teacher competence and teacher education, with a focus on experience-based, participatory professional learning, development, and research. A holistic approach to teacher competence is emphasized (Dreyfus & Dreyfus, 1986; Eikeland, 2012a; Hiim, 2023; Hiim & Sylte, 2024; Molander, 1997; Sylte, 2020; Schön, 1983).

The main methodological approach in the project is action research in the form of practitioner research and dialogue-based organizational learning. As teacher educators and project leaders, we (the authors) developed our professional practice together with teacher educator colleagues, leaders at YLU, school leaders, and practice teachers/teachers (Cochran-Smith & Lytle, 2009; Elliott, 1991; Herr & Anderson, 2015; Hiim, 2010; Hiim & Sylte, 2024; Stenhouse, 1975). In addition to practitioner research, dialogue conferences as a methodology for organizational learning and development are central to the project (Eikeland, 2012b; Gustavsen, 2001).

In the following, we will first provide some context for the project and the cooperation agreement entered into between the parties in connection with funding from the Research Council of Norway (NFR). The goals and main activities included in the agreement that will be briefly outlined. Research highlighting the challenges regarding relevance in teacher education will then be presented, with a focus on research discussing measures to strengthen professional relevance and collaboration between educational institutions and the practice field.

Pragmatic and critical perspectives on teacher education and the development of schools as learning organizations will then be discussed, with an emphasis on the significance of a holistic competence concept for understanding teacher education. This will be followed by an explanation of the action research approach of the project, which covers the development plan, main measures, empirical basis, and analysis of the empirical data. The presentation of results from the development process is related to the various measures for profession-relevant teacher education, and focuses on how the measures were implemented, the challenges and opportunities that arose, and how the measures were evaluated by the participants in the project.

The concluding discussion addresses principles for the organization and content of collaboration between educational institutions and the practice field aimed at relevant teacher education, and identifies the key challenges. The conclusion focuses on the core of a strategy for collaboration between educational institutions and the practice field regarding professionally relevant teacher education.

## **2. The context—A cooperation agreement on measures aimed at professionally relevant teacher education**

As part of the initiation of the LUSY project, representatives from the school owners, Akershus and Oslo county

municipalities, school leaders from the relevant schools, representatives from the leadership at YLU, and the project leaders collaborated to develop a letter of intent that served as the basis for an application for, and subsequent allocation of, funding from the Research Council of Norway (NFR). The agreement was further developed by the parties into a cooperation agreement, which is part of the contract with NFR (OsloMet, 2020). The agreement includes the following about the parties' obligations and tasks: "In the LUSY project, the parties shall develop and conduct research on teacher education schools in vocational teacher education. They shall enter into a committed and long-term collaboration to ensure the best possible education of vocational teachers through organizational and professional facilitation between vocational upper secondary schools and OsloMet" (OsloMet, 2020, p. 1).

Furthermore, it states that the parties shall jointly carry out the following measures or main activities aimed at professionally relevant vocational teacher education (OsloMet, 2020, p. 2): they shall plan, implement, and further develop school-based mentor teacher education as a meeting place for teachers and teacher educators. According to the agreement, a key purpose is to contribute to mentor teachers, teachers, and teacher educators developing a shared understanding of the task of educating vocational teachers, as well as initiating the development of new infrastructure. It is emphasized that the content shall be planned jointly by school leaders and project managers/teacher educators.

According to the agreement, research and development groups shall also be established, where mentor teachers, teachers, and teacher educators collaborate on planning, implementing, evaluating, and documenting research and development projects. Furthermore, collaboration groups shall be established, where mentor teachers, teachers, and teacher educators work together on planning, implementing, and evaluating continuing and further education at Strømmen and Kuben upper-secondary schools.

It is also stated that dialogue meetings/conferences shall be held within each organization and between the parties to strengthen a shared understanding of key challenges in vocational teacher education and vocational training, to organize individual and collective experiential learning, and to develop and build new infrastructure between teacher education (YLU) and practice (Strømmen and Kuben) (OsloMet, 2020, p. 2). The project was later expanded to include Rud Upper-Secondary School.

The agreement aligns with key guidelines in L-2025, which emphasize that teacher education institutions and schools should collaborate on student teachers' practice placements, the development of continuing and further education programs for teachers, and research and development work. The aim is to strengthen professional relevance through increased coherence between teacher education institutions and the practice field (Ministry of Education, 2017). An important purpose of this article is to demonstrate how these measures were implemented, how they contributed to professionally relevant teacher education, and what challenges arose.

To further clarify the context of the LUSY project, it is also necessary to briefly describe vocational teacher education. The program is at the bachelor's level and qualifies teachers to teach in one of ten vocational education programs in upper-secondary school and in certain subjects in lower-secondary school. The scope of pedagogy and didactics is 30 plus 30 ECT, which is the same as in the education of general subject teachers in upper-secondary school, and the curriculum frameworks for the pedagogical and didactic components of these programs have many similarities. The subject-specific component of the programs corresponds to a minimum of 120 credits and consists of either a professional education at the university level (e.g., nurse or engineer) or an advanced technical college education based on a trade certificate (e.g., carpenter or hairdresser). A master's degree in subject-specific or pedagogical education is not a requirement in vocational teacher education, as it now is for general subject teachers, but there are master's degree programs in vocational pedagogy and several continuing education offerings for vocational teachers.

Although the context of this project is Norwegian vocational teacher education, we believe that this education shares many similarities with other teacher education programs, and that the results of this project are of interest to teacher education in general.

### **3. Research highlighting challenges and measures for professionally relevant teacher education**

Both Norwegian and international research point to challenges related to insufficient professional relevance in teacher education (Canrinus et al., 2015; Canrinus et al., 2019; Darling-Hammond, 2017; Munthe et al., 2015; NOKUT,

2023, 2024; Schaug & Herudsløkken, 2019). The issues revolve around student teachers not feeling adequately prepared for the demands of the profession. Campus-based teaching is insufficiently connected to the student teachers' experiences in practice, and pedagogy, didactics, subject knowledge, and practice are not well integrated. Mentor teachers are uncertain about their roles and seek more support from campus-based teacher educators as well as greater influence over what the students learn (Munthe et al., 2015; Schaug & Herudsløkken, 2019). There is also research that suggests that teacher educators may be uncertain about their roles and feel isolated in their work (Czerniawski et al., 2017; Smith, 2011).

