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Developing Students' Global Skills: A Comparison of Primary School Teachers' Perceptions of Their Self-Preparedness and Competence

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ABSTRACT

The aim of this case study was to reconcile Kazakhstani educators' self-assessed readiness with actual outcomes, as highlighted by the 2018 Programme for International Student Assessment results in Western Kazakhstan. An online questionnaire survey of 340 prospective primary school teachers and 1200 in-service teachers and a complementary document analysis of the Pedagogy course at a pedagogical university were conducted. Despite self-reported readiness and practical skills for teaching global skills development, deficiencies in secondary school teacher preparedness, teaching and assessment methods, and professional development, as well as unsatisfactory Programme for International Student Assessment 2018 outcomes, were identified. This combination of survey data and contextual document analysis provided insight into teacher perceptions and curriculum alignment. Further investigation into classroom activities, curriculum content, teaching strategies, and assessment methods is recommended. This study establishes a basis for continued research into how teachers' perceptions affect student outcomes, aiming to improve educational methods and future achievements.

1 | Introduction

Globally, education reforms have introduced new teaching methods, market-driven strategies, and accountability measures such as high-stakes testing to enhance efficiency (Donaldson 2014). In Kazakhstan, reform efforts have included raising teacher salaries, improving social benefits, and enhancing qualifications (Fitzpatrick et al. 2018). However, these initiatives remain hindered by poor coordination and limited understanding of the foundational educational principles necessary for sustained progress at both the national and international levels (Nazarbayev University Graduate School of Education 2014).

Kazakhstan's participation in international comparative studies signals its intention to align with global education standards (Organisation for Economic Co-operation and Development [OECD] 2018a; Sarmurzin et al. 2021). The country joined the Programme for International Student Assessment (PISA) in 2009, 2012, 2015, and 2018 to benchmark student performance. PISA evaluates the applied knowledge and problem-solving abilities of 15-year-olds in real-life contexts, assessing their readiness for modern societal and workforce demands (OECD 2001). However, major challenges persist in teaching, assessment, and teacher preparation (OECD 2018b, 2019a). In 2018, Kazakhstan ranked 69th out of 79 countries in global competence, a decline linked to an outdated curriculum and pedagogy focused on theory rather than critical thinking (Azhmukhambetov 2020; OECD 2018a; Fimyar et al. 2014; Yakavets et al. 2017). Similar issues were evident in 2009, with rote learning undermining the development of essential reasoning skills (Nazarbayev University Graduate School of Education 2014). Although the Teaching

and Learning International Survey (TALIS) 2019 reported progress in professional development, Kazakhstani teachers still trail international peers in organising lessons, adapting instruction, and responding to student needs; many remain uncertain about their teaching abilities and how to apply innovative methods (OECD 2019a, 2019b). Shuinshina et al. (2023) noted that most teachers struggle to articulate or implement strategies to foster global skills.

While Kazakhstan clearly aspires to meet these international education targets, systemic barriers rooted in legacy practices, centralised governance, and inflexible curricula significantly constrain their practical implementation. Bridging the gap between global educational ambitions and local pedagogical realities requires examining how educators perceive and enact these global objectives within their classrooms.

With globalisation accelerating, educators are increasingly expected to cultivate students' global skills and support lifelong learning (Zharylkassyn 2023). Skills such as critical thinking, collaboration, problem-solving, and intercultural communication are now central to educational reforms aligned with labour market needs (World Savvy, n.d.; Breslow 2015). Effective globally oriented teaching connects learning to real-world contexts, values student diversity, and nurtures higher-order thinking (Tichnor-Wagner et al. 2019). However, many schools continue to rely on teacher-centred instruction and rote memorisation, limiting opportunities for students to develop problem-solving abilities (Echazarra et al. 2016).

In this case study, how global skills and perspectives are addressed in Kazakhstan's teacher education is examined through the exploration of pre-service teachers' perceived readiness, in-service teachers' classroom practices, and the integration of global perspectives into pedagogy course content.

2 | Literature Review

2.1 | Theoretical Foundations of Global Skills and Global Competence

Programs such as PISA, as well as agendas such as the United Nations Sustainable Development Goals, have highlighted the importance of equipping students with the capacity to navigate global challenges through education (United Nations Educational, Scientific and Cultural Organisation [UNESCO] 2022). Central to this effort is the concept of global competence, which the OECD (2018a) defines as the ability to critically examine local, global, and intercultural issues; understand and appreciate multiple perspectives; communicate respectfully across cultures; and take responsible action for collective well-being and sustainable development. UNESCO (2015, 22) adds that the cognitive domain of global competence includes "the knowledge and thinking skills needed to better understand the world and its complexities."

Although "global competence," "global skills," "global citizenship," "global awareness," and "intercultural competence" are sometimes used interchangeably, they have nuanced differences and may be applied inconsistently (Oxley and Morris 2013; Tichnor-Wagner et al. 2019). Global competence is widely recognised as a multidimensional construct encompassing cognitive, socio-emotional, and behavioural domains (OECD 2018a; Reimers 2009; UNESCO 2015). Global skills, while sometimes treated as a subset, closely align with the cognitive domain of global competence. These skills include critical thinking, communication, collaboration, creativity, intercultural competence, digital literacy, emotional regulation, and well-being (Mercer et al. 2019). Similarly, Bourn (2018) describes global skills as the ability to communicate and collaborate across diverse contexts, appreciate international perspectives, solve problems, understand global impacts, and participate actively in society. These competencies are essential not only in classrooms and workplaces but also for broader social engagement and cooperation.

Building on this, Bourn (2020) argues that global skills should extend beyond economic or labour market needs to support social justice, equity, and sustainability. From this perspective, global education requires a transformative pedagogy that challenges dominant assumptions, fosters critical reflection, and engages learners with the ethical, political, and environmental dimensions of global issues.

2.2 | Fostering Global Skills Through Curriculum and Pedagogy

Higher education institutions play a pivotal role in preparing students for the demands of 21st-century life and work. Beyond academic and technical preparation, universities are increasingly responsible for fostering global skills that support adaptability in a rapidly changing world. Beck (2000) observes that globalisation reshapes education by challenging traditional, lecture-based methods and calling for more dialogic, interactive approaches that promote critical thinking and curricular internationalisation. These shifts require educational institutions to develop pedagogical strategies that support student engagement with complex global issues.

Critical pedagogy contributes to this effort by encouraging students to examine knowledge through ideological and societal lenses, emphasising the value of active participation and social change (Bourn 2018). As Newell-Jones (2007) highlights, fostering such competencies means cultivating the ability for critical engagement in real-world contexts.

Integrating global perspectives into curricula is essential for developing cultural awareness, flexible thinking, and a deeper understanding of global interdependence (UNESCO 2014). The inclusion of diverse international content across disciplines allows students to encounter multiple worldviews and strengthens their sense of global citizenship (Diano Jr et al. 2023). According to Tiana et al. (2011), however, the effective development of these competencies requires a coherent and well-structured curriculum framework; fragmented or superficial inclusion often fails to yield meaningful outcomes.

Teachers, as key facilitators, must create environments that support deep learning and intellectual curiosity. This involves applying varied strategies tailored to learners' needs, establishing trust, and promoting collaboration. In such environments,

students are encouraged to think critically, integrate diverse sources of knowledge, and engage creatively—skills fundamental to both academic and global competence (Caena and Redecker 2019).

2.3 | Gaps in Pre-Service Teacher Education in Kazakhstan

The quality of teacher education profoundly shapes classroom practices and student outcomes. Blömeke et al. (2015) emphasise that the knowledge and skills acquired during initial training influence how teachers organise instruction. In line with global trends, many countries have reformed teacher education by integrating theoretical foundations with classroom practice to better equip educators for 21st-century demands (Goodnough et al. 2009). Kazakhstan has followed this path, participating in efforts to modernise its teacher education model.

Globally, the recognition of the pivotal role of teacher education has led countries, including Kazakhstan, to develop more responsive and effective teacher preparation systems (Sharplin et al. 2016). For example, the Teacher Education Reform program demonstrates Kazakhstan's commitment to preparing educators for contemporary educational challenges (Cochran-Smith and Zeichner 2005). However, significant structural barriers remain. The education system is still perceived as largely inherited from the Soviet era, characterised by rigid specialisation, strong theoretical emphasis, and teacher-centred approaches (Ahn et al. 2018). These features often marginalise practical training in favour of content-heavy instruction. Criticisms have underscored the prioritisation of abstract knowledge over practical classroom competencies (Yakavets et al. 2017). Teachers trained under the Soviet system were expected to strictly adhere to prescribed methods, and any deviation risked humiliation or job loss (Courtney et al. 2023). These fear-based experiences continue to shape institutional cultures and are believed to fuel senior teachers' resistance to pedagogical innovation (Burkhalter 2013). Consequently, despite efforts by the Ministry of Education and Science to promote progressive teaching strategies, their classroom implementation remains inconsistent and often ineffective.

According to TALIS, over 85% of Kazakhstani teachers receive training in both pedagogy and subject-specific content. Teachers rate their preparation relatively highly—89% for content knowledge and 84% for pedagogy—surpassing the OECD (2019a) average. Moreover, 94% of teachers report participating in collaborative practices such as peer observations and mentoring. Yet, these quantitative indicators do not reflect the persistent qualitative deficiencies within Kazakhstan's pedagogical universities and training centres.

