

Article

Challenges in Developing Research-Based Teacher Education in Kazakhstan

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Abstract

Pre-service research training is widely recognized as a crucial component of teacher education, preparing teachers who are critical, reflective, and inquiry-driven. Aligning with this global trend, Kazakhstan has also adopted a research turn in teacher education to enhance the quality of schooling. This research examined the gap between policy intervention and institutional practices by exploring the barriers and challenges Kazakhstani universities encounter in implementing research-based teacher education. The study employed a qualitative multiple-case study research design. 45 academic staff and administration working at four teacher training universities were interviewed. Drawing on social practice theory, our study revealed that meaningful and sustainable implementation of research-based teacher education in Kazakhstan is hindered by a range of factors categorized into three intersubjective spaces: semantic, material, and social. We argue that the true transformation of teacher education into a more research-based field is impossible without concurrent remodeling of the arrangements that shape it.

Keywords: research-based teacher education; research-based learning; teacher preparation

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1. Introduction

Following the PISA results in 2009, which showed that Kazakhstani pupils' performance was lower than the OECD average (Tastanbekova, 2018), school education and the teaching profession in Kazakhstan have undergone substantial reforms and changes aimed at improving the quality of public schooling. Notably, in 2016, the government introduced the Renewed School Curriculum to enhance pupils' functional literacy, critical thinking, and capacity for creativity. Concurrently, the State Program for Education Development, adopted for 2016–2019, aimed to elevate the quality of pedagogical personnel and the status of teachers. These initiatives marked the inception of a broader modernization effort in the teaching profession, which included the adoption of the Professional Teacher Standard in 2017, the enactment of the Law on Teacher Status in 2019, and the introduction of new Rules for the Assignment of Qualification Categories to Teachers in 2020.

A significant aspect of these reforms is the emphasis on promoting research-informed teaching. For example, according to the teacher standards, school teachers in Kazakhstan are expected to engage in practitioner research, such as evaluating students' learning, conducting research on educational environments, and reflecting on their pedagogical practices.

Moreover, the top three levels of the teacher promotion categories—teacher-expert, teacher-researcher, and master teacher—require candidates to demonstrate engagement with research through lesson study and action research, and to disseminate their findings through publications in local or international journals (Sharplin et al., 2024). To address these policy objectives, teacher training universities in Kazakhstan were mandated to update teacher education curricula in line with the requirements of the teacher standards and to introduce educational opportunities to develop prospective teachers' capabilities for research-informed professional practice. The policy-driven research turn in teacher education in Kazakhstan demonstrates the national government's efforts to align the teacher preparation in the country with international trends, one of which links the quality of school education to research-informed teaching (BERA, 2014; Krokfors et al., 2011; Ulferts, 2021). The capacity of prospective teachers for research-informed teaching is developed within research-based teacher education programs (Malinen et al., 2012; Munthe, 2019; Toom & Husu, 2024).

A rich body of research highlights that pre-service teacher research training benefits prospective teachers in several ways. Particularly, it contributes to developing future teachers' inquiry mindset, critical reflexivity, knowledge of educational research, and capabilities to conduct their own research studies (Malinen et al., 2012; Toom et al., 2010). Moreover, research training allows prospective teachers to use theory and empirical evidence to make rational pedagogical decisions, adapt instruction to diverse student needs, and contribute to school development (Jarl et al., 2024; Tatto, 2021; van Katwijk et al., 2019). As such, research-based learning is considered essential to cultivating professional capabilities among teachers by encouraging evidence-based decision-making and ongoing professional development through engagement in research. Acknowledging the added value of research-based learning, universities globally are increasingly integrating research opportunities into teacher preparation. Such opportunities include reading and discussing research literature, research methods courses, research-based practicums, capstone projects, thesis writing, and student teachers' involvement in faculty research (Contreras et al., 2024; Krokfors et al., 2011; Niemi & Nevgi, 2014; Råde, 2013; Willegems et al., 2017).

The development of research-based teacher education is not straightforward, and as any other form of research capacity building in higher education, it requires substantial efforts and resources. The existing research argues that a clear understanding of the role of research in teacher education is imperative for a successful implementation of research-based learning for prospective teachers. As shown in prior research, science departments, which prepare subject teachers in some contexts, prioritize science-related research over educational theories and methodologies in teacher training and, as such, cause inconsistency in teacher preparation between pedagogical and non-pedagogical departments in terms of teachers' pedagogical knowledge (Caspersen & Smeby, 2023; Guilfoyle et al., 2024). There is also evidence that teacher educators, even within the same department, can have varied understandings of research in teacher preparation. Some believe that it is sufficient to train prospective teachers as consumers of research, while others perceive them as future producers of knowledge that can inform teaching practice (Brew & Saunders, 2020). The role of research in teacher education is also differentiated based on its purpose, either to serve as a tool to tackle everyday pedagogical challenges or as an internal attribute—research stance—to the teaching profession (Cochran-Smith & Lytle, 2009; Toom et al., 2010; van Katwijk et al., 2019).