Research also highlights the need for and potential of initiatives that can enhance professional relevance. There is a need to develop a stronger shared understanding among campus-based teacher educators of what constitutes teacher competence and the purpose of teacher education (Canrinus et al., 2019; Darling-Hammond, 2017).

In Stanford University's teacher education program, emphasis is placed on a shared definition of teachers' tasks and competencies. These include the ability to: adapt instruction to students with diverse learning needs, plan and carry out teaching based on integrated subject and didactic principles, create a positive learning environment, facilitate inquiry-based learning, assess students in ways that promote learning, foster social justice, and develop professionally alongside colleagues.

The categories in this definition have significant similarities to the didactic relational model, which will be discussed further in the next section. Like this model, the definition can serve as a common conceptual framework and language between campus and practice in teacher education (Hiim & Hippe, 1989; Hiim, 2023). Shared concepts about teaching competence can facilitate both a common understanding of the purpose of teacher education and better integration of practice and theory (Darling-Hammond, 2006, 2017).

In her meta-study of international teacher education research, Darling-Hammond (2017) emphasizes the importance of educational programs that can qualify mentor teachers to bridge the gap between practice and theory. She also highlights the importance of ensuring that teacher educators on campus are qualified for this task. Competence in practice-based research and development work is also considered essential for establishing a connection between practice and theory (Darling-Hammond, 2017).

Research on teacher education also indirectly and directly points to the importance of organizing professional communities for teacher educators, mentor teachers, and across these groups, aimed at developing a shared understanding of the purpose of teacher education and the roles of participants in a professionally relevant teacher education program (Darling-Hammond, 2017; Smith, 2011; Zeichner, 2010). It is emphasized that regular forums and structures for sharing experiences and collaboration between the parties contribute to the strengthening of coherence and relevance. Establishing specific teacher education schools, mutual job shadowing, and involving mentor teachers in campus teaching, program development, and research and development work are some examples (Darling-Hammond, 2017; Munthe et al., 2015).

Epistemological perspectives on teacher education are relatively underemphasized in research on teacher education, but there are some exceptions. Korthagen (2011) highlights an explicit epistemological perspective in what is called a realistic approach to teacher education. A core idea is that student teachers' and teachers' personal, experienced and practical professional challenges are systematically used as a basis for reflection and the development of concepts, which are then eventually related to formal theory. This is also a key principle in LUSY. In evaluations of this approach, it is concluded that it yields high professional benefits but places high demands on teacher educators to master the approach (Hoekstra & Korthagen, 2011).

Schön (1995) and Zeichner (2010) emphasize that closer collaboration between educational institutions and the practice field for strengthening professional relevance requires new epistemological perspectives. Without this, there is a risk that measures and changes will not be sufficiently profound and will end up as "more of the same". In much of the research on teacher education, for example, phrases are still used such as that student teachers must be able to "apply what they have learned on campus in practice," which reflects a "theory first" approach (Eikeland, 2012a). There is less emphasis on developing concepts, patterns, and theory from and in collaboration with practice. From a pragmatic, critical epistemological perspective, this is essential for the achievement of professional relevance (Hiim & Sylte, 2024). The next section highlights the epistemological perspectives on teacher education that were central to the LUSY project.

## 4. Epistemological perspectives on professionally relevant teacher education

Challenges related to insufficient professional relevance in teacher education can be considered to stem from a predominantly rationalist view of professional knowledge and education, which still influences education traditions and structures (Eikeland, 2012a, 2022; Hiim & Sylte, 2024). The belief that given theoretical conceptual structures can be transferred through verbal formulations and then applied in practice has led to a divide between theory and practice. This divide is expressed in organizational divisions between subjects and learning arenas in teacher education and other professional education, as well as in separations and distances between professional practice, education, and research (Dreyfus & Dreyfus, 1986; Eikeland, 2012a; Hiim & Sylte, 2024; Molander, 1997; Schön, 1983, 1995).

From pragmatic epistemological perspectives, the need for a holistic concept of professional competence and education has been emphasized. Koenen et al. (2015) define competence as “an integrated set of knowledge, attitudes, and skills” (p. 3). According to Koenen et al., a key principle in competence-based education is that it is grounded in practical experience with authentic professional tasks, around which subject matter and theory are systematically integrated. Schön (1983) and Dreyfus and Dreyfus (1986) have also emphasized the necessity of a holistic concept of competence. Both highlight professional experience as the foundation for learning and the development of professional concepts.

Pragmatist interpretations of Wittgenstein’s (2003) late philosophy and Heidegger’s (1978) early philosophy have focused on practical experience as a core element in the learning and development of professional concepts (Janik, 1996; Molander, 1997; Hiim, 2010). From a pragmatist perspective, experience and learning occur through participation that is characterized by existential meaning. To participate is to see the purpose of the activity or practice in which one is involved—for example, as a teacher, mentor, or teacher educator. Involvement, engagement, emotions, values, actions, and understanding are all part of a holistic concept of competence. Experience-based, holistic learning requires participation in tasks that can serve as professional examples, where one is shown and guided by someone who is skilled in the profession—for example, a teacher (Hiim & Sylte, 2024). Experience takes place in a participatory community with others in the field, where many structures and traditions are given and partly unspoken (Janik, 1996).

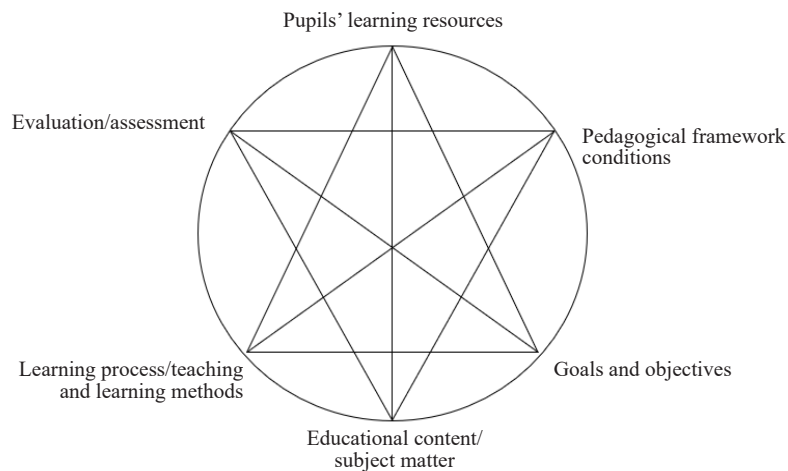
From a pragmatist epistemological perspective, it is necessary to develop professional concepts from practice. This means that teacher education and research in the teaching profession must be based on practical tasks and experiences, from which concepts and theory can be developed and related. Professional teachers and teacher educators must also be able to conduct research and develop concepts from their own practice (Eikeland, 2012a; Elliott, 1991; Hiim, 2010; Schön, 1995; Stenhouse, 1975).