Kulakhmetova et al. (2015) and Sharplin et al. (2020) highlight enduring theory– practice gaps in Initial Teacher Education programs. Curricula remain heavily weighted toward theoretical instruction and poorly aligned with real-world teaching contexts. Pre-service teachers often receive limited exposure to inclusive education, inquiry-based methods, and interdisciplinary skills, leaving them underprepared for diverse and evolving school environments. The dominance of subject-specific, lecture-based models undermines efforts to build reflective and innovative teaching practices.

These issues are further compounded by weak alignment between teacher education curricula and the reformed secondary education system. Although secondary education in Kazakhstan underwent significant updates in 2016—including the adoption of competency-based standards and inclusive pedagogies—universities have been slow to integrate these reforms into teacher training (Ministry of Education and Science 2018). As a result, anticipated learning outcomes in Initial Teacher Education programmes continue to emphasise theoretical mastery over classroom application and lack coherence with national professional standards (Sharplin et al. 2020).

According to Duisembekova's (2013) examination of the educational landscape, while student practicums are a formal requirement in Kazakhstani teacher education, their quality varies significantly across institutions. Practical components are often disconnected from broader curricular goals and lack structured supervision. Moreover, curricula for prospective teachers omit global perspectives, interdisciplinary approaches, and research training—critical elements in preparing teachers for global skills development (Courtney et al. 2023; Pons et al. 2015).

2.4 | Systemic Barriers to In-Service Teacher Development

Kazakhstan's transition from a Soviet-era, teacher-centered education system to a student-centered framework aligned with global standards has presented numerous challenges for in-service teachers. Historically, the Soviet education system emphasised rote memorisation, passive learning, and ideological conformity (Kanayeva 2019). These practices left a legacy of centralised governance, described by Castells (2011) as "statism," which continues to limit teacher autonomy and innovation (Kanayeva 2019). While reforms aim to modernise pedagogy, significant barriers remain in supporting in-service teachers to adapt to the evolving educational landscape.

Implementing student-centered and inquiry-based approaches, central to global education, requires teachers to adopt new pedagogical mindsets and methods. Yet, many in-service educators have had limited exposure to contemporary teaching practices, thereby struggling to integrate strategies such as collaborative learning, critical thinking, and problem-solving into everyday classroom instruction (Zhunussova et al. 2022). Bureaucratic structures and entrenched hierarchies further impede the shift towards flexible and responsive pedagogies (Kulakhmetova et al. 2015).

Professional development plays a crucial role in facilitating this transition. According to TALIS 2018, 86% of Kazakhstani teachers reported professional development's positive impact on lesson planning—above the OECD (2020a) average of 82%. However, professional development remains insufficiently frequent, often disconnected from real classroom needs, and overly

generic (Sarmurzin et al. 2023). The requirement for formal professional development every 5 years is viewed by many educators as outdated and inadequate for keeping pace with educational reforms.

Institutional and cultural barriers also complicate the professional learning environment. Ayubayeva (2018) found that teachers often hesitate to share pedagogical opinions, perceiving that academic researchers and curriculum designers hold greater authority than practitioners. This power imbalance discourages collaborative curriculum development and marginalises practical classroom knowledge.

Heavy workloads further constrain teacher development. Kazakhstani teachers work an average of 49 h per week—significantly more than the OECD average of 39 h—with only 15 h spent on actual teaching. The remainder is consumed by administrative tasks, student assessment, and curriculum adaptation (OECD 2020a). Time constraints and rigid schedules remain major obstacles: 35.5% of teachers report a lack of time as a barrier to engaging in professional development, and 35% cite conflicting work schedules (Zhumabekov et al. 2024). Despite these challenges, many educators express strong motivation to improve their practice, especially in areas such as integrating technology and active learning.

Kazakhstan's performance in international assessments underscores the need to address these systemic issues. In both PISA 2018 and 2022, Kazakhstani students scored below the OECD (2018a, 2023) average in reading, mathematics, and global competence. Shuinshina et al. (2023) found that teachers attributed these outcomes to outdated curricula, insufficient classroom time, and excessive non-teaching responsibilities. While new instructional materials include real-life and inquiry-based content, their effective use is limited by a lack of training, confidence, and institutional support.

To overcome these barriers, the OECD (2020b) recommends increasing teacher autonomy, strengthening foundational literacy and numeracy, and expanding access to targeted, relevant, and timely professional development. Sustainable change will require not only improving resources and training opportunities but also shifting institutional mindsets to value teachers as central agents in Kazakhstan's educational transformation.

2.5 | Comparative Insights From Other Post-Soviet Contexts

While the focus of this study is Kazakhstan, a brief comparative glance at neighbouring post-Soviet education systems provides valuable context. Pre-service teacher education in Kyrgyzstan, Azerbaijan, and Tajikistan, for example, often remains institutionally stagnant, under-resourced, and socially undervalued. Silova (2009) highlighted how, in Azerbaijan and Kyrgyzstan, teacher education programs frequently attract students with lower academic achievements, reflecting diminished career prestige and limited professional opportunities. Soto (2022) similarly identifies structural limitations in Kyrgyzstan's vocational teacher education, such as outdated qualification frameworks, fragmented legislative support, and insufficient integration of pedagogical theory and practical skills. Momunalieva et al. (2024) further underscore persistent gaps between policy aspirations, such as alignment with the Bologna process and digital transformation, and the actual experiences of teacher educators, who often lack adequate resources and professional development.

In-service teacher development in these contexts also faces substantial barriers. Tajikistan's teacher training infrastructure has deteriorated since the Soviet era, undermining teacher retention, qualification upgrades, and institutional capacity (Dastambuev 2024). Likewise, Joldoshalieva (2007) observes that Kyrgyzstan's continuing professional development programmes remain fragmented, underfunded, and disconnected from reform narratives. Chattopadhay and Jankunaite (2023) argue that without systemic investments in structured induction, mentoring programmes, and digital infrastructure, professional development in these countries risks remaining superficial rather than transformative.

Compared to these neighbouring systems, Kazakhstan's more centralised approach demonstrates comparatively stronger institutional coherence and alignment with global educational standards, despite its ongoing structural challenges. Recognising these regional differences clarifies Kazakhstan's relative progress and highlights persistent systemic vulnerabilities common to post-Soviet educational contexts.

3 | Materials and Methods

3.1 | Research Design

A quantitative methodology was used, employing a questionnaire for data collection. The methodology was supported with document analyses to provide the broad contextual background for the study. These approaches facilitated the study's focus on global perspectives in teacher education and the development of global skills. The goal was twofold: to examine in-service and primary school teachers' preparedness for developing students' global skills as well as identifying the extent to which global perspectives are integrated into teacher education.

To deepen the contextual understanding, this research adopted elements of a case study design (Yazan 2015), drawing upon the interpretive perspective articulated by Stake (1995) and structured protocols described by Yin (2014). This hybrid approach allowed for an in-depth examination of the complex interactions between teacher perceptions, curriculum content, and institutional practices within the specific context of Western Kazakhstan. By integrating qualitative document analysis with quantitative survey data, methodological triangulation was employed to strengthen the validity and robustness of the study's findings.

The study's direction was guided by the following research questions:

RQ 1. To what extent are global perspectives integrated into the Pedagogy course within the “Pedagogy and Methods of Primary Education” program?

RQ 2. How do primary pre-service teachers in Western Kazakhstan assess their preparedness to use teaching methods for fostering students' global skills?

RQ 3. What factors do in-service teachers perceive as supporting or hindering students' acquisition of global skills?

RQ 3a. What instructional strategies do in-service teachers report using to develop students' global skills in classroom settings?

3.2 | Research Context and Participants

This study was conducted in Western Kazakhstan, a region that has ranked low in PISA global competence assessments (OECD 2018a). Participants included 340 pre-service teachers from pedagogical universities and 1200 in-service primary teachers from urban and rural schools. The pre-service teachers were predominantly women (99%) and students in their second to fifth year of study (Table 1). The in-service teacher sample also reflected high female participation (99%) and included a wide range of teaching experience and education levels (Table 2). This gender distribution aligns with broader national patterns; in Kazakhstan, the Pedagogy and Methods of Primary Education programme predominantly attracts women. As a result, primary teaching has become one of the most feminised professions in the country, more so than in many other OECD nations (OECD 2019a).

3.3 | Data Collection Procedures

Data were collected via an online survey administered through the "Qualtrics" platform. Ethical approval was obtained from relevant institutional bodies, and informed consent was collected from all participants. The survey was distributed via WhatsApp through official university and school channels with authorisation from the Department of Education and university administration.

TABLE 1 | Pre-service teachers' background information.

Characteristics	Categorization	%
Gender	Men	1
	Women	99
Nationality	Kazakh	94
	Other	6
University	A University	37
	B University	11
	C University	19
	D University	10
	E University	23
Bachelor's degree course (year of study)	2	19
	3	37
	4	36
Master's degree course		8

TABLE 2 | Primary in-service teachers' background information.

Characteristics	Categorization	%
Gender	Men	1
	Women	99
Age (years)	19–25	10.1
	26–30	10.2
	31–40	25.6
	41–50	33.4
	51–60	19.8
	> 61	1
Teaching work experience (years)	< 1	1.1
	1–5	15.5
	6–10	14.6
	11–15	11.6
	16–20	15.3
	21–25	10.8
	26–30	14.7
	> 30	16.4
Education	Secondary specialised education (college)	26.3
	Bachelor's degree	57.3
	Master's degree	15.6
	PhD	0.8

The instruments were adapted from validated international tools (Ainley and Carstens 2018; Damiani 2020) and translated into Kazakh and Russian using a forward–backward translation method to ensure linguistic accuracy and equivalence. A pilot test was subsequently conducted with 15 participants (10 pre-service, 5 in-service) to assess item clarity, cultural relevance, and technical functionality. Participant feedback during pilot testing resulted in revisions, including the rewording of ambiguous items, adjustments to Likert-scale wording for consistency, and minor structural refinements to enhance readability.