Furthermore, robust research-based learning is contingent upon university teaching staff. To ensure that prospective teachers acquire the latest research knowledge about teaching and learning and develop an interest in using it in future professional practice, teacher educators need to have substantial research experience, specifically in the field of education (Caspersen & Smeby, 2023; Munthe & Rogne, 2015; Risan, 2024), as well as a

deep understanding of and active engagement in research-informed pedagogical practices. Effective research-based teacher education also presupposes an enabling organizational environment with adequate access to scholarly databases, advanced research infrastructure, relevant incentives, research-based career promotion policies, and sufficient research funding (Arnau-Sabatés et al., 2025; Tellmann et al., 2020; Valle et al., 2025). Additionally, stakeholder collaboration, particularly between university faculty and school teachers, is paramount for tackling the theory-practice dichotomy in teacher education and, as such, ensuring that the research component of teacher education programs is meaningful and relevant to prospective teachers' future professional practice (Afdal & Spernes, 2018; Puustinen et al., 2018; Willegems et al., 2017). The absence of these essential prerequisites for research capacity building in higher education can result in symbolic compliance in teacher education programs with policy-driven educational reforms and initiatives.

The existing literature on research-based teacher education is predominantly centered on Western countries. Moreover, there is a paucity of empirical research on teacher education in Kazakhstan (OECD, 2020). Few studies, which demonstrate a policy-practice gap in the integration of research in teacher preparation in the country, primarily focus on teacher educators' professional development through engagement in action research (Berikkhanova et al., 2023; Goodman et al., 2025) or prospective teachers' perceptions of research training and its role in their future careers at school (Mukhamejanova et al., 2025). This study addresses this gap by examining the experiences of teacher educators and university administration in implementing policy-driven, research-based teacher education at four Kazakhstani universities. Particularly, we focus on the barriers and challenges these policy enactors encounter in integrating research into teacher preparation amid growing academic autonomy (Government of the Republic of Kazakhstan, 2018) and post-Soviet institutional legacies. The following research question guided the study: What barriers and challenges do the selected Kazakhstani universities experience in integrating research into teacher education programs?

2. Theoretical Framework

To understand the conditions under which policy-driven research-based teacher education can be meaningfully implemented, this study draws on the lens of social practice theory. Particularly, our theoretical approach is based on the version of practice theory suggested by Kemmis et al. (2014), who argue that education is a complex social practice supported and prefigured by intersubjective spaces. According to this understanding of social practice, educational transformation is not individualistic and technical; it does not depend only on curriculum changes or equipping individuals with new ideas and tools to enact an educational reform. On the contrary, a sustainable educational transformation occurs through intersubjective spaces, in which individuals interact and enact practices. Intersubjective spaces are represented by three interrelated dimensions—semantic, material, and social (see Figure 1). Semantic space entails cultural-discursive arrangements and stands for shared language, discourses, ideas, and meanings that shape how teaching and learning are understood. Material space encompasses material-economic arrangements, such as physical space, time, infrastructure, and resources, that enable or constrain how things are done. Social space includes socio-political arrangements represented by relationships, roles, and patterns of interaction among those involved in a practice. Applying this theoretical framework helps shed light on the complex form of support required to implement policy-driven research-based teacher education in a meaningful and sustainable way.

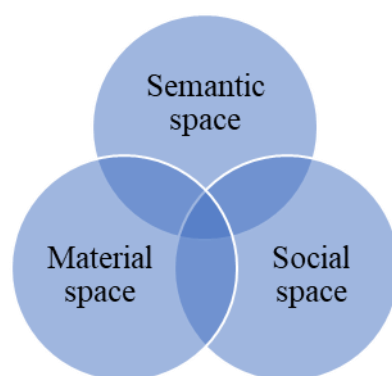


Figure 1. Intersubjective spaces shaping social practice. Developed based on Kemmis et al. (2014).

3. Materials and Methods

3.1. Research Design

This study employed a qualitative multiple-case study research design (Yin, 2009) to examine how universities in Kazakhstan implement research-based teacher education. The qualitative approach provided in-depth insights into the central phenomenon and an opportunity to grasp a detailed, contextual understanding of universities' experiences in enacting policy reform (Creswell, 2013).