The pragmatist approach to professional and teacher education has been criticized for having insufficient focus on normative aspects and social criticism, which can contribute to changing existing traditions and structures (Carr & Kemmis, 1986; Kemmis, 2012). Criticism requires dialogue, experience-sharing, and participation (Eikeland, 2012a, 2012b). From a critical epistemological perspective, the validity requirements for social activities, including educational activities and research on education, are that what is done and said is effective, understandable, sincere, and fair, as judged by those affected (Habermas, 1999; Winter, 1989).

A pragmatist approach to teacher education means that the educational content is organized around experiences with professional core tasks (Koenen et al., 2015). A professional core task in teaching involves didactics, which is defined as “practical-theoretical planning, implementation, assessment, and critical analysis of educational, teaching, and learning processes” (Hiim & Hippe, 1993, p. 14). From a pragmatist, critical perspective, didactics is an activity that must be learned through practical teaching experiences, which theory is both developed from and related to. The activity must be continuously analyzed, assessed, and developed by those involved, based on didactic concepts and relationships that are visualized in the didactic relational model below (Figure 1).

Teachers’ and teacher educators’ work takes place within a professional community and an educational organization, where there is also a need for collective learning (Schön, 1995). Ongoing learning within the organization requires structures where time and space are allocated for sharing experiences, collective reflection, and participatory development, with a focus on the organization’s and the professionals’ tasks (Eikeland, 2012a). Regular dialogue conferences and meetings, where the validity principles outlined above are upheld, are central to developing collective professional competence (Eikeland, 2012b). In teacher education, it is important that teacher education schools, other practice schools, and the teacher education organization itself function as learning organizations to ensure the

development of both teachers' and teacher educators' tasks, a shared understanding of these tasks, and thus also the coherence between educational arenas (Eikeland, 2012b).



**Figure 1.** The didactic relational model (Hiim & Hippe, 1989)

Experiential learning and participation, as described above, are fundamental principles in a pragmatist, critical approach to relevant teacher education and were emphasized in all the collaborative measures throughout the process in the LUSY project (Hiim & Sylte, 2024). In much of the research mentioned above, practice is described as an arena for applying theory, rather than as a fundamental arena for developing professional concepts and competence (Canrinus et al., 2019; Darling-Hammond, 2017). The latter was a core perspective in LUSY.

An overview with a more detailed description of the various measures will be presented in the next section, which discusses the action research approach in the LUSY project.

## 5. Action research approach–Practitioner research and dialogical organizational learning

### 5.1 Goals and participants

The research approach in the project was action research, where we, as teacher educators, developed and researched our practice together with colleagues, leaders, and teachers at the relevant schools (Cochran-Smith & Lytle, 2009; McNiff, 2017). The purpose was to collaborate in designing, testing, evaluating, and documenting initiatives where both teacher educators, teachers/mentor teachers, and our respective organizations developed competence in relevant teacher education. The goal of the research was to achieve and document new knowledge about key principles for the content and organization of a lasting collaboration between educational institutions and the practice field on professionally relevant teacher education.

Participants in the project were, as previously mentioned, the Department of Vocational Teacher Education (YLU) and three schools: Strømmen, Kuben, and eventually Rud. About twenty teacher educator colleagues actively participated in the implementation of the main initiatives in the project. The empirical data in this article is primarily based on the implementation of the project at one of the schools, Strømmen Upper-Secondary School, as all the initiatives were carried out here for various practical reasons, and in consideration of the scope of the empirical data.

## 5.2 Development plan and empirical foundation

The main initiatives of the project were based on the collaboration agreement between the parties. The initiatives covered in this article focused on the following:

- Developing a school-based further education program for mentor teachers, aimed at relevant teacher education.
- Developing research collaboration between teacher educators and school teachers/mentor teachers.
- Developing YLU and the schools as learning organizations, both individually and across institutions, focusing on relevant teacher education and fostering long-term collaboration between the parties.
- Establishing a partner group consisting of school leaders, YLU leadership, and the leadership of the LUSY project with the responsibility to propose and implement initiatives for long-term collaboration between the parties.

We will provide a brief overview of the development plan for the LUSY project as it relates to each of these initiatives. The development plan was largely created in collaboration with school leaders, colleagues, and teacher representatives from the schools.

The purpose of the school-based further and continuing education offer was to qualify mentor teachers and schools to guide student teachers and colleagues in teaching, as well as in development and research work, and to contribute to developing professional communities and the school as a learning organization (Ministry of Education, 2017; Norwegian Association of Higher Education Institutions, 2018). The program was to be divided into two parts, with a focus on didactic guidance tasks in part one and collaboration between teacher educators and teachers on development and research tasks in part two.

The development of the school as a learning organization was also to be particularly emphasized in part two of the mentor teacher program. It was linked to the implementation of a dialogue conference where teachers and leaders identified key challenges as a starting point for planning, implementing, and documenting research and development projects. The more specific planning of the program would be carried out in collaboration with each individual school.

Regarding the development of YLU as a learning organization, the intention was that the YLU leadership and LUSY leadership would collaborate to place teacher education schools and L-2025 on the agenda at regular dialogue conferences and meetings at our institute. The aim was to develop a shared understanding of profession-relevant teacher education. Dialogue meetings and seminars with the 12 faculty members participating in the practice teacher study were also to be organized to achieve an ongoing, joint learning process.

The plan was to also organize dialogue conferences and meetings between YLU and the schools participating in LUSY, with the aim of developing a shared understanding of the task of educating teachers and of establishing structures for lasting collaboration and mutual learning. Such structures were one of the main goals of LUSY. Therefore, as previously mentioned, a working group with representatives from the parties was to be established, with a mandate to propose and initiate measures for lasting collaboration.