Following the pilot test, survey responses were systematically coded according to predefined constructs—teachers' preparedness, perceptions of global skills, instructional strategies, and professional development—as outlined in the adapted instruments (Ainley and Carstens 2018; Damiani 2020). Responses were numerically organised and entered into SPSS for statistical analysis, facilitating the identification of response patterns and relationships within the data. The final survey instrument demonstrated strong internal consistency, with Cronbach's alpha coefficients exceeding 0.86 across subscales.

3.4 | Research Instrument

A survey was conducted to collect the self-reported perspectives of both pre-service and in-service teachers. The pre-service teacher questionnaire consisted of three sections: (1) demographic information, (2) perceived preparedness in teaching methods, and (3) self-assessed readiness to foster students' global skills. Items were rated on a 4-point Likert scale ranging from 1 (very poorly prepared) to 4 (well-prepared). The in-service teacher questionnaire also included three sections: (1) demographic information, (2) factors influencing global skills development, and (3) frequency of using various teaching strategies. Items were rated on a 5-point Likert scale: for agreement (1 = strongly disagree, 5 = strongly agree) and for frequency (1 = never, 5 = always). A summary of the questionnaire constructs, sample items, scale formats, and reliability coefficients is presented in Appendix 1.

3.5 | Data Analysis

Both descriptive and correlational approaches were used to analyse quantitative data. The descriptive component of quantitative research provides a detailed account of the characteristics of the participants or phenomena under investigation, while the correlational aspect explores associations among variables (Creswell and Creswell 2017). In this study, descriptive statistics were used to summarise participants' background characteristics and self-assessed preparedness, while Spearman's rank correlation was applied to examine relationships between teacher characteristics (e.g., work experience) and reported practices related to global competence. Correlation coefficients were interpreted using Cohen's (1988) criteria: small ($r \approx 0.10$), medium ($r \approx 0.30$), and large ($r \geq 0.50$).

The survey data were first coded and organised using Microsoft Excel and then imported into SPSS Statistics version 26.0 (IBM Corp., Armonk, NY, USA) for statistical analysis. Frequencies and percentage distributions were calculated to represent patterns across responses. Correlation analyses were conducted to identify potential associations, such as between teaching experience and the frequency of using global competence-related instructional strategies.

The curriculum analysis of the Pedagogy course was conducted using a deductive content analysis approach. Course elements were reviewed and mapped against internationally recognised frameworks for global competence (e.g., OECD, UNESCO) to evaluate the inclusion of and emphasis on global themes. While the document analysis served as a qualitative element, it was not designed as an independent qualitative strand but rather as a contextual supplement to support the interpretation of quantitative findings.

4 | Results

4.1 | Primary Pre-Service Teachers' Self-Preparedness and Fostering of Global Skills

More than half of the participants (53.9%–65.1%) reported feeling well prepared to employ all the teaching methods and approaches listed in the questionnaire to enhance global skills among future students (Figure 1). Effective methods for fostering global skills include pair and group work, role play, classroom discussion, and problem-solving (Shieh and Chang 2014). For instance, pair and group work encourages collaboration and intercultural communication, whereas role play enhances cultural understanding and empathy.

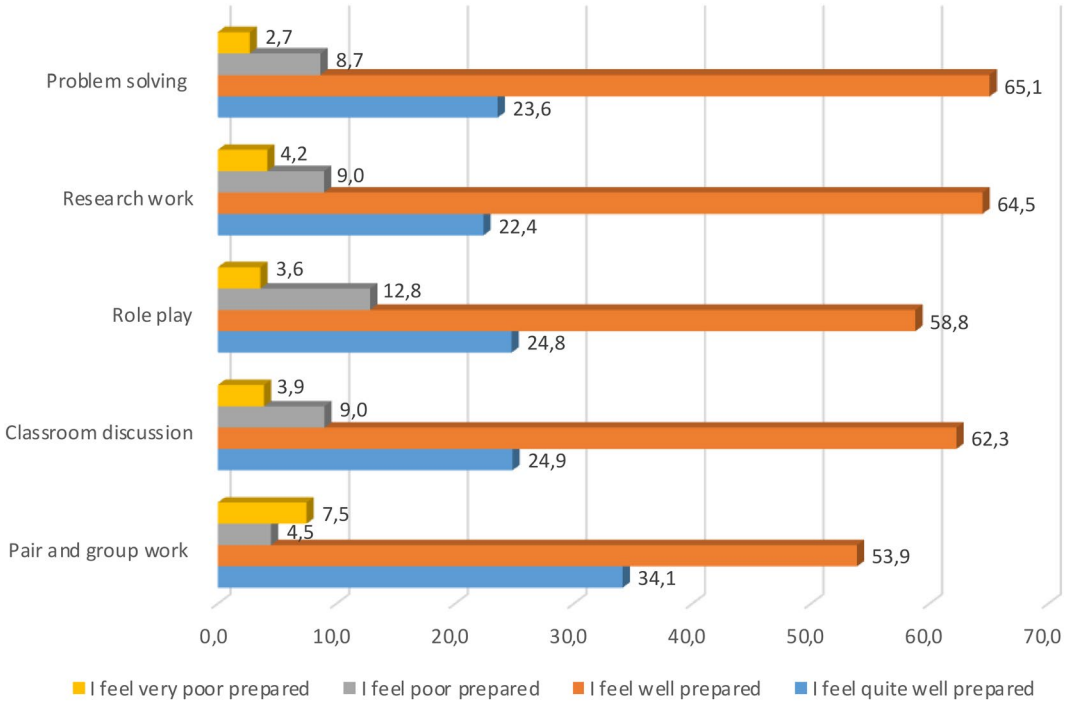

FIGURE 1 | Participants' answers to the question "How well prepared do you feel to use the following teaching methods and approaches?" The scale reliability of the variables is of good quality, and the Cronbach's α coefficient is > 0.876.

Similar results were found for teachers' preparedness to foster students' global skills (Figure 2). The majority of pre-service teachers (54%–68.4%) felt well prepared to enhance skills such as critical thinking, cultural diversity appreciation, and conflict resolution.

While pre-service teachers reported a high degree of perceived readiness, the in-service data revealed gaps between intention and implementation, highlighting tensions between pedagogical ideals and practical realities.

4.2 | Factors Influencing Students' Acquisition of Global Skills Based on Teachers' Perspectives

In the survey of in-service teachers, 66% agreed or strongly agreed that their work experience significantly contributed to developing students' global skills (Figure 3). Furthermore, an equivalent proportion of participants (65%) emphasised the importance of teachers' research and information and communications technology skills in enhancing global skills within the classroom.

Most teachers, representing 78% of the participants, concurred that the teaching methods employed in the classroom had an impact on students' skill development. In this case, only a minor proportion (11%) reported disagreement with teaching methods as a factor influencing the development of students' global skills. Additionally, 74.2% of the teachers considered continuous professional development an influential activity for teaching global skills.

Table 3 shows a statistically significant but very weak negative correlation between in-service teachers' work experience and their research skills ($r = -0.129$, $p < 0.01$), suggesting that younger teachers might be more engaged in research practices. Similarly, classroom teaching methods and strategies showed no significant correlation ($r = -0.011$, $p = 0.706$). Teachers' continuous professional development demonstrated a small but significant positive correlation with work experience ($r = 0.065$, $p < 0.05$), indicating a limited relationship. ICT skills showed no significant correlation ($r = 0.032$, $p = 0.272$). These findings suggest that although some relationships were statistically significant, the effect sizes were generally small, indicating limited practical relevance.

4.3 | Developing Students' Global Skills: Methods and Strategies Used by Teachers

In-service teachers' survey responses (Figure 4) revealed the frequency with which they employed teaching methods and strategies to enhance students' global skills during lessons. The data revealed that certain strategies were frequently incorporated into classroom practice; these included "Teaching through real-life examples" (35.7%), "Using problem-solving strategies" (38.4%), "Cultivating students' self-study abilities" (37.3%), and "Encouraging teamwork among students" (39.7%), as frequently indicated ("often") on the Likert scale. This finding suggests that in-service teachers frequently integrate these approaches into their teaching methods.