Teacher education in Kazakhstan is delivered at 49 universities (Baigenews, 2023). For this study, we selected four public universities as research cases. The select universities, although representing diverse regions and academic contexts, have broadly comparable characteristics and, as such, ensure replication within the multiple case-study design. Established during the Soviet era as pedagogical institutes and turned through mergers into comprehensive higher education institutions shortly after the country gained independence in 1991, these universities are a part of centrally regulated higher education. Since 2018, the universities have been granted greater academic autonomy (Government of the Republic of Kazakhstan, 2018). Teacher education within these universities is not handled by a centralized department. Rather, pedagogical departments train prospective teachers for early childhood and primary education, whereas subject-specific departments prepare secondary school subject teachers and, as such, hold primary responsibility for designing corresponding curricula. Academic staff and university administration within teacher education programs in the selected universities were regarded as units of analysis. Their accounts contributed to understanding the selected cases.

3.2. Sample

A maximum variation sampling strategy was employed to capture a wide range of perspectives on and experiences in implementing research-based teacher education. The selected teacher educators and representatives of university administration came from different academic departments—pedagogical and subject-specific. Participants from subject-specific departments represented a variety of academic fields, including mathematics, physics, chemistry, biology, geography, and languages (Kazakh, Russian, and English). Moreover, the selected participants had diverse experiences in teacher education, spanning from two to more than fifteen years. Most participants ($n = 32$) in the sample held advanced research degrees, such as *Doktor nauk*, *Candidat nauk*, or PhD. The majority of participants from subject-specific departments specialized in their respective academic fields. In total, the sample included 45 participants, or around ten to fourteen participants from each research site. More detailed information on the sample is presented in Table 1.

Upon receiving ethics approval from the Research Ethics Committee of the Academic Integrity League, an association of higher and postgraduate educational institutions in

Kazakhstan, invitation letters briefly describing the study were sent to the chairs of departments providing teacher education programs at the four universities. The chairs were also asked to forward the letters to teacher educators, who were asked to contact the researchers via email or WhatsApp in case of interest in the study. Participation in the study was voluntary. Each participant was provided with an informed consent form.

Data were collected through individual semi-structured interviews, each lasting approximately 60 minutes and conducted face-to-face (only one interview was conducted via Zoom at the participant's request) in the language preference of the participants (Kazakh or Russian). Fourteen interview questions were developed for each participant category and focused on participants' background information (education, work experience, familiarity, and engagement with (educational) research), understanding of the purpose and value of research-based teacher education, and experiences, with a focus on barriers and challenges, in integrating research into teacher preparation.

Table 1. Information about the sample ($n = 45$).

Research Site Location		Position		Department	
		University Administration	Teacher Educators	Pedagogical	Subject-Specific
University A	Central	4	8	5	7
University B	East	4	10	2	12
University C	North	1	8	3	6
University D	West	3	7	3	7
Total		12	33	13	32

3.3. Data Analysis

The collected data were analyzed thematically (Braun & Clarke, 2006). First, the researchers independently familiarized themselves with the interview transcripts through repeated readings. After a series of discussions, they developed a preliminary coding book based on the study's theoretical framework and inductive approach. The coding book was then used independently by the authors to code the data in NVivo 11. The first author coded transcripts from universities A and D, while the second author worked on data from universities B and C. As new and interesting insights emerged, additional codes were added to the coding framework after discussions. Once coding was finalized, related codes were first grouped into categories and themes within each case. Then, cross-case analysis was conducted to identify commonalities, differences, and unique patterns across the four universities. Thus, each stage of data analysis involved iterative discussions of codes, categories, and themes until consensus was reached. This helped ensure coder consistency and the rigor of data analysis. Field notes taken during site visits provided additional data for triangulation, confirming findings from the interviews and offering insights for data interpretation.

To sum up, the qualitative approach to the study provided an in-depth and contextualized understanding of barriers and challenges the universities encounter in integrating research into teacher education. The replication logic, in turn, allowed us to compare findings across different settings and, as such, to strengthen the robustness and transferability of our findings (Yin, 2009).

4. Findings

The analysis showed that the integration of research into teacher education programs at the four universities is shaped by a complex set of factors that were grouped into three

intersubjective spaces of social practice (see Table 2). The following sections discuss them in detail.

Table 2. Barriers to research-based teacher education.