The empirical material is based on documentation from the development initiatives mentioned above. It includes meeting minutes, plans, teaching materials, logs, participant evaluations, and submitted assignments. All empirical data was collected in folders on Teams. Table 1 presents an overview of the empirical basis.

**Table 1.** The empirical basis

Mentor teacher education, part 1: Didactic guidance and professional community	Mentor teacher education, part 2: Development work, organizational learning, and research collaboration	Developing YLU and the schools as learning organizations	Establishment of a partner group with a mandate for lasting structures
<ul style="list-style-type: none"> <li>• Meeting minutes</li> <li>• Plans</li> <li>• Logs</li> <li>• Teaching materials</li> <li>• Student evaluations</li> <li>• Student assignments</li> </ul>	<ul style="list-style-type: none"> <li>• Meeting minutes</li> <li>• Minutes from the dialogue conference</li> <li>• Plans</li> <li>• Logs</li> <li>• Teaching materials</li> <li>• Student evaluations</li> <li>• Student assignments</li> </ul>	<ul style="list-style-type: none"> <li>• Meeting minutes</li> <li>• Minutes from the dialogue conferences</li> </ul>	<ul style="list-style-type: none"> <li>• Meeting minutes</li> </ul>

Together, the empirical data provides a rich picture of the action research process.

### **5.3 Analysis and presentation of empirical data**

The analysis of the empirical data aims to shed light on key principles for the content and organization of collaboration between educational institutions and the field of practice, as well as the opportunities and obstacles in such collaboration.

Based on the epistemological analysis, the facilitation of experiential learning emerges as a core category in the analysis of educational and research collaboration between teacher education institutions and the practice field. Equal participation also emerges as a key category (Kvale & Brinkmann, 2009). The analysis of the empirical data is further structured around the organization and content of each of the measures outlined above. Emphasis is placed on highlighting the opportunities, challenges, and nuances that emerge from the material related to the different categories (Strauss & Corbin, 1997).

The presentation of results is structured around each of the measures, focusing on how the measures were implemented and the participants' assessments. The results will be summarized and discussed in the final part of the article.

### **5.4 Validity and ethics**

The validity of an action research study in which we, as teacher educators, investigate our own professional practice involves demonstrating what was actually carried out and the participants' experiences. Our aim was to develop and document a kind of paradigmatic example from which teacher educators in general, as well as other interested parties, can learn (Hiim, 2010; Janik, 1996; Stenhouse, 1975). This entails selecting key initiatives, events, examples, and quotes that highlight the collaboration on relevant teacher education (Herr & Anderson, 2015; Winter, 1989). Emphasis was placed on presenting both opportunities and challenges, without leaning towards the positive or the negative (Eikeland, 2012b; Sylte, 2017).

Researching one's own practice involves familiarity with the field and a professional understanding of the development process. At the same time, it was necessary to maintain sufficient distance to gain an overview of the development. Conducting research together with colleagues can provide multiple professional perspectives that help establish a certain level of distance. This was emphasized in the LUSY project.

Another principle of validity is to facilitate co-influence from the various participants in the process (Winter, 1989). Education is a social endeavour in which change and development must occur through democratic collaboration with colleagues, students, and, where relevant, school leaders. Bringing forth the participants' voices was essential to clarify how different development initiatives function and what can be improved. Diverse voices will also contribute multiple perspectives.

However, developing and researching one's own practice as a teacher educator implies bearing the primary responsibility for the process. This responsibility also involves a form of power that we were consciously aware of. Creating a safe and collaborative environment in which everyone feels free to speak, dares to express themselves sincerely, and is genuinely listened to where key principles of validity in the project. The documentation of the development and research process must demonstrate how this has been safeguarded and must balance different perspectives in a reliable and trustworthy way (Cochran-Smith & Lytle, 2009; Hiim, 2010).

After receiving information about the purpose of the action research and its documentation, the participants in the LUSY project signed a consent form, which was part of a collaborative agreement concerning the project. The study was evaluated by the knowledge sector's service provider (Sikt) as not being subject to reporting requirements because it does not involve personal data.

## **6. Implementation of collaborative measures aimed at relevant teacher education**

### **6.1 Initial anchoring of collaboration and measures**

We will briefly describe the initiation and anchoring of the LUSY project. As teacher educators and researchers,

we contacted the leadership at YLU and the school owners, Oslo and Akershus county municipalities, regarding the possibility of conducting an action research collaboration on profession-relevant teacher education, linked to the qualification and development of teacher education schools. School leaders at Strømmen and Kuben upper secondary schools were involved, and together we developed a memorandum of understanding and a project description that formed the basis for the application for innovation and research funding from the Research Council of Norway (NFR), as well as a binding collaboration agreement. The goals and main activities in this agreement have already been described in the section on “context” above, and largely align with the main actions in the project.

A steering committee was also established with representatives from the parties to oversee the implementation of the agreement. The participation of the parties was emphasized from the very beginning and helped to strengthen engagement and the execution of the process (Eikeland, 2012b). One of the school leaders described the purpose of the project as follows: “A core aspect is YLU’s and the teacher education school’s shared task—to educate professional vocational teachers.” The first measure involved the first part of a school-based mentor teacher program at Strømmen Secondary School.

## ***6.2 School-based teacher mentor teacher education with a focus on professional guidance and professional communities***

The planning and implementation of the first part of the school-based mentor teacher program were carried out with ongoing dialogue between leaders and union representatives at Strømmen Secondary School, the project management team, and teacher educators at YLU (Eikeland, 2012a; Winter, 1989). The goal of the program was for participants to develop competence in didactic guidance with student teachers and colleagues, and in professional communities, and to learn to connect practice and theory in professional guidance (Darling-Hammond, 2017). A total of 130 teachers participated. About half completed the program as formal further education, whilst the other half did it as in-service training without submitting assignments or exams. The program was conducted at the school during working hours, at a time that had initially been allocated for pedagogical development work.

It was decided that the program would be organized as a combination of exercises and authentic tasks, including mentoring in peer groups led by teacher educators, mentoring with colleagues or student teachers conducted between study sessions, and joint lectures in plenary settings. The teacher educators’ role, both in peer groups and during plenary lectures, was to connect theoretical perspectives with the participants’ mentoring tasks and experiences (Koenen et al., 2015). The program was also intended to serve as a meeting point between teacher educators and mentor teachers, where collaboration on teacher education would be prioritized (Eikeland, 2012a).