A significant proportion of the participants indicated "sometimes" (32.3%) or "often" (34.3%) for "Using research-based and creative learning," suggesting the importance they placed on integrating creative and project-based learning into their teaching methods. Providing individualised feedback to students was deemed highly important for fostering engagement, with 75.5% of the participants indicating they "often" or "always" employed this strategy. The small number of "never"

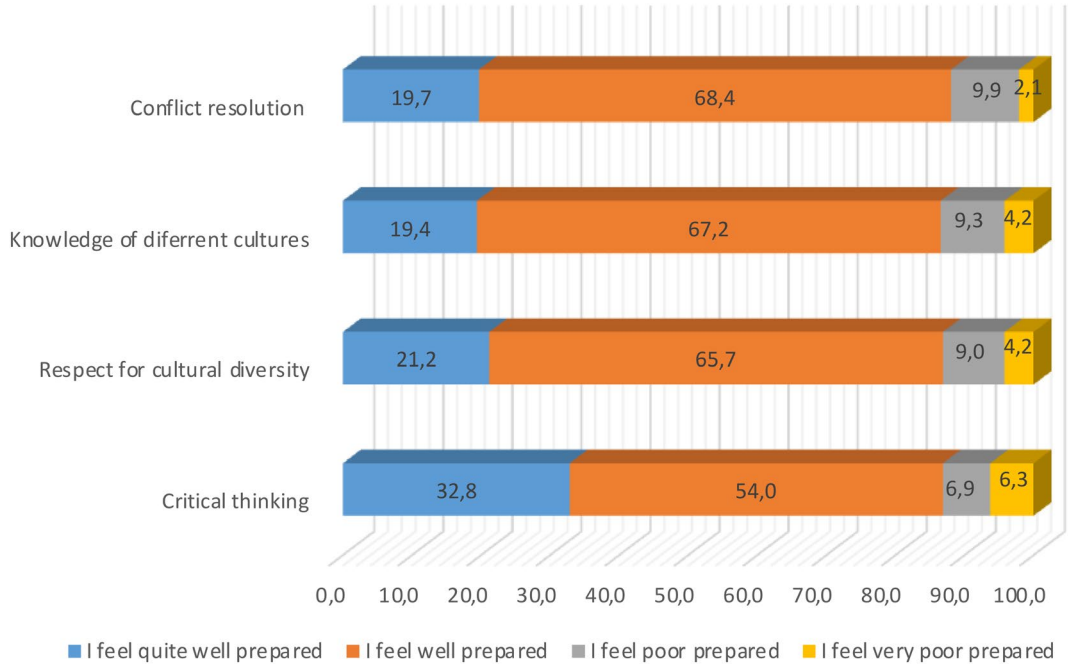

FIGURE 2 | How well prepared do you feel to foster students' knowledge, skills, and attitudes? The scale reliability of the variables is of good quality, and the Cronbach's α coefficient is > 0.867.

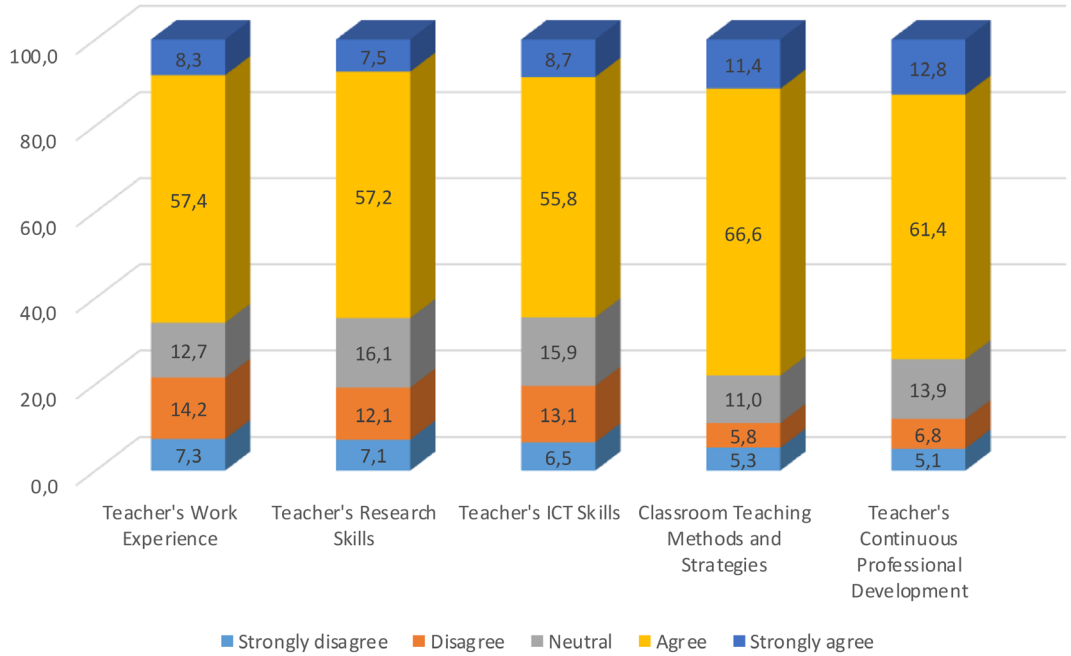

FIGURE 3 | Factors influencing students' acquisition of global skills based on teachers' perspectives. The scale reliability of the variables is of good quality, and the Cronbach's α coefficient is >0.888.

TABLE 3 | Spearman's rank correlation of in-service teachers' skills and work experience.

			Work experience
Spearman's rho	Teachers' research skills	Correlation coefficient	−0.129[b]
		Sig. (2-tailed)	0.000
		N	1202
	Teachers' ICT skills	Correlation coefficient	0.032
		Sig. (2-tailed)	0.272
		N	1202
	Classroom teaching methods and strategies	Correlation coefficient	−0.011
		Sig. (2-tailed)	0.706
		N	1202
	Teachers' continuous professional development	Correlation coefficient	0.065[a]
		Sig. (2-tailed)	0.024
		N	1202

Abbreviation: ICT, information and communications technology.
[a]Correlation is significant at the 0.05 level (2-tailed).
[b]Correlation is significant at the 0.01 level (2-tailed).

responses (0.5%) suggests a widespread assumption among in-service teachers regarding the effectiveness of individualised feedback.

Table 4 reports the findings of Spearman's rank correlation coefficient between in-service teachers' work experience and their use of strategies and teaching methods to develop students' global skills. As shown in the table, five of the six teaching strategies demonstrated no statistically significant correlation with experience. "Facilitating teamwork among students" showed a small but significant negative correlation ($r=-0.080$, $p<0.05$), and "Applying project-based, research-based, and creative tasks" also showed a very weak negative correlation ($r=-0.071$, $p<0.05$). These findings suggest that less experienced teachers may be more inclined to use student-centered approaches, although the effect sizes are minimal. Overall, the magnitudes of the significant correlations were small ($r<0.10$), consistent with Cohen's (1988) guidelines, and underscore the weak association between teaching experience and the use of global-skills-oriented strategies.

4.4 | Course Content in the Primary Education Curriculum: A Document Analysis

General pedagogical competence refers to the foundational knowledge required for effective teaching, especially in primary education (OECD 2019a, 2019b). Specific pedagogical

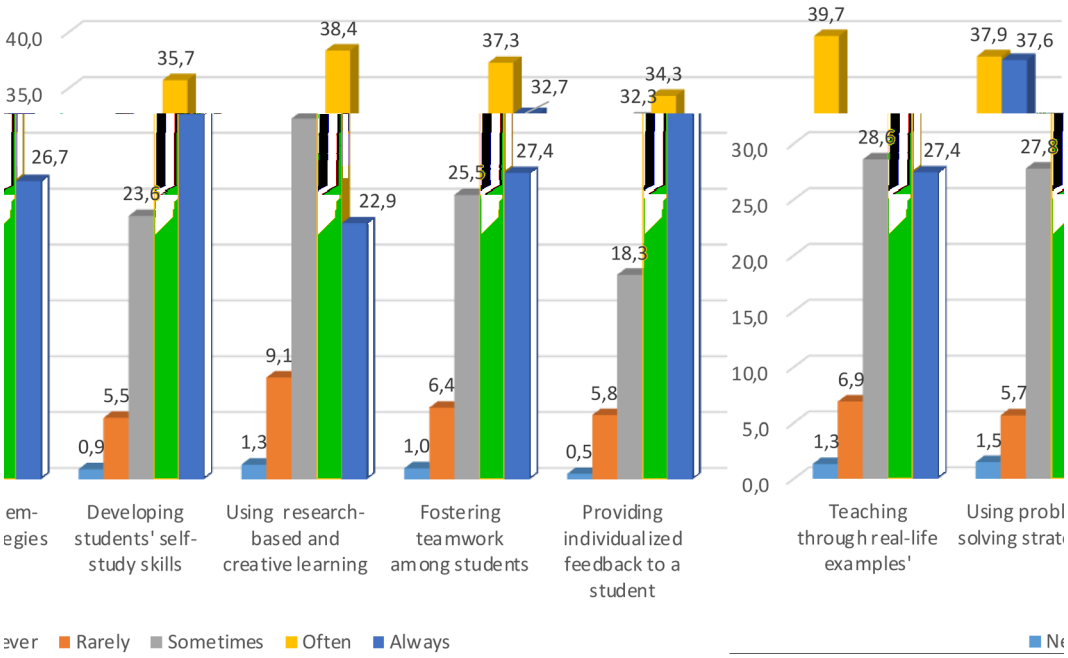

FIGURE 4 | Teaching methods and strategies used by teachers to develop students' global skills in the classroom. The scale reliability of the variables is of good quality, and the Cronbach's α coefficient is > 0.895.

TABLE 4 | Spearman's rank correlation coefficient for in-service teachers' work experience and their use of strategies and teaching methods to foster students' global skills.

			Work experience
Spearman's rho	Creating conditions for students to gain experience in real-world activities	Correlation coefficient	−0.015
		Sig. (2-tailed)	0.608
		N	1202
	Focusing students on problem-solving tasks	Correlation coefficient	0.031
		Sig. (2-tailed)	0.276
		N	1202
	Developing students' self-education skills	Correlation coefficient	−0.024
		Sig. (2-tailed)	0.397
		N	1202
	Applying project-based, research-based, and creative tasks	Correlation coefficient	−0.071[a]
		Sig. (2-tailed)	0.014
		N	1202
	Facilitating teamwork among students	Correlation coefficient	−0.080[a]
		Sig. (2-tailed)	0.005
		N	1202
	Giving students individual feedback	Correlation coefficient	−0.012
		Sig. (2-tailed)	0.674
		N	1202

[a]Correlation is significant at the 0.05 level (2-tailed).

competence involves understanding how to teach particular subjects to specific learner groups, while pedagogical content knowledge bridges the gap between general pedagogy and subject-specific instruction (L. S. Shulman 1986). In OECD countries, including Kazakhstan, most teachers receive training in both general and subject-specific pedagogy, as confirmed by TALIS data (OECD 2019a).