Intersubjective Space	Barriers
Semantic space	Various understandings of the role of research in teacher education
	Prevalence of positivist paradigm in the understanding of educational research
Material space	Poor infrastructure
	Cost-efficiency measures
Social space	Limited research culture
	Limited university-school collaboration
	Limited understanding of university autonomy

4.1. Semantic Space

The discourse around the role of research in teacher education and the teaching profession was one of the key factors shaping how academic staff and administration implement research-based teacher education. As the data analysis shows, participants from pedagogical departments across all four universities have diverse perspectives on pre-service research training. Several of them believed that research is important for prospective teachers' career-long learning and evidence-based professional practice. These participants stated that prospective teachers can tackle everyday classroom challenges by reading research literature and adopting the most appropriate pedagogical approaches, as well as by researching and reflecting on their teaching.

Teaching, after all, constantly requires ongoing inquiry. New technologies and methods keep emerging, and you need to know how to use them and how effective they are. In other words, it is about grounding all of that in research and then either using it in your own practice or, if you're a methodologist, recommending it to other teachers. (University A, Participant 2)

Others, however, emphasized an opinion far less related to inquiry-based teaching. Specifically, they related pre-service research to acquiring knowledge and skills for performing functional duties expected of teachers under the updated policy on the teaching profession, such as preparing pupils for international research competitions and producing research-based outputs to gain promotion. This very perspective was especially widely spread in subject-specific departments of the four research sites. Academic staff and administration from these departments repeatedly referred to the current national policy requirements imposed on school teachers.

Today, teachers are required to upgrade their professional categories every year. And one of the key criteria there is being a teacher-researcher. That means their students must complete research projects that advance to regional or national competitions and win awards. If teachers do not guide that kind of work, they will never be able to reach the highest professional category. (University A, Participant 12)

Moreover, the participants from science departments often noted that prospective teachers also need knowledge of research to be effective science teachers, which is required under the Renewed School Curriculum. Consequently, teacher educators in subject-specific departments prioritized science-related research in subject teacher curricula. Subject teachers were taught how to conduct scientific experiments and demonstrate them in class, as well as how to write graduation theses on science-related topics.

If teachers are research-trained, they can explain to pupils any topic from a scientific perspective and show how it applies to real life. Take, for example, the topic of the global economy. It is a very complex topic. How can teachers explain what the global economy is if they do not understand its scientific foundations themselves? (University B, Participant 10)

The differences in the discourses around research in teacher education at pedagogical and non-pedagogical departments shaped the differences in research training and, as a result, learning outcomes of corresponding student teachers. This situation demonstrates that different departments, even within one institution, lack consistency in approaching research-based teacher education. In contrast to pedagogical departments, the discourse of subject-specific departments lacks research-informed views of pedagogy.

It was also striking and deeply concerning that some participants openly acknowledged feeling uncertain about the content of research curricula in teacher education. For example, at universities A and C, a five-credit research methods course introduced into teacher education curricula under the mandate from above was initially taught by pedagogical departments with a focus on educational research, but then, without any discussion or explanation, it was moved to subject-specific academic units. Feeling uncertain about what to teach in terms of research in teacher education, these participants expressed a need for clearer guidance from the ministry.

There needs to be a unified standard [in research training]. But right now, there is no one. Each department teaches research in its own way. For example, pedagogical departments teach research methods in one way, and we teach them differently. Ideally, there should be a common requirement, like with math analysis, clearly stating which topics must be covered. It would be helpful to have something similar in research training as well. (University A, Participant 9)

Another particularly compelling finding in our data is that discursive practices in pedagogical departments at the four universities demonstrate a narrow epistemological orientation. Teacher educators from these departments framed their teaching within a strictly positivist paradigm. They frequently referred to educational experiments or evaluation tests as key research methodologies and methods that they taught their students. This overreliance on the limited methodological arsenal raises concerns about the quality of research training in these departments. It suggests that teacher educators in pedagogical departments, and even more so in subject-specific departments, may not have a solid grasp of educational research methodology. As such, teacher educators' limited expertise in research methodology poses a risk to developing quality research training in teacher education and, more importantly, to efforts to educate critical and reflective professionals.

Thus, in the semantic space, the provision of research-based teacher education at the four universities was challenged by various understandings of the role of research in the teaching profession. On top of that, teacher educators' limited capacity in educational research methodology constrained the development of prospective teachers' capabilities for inquiry-based teaching.

4.2. Material Space

4.2.1. Poor Infrastructure

One of the most significant and widespread barriers to the development of research-based teacher education we identified is the inadequate research infrastructure at teacher-training universities. Faculty across all four institutions reported limited access to essential tools, particularly data analysis software and subscriptions to international academic databases. The lack of qualitative and quantitative data analysis software restricts faculty's ability to teach research methods effectively. Without these tools, instruction is often

confined to theoretical explanations and manual demonstrations, making it difficult to introduce more practice-oriented research procedures. This not only limits students' opportunities to acquire essential research skills but also constrains faculty members' ability to maintain and further develop their own research expertise.