In accordance with the participants’ preferences, the primary focus was placed on theories of didactic and professional mentoring (Lauvås & Handal, 2007; Hiim & Sylte, 2024, Sylte, 2021). Additionally, participants expressed a need for the program to address the implications of the new curricula for their roles as vocational teachers, as well as language instruction for minority-language students. The argument was that competence in these areas is essential for a professional mentor teacher when working with student teachers and new colleagues.

The participants’ exam submissions demonstrated that they had carried out guidance tasks involving pre- and post-guidance sessions and the use of a didactic guidance document. They had developed strong competencies in didactic guidance with student teachers and colleagues, effectively connecting practice and theory in their guidance. The guidance covered a wide range of professional challenges that the mentees (those being guided) were concerned with. Participants placed significant emphasis on respect and constructive communication with the mentees.

The evaluation of the program revealed that participants found it professionally relevant and meaningful. Some examples of statements from the teachers include: “Joint lectures, workshops in smaller groups, and practical exercises in pairs ensured a hands-on approach to the subject matter. The experiences from the program have been eye-opening and have encouraged reflection on our own professional practice.” “The study was particularly relevant because the guidance focused on the mentees’ real-life teaching challenges.” “Very satisfied with how it was organized, with opportunities to practice guidance techniques and collaboration with colleagues.”

Several participants emphasized that the peer guidance strengthened collegial collaboration and the professional community. The school-based nature of the program was highlighted as essential for reinforcing the collegial environment within the school organization. Many expressed that they had been inspired to welcome student teachers.

However, it was noted that communication with YLU regarding student teachers should be improved, and that mentor teachers desired greater influence to enhance the professional relevance of the on-campus curriculum.

### ***6.3 School-based mentor teacher training focused on development projects, organizational learning, and research collaboration***

The goal of the second part of the mentor teacher training program was for participants to acquire competence in educational development work and practitioner research, as well as in developing the school as a learning organization (Eikeland, 2012b; Elliott, 1991; Hiim, 2023; McNiff, 2017). This competence is essential for supporting student teachers and teaching colleagues in development projects, and for ensuring that mentor schools serve as professional resources for other schools, as outlined in the L-2025 guidelines (Ministry of Education, 2017).

#### ***6.3.1 Dialogue conference***

It was decided to hold an initial dialogue conference as part of the study. The main topic focused on challenges and development opportunities related to the school's focus areas, which the teachers had helped to define (Eikeland, 2022, 2012b). These areas were language instruction for minority-language students, life skills, and quality in assessment. The aim was to develop the school's overall competence in these focus areas and begin facilitating organizational learning. At the conference, many of the teachers expressed a desire for more collective learning: "We need to spend time talking together, exchanging experiences, and sharing knowledge in teams." The teachers discussed challenges and opportunities for development related to the focus areas. They formed groups with colleagues who were interested in and had the opportunity to address the various challenges and initiate development projects (Eikeland, 2012a).

#### ***6.3.2 Practice-based research, research collaboration, and organizational learning***

The dialogue conference was followed up by further participatory planning and implementation of the second part of the mentor teacher training program (Eikeland, 2012b; Winter, 1989). It was decided that the content of this part of the program would be organized around development work in the form of practitioner research. The professional challenges that the teachers themselves experienced in their practice served as the starting point for the development and research, which were initiated, carried out, and documented by the teachers themselves (Elliott, 1991; Hiim & Sylte, 2024; McNiff, 2017). The work was carried out in colleague groups of two to four teachers and focused on the school's priority areas (language instruction for minority-language students, life skills, and quality in assessment). Each colleague group was part of a larger group related to their chosen focus area, where teaching and guidance were continuously linked to the participants' specific development work (Koenen et al., 2015). Teacher educators leading these parallel groups had expertise in the relevant fields.

Plenary lectures focused on educational development work in the form of action research/practitioner research and organizational learning and aimed to closely follow the work process in the projects (Koenen et al., 2015). The focus was on the purpose of such research, methodology, types of research questions, grounding in governance documents and educational literature, data collection, and documentation requirements (McNiff, 2017). The exam would consist of a report from the action research project.

It was also decided that the teacher educators would analyze and summarize the results from the various teacher research projects within the relevant focus area. The results of this research collaboration between teachers and teacher educators (Hiim, 2010) would be presented in a plenary session for the teachers and leadership at the school and at YLU and published as a scientific article in an anthology of results from the LUSY project.

Continuous sharing of experiences was facilitated between groups working on the same focus area, which aimed to strengthen collective knowledge development (Eikeland, 2012b). The last of the six study sessions was organized as a sharing conference with guests from school leadership, other schools, and YLU, where the teachers' various action research projects were presented. The teacher-researchers and the school received very positive feedback for contributing valuable and relevant knowledge about challenges in the teaching profession.

### **6.3.3 Examples of teacher research projects**

The teachers' action research projects demonstrated that they had worked on key professional challenges. An example from each focus area follows.

A group of teachers in the first-year vocational program in electrical engineering focused on the issue that students were struggling to find apprenticeships because they lacked Norwegian technical vocabulary. The teachers developed a teaching method to integrate Norwegian language instruction into practical vocational training. The method involved systematic work with key technical terms and with words and expressions that the students had difficulty with.

A group working on assessment quality had experienced that students' academic prerequisites varied greatly in the second year of automation in electrical studies. They developed a diagnostic tool that aimed to systematically map the students' learning prerequisites in the subject so that teaching, guidance, and assessment could be continuously adjusted to meet individual needs.

A teacher group focusing on life skills had experienced that many students struggled with keeping track of their personal finances, which created stress that impacted their schoolwork. Through interdisciplinary collaboration, they developed a didactic tool to strengthen both students' understanding of their finances and their awareness of social pressures that lead to poor financial choices, such as those from social media. In all the projects, there was a focus on systematic feedback from the students (Hiim, 2023).

One of the projects was carried out by the school's leadership team, which participated in both parts one and two of the teacher training program. The project focused on the school's value and development platform, with an emphasis on how work with this platform could become part of a dynamic organizational learning process, continuously anchored within the staff.