Kazakhstan's Initial Teacher Education programme is designed to produce highly qualified educators proficient in modern pedagogy, creativity, and professionalism, with a focus on integrating scientific knowledge (Ministry of Education 2020). Structured across post-secondary, higher pedagogical, and postgraduate levels, the system aims to develop specialists capable of meeting diverse learner needs, including those with special

educational needs (Ministry of Education and Science 2018). Teachers are assessed within a formal career structure, where advancement is linked to demonstrated methodological expertise. As they progress, teachers are expected to show mastery in teaching methods, subject matter, and understanding of student learning processes (L. Shulman 1987; Tschannen-Moran and McMaster 2009).

In this study, the content of the pedagogy course within the "Pedagogy and Methods of Primary Education" program was analysed to evaluate the integration of global perspectives. The course, delivered in the second year of study over 120 h (four credits), includes foundational topics in general pedagogy, education theory, and didactics (Appendix 2). Students explore pedagogical processes, teaching strategies, and modern educational technologies. By the course's end, they are expected to apply key concepts and methods in professional settings.

Despite its comprehensive academic coverage, the course lacks a systematic focus on global educational issues, limiting the development of global skills through content. While modern technologies and references to global and national cultural elements are included, the overall emphasis remains on local systems, policies, and teaching methods. This narrow focus restricts students' exposure to broader global education challenges—such as international standards, global inequality, and cross-cultural pedagogies. The absence of comparative perspectives further limits students' ability to evaluate Kazakhstan's education practices in an international context. Without exposure to global benchmarks, future teachers may be ill-prepared to work in diverse environments or engage in global professional discourse. Additionally, while the course references educational technologies, it lacks depth in exploring international pedagogical innovations—knowledge essential for adapting global strategies to local practice. The course also minimally addresses how cultural diversity shapes pedagogical approaches. A more critical examination of global cultural contexts could enhance students' ability to teach in multicultural settings and apply inclusive, culturally responsive practices.

Table 5 summarises the key intended content areas typically associated with global competence development and contrasts them with what was found—or missing—in the analysed pedagogy course.

Moreover, pre-service teachers should be given meaningful opportunities to apply theoretical knowledge through practical experience. While the Initial Teacher Education program includes practicums in the first 3 years of study, evidence suggests that theory continues to dominate, with insufficient alignment to actual classroom needs (Bridges 2015; Fimyar et al. 2014; Duisembekova 2013). Addressing this issue requires

TABLE 5 | Comparison of intended vs. missing global content areas in the pedagogy course.

Intended content area	Evidence found in course content	Missing or underdeveloped content
Integration of global skills and competence	No explicit reference	No mention of OECD/UNESCO frameworks or SDG 4.7
Intercultural understanding and global citizenship	"Global and national culture as methodological basis" (Module 3)	Lacks explicit treatment of intercultural pedagogy, global citizenship education
Comparative/global education perspectives	None	No comparison of education systems or cross-national policy references
International pedagogical innovations	"Innovative Teaching Practices" mentioned in Module 6	No detailed exploration of international best practices or case examples
Inclusive and culturally responsive pedagogy	Inclusive education mentioned (Module 1, Topic 2)	Limited engagement with inclusion in global/multicultural contexts
Practical application of global concepts	Practicums mentioned in program overview	Poor alignment of theoretical content with global pedagogical challenges in classroom practice
Critical thinking, collaboration, and problem solving (as components of global skills)	Vygotsky's developmental approach, student cognitive activity, and self-education (Module 4, Topics 9–11)	Not framed within global skills or global competence discourse
Teacher professional identity in a global context	"Professional competence and pedagogical skill" (Module 6, Topic 15)	Does not explicitly connect teacher identity to global citizenship or international engagement

stronger collaboration between universities and schools. As Bridges (2015) argues, engaging practicing teachers in curriculum development can help cover the gap between university instruction and classroom realities.

5 | Discussion

Examining teacher preparedness is essential for understanding how initial and ongoing training align with classroom realities (Tutyandari 2020; Caena 2014). In this study, pre-service teachers' self-perceived readiness to develop global skills in their students was investigated and how in-service teachers support the development of these competencies through classroom strategies was examined. The findings highlight a recurring gap between perceived preparedness and actual classroom practice, shaped by systemic limitations, curricular design, and cultural norms.

5.1 | Pre-Service Teacher Preparedness and Perceived Readiness

Many pre-service teachers expressed confidence in their ability to use classroom strategies such as group work, discussion, and problem-solving to foster global skills. These results are consistent with international findings linking teacher self-efficacy to structured, well-supported training environments (Downing and Dyment 2013; Giannakaki et al. 2011; Ingvarson et al. 2007). However, this self-perceived readiness does not always translate into effective practice. For example, Cheng et al. (2010) found that despite learning student-centered approaches, Hong Kong pre-service teachers rarely implemented them consistently in real classroom settings. Pre-service teachers often encounter a discrepancy between theory and practice, potentially leading to inflated self-assessments of their readiness (Tutyandari 2020).

This contradiction may also be visible in Kazakhstan, where both pre-service and in-service teachers rate their preparedness positively, despite significant shortcomings in curriculum content and teaching practice. One reason for this could be the authoritarian institutional environment, where students and teachers may overstate their confidence owing to fear of criticism or administrative repercussions (Burkhalter 2013; Courtney et al. 2023). Soviet educational legacies continue to shape expectations and behaviours, fostering passivity, discouraging independent thinking, and reinforcing obedience to authority (Tishman et al. 1993). These dynamics directly influence the cognitive, socio-emotional, and behavioural domains of global competence outlined in our conceptual framework, shaping how pre-service teachers perceive and enact global skills in classroom settings.

5.2 | In-Service Teachers' Experience and Practice

In-service teachers reported frequent use of strategies such as project-based learning, real-life examples, and individualised feedback. These align with global recommendations for promoting students' global competence (Mercer et al. 2019; Tichnor-Wagner et al. 2019). Given the highly feminised nature of the primary education workforce, pedagogical approaches may reflect gendered dispositions, such as greater emphasis on empathy and collaboration—though this warrants further exploration in future research. Yet, the relationship between teaching experience and the consistent use of these strategies appears limited. While teacher effectiveness often correlates with experience (Labone 2004), more experienced educators may encounter challenges in adapting to innovative pedagogies, particularly in environments constrained by heavy workloads and rigid institutional norms (Tůmová 2012; Webster et al. 2015). Supporting innovation in teaching requires not just methodological training but also cultural change within schools.

Professional development is one of the primary mechanisms for supporting that change. Teachers acknowledge its importance, yet available programmes in Kazakhstan are often infrequent, overly theoretical, and not tailored to teachers' day-to-day needs (OECD 2020a; Sarmurzin et al. 2023). Leu and Price-Rom (2006) stress that successful teaching in modern classrooms requires more than content delivery; it also demands reflective capacity, professional adaptability, and responsiveness to evolving student contexts. Without high-quality, practical professional development opportunities, even motivated teachers may struggle to implement effective strategies consistently. This gap constrains the development of global skills—particularly those related to intercultural communication, collaboration, and problem-solving—as defined in the study's conceptual framework.

5.3 | Curriculum, Theory–Practice Divide, and Structural Barriers

Analysis of the Pedagogy course content revealed that global perspectives, multicultural understanding, and international benchmarks are only superficially addressed, if at all. This finding supports earlier studies that criticise Kazakhstani teacher education for overemphasising theoretical instruction at the expense of applied practice (Duisembekova 2013; Fimyar et al. 2014; Sharplin et al. 2020; Yakavets et al. 2017). Structured and coherent practicum experiences are widely regarded as essential for bridging the persistent divide between theory and practice. These include opportunities for lesson planning, assessment, classroom engagement, and reflection (Boyd et al. 2009; McLean Davies et al. 2015). Scholars argue that the success of practicums depends on meaningful university–school partnerships that support alignment between coursework and classroom realities. Practical training must also be paired with a strong theoretical foundation and opportunities for professional mentoring (Korthagen 2010). Research consistently critiques fragmented programmes that separate pedagogical theory from actual classroom demands (Hoban 2004; Dilshad 2010). Leiken and Levav-Waynberg (2007) further emphasise that clear and shared pedagogical language among educators can help strengthen coherence across training institutions. In the context of this study, the superficial integration of global perspectives and limited practical alignment restrict the development of core global skills, such as critical thinking, intercultural communication, and collaborative problem-solving, identified in the conceptual framework as essential outcomes of teacher education.

5.4 | Policy Implications, Global Relevance, and Future Research

The findings suggest the need for systemic reform to ensure that teacher preparation aligns with international frameworks for global competence. This includes redesigning teacher education curricula to incorporate intercultural awareness, civic responsibility, and critical thinking. Comparative cases from Estonia and Australia demonstrate how national standards, structured professional development, and revised practicum systems can enhance teacher preparedness (OECD 2019a, 2019b).

The challenges observed in Kazakhstan are not unique. Similar patterns have been identified in other post-Soviet and developing countries, where reforms are introduced under global frameworks but face resistance owing to historical, structural, or cultural factors. Niyozov and Dastambuev (2013) describe this dynamic as a "hybrid system" in which formal alignment with global norms masks deeper continuities with inherited institutional practices. Calderhead (2001) adds that vague policy objectives and lack of stakeholder consultation often lead to superficial implementation. For instance, in Kyrgyzstan, resistance to World Bank reforms stemmed from educators' rejection of imposed models that clashed with their professional traditions (DeYoung 2002; Niyozov and Dastambuev 2013). Tajikistan and Turkmenistan faced deeper constraints owing to conflict and political isolation (Shafiyeva 2023). The OECD/World Bank (2015, 19) recommends that reforms be localised, inclusive, and designed in collaboration with practicing educators.