Mostly, we work with Excel... Other software programs are not available for us...It would actually be great. Yes, if we could explore and get familiar with those programs, it would be really helpful. If there were an opportunity to install them, that would make a big difference. (University C, Participant 6)

Equally problematic is the limited access to international research databases. Without subscriptions to major academic journals and repositories, faculty and students are cut off from the most recent developments in the field. This restricts their ability to engage critically with current research and incorporate cutting-edge findings into their own work. In some cases, this lack of access leads to the use of unethical or unauthorized means to obtain scholarly materials, reflecting both the demand for quality resources and the institutional failure to provide them.

Yes, we have this problem. Only Nazarbayev University has full access to all databases. We, on the other hand, have some limitations. I've experienced it myself, and in regional universities, it's really hard to get proper access to academic literature... Right now, we just search for whatever we can find and use what's available. That's the situation for now. (University B, Participant 1)

Faculty from Universities A and B also highlighted serious concerns regarding the overall academic infrastructure, particularly with respect to teaching and learning facilities. They reported the absence of basic modern instructional technologies such as interactive boards and smart TVs, as well as the presence of outdated and worn-out furniture in classrooms and lecture halls. Such conditions not only create an uninspiring learning environment but also hinder the implementation of innovative, research-based teaching practices that are central to research-based teacher education.

The university needs a better material and technical base, not just for this subject but in general. There's nothing here at all—no interactive whiteboards, no computers. There should be at least something. They could have put some equipment in at least three lecture rooms. (University B, Participant 2)

In addition to physical infrastructure, faculty expressed frustration over the lack of essential learning resources. Limited access to high-speed internet, which is critical for accessing online journals and conducting literature reviews, poses a major barrier to both teaching and independent research. Moreover, the inadequacy of library resources, especially the scarcity of textbooks on educational research methods, was a recurring theme in faculty interviews. This issue is particularly acute for those teaching in Kazakh, where the availability of up-to-date, context-relevant materials is even more limited.

Well, mostly it's Russian-language sources that are publicly available, mainly authors from the CIS. Unfortunately, works by Kazakhstani authors aren't always easy to find. (University A, Participant 2)

There are some textbooks in Russian, but translating them is difficult. Most students don't really make the effort to translate. For example, the students who came through the Serpin program don't know Russian at all. The Serpin students really struggle, if you ask them to translate the material, it's tough for them. So, we end up translating and preparing the textbooks ourselves. Basically, there just aren't proper textbooks available. (University A, Participant 9)

As such, outdated university infrastructure and limited access to quality research sources were one of the key impediments to integrating research into teacher training at

the four universities. This chronic shortage of research facilities also negatively influenced teacher educators' research capacity and, as such, their capability to enact research-based teacher-education.

4.2.2. Cost-Efficiency Pressure

Another widespread barrier faced by all four universities is the pressure to increase cost-efficiency, which manifests in various ways. In response to budgetary constraints, the universities employ different cost-cutting measures that are often ineffective, and sometimes outright harmful, especially in the context of teacher preparation. A striking example is the reduction in faculty workload related to supervising diploma papers, as seen at Universities A, C, and D. Additionally, University B has replaced the diploma paper defense with a comprehensive exam as the final attestation for future teachers. The former results in low-quality diploma papers, which still remain one of the few opportunities for pre-service teachers to develop research skills and gain exposure to educational research. The latter is even more problematic: it allows teacher-training institutions to graduate future teachers who have never conducted real research, and this happens at a time when Kazakhstan is placing increasing emphasis on research-based teaching at all levels.

I'm not sure what caused this decision, but last year students didn't write any diploma papers at all, and course papers were also removed... So, in the end, we're leaving students on their own. They graduate without ever getting the chance to try doing real research, working with data, or presenting it clearly and convincingly. (University B, Participant 12)

Another misguided cost-cutting strategy involves restructuring faculty workload so that teaching hours dominate. Previously, faculty responsibilities were more balanced, including time for diploma paper supervision, coursework guidance, and supervision of school internships. However, with diploma and internship supervision hours reduced to the bare minimum, and coursework supervision eliminated entirely, faculty members are now burdened almost exclusively with teaching duties. This not only results in an unmanageably high workload but also severely limits faculty opportunities for professional development and diminishes their capacity to deliver high-quality teaching.

One full teaching load is 680 h. Hours for diploma supervision have been reduced. It used to be 24 h per student. Now, most of our workload comes from teaching. If you look at the schedule, you will see what I mean. For example, I have eight classes tomorrow. Most teachers have at least five to six classes a day, including Saturdays. It is a very heavy workload. (University A, Participant 7)

All in all, the universities' cost-efficiency measures posed a substantial challenge to research training in teacher education programs. These measures undermined quality by constraining both prospective teachers' and teacher educators' engagement with research.