### **6.3.4 Participants' evaluation**

The teachers' evaluation of the second part of the teacher training program was very positive. They emphasized that it was meaningful to work on development projects that addressed the challenges that they had personally experienced and cared about. They found the theory in the program relevant because it was clearly connected to the projects. They expressed that there was a high degree of co-determination in the program and felt that their professional experiences were respected and valued. Several teachers highlighted that the program had contributed to their professional pride. It was also pointed out as very positive that the leadership participated in the program alongside the teachers, that the program was school-based, and that there was a focus on collective learning and organizational learning. Many expressed that further education in general should follow these principles and emphasized the necessity for teachers to engage in continuous development work.

Some quotes that illustrate the teachers' perspectives are as follows: "There should be more studies like this." "Teachers need to be more directly involved in development work like in the LUSY project, as part of the daily activities and continuous improvement work." "The leadership seems motivated to ensure that further work on the development projects can continue in the next school year." "We received recognition from OsloMet and YLU that our research would be used as an example for others who follow, and that we have done pioneering work." "We felt pride in the profession we have and practice every day." "We have experienced collaboration among colleagues and respect for what we achieve together."

One challenge that emerged in the evaluation was that the study had been relatively time- and labor-intensive in relation to the 15 ECT.

## **6.4 Organizational learning on campus and between the parties**

As part of the LUSY project, a significant emphasis was placed on organizing time and space for collaboration and collective competence development among the teacher educators involved (Eikeland, 2012b; Smith, 2010). Time was systematically set aside with all involved colleagues for joint planning and evaluation of both parts one and two of the mentor teacher training program, both before the study started and between each study session. In addition, several joint dialogue seminars were organized. Here, experiences with the measures in LUSY were continuously discussed in relation to principles of relevant teacher education.

The teacher educators expressed that they had gained substantial professional benefit from participating in the project because so much time and resources were allocated to collective learning. The following statement illustrates this: “It is very unusual for so many teacher educators to collaborate in this way in a project. It has been so educational.”

One objection was that it took a bit too much time at the beginning of the project to start the organization of joint learning processes. It was also highlighted that the experiences in the LUSY group had not been sufficiently shared with the rest of the staff, and there was concern that, as a result, the outcomes would have less internal significance at YLU in the long term.

Based on the collaboration agreement presented earlier, as project leaders, we made several attempts to organize dialogue meetings and conferences with the entire professional staff at YLU, where challenges related to relevant teacher education and the guidelines in L-2025 were placed on the agenda (Eikeland, 2012a, 2012b; Ministry of Education, 2017). However, during the project period, only one dialogue conference on L-2025 was organized, which took place at the beginning of the period. The topic was how YLU could work to strengthen the collaboration between the teacher education institution and schools regarding student teachers’ practice, the development of study programs, and research and development work.

The measures that were proposed focused on strengthening opportunities for internal experience-sharing and dialogue, especially during institute meetings, but also at other meetings. Several colleagues described feeling somewhat professionally isolated, particularly regarding research, and indicated that they needed follow-up and guidance. The establishment of regular meeting places with partner schools was suggested, as well as expanding the number of teacher education schools so that all vocational education programs would be covered. Many were also concerned with topics that were important to collaborate on with schools, with particular emphasis on multiculturalism and language education, special education, sustainability, and the new curricula for upper-secondary education. The proposals for measures were quite general and addressed, to a small extent, what the various subject sections or research groups could specifically do to strengthen collaboration with the practice field.

No systematic follow-up of the dialogue conference was conducted. However, some of the proposed measures were implemented, such as training for newly hired staff in research, article writing, and the basis for career advancement. No additional dialogue conferences were organized. The project management in LUSY attempted to initiate that the results from the conference should be summarized and followed up in subsequent institute meetings, additional dialogue conferences, and experience-sharing from LUSY. Unfortunately, this was not possible to carry out, except for a one-hour presentation of the project’s results at an institute meeting toward the end of the project period.

These challenges are related to the fact that during the project period of five and a half years, there was a coronavirus epidemic, which resulted in a long pause in development activities. There was also a major shift in institute heads at YLU, with five different leaders, and occasional shortages of other leaders. This led to a significant workload for the remaining leadership. The constant turnover of institute heads resulted in weak opportunities for continuous dialogue and mutual learning between the YLU leadership and the LUSY leadership. As a result, a shared understanding of challenges related to profession-relevant teacher education, the guidelines in Teacher Education 2025 (L-2025), or the purpose of internal dialogue conferences was only developed to a limited extent. Furthermore, no dialogue conferences were organized between YLU and the schools, and nor were permanent, institutionalized collaborative structures built between the parties, as the collaboration agreement had intended.

## **6.5 *Proposals for institutionalized structures for collaboration***

However, a working group was established consisting of the leadership from each of the schools, the leadership at YLU, and the LUSY project management team. Their mandate was to propose and begin implementing structures for lasting collaboration between the parties. The proposals were based on experiences from LUSY and discussions on research into such initiatives (Darling-Hammond, 2017; Munthe et al., 2015). The group eventually arrived at the following.

It was proposed to establish a coordinator at YLU and at each teacher education school to facilitate collaboration between the parties, as well as a forum for these coordinators where representatives from the leadership and others from each institution could be invited as needed. The forum’s responsibilities would include discussing and initiating collaborative arrangements and measures between YLU and the individual schools.

Additionally, it was proposed to establish a system that would enable relevant representatives from YLU and

the schools to attend each other's meetings, when appropriate, such as research and development meetings at YLU, development meetings at the schools, or meetings about pedagogical practice. Suggestions also included organizing opportunities for reciprocal job-shadowing between teacher educators and teachers and for shared positions between the schools and YLU.

It was further emphasized that there was a need for a framework that would allow school representatives to participate in the development and revision of program plans at YLU. Additionally, the establishment of a system for regular dialogue conferences within each institution and between the parties was proposed, along with experience-sharing conferences between teacher education schools and other practice schools.

It was also emphasized that schools that were designated to have specific responsibilities for collaboration in teacher education, as outlined in L-2025, should commit to implementing a school-based mentor teacher training program to qualify for this role. However, it was stressed that the program should be tailored to each school. It was also argued that future collaboration should adhere to core principles of participatory and experience-based teacher education and research.

The school leaders also proposed several ideas regarding the content of the collaboration. These proposals addressed challenges in school responsibilities linked to changes in the student population related to psychosocial issues, the need to align general subjects with vocational contexts, student participation in teaching, and artificial intelligence. Additionally, they emphasized the need for collaboration on recruiting vocational teachers. These proposals confirm that schools recognize a significant need for collaboration and competence development among both teacher educators and teachers in many areas.