To move beyond superficial alignment with international frameworks, we recommend that teacher education programmes incorporate mandatory modules on global skills with a specific focus on intercultural communication, ethical decision-making, and sustainability. Practicum assessments should be revised to include criteria for intercultural awareness, inclusive pedagogy, and real-world problem-solving. Additionally, partnerships with international education institutions and NGOs could provide structured opportunities for cross-border collaboration, virtual exchanges, and professional learning communities that expose teachers to diverse global perspectives.

6 | Conclusion

The literature reveals inadequate teacher training, teaching, and assessment methods in secondary schools, as well as unsatisfactory PISA 2018 outcomes, despite positive self-reported preparedness among pre-service and in-service teachers. However, owing to the sole reliance on surveys, this study lacks the depth of understanding that qualitative interviews could provide. Additionally, the content analysis was limited to a single subject—Pedagogy—restricting broader insights into how global perspectives are integrated across the curriculum.

Despite these limitations, this study offers important initial findings on pre-service teachers' perceived readiness and the teaching strategies employed to foster students' global skills. Moreover, the examination of pedagogy course content sheds light on the extent to which global perspectives are embedded within teacher education programmes in Kazakhstan.

To strengthen these findings, future research—under the current grant—will include qualitative interviews with university faculty and in-service teachers, expanded content analysis of teacher education curricula, and classroom observations. This more comprehensive mixed-methods approach will provide deeper insights into pedagogical practices and institutional support systems shaping global skills development.

Large-scale, comparative studies are needed to explore the global skills teacher education professionals require in a rapidly evolving educational landscape. Future research should not only examine practices in Kazakhstan but also compare them with international benchmarks to inform improvements. A longitudinal and integrated mixed-methods design would enable a more holistic understanding of the local context, institutional challenges, and reform outcomes. Findings from this case study may hold relevance for other developing and post-Soviet countries undertaking similar efforts to modernise teacher education and improve global skills.

While situated in Kazakhstan, these findings may offer insights for post-Soviet and Global South education systems navigating similar tensions between inherited pedagogies and global perspectives goals. International collaboration in teacher training design may foster more culturally grounded yet globally responsive pedagogical reforms.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

References

Ahn, E. S., J. Dixon, and L. Chekmareva. 2018. "Looking at Kazakhstan's Higher Education Landscape: From Transition to Transformation Between 1920 and 2015." In *25 Years of Transformations of Higher Education Systems in Post-Soviet Countries. Palgrave Studies in Global Higher Education*, edited by J. Huisman, A. Smolentseva, and I. Froumin. Palgrave Macmillan.

Ainley, J., and R. Carstens. 2018. "Teaching and Learning International Survey (TALIS) 2018 Conceptual Framework." https://www.oecd.org/en/publications/2018/11/teaching-and-learning-international-survey-talis-2018-conceptual-framework_0d33b439.html.

Ayubayeva, N. 2018. Teacher Collaboration for Professional Learning: Case Studies of Three Schools in Kazakhstan [Unpublished Doctoral Dissertation]. University of Cambridge.

Azhmukhambetov, A. 2020. "Teachers' Experiences of the Updated Pedagogy within the Scope of the Curriculum Reform: A Case Study of Two Mainstream Schools in Kazakhstan." [Unpublished Master's Thesis]. Nazarbayev University.

Beck, U. 2000. *What Is Globalisation*. Polity Press.

Blömeke, S., J.-E. Gustafsson, and R. J. Shavelson. 2015. "Approaches to Competence Measurement in Higher Education." *Zeitschrift für Psychologie* 223, no. 1: 1–2. https://doi.org/10.1027/2151-2604/a000193.

Bourn, D. 2018. *Understanding Global Skills for 21st Century Professions*. Palgrave Macmillan.

Bourn, D. 2020. "Global and Development Education and Global Skills." *Educar* 56, no. 2: 279–295. https://doi.org/10.5565/rev/educar.1143.

Boyd, D. J., P. L. Grossman, H. Lankford, S. Loeb, and J. Wyckoff. 2009. "Teacher Preparation and Student Achievement." *Educational Evaluation and Policy Analysis* 31, no. 4: 416–440. https://doi.org/10.3102/0162373709353129.

Breslow, L. 2015. "The Pedagogy and Pleasures of Teaching a 21st-Century Skill." *European Journal of Education* 50, no. 4: 420–439.

Bridges, D. 2015. "Transition from School to University: Some Issues for Kazakhstan and the Wider Region." [Discussion Paper]. Nazarbayev University Repository. https://nur.nu.edu.kz/server/api/core/bitstreams/ea5e9787-28dc-4a50-8bc2-1c58edd81f44/content.

Burkhalter, N. 2013. "Overcoming Resistance in Post-Soviet Teacher Trainees in Kazakhstan." *Asian EFL Journal Quarterly* 15, no. 3: 248–279.

Caena, F. 2014. "Teacher Competence Frameworks in Europe: Policy-As-Discourse and Policy-As-Practice." *European Journal of Education* 49, no. 3: 311–331. https://doi.org/10.1111/ejed.12088.

Caena, F., and C. Redecker. 2019. "Aligning Teacher Competence Frameworks to 21st Century Challenges: The Case for the European Digital Competence Framework for Educators (*Digcompedu*)." *European Journal of Education* 54, no. 3: 356–369. https://doi.org/10.1111/ejed.12345.

Calderhead, J. 2001. "International Experiences of Teaching Reform." In *Handbook of Research on Teaching*, edited by V. Richardson, 4th ed., 777–802. American Educational Research Association.

Castells, M. 2011. *The Power of Identity*. John Wiley & Sons.

Chattopadhay, T., and R. Jankunaite. 2023. "Positioning Teacher Development for High Performance Through Digital Transformation and Support Systems in Kyrgyzstan." In *Handbook of Research on Education and Technology in a Changing Society*, edited by Y. Tan, J. Lee, and A. Zhang, 112–129. Springer. https://doi.org/10.1007/978-981-19-6887-7_112.

Cheng, M. M. H., A. Y. N. Cheng, and S. Y. F. Tang. 2010. "Closing the Gap Between the Theory and Practice of Teaching: Implications for Teacher Education Programmes in Hong Kong." *Journal of Education for Teaching: International Research and Pedagogy* 36, no. 1: 91–104.

Cochran-Smith, M., and K. M. Zeichner, eds. 2005. *Studying Teacher Education: The Report of the AERA Panel on Research and Teacher Education*. Erlbaum.

Cohen, J. 1988. *Statistical Power Analysis for the Behavioral Sciences*. 2nd ed. Lawrence Erlbaum Associates. https://utstat.utoronto.ca/brunner/oldclass/378f16/readings/CohenPower.pdf.

Courtney, M., M. Karakus, E. Sharplin, D. Hernández-Torrano, J. Helmer, and Z. Jumakulov. 2023. "The Role of Teacher Selection Criteria and Preparation on Teacher Self-Efficacy, Satisfaction, and Commitment: An Analysis of Kazakhstani TALIS Data." *Teacher Development* 27, no. 3: 394–414. https://doi.org/10.1080/13664530.2023.2176354.

Creswell, J. W., and J. D. Creswell. 2017. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage Publications.

Damiani, V. 2020. "Educating Pre-Service Teachers on Global Citizenship: Research Perspectives From a Preliminary Study in the Italian Context." *Journal of Social Science Education* 19, no. 4: 23–44. https://doi.org/10.4119/jsse-3468.

Dastambuev, N. 2024. "In-Service Teacher Education in Tajikistan." In *Global Perspectives on Teacher Education*, edited by V. B. Leung and K. Cushner, 259–274. Routledge. https://doi.org/10.4324/9781003348047-16.

DeYoung, A. J. 2002. *West Meets East in Central Asia: Competing Discourses on Secondary Education Reform in the Kyrgyz Republic (ERIC Document No. ED465476)*. U.S. Department of Education.

Diano, F., Jr., O. K. Kilag, M. Malbas, A. Catacutan, B. Tiongzon, and C. F. Abendan. 2023. "Towards Global Competence: Innovations in the Philippine Curriculum for Addressing International Challenges." *Excellencia: International Multi-Disciplinary Journal of Education* 1, no. 4: 295–307.

Dilshad, R. M. 2010. "Assessing Quality of Teacher Education: A Student Perspective." *Pakistan Journal of Social Sciences* 30, no. 1: 85–97.

Donaldson, G. 2014. "Teacher Education and Curriculum Change in Scotland." *European Journal of Education* 49, no. 2: 178–191. https://doi.org/10.1111/ejed.12077.

Downing, J. J., and J. E. Dyment. 2013. "Teacher Educators' Readiness, Preparation, and Perceptions of Preparing Pre-Service Teachers in a Fully Online Environment: An Exploratory Study." *Teacher Educator* 48, no. 2: 96–109. https://doi.org/10.1080/08878730.2012.760023.

Duisembekova, L. 2013. "State Policy on Education Development in the Republic of Kazakhstan: Problems and Prospects of Teacher Training." *Procedia - Social and Behavioral Sciences* 89: 562–566. https://doi.org/10.1016/j.sbspro.2013.08.895.