4.2.3. Limited Research Culture

The underdeveloped research culture is evident not only in the scarcity of material resources, as previously discussed, but also in the limited and inconsistent opportunities available for students and faculty to engage in educational research. On the surface, students appear to have various avenues to participate in research-related activities. The universities organize research competitions and student conferences, and many departments host research groups led by faculty members to offer extracurricular exposure to research practices, including opportunities to conduct independent or collaborative studies. However, these initiatives lack systematic organization and long-term sustainability. Events such as conferences and competitions may be held multiple times a year or not at all, depending on available resources and institutional priorities. Similarly, departmental research groups may be active one year

but dissolve the next, often due to waning student interest or faculty burnout, particularly since these efforts are typically unpaid and unsupported.

Up until this year, we had two academic clubs—one for linguistics and one for teaching methods. The students were really active, always coming up with new ideas and creating things on their own. But for some reason, this year we only have one academic club left. Just yesterday, there was a meeting of that remaining club. (University D, Participant 9)

Among faculty members, the issue of a lack of systematic support for research is equally pronounced. With the exception of University A, none of the participating universities provides consistent institutional or financial backing for faculty research. Most faculty research efforts are self-initiated and self-funded. For instance, a small proportion, no more than 20% across all four institutions, have successfully secured competitive state research grants through their own initiative. Another 20% engage in research as part of their doctoral studies or through so-called “initiative research,” which is conducted independently without external funding or institutional support, often at the faculty member’s own expense and on their personal time. University A stands out as an exception, where leadership has made efforts to support faculty research by offering small seed grants intended to help develop research ideas and facilitate applications for state funding.

Internal grants are our rector’s initiative to support young researchers. The idea is to help them feel more confident about writing research proposals and to give them a starting point for applying for government funding. The grant is given for one year. There are no strict requirements like having to publish in a Scopus journal, since that’s hard to do in just a year, but publishing an article in a local journal is possible. (University A, Participant 1)

A similar lack of systematicity is evident in the area of research training. While all four universities report offering research training opportunities, faculty feedback suggests a more nuanced reality. The training typically consists of sporadic guest lectures or courses tied to government reforms and external funding. These offerings are not aligned with faculty research interests and are often scheduled at inconvenient times, further limiting their usefulness. This absence of structure and continuity in research opportunities and training poses a significant barrier to fostering a robust and sustainable research culture among students and faculty.

Overall, poor infrastructure, limited access to research sources and facilities, cost-efficiency measures compromising quality, and an underdeveloped research culture constitute pressing material-level barriers hindering the universities from developing robust research-based teacher training. Tackling these barriers is critical for transforming teacher training in Kazakhstan into a more research-oriented paradigm.

4.3. Social Space

4.3.1. Limited University-School Collaboration

The universities in our sample maintain partnerships with local schools to support the preparation of future teachers. These partnerships primarily take the form of structured professional internships, during which students engage in teaching and educational activities in selected schools. In parallel, universities consult with schools on the design and content of their teacher education programs to ensure they meet the needs of the labor market. The internships are held annually, while the program revisions are conducted periodically based on feedback from school partners. Both forms of collaboration are well-established practices, formally supported and regulated by Atameken (the National Chamber of Entrepreneurs) and the Ministry of Science and Higher Education. The major shortcoming of the current university-school partnership is the lack of collaboration in

research. With few exceptions, such as sporadic involvement in school-level research competitions, university faculty do not engage in joint research activities with school teachers.

The problem is that this course [research methods in education], and really the students' whole academic experience, aren't connected to real school settings. In the past, we had a meaningful connection with schools. It wasn't just something we claimed; we actually did joint educational research, organized conferences together, and more. Students were involved in these activities. Even if they only contributed a small part, like processing data, developing materials, or helping carry out a project... Now, the course feels abstract to them. They not only struggle to see its relevance to their future teaching but also miss out on learning many practical methods. (University B, Participant 12)

This gap represents a missed opportunity. Research collaboration can provide university faculty with access to valuable field data, while enabling school teachers to critically reflect on their practice and gain evidence-based insights for improvement. Furthermore, students stand to benefit the most from such collaboration: they gain access to real-world research environments, develop hands-on research skills, and observe the direct application of their findings in educational practice. Unfortunately, this dimension of university-school collaboration is currently absent.