None of these proposals has been implemented or institutionalized as part of the LUSY project. However, starting in 2024, YLU has received earmarked funds for collaboration with teacher education schools. Like many other teacher education institutions, YLU has established a coordinator position for this purpose and has developed partnership agreements with five schools, including the three that participated in LUSY. Plans for implementing the collaboration are to be developed jointly with the respective schools.

The leadership at YLU now intends for the institute to take over responsibility for maintaining contact with the teacher education schools. The primary focus for LUSY during the final phase of the project period in 2025 will be to disseminate the project's findings, which may then be integrated into future collaboration efforts.

## **7. Summarizing discussion: Principles for content and organization in collaboration between teacher education institutions and the practice field**

The LUSY project has aimed to develop and document knowledge about key principles for content and organization in collaboration between teacher education institutions and the practice field, focusing on professionally relevant teacher education. It has also sought to identify opportunities and barriers in such collaborations. The project has drawn on Norwegian and international research that highlights teacher education as insufficiently aligned with professional practice and emphasizes the need for stronger coherence and collaboration with the practice field (Darling-Hammond, 2017; Munthe et al., 2015; Schaug & Herudsløkken, 2019; NOKUT, 2023, 2024).

L-2025 provides guidelines for equitable collaboration in practice, education, and research, which have been central to the LUSY project (Ministry of Education, 2017). In the meta-study of research on teacher education mentioned earlier, Darling-Hammond (2017) summarizes the significance of the following measures: the establishment of specific partner schools, training programs for mentor teachers with an emphasis on connecting practice and theory, including mentor teachers in the development of study programs, qualifying teacher educators and teachers for practice-based research, qualifying teacher educators to connect practice and theory, developing the school as a learning organization, and creating platforms for dialogue between teacher educators and practice teachers. All of these have been emphasized in the main initiatives that were developed and partly trialed within the LUSY project.

In the epistemological analysis underlying the project, however, it is emphasized that the challenges regarding the lack of professional relevance are not only about the absence of collaboration between educational institutions and the practice field itself. The challenges stem from a dominant rationalist understanding of knowledge, competence, and education, which suggests that professional practice, such as teaching practice, is largely about applying theory. This

reflects the view that theory can be learned before practice, and that it is the researcher's role to develop the theory and the teacher educator's role to convey the theory, while teachers are expected to apply it.

Some of the research on teacher education includes claims that teacher students must be able to apply the theory that they have learned on campus into practice (Canrinus et al., 2019; Darling-Hammond, 2017). If the collaboration between teacher education institutions and the practice field has a rationalist foundation, it will be likely to influence the collaborative initiatives. It may become unclear what it means to connect practice and theory, and the notion that "theory comes first" may continue to dominate (Schön, 1995). A quantitative comparative study of teacher education at universities in five countries/cities (Havana, Helsinki, Oslo, Santiago, Stanford) suggests, for example, that students may face challenges in seeing the connection between what they learn on campus and what happens in practice, even when there is collaboration between the parties involved (Canrinus et al., 2019).

From a pragmatic epistemological perspective, there is a need for the content of teacher education at all levels to be based on and structured around experiences with the teacher's professional tasks and challenges (Koenen et al., 2015; Hiim, 2010, 2023). Experiences with authentic professional tasks can, from a pragmatist perspective, be considered a core element in the development of professional concepts. It is about experiencing the purpose of the practice one participates in and in what one learns, and about existential meaning (Dreyfus, 1991). Involvement, engagement, action, emotions, understanding, and values are integrated into a holistic concept of competence. Learning through experienced examples is a prerequisite for developing professional competence (Dreyfus & Dreyfus, 1986; Janik, 1996; Schön, 1983). Participation and social criticism are necessary in professional learning to ensure the consideration of different perspectives and values (Kemmis, 2012). Teachers' professional concepts must, from a pragmatist, critical perspective, be developed much more from within the practice itself. This means that there is also a need for research conducted by professional practitioners (Stenhouse, 1975; Elliott, 1991). Professions also develop within professional communities and organizations, such as the school organization (Eikeland, 2012a). Therefore, organizations with time and space for collective experience-based learning and co-influence are also an essential aspect of profession-relevant teacher education.

All of these principles were central to the main measures carried out in the LUSY project. Epistemological principles are, as mentioned, relatively seldom explicit in research on challenges and measures in teacher education. As mentioned, one exception is the epistemological approach to teacher education developed by Korthagen (2011), where professional practical experiences form the basis for student teachers' conceptual development, which has provided high learning outcomes (Hoekstra & Korthagen, 2011).

From a pragmatist standpoint, guidance tasks were central in the first part of the mentor teacher study (Koenen et al., 2015). Emphasis was placed on the fact that teachers' primary role is teaching—i.e., didactics in the broadest sense (Hiim & Hippe, 1993). The main task of the mentor teachers was defined as guiding student teachers and colleagues in didactic analysis and development through systematic pre- and post-guidance on the challenges experienced in concrete teaching situations (Lauvås & Handal, 2007). The content of the study was organized around a series of different, authentic guidance tasks that formed a type of paradigmatic examples, primarily dealing with didactic and guidance concepts (Janik, 1996). Tasks where participants faced specific challenges as teachers and mentors, such as language instruction for minority-language students, were highlighted and included in the guidance upon request by the participants.

Participants' evaluations of the study showed that they found it qualifying, meaningful, and relevant. They expressed satisfaction in being able to provide good guidance to colleagues and student teachers and felt that the sense of collegiality had been strengthened. They emphasized the importance of the guidance tasks being based on real challenges that they were professionally concerned with, and that the opportunity to influence both the tasks and content of the study had enhanced the learning outcomes. Overall, the results illustrate an example of a further education program for mentor teachers, organized around core principles of profession-based experiential learning and participation (Hiim & Sylte, 2024). The findings also suggest that specific, experienced teaching tasks and didactic analysis will be a key component in teacher education.

In the second part of the mentor teacher study, the focus was on concrete development and research tasks, as well as the school as a learning organization (Hiim, 2010; Eikeland, 2012a, 2022). The argument was that a good mentor teacher and a good teacher education school must have high development competence and be able to contribute to both student teachers and colleagues in terms of professional and organizational development.