Echazarra, A., D. Salinas, I. Méndez, V. Denis, and G. Rech. 2016. *How Teachers Teach and Students Learn: Successful Strategies for School (No. 130, OECD Education Working Papers)*. Organisation for Economic Co-operation and Development.

Fimyar, O., N. Yakavets, and D. Bridges. 2014. "Educational Reform in Kazakhstan: The Contemporary Policy Agenda." In *Education Reform and Internationalisation: The Case of School Reform in Kazakhstan*, edited by D. Bridges, 53–71. Cambridge University Press.

Fitzpatrick, M., D. T. Figueroa, G. Golden, and S. Crosby. 2018. *Education Policy Outlook Kazakhstan (ED592576 Document No. ED592576)*. Organisation for Economic Co-operation and Development.

Giannakaki, M.-S., A. J. Hobson, and A. Malderez. 2011. "Student Teachers' Perceptions of the Effectiveness of Their Initial Preparation." *European Journal of Education* 46, no. 4: 456–473. https://doi.org/10.1111/j.1465-3435.2011.01493.x.

Goodnough, K., P. Osmond, D. Dibbon, M. Glassman, and K. Stevens. 2009. "Exploring a Triad Model of Student Teaching: Pre-Service Teacher and Cooperating Teacher Perceptions." *Teaching and Teacher Education* 25, no. 2: 285–296. https://doi.org/10.1016/j.tate.2008.10.003.

Hoban, G. F. 2004. "Seeking Quality in Teacher Education Design: A Four-Dimensional Approach." *Australian Journal of Education* 48, no. 2: 117–133. https://doi.org/10.1177/000494410404800203.

Ingvarson, L., A. Beavis, and E. Kleinhenz. 2007. "Factors Affecting the Impact of Teacher Education Programmes on Teacher Preparedness: Implications for Accreditation Policy." *European Journal of Teacher Education* 30, no. 4: 351–381. https://doi.org/10.1080/02619760701664151.

Joldoshalieva, R. 2007. "Continuing Teacher Professional Development in Post-Soviet Kyrgyzstan." *Journal of in-Service Education* 33, no. 3: 315–334. https://doi.org/10.1080/13674580701487042.

Kanayeva, G. 2019. Facilitating Teacher Leadership in Kazakhstan [Unpublished Doctoral Dissertation]. University of Cambridge.

Korthagen, F. A. J. 2010. "How Teacher Education Can Make a Difference." *Journal of Education for Teaching* 36, no. 4: 407–423. https://doi.org/10.1080/02607476.2010.513854.

Kulakhmetova, A., C. McLaughlin, and N. Ayubayeva. 2015. *Preparing Teachers: An International Review of the Evidence on Initial Teacher Education. Research Project Development of Strategic Directions for Education Reforms in Kazakhstan for 2020*. Nazarbayev University Graduate School of Education.

Labone, E. 2004. "Teacher Efficacy: Maturing the Construct Through Research in Alternative Paradigms." *Teaching and Teacher Education* 20, no. 4: 341–359. https://doi.org/10.1016/j.tate.2004.02.013.

Leiken, R., and A. Levav-Waynberg. 2007. "Exploring Mathematics Teacher Knowledge to Explain the Gap Between Theory-Based Recommendations and School Practice in the Use of Connecting Tasks." *Educational Studies in Mathematics* 66: 349–371. https://doi.org/10.1007/s10649-006-9071-z.

Leu, E., and A. Price-Rom. 2006. *Quality of Education and Teacher Learning: A Review of the Literature (TechReport)*. USAID Educational Quality Improvement Project.

McLean Davies, L., B. Dickson, F. Rickards, S. Dinham, J. Conroy, and R. Davis. 2015. "Teaching as a Clinical Profession: Translational Practices in Initial Teacher Education-An International Perspective." *Journal of Education for Teaching* 41, no. 5: 514–528. https://doi.org/10.1080/02607476.2015.1105537.

Mercer, S., N. Hockly, G. Stobart, and N. L. Galés. 2019. *Global Skills: Creating Empowered 21st Century Citizens*. ELT Position Papers.

Ministry of Education. 2020. "Government Program Development of Education and Science of the Republic of Kazakhstan for 2020–2025." https://www.gov.kz/memleket/entities/edu/press/article/details/20392?lang=ru.

Ministry of Education and Science. 2018. "Model Rules for Admission to Training in Educational Organizations Implementing Educational Programs of Higher and Postgraduate Education, Nur-Sultan." https://adilet.zan.kz/rus/docs/V1800017650.

Momunalieva, A., R. Ismailova, and S. Najimudinova. 2024. "The Case of the Kyrgyz Republic." In *Global Perspectives on Teacher Education*, edited by V. B. Leung and K. Cushner, 187–201. Routledge. https://doi.org/10.4324/9781003348047-11.

Nazarbayev University Graduate School of Education. 2014. Development of Strategic Directions for Education Reforming in the Republic of Kazakhstan for 2015–2020 (Diagnostic Report) Nazarbayev University Graduate School of Education.

Newell-Jones, K. 2007. *Global Skills and Lifelong Learning*. Development Education Association.

Niyozov, S., and N. Dastambuev. 2013. "Exploiting Globalization While Being Exploited by It: Insights From Post-Soviet Education Reforms in Central Asia." *Comparative and International Education* 41, no. 3: 3. https://doi.org/10.5206/cie-eci.v41i3.9210.

Organisation for Economic Co-operation and Development. 2001. *Knowledge and Skills for Life: First Results From the OECD Programme for International Student Assessment (PISA) 2000*. OECD Publications.

Organisation for Economic Co-operation and Development. 2018a. *PISA 2018 Assessment and Analytical Framework. Kazakhstan. Student Performance*. OECD Publishing. https://gpseducation.oecd.org/CountryProfile?primaryCountry=KAZ&treshold=10&topic=PI.

Organisation for Economic Co-operation and Development. 2018b. *Teaching for the Future: Effective Classroom Practices to Transform Education*. OECD Publishing. https://doi.org/10.1787/9789264293243-en.

Organisation for Economic Co-operation and Development. 2019a. *TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners*. OECD Publishing.

Organisation for Economic Co-operation and Development. 2019b. *A Flying Start: Improving Initial Teacher Preparation Systems*. OECD Publishing. https://doi.org/10.1787/cf74e549-en.

Organisation for Economic Co-operation and Development. 2020a. *TALIS 2018 Results (Volume II): Teachers and School Leaders as Valued Professionals*. OECD Publishing.

Organisation for Economic Co-operation and Development. 2020b. *Kazakhstan: Education Policy Prospects*. OECD Publishing. https://doi.org/10.1787/9789264265717-en.

Organisation for Economic Co-operation and Development. 2023. *PISA 2022 Results: Factsheets—Kazakhstan*. OECD Publishing.

Organisation for Economic Cooperation and Development. 2015. *OECD Reviews of School Resources: Kazakhstan 2015*, edited by World Bank. OECD Publishing. https://doi.org/10.1787/9789264245891-en.

Oxley, L., and P. Morris. 2013. "Global Citizenship: A Typology for Distinguishing Its Multiple Conceptions." *British Journal of Educational Studies* 61, no. 3: 301–325. https://doi.org/10.1080/00071005.2013.798393.

Pons, A., J. Amoroso, J. Herczynski, I. Kheyfets, M. Lockheed, and P. Santiago. 2015. *OECD Reviews of School Resources: Kazakhstan 2015*. OECD Publishing. https://learningportal.iiep.unesco.org/en/library/oecd-reviews-of-school-resources-kazakhstan-2015.

Reimers, F. M. 2009. "Global Competency." *Harvard International Review* 30, no. 4: 24–27.

Sarmurzin, Y., N. Amanzhol, K. Toleubayeva, M. Zhunusova, and A. Amanova. 2021. "The Impact of OECD Research on the Education System of Kazakhstan." *Asia Pacific Education Review* 22: 757–766. https://doi.org/10.1007/s12564-021-09715-8.

Sarmurzin, Y., G. Menlibekova, and A. Orynbekova. 2023. ""I Feel Abandoned": Exploring School Principals' Professional Development in Kazakhstan." *Asia-Pacific Education Researcher* 32, no. 5: 629–639. https://doi.org/10.1007/s40299-022-00682-1.

Shafiyeva, U. 2023. "The Challenges of Curriculum Reforms for Countries in Transition, 1991–2010." *European Journal of Education* 6, no. 2: 138–145.

Sharplin, E., A. Ibrasheva, D. Shamatov, and A. Rakisheva. 2020. "Analysis of Teacher Education in Kazakhstan in the Context of Modern International Practice." *Journal of Educational Sciences* 64, no. 3: 12–27. https://doi.org/10.26577/jes.2020.v64.i3.02.

Sharplin, E. D., S. Peden, and I. Marais. 2016. "Making the Grade: Describing Inherent Requirements for the Initial Teacher Education Practicum." *Asia-Pacific Journal of Teacher Education* 44, no. 3: 224–241. https://doi.org/10.1080/1359866X.2015.1105933.

Shieh, R. S., and W. Chang. 2014. "Fostering Student's Creative and Problem-Solving Skills Through a Hands-On Activity." *Journal of Baltic Science Education* 13, no. 5: 650–661. https://doi.org/10.33225/jbse/14.13.650.

Shuinshina, S. M., M. K. Atanayeva, and U. A. Ospanova. 2023. *Scientific and Methodological Foundations for Improving the Content of Secondary and Higher Education [Monograph]*. Astana: Individual Entrepreneur "Bulatov A.Zh.", 132 pp.

Shulman, L. 1987. "Knowledge and Teaching: Foundations of a New Reform." *Harvard Educational Review* 57, no. 1: 1–22. https://doi.org/10.17763/haer.57.1.j463w79r56455411.