4.3.2. Limited Understanding of University Autonomy

In 2018, higher education institutions in Kazakhstan were granted financial and academic autonomy from the state (Government of the Republic of Kazakhstan, 2018). This shift enabled teacher-training universities, including the four examined in our study, to independently regulate their curricula, develop unique academic programs, and manage faculty workloads. However, our findings suggest that both university administrators and faculty members often misunderstand the nature of autonomy, viewing it primarily as a privilege rather than as a responsibility. Our fieldwork revealed that institutions frequently exercise their autonomy in ways that prioritize institutional convenience over educational quality when meeting the standards set by the Ministry of Science and Higher Education. In many cases, this pursuit of convenience has had negative consequences for the delivery of teacher education programs.

One clear example of this issue is the inconsistent implementation of educational research methods courses. In the 2020–2021 academic year, the Ministry recommended that all pedagogical programs include such a course. While all four universities promptly complied, the implementation was neither consistent nor systematic. At these institutions, the course's status fluctuated between elective and mandatory, even within the same program. As a result, one cohort might be required to take it, while the next was not. Additionally, both the course's focus and the delivering department varied considerably. At University A, for instance, the course initially focused on educational research and was taught by the pedagogy department. Later, it was reassigned to departments aligned with students' majors, and its content shifted accordingly, moving away from educational research. A similar situation occurred at University B, where the course, originally taught by the pedagogy department, was later transferred to the philology department, with its focus redirected toward academic writing. According to our participants, these changes were largely driven by internal challenges in distributing teaching hours across departments. Such strategic, yet superficial, adjustments reflect a broader pattern of using institutional autonomy as a means of bureaucratic flexibility rather than a vehicle for genuine academic enhancement.

The course itself is a good idea, but now they [university management] are trying to make it optional, to offer it as an elective. Previously, for the past one or two years, we made it mandatory as a required component. But now, after making it optional, there is

no more interest. Students don't choose it. For example, this year, no one chose it. (University A, Participant 9)

I think they [subject departments] might not agree to it [to teaching collaboratively with the pedagogy department], because each department is already responsible for its own workload. This is something entirely different. It is not related to the nature of the course; it's primarily about workload. Each department fights for its share of the workload. Just imagine the department giving up its own discipline. (University C, Participant 9)

In summary, the social-space barriers encompass sporadic university-school linkages in research and a limited understanding of academic autonomy within universities. These barriers impede the development of sustainable research training that is meaningful for teacher education graduates' future careers.

5. Discussion

This study examined barriers and challenges that academic staff and administration encounter in implementing policy-driven research-based teacher education at universities in Kazakhstan. We found that the integration of research into teacher preparation is challenged by a diverse set of factors representing three groups, such as (1) discursive practices around the role of research in teacher education and the teaching profession, (2) material challenges at organizational level including poor research infrastructure, cost-efficiency pressures, and underdeveloped research culture, and (3) limited research relations with stakeholders.

In line with previous research, our study reveals that individuals charged with teacher education hold diverse perceptions of research and its role in teacher preparation (Brew & Saunders, 2020). However, in contrast to the widely recognized understanding of pre-service research as cultivating an inquiry stance toward the teaching profession (Cochran-Smith & Lytle, 2009; Toom et al., 2010; van Katwijk et al., 2019), a more instrumental view of research dominates within the discourse at teacher training universities in Kazakhstan. More specifically, this view is underpinned by the necessity to prepare prospective teachers to perform functions associated with mentoring pupil research projects and producing research outputs imposed on school teachers by national policies. Research-informed views of teaching as a pedagogical process are less common at Kazakhstani universities, particularly in subject-specific departments. The inconsistency in research training of prospective teachers in Kazakhstan is also related to the content of research being taught in different departments. The fact that subject-specific departments prioritize epistemological and methodological knowledge of their own disciplinary fields in teacher education echoes findings from research raising questions about the effectiveness of organizing subject teacher preparation either within specific disciplinary departments or under an overarching academic unit, such as a School of Education (Caspersen & Smeby, 2023; Guilfoyle et al., 2024). Further, unlike arguments suggesting that contemporary research training in teacher education needs to embrace methodological pluralism (Davis, 2019; Murray & Vanassche, 2019), our study found that discursive practices in educational research at Kazakhstani universities are constrained to positivist epistemology, which could be attributed to historical contingencies, particularly the legacy of Soviet science that favored large-scale quantitative research in social sciences. The lack of methodological pluralism in teacher training causes serious concerns about the contribution of existing research training at Kazakhstani universities to cultivating teachers as critical and reflective practitioner-researchers with the capacity to value multiple ways of knowing. What is more compelling in our study is the uncertainty about the content of the research component among those tasked to prepare the future teacher workforce capable of

applying research-informed teaching. Coupled with the abovementioned findings, this insight highlights the fragility of research capacity at teacher-training universities in Kazakhstan. It also raises pressing concerns about the coherence and quality of the research training of prospective teachers in the country.