As mentioned earlier, the study began with a dialogue conference, where the school's established focus areas were the main topics. Development work within each of these areas was initiated by the teachers themselves, based on the challenges that they were concerned with in their practice. A key purpose was for the participants to experience how a dialogue conference can contribute to participatory development and learning.

In the further execution of the study, the content was continuously organized around the participants' development work, which was carried out in the form of practitioner research (Elliott, 1991; McNiff, 2017). Furthermore, it was structured around the participants' chosen focus areas and development projects. The aim was to achieve experience-based development of professional competence and knowledge.

The second part of the practice teacher study also provided a foundation for research collaboration between teachers and teacher educators (Elliott, 1991; Hiim, 2010). Teacher educators who taught and supervised participants in each focus area—i.e., life skills, Norwegian language instruction for minorities, and assessment quality—were particularly engaged with the relevant topic. The study functioned as a research collaboration, where key perspectives within the respective areas were discussed, and development initiatives were systematically tested by teachers in their practice. The teachers both led and were responsible for the documentation in their projects. The systematic sharing of experiences between the projects created space for collective learning. The role of the teacher educators was to provide input and guidance, as well as to analyze, document, and communicate results from all the projects within the focus area. In this way, the research collaboration between teacher educators and teachers contributed to profession-based knowledge that was relevant to teacher education (Elliott, 1991).

Participants' assessments showed that they found it very meaningful to engage in development work and research that was based on the challenges that they had personally experienced and defined. They expressed that through this type of study, they felt respected and recognized for their professionalism. They were pleased to contribute knowledge both to their own school organization and to the teaching profession in collaboration with teacher educators and emphasized that the positive feedback received about the projects during the sharing conference mentioned earlier contributed to their professional pride.

The second part of the practice teacher study can also be considered as an example of how education in pedagogical development work and action research can be conducted based on fundamental principles of professional experiential learning and participation. These principles will be central to various teacher education fields and levels. The key is to develop knowledge that is grounded in teachers' professional practice through collaboration between teachers and teacher education researchers. Pedagogical action research is a well-known approach to teacher education in the United Kingdom and the United States, aimed at strengthening professional relevance (Elliott, 1991). However, the epistemological foundation has, to some extent, been interpreted in different directions, including a technical, rationalist direction where theory tends to take precedence over practice (Kemmis, 2012; McNiff, 2017).

The measures concerning dialogue conferences and meetings at the teacher education institution, at schools, and between the parties, as outlined in the collaboration agreement, aimed to develop a shared understanding of teacher competence and teacher education, and to establish and initiate structures for lasting collaboration (Eikeland, 2012a). The importance of shared understanding and lasting collaboration structures is emphasized in much of the research on teacher education (Canrinus et al., 2019; Darling-Hammond, 2017; Zeichner, 2010). The intention was that LUSY would be an innovation project that focused on the institutionalization of collaborative structures and content that could be continuously developed. According to the participants, the dialogue conference at Strømmen and regular dialogue meetings between teacher educators in LUSY contributed to shared understanding and valuable learning outcomes.

However, dialogue conferences at the teacher education institution and between the parties were barely implemented or tested. The absence of shared experience-exchange, dialogue, and organizational anchoring of the LUSY project at YLU poses a risk that the project may result in fewer lasting innovations for and between the parties than initially intended in the agreement that was made.

One of the reasons for the inability to organize joint dialogue meetings and conferences for the staff at YLU was the frequent turnover of institute heads, mentioned earlier. However, another part of the explanation may be that there are few traditions and structures for collective learning and organizational development in teacher education, and that individual teacher educators are often left to their own devices (Smith, 2010). Teacher education institutions tend to have a hierarchical, rationalist organization. Institute meetings largely focus on administrative issues and are partly characterized by one-way communication, whilst other meetings often focus more on solving assigned tasks than on

collective learning and the development of the teacher educator profession (Eikeland, 2012a).

To develop profession-relevant teacher education, there is, from a pragmatic, critical epistemological perspective, a need for both teacher education institutions and schools to be developed more as learning organizations with structures for experience-sharing, collective learning, and participation. Profession-relevant teacher education cannot be achieved through the instrumental implementation of pre-determined principles and procedures. It must be carried out as a process that is characterized by ongoing dialogue, both internally and with partner schools, in a form of mutually dependent or symbiotic learning system (Eikeland, 2012a).

## 8. Conclusion

Ongoing collaboration between the teacher education institution and the field of practice is necessary to develop profession-relevant teacher education. Results from the LUSY project point to a strategy for collaboration between the educational institution and the practice field, where a pragmatist, critical epistemological foundation plays a significant role. The focus of collaboration on teacher education must centre on creating opportunities for experience with professional teaching tasks and challenges. From this, concepts and theories of the profession are developed, as well as new practices. Furthermore, opportunities for critical reflection and democratic participation are prerequisites for ensuring that teacher education is socially relevant and sustainable.

Measures for equal collaboration between teacher education institutions and schools should be institutionalized as part of the regular tasks of the organizations, possibly through the reallocation of resources, to ensure continuity and development. The collaboration should focus on practice, educational programs, and research.

In this strategy, experience-based teacher education, including mentor teacher training, originates from the fundamental professional tasks of teachers/mentor teachers related to teaching and didactic guidance. Theoretical content is anchored in and organized around experience with these tasks. Additionally, development and research expertise are central for both teachers and mentor teachers. Experienced professional challenges form the basis for practice-based development and research projects carried out by teachers and/or teacher students, to which theory is systematically linked.

It is also essential to facilitate teacher educators' development and research in their practice, aimed at strengthening knowledge about profession-relevant teacher education. The research can be conducted in collaboration with teachers who are researching their own practice. An equitable collaboration on teacher education is characterized by mutual learning, where both parties have influence over educational content and research.

The professional competence of teachers and teacher educators is both individual and collective and forms a core in the educational organization. Regularly allocated time and space for collective reflection, development projects, and organizational learning are prerequisites for the teacher education institution and the school, both individually and together, to evolve towards a profession-relevant teacher education.

The biggest obstacle to professionally relevant teacher education may be established organizational structures and educational traditions characterized by a rationalist separation between practice and theory. There is a need for a paradigm shift where a holistic understanding of teacher competence forms the basis for the organization and content of teacher education.

There is also a need for further development and research on measures for collaboration between teacher education institutions and the field of practice, which includes investigations into students' learning outcomes.

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## Conflict of interest

The authors declare no competing financial interest.

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