Shulman, L. S. 1986. "Those Who Understand: Knowledge Growth in Teaching." *Educational Researcher* 15, no. 2: 4–14.

Silova, I. 2009. "The Crisis of the Post-Soviet Teaching Profession in the Caucasus and Central Asia." *Research in Comparative and International Education* 4, no. 4: 366–378. https://doi.org/10.2304/rcie.2009.4.4.366.

Soto, P. 2022. "TVET Teacher Pre- and in-Service Training in the Kyrgyz Republic." In *Comparative Vocational Education Research*, edited by F. Pilz, 231–248. Springer. https://doi.org/10.1007/978-981-16-6474-8_15.

Stake, R. E. 1995. *The Art of Case Study Research*. Sage Publications. https://www.researchgate.net/publication/273635929_The_Art_of_Case_Study_Research_by_Robert_Stake_1995.

Tiana, A., J. Moya, and F. Luengo. 2011. "Implementing Key Competences in Basic Education: Reflections on Curriculum Design and Development in Spain." *European Journal of Education* 46, no. 3: 307–322. https://doi.org/10.1111/j.1465-3435.2011.01482.x.

Tichnor-Wagner, A., H. Parkhouse, J. Glazier, and J. M. Cain. 2019. *Becoming a Globally Competent Teacher*. ASCD.

Tishman, S., E. Jay, and D. N. Perkins. 1993. "Teaching Thinking Dispositions: From Transmission to Enculturation." *Theory Into Practice* 32, no. 3: 147–153. https://doi.org/10.1080/00405849309543590.

Tschannen-Moran, M., and P. McMaster. 2009. "Sources of Self-Efficacy: Four Professional Development Formats and Their Relationship to Self-Efficacy and Implementation of a New Teaching Strategy." *Elementary School Journal* 110, no. 2: 228–245. https://doi.org/10.1086/605771.

Tůmová, A. 2012. "Effects of Age and Length of Professional Experience on Teachers' Attitudes to Curricular Reform." *Central European Journal of Public Policy* 6, no. 02: 84–99.

Tutyandari, C. 2020. "Exploring Pre-Service Teachers' Perceptions of Preparedness for Teaching in Indonesia [Unpublished Doctoral Dissertation]." University of Melbourne, Graduate School of Education.

United Nations Educational, Scientific and Cultural Organization. 2014. *Global Citizenship Education: Preparing Learners for the Challenges of the 21st Century*. UNESCO.

United Nations Educational, Scientific and Cultural Organization. 2015. *Global Citizenship Education: Topics and Learning Objectives*. UNESCO.

United Nations Educational, Scientific and Cultural Organization. 2022. *Transforming Technical and Vocational Education and Training for Successful and Just Transitions: UNESCO Strategy 2022–2029*. UNESCO.

Webster, R., A. Russell, and P. Blatchford. 2015. *Maximising the Impact of Teaching Assistants: Guidance for School Leaders and Teachers*. Routledge. https://doi.org/10.4324/9781315695167.

World Savvy. n.d. "What is Global Competence?" https://worldsavvy.org/global-competence.

Yakavets, N., D. Bridges, and D. Shamatov. 2017. "On Constructs and the Construction of Teachers' Professional Knowledge in a Post-Soviet Context." *Journal of Education for Teaching* 43, no. 5: 594–615. https://doi.org/10.1080/02607476.2017.1355086.

Yazan, B. 2015. "Three Approaches to Case Study Methods in Education: Yin, Merriam, and Stake." *Qualitative Report* 20, no. 2: 134–152. https://doi.org/10.46743/2160-3715/2015.2102.

Yin, R. K. 2014. *Case Study Research: Design and Methods*. 5th ed. Sage Publications. https://www.researchgate.net/publication/308385754_Robert_K_Yin_2014_Case_Study_Research_Design_and_Methods_5th_ed_Thousand_Oaks_CA_Sage_282_pages.

Zharylkassyn, M. B. 2023. "Integrating Continuing Professional Development With Education System Reform in Kazakhstan." *Challenges of Science* VI: 22–28. https://doi.org/10.31643/2023.03.

Zhumabekov, A. S., O. V. Pak, and A. I. Tasmagambetova. 2024. "Research of Professional Preferences of Teachers in Kazakhstan: Analysis of Teaching Methods and Training Courses." *Bilim: Scientific and Pedagogical Journal* 109, no. 2: 120–129. https://doi.org/10.59941/2960-0642-2024-2-120-129.

Zhunussova, G., M. Cortazzi, and L. Jin. 2022. "Roles and Models of English Teachers in Kazakhstan." *World Englishes* 41, no. 1: 104–114. https://doi.org/10.1111/weng.12558.

Appendix 1

Questionnaire Constructs With Sample Items and Reliability (Cronbach's α)

Construct	Sample item	No. of items	Scale type & response options	Cronbach's α
Preparedness in teaching methods (pre-service teachers)	I feel well prepared to use pair and group work in my teaching	5	4-point Likert scale (very poorly prepared to quite well prepared)	0.870–0.853
Preparedness to foster global skills (pre-service teachers)	I feel well prepared to foster students' critical thinking skills	4	4-point Likert scale (very poorly prepared to quite well prepared)	0.856–0.801
Factors influencing global skills development (in-service teachers)	Teacher's continuous professional development positively influences teaching practices	5	5-point Likert scale (strongly disagree to strongly agree)	0.875–0.868
Teaching strategies used in classroom (in-service teachers)	I regularly use real-life examples to develop students' global skills	6	5-point Likert scale (never to always)	0.872–0.867

Note: Reliability was assessed using Cronbach's alpha coefficient, demonstrating strong internal consistency for each subscale.

Appendix 2

Pedagogy Course Content

#	Topic name	Key topics covered
Module 1. Theoretical and methodological foundations of pedagogy		
1	Pedagogy as a Science. Basic Concepts of Pedagogy	Pedagogy Development; Pedagogy Object and Subject; Pedagogy System and Branches; Modern Requirements for Teachers; Theory and Practice in Pedagogy
2	Kazakhstan's Education System and Its Legislative Basis	Education as a Process and Activity; History of Education; Contemporary Education Paradigm; Structure of Kazakhstan's Education System; Kazakhstani State Educational Policy; Updated Content of Education; Inclusive Education System in Kazakhstan
Module 2. Pedagogical Process as a Subject of Pedagogical Science and an Object of Professional Activity		
3	Student Development and Socialisation	Personality as a Psychological and Pedagogical Category; Heredity, Environment, and Upbringing; Age and Individual Characteristics; Schoolchildren's Development and Education; Individual Approach to Education
4	Essence, Structure, and Activity Aspects of the Holistic Pedagogical Process	Pedagogical Process as a Social System; Structure and Characteristics of Comprehensive Pedagogical Process; Functions of the Integral Pedagogical Process; Key Characteristics of the Pedagogical Process
Module 3. Education in the Holistic Pedagogical Process		
5	Purpose and Essence of Education in the Holistic Pedagogical Process	Goals of Education as a System-Forming Factor; Goals of Education as a Concrete Historical Phenomenon; Contemporary Concepts, Types, and Models of Education; Global and National Culture as Methodological Basis; Laws and Principles of Education
6	Directions of Education in a Modern School	Education as Part of a Holistic Pedagogical Process; Education in the Context of Socialisation; Educational Space as a Factor in Socialisation; Innovative Aspects of National Education in Kazakhstan
7	Methods and Means of Education in a Modern School	Means, Forms, and Methods of Education; General Methods of Education
8	Interaction Between School and Family in the Comprehensive Pedagogical Process	Family as a Socialisation Factor; Pedagogical Process in the Family; Parental Pedagogical Culture; Parental Involvement in Education; School–Family Cooperation
Module 4. Didactic Foundations of the Holistic Pedagogical Process		
9	Contemporary Didactics: Psychological and Pedagogical Foundations of Teaching	Theory of Learning and Education, Focusing on the Principles and Methods of Teaching; Conceptual Foundations of Learning; Students' Cognitive Activity; Self-Education
10	Content of Education in a Modern School	Educational Content; Theories of Educational Content; Component of Integral Pedagogical Process; School Curricula

Appendix 2 (Continued)

#	Topic name	Key topics covered
11	Patterns and Principles of Teaching	Principles of Learning in Didactics; Traditional System of Didactic Principles; Developmental Nature of Learning by L. S. Vygotsky
Module 5. Organisational and Activity-Based Foundations of Teaching in a Modern School		
12	Methods and Means of Teaching in a Modern School	Teaching Aids; Forms of Extracurricular Educational Work; Method as a Component of a Holistic Pedagogical Process; Classifications of Teaching Methods
13	Assessment in the Pedagogical Process	Psychological Essence of Feedback; Main Functions of Assessment; Requirements for Assessment; Criteria for Assessment; B. Bloom's Taxonomy; Didactic Tests (Achievement Tests); Self-Assessment Skills; Academic Performance
Module 6. Basics of Technological and Scientific Research Culture of a School Teacher		
14	Contemporary Educational Technologies	Traditional and Innovative Approaches; Concept of Pedagogical Technology; Conceptual Foundations and Innovation; Types of Lessons and Their Structure; Small Rural School Lessons; Innovative Teaching Practices
15	Teacher and Professional Competence	Content of Research; Methodological Foundations; Teachers' Research Methods; Theory and Practice Interaction; Contemporary Education Concepts; Pedagogical Vocation and Abilities; Personal Relationships in Education; Modern Teacher Requirements; Professional Competence and Pedagogical Skill