Consistent with prior studies (Munthe & Rogne, 2015; Risan, 2024), our research also indicates that the environment in which teacher education is embedded is essential for the success of research-based learning. In Kazakhstan, a country with still emerging research capacity in higher education and post-Soviet institutional legacies, organizational support and inter-organizational networks are of particular importance. To ensure rigorous research training in teacher preparation, teacher educators need to model professional behavior both as active researchers and educators whose pedagogy is informed by research. This, in turn, requires sufficient research funding, adequate research training, appropriate research incentives, and an organizational culture fostering research (Arnau-Sabatés et al., 2025; Tellmann et al., 2020; Valle et al., 2025). Moreover, networking with schools not only as research sites but as a place to learn practitioner research and to find research collaborators has the potential to make research training truly insightful and meaningful for prospective teachers (Afdal & Spernes, 2018; Puustinen et al., 2018; Willegems et al., 2017).

Interpreting the findings of our study through the lens of social practice theory (Kemmis et al., 2014), we begin by revisiting the core tenets of this theoretical framework. Social practices serve as the primary means through which individuals engage with and participate in society. Such participation occurs at the intersection of three intersubjective spaces: semantic, material, and social. According to the theory, practices cannot be transformed without concurrently reshaping the existing arrangements within these spaces that sustain them. In the context of our findings, this implies that the identified barriers to the effective implementation of research-based teacher education in Kazakhstani universities are not isolated challenges but are, in fact, embedded within and sustained by existing social practices. Addressing these barriers, therefore, requires not only reforming the practices of research-based teacher education but also transforming the underlying semantic, material, and social arrangements that shape and are shaped by those practices.

Barriers in the semantic space, particularly the lack of shared understanding between pedagogical and subject-specific departments, and the perception of research-based teacher education as merely a tool for career advancement rather than a foundational principle, can be addressed by developing clear university-level guidelines on the nature, relevance, content, and delivery of research-based teacher education. These guidelines should be informed by national documents (for example, the Professional Teacher Standard and the Concept for the Modernization of Teacher Education in the Republic of Kazakhstan) and international best practices. They should be actively disseminated and explained across all relevant departments during curriculum revisions in teacher education programs.

Barriers in the material space, including inadequate infrastructure, cost-efficiency pressures, and a limited research culture, call for strategic rethinking by university leadership. It is crucial for management to recognize that high-quality, research-based teacher preparation requires appropriate investment in resources and sustained support for a genuine research culture. Attempts to cut costs without regard for long-term consequences will inevitably undermine the quality of pedagogical education programs.

Barriers in the social space, especially those related to university–school collaboration and interpretations of university autonomy, require a collective effort from all stakeholders involved in pre-service teacher education. This includes fostering meaningful research engagement among faculty and students, promoting collaborative research with schools, and using institutional autonomy to enhance the quality and impact of teacher education delivery.

6. Conclusions

This paper aimed to illuminate the barriers and challenges that teacher training universities in Kazakhstan face in implementing research-based teacher education. Four universities from different regions of the country served as case studies. The research participants included faculty members and university administrators directly involved in the design and delivery of pedagogical education programs. Guided by social practice theory, we categorized the identified barriers into three intersubjective spaces: semantic, material, and social. This framework enabled us to examine the barriers both independently and in relation to one another, allowing for a more nuanced and comprehensive analysis.

Broadly, the findings reveal that universities face significant challenges in (1) understanding the nature and role of research-based teacher education (semantic space); (2) securing the resources and infrastructure required to effectively implement it (material space); and (3) fostering collaboration with schools and leveraging institutional autonomy to strengthen teacher preparation (social space). The relevance of this research lies in its systematic and theory-informed analysis of the barriers encountered by teacher-training institutions without strong research traditions. The findings and the social practice theory-based recommendations presented here can inform not only teacher-training universities in Kazakhstan but also similar institutions in comparable post-Soviet or developing contexts seeking to integrate research-based approaches.

A limitation of this study is its reliance on participant perceptions and experiences, which are inherently subjective. Nevertheless, these insights offer valuable first-hand perspectives that enrich our understanding of the practical and contextual complexities of implementing research-based teacher education. Future research could build on this study by incorporating longitudinal data to examine how these barriers evolve over time, or by exploring the perspectives of other stakeholders, such as in-service teachers, school administration, and policymakers. Additionally, comparative studies involving countries at similar stages of educational reform could further validate and extend the applicability of the findings.

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