# Assessing Teacher Trainees' Readiness for Integrating Educational Resources: Confidence, Skills, and Barriers

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***Abstract*—This study explores the current preparedness of primary pre-service teachers in Kazakhstan to utilize educational resources in their teaching practices. Using a quantitative survey design, data are collected from a sample of 200 participants selected through convenience sampling. The survey instrument is developed based on validated questionnaires and pilot-tested to ensure clarity and reliability. It examines access to educational resources during teacher education programs, experiences during practicum, confidence in using materials, and barriers to effective use. Findings reveal that access to diverse teaching resources varies, with many pre-service teachers most frequently using printed textbooks and digital tools during practicum. Confidence in using both printed and digital educational resources is generally moderate, with some reporting challenges in adapting materials to students' learning needs and in searching for online resources. Key barriers include limited internet access, insufficient training, and lack of mentor support. Based on these findings, the study recommends enhancing university training programs to provide more comprehensive preparation and support, with particular attention to overcoming infrastructural and instructional challenges. These efforts aim to improve teacher readiness and contribute to raising the quality of primary education in Kazakhstan and other Central Asian countries.**

***Keywords*—confidence, educational resources, skills, teacher training, teacher preparedness, primary education**

## I. Introduction

Educational Resources (ERs) are important in shaping effective learning environments, particularly in Primary Education (PE), where foundational knowledge and skills are established [1–3]. The integration of diverse educational tools, including traditional materials and digital resources, can significantly enhance student engagement, foster critical thinking, and improve learning outcomes [4]. ERs are crucial for the professional development and preparation of Primary Pre-Service Teachers (PPSTs). ERs include instructional aids, visual aids, didactic tools, teaching materials, and support from mentors and colleagues [5, 6]. The ability to select, adapt, and effectively utilize such resources significantly impacts the quality of teaching and student achievement. In pedagogical universities, PPSTs acquire not only subject knowledge but also teaching methodologies, which require confidence in working with various types of resources. To date, limited research has examined the competence and confidence of PPSTs in utilizing educational resources, how competent PPSTs feel about using ERs, what challenges they face in selecting and using them, and what factors may hinder their confidence and engagement in this process. Most studies primarily focus on the experiences of current teachers or on general aspects of training, without emphasizing the resource component of PE [7, 8].

In Central Asian (CA) countries, including Kazakhstan, the PE system is undergoing active reforms aimed at improving the quality of teaching and updating the content of education [9, 10]. Within this reform-driven context, ensuring that PPSTs are adequately prepared to use educational resources has become increasingly important [11, 12]. However, the region faces limited access to quality teaching materials and uneven resource provision among schools, complicating the preparation of graduates from pedagogical universities [13]. Additionally, training programs are often theory-oriented, while practical skills in working with resources remain underdeveloped, particularly in rural and remote areas. Therefore, studying the confidence, competence, and constraints of PPSTs in using ERs in Kazakhstan holds both academic and practical significance. The purpose of this study is to investigate the confidence, skills, and limitations of primary pre-service teachers in Kazakhstan in selecting and using educational resources; to identify gaps in their teacher preparation; to examine barriers to effective resource use; and to provide recommendations for improving teacher education programs in alignment with real classroom needs.

### A. Rationale for the Study

The quality of primary education largely depends on teachers' professional preparation to effectively utilize diverse educational resources in organizing the learning process. As education systems become more flexible and resource-rich, confident use of ERs is a key factor for pedagogical success. Central Asian countries, including Kazakhstan, are actively reforming their education systems, requiring the adaptation of pedagogical university curricula to address real school challenges [14]. However, empirical data on PPSTs' confidence, competence, and challenges in working with ERs are lacking. This gap hinders the development of effective teacher education strategies that consider regional specifics. This study aims to fill this gap by providing essential data to improve Initial Teacher Training (ITT), identifying existing problems and student needs to inform recommendations for program enhancement.

Improving PPSTs' readiness is especially crucial for advancing primary education outcomes and overall system effectiveness in the region. In light of the existing literature, the following research questions have been formulated:

### B. Research Questions

1) How confident are primary pre-service teachers in Kazakhstan in selecting and using educational resources in the classroom?
2) What specific skills do primary pre-service teachers possess regarding the effective use of ERs, and how are these skills developed in current teacher training programs?
3) What types of ERs are accessible to primary pre-service teachers, and how does access vary between urban and rural contexts?
4) What are the main barriers that hinder the effective utilization of ERs among primary pre-service teachers?
5) How does the level of confidence and access to ERs influence instructional strategies and perceived preparedness for real classroom settings?

### C. Research Objectives

This study aims to investigate the confidence, practical skills, and perceived challenges of primary pre-service teachers in Kazakhstan regarding the use of educational resources, in order to provide empirical insights for the enhancement of teacher training programs.

### D. Significance of the Study

This study contributes both theoretically to pedagogical science and practically to improving the training of primary pre-service teachers. As education modernizes, ensuring teachers are ready to use a variety of ERs becomes increasingly important. The findings offer insights into the challenges and barriers PPSTs face in resource use, supporting targeted improvements in university curricula, particularly for rural and remote areas. Practically, the results can guide the design of training courses, teaching aids, and professional development programs for future teachers. Furthermore, the study can inform policies to ensure schools are equipped with the necessary resources, fostering successful career starts for young educators. Ultimately, the study supports building a sustainable system to prepare competent primary teachers capable of adapting to evolving educational demands, which is vital for improving primary education quality in Kazakhstan and Central Asia.

## II. Literature Review

### A. The Role of ERs in Teaching

ERs are an integral part of the educational process and have a significant impact on the quality of teaching and students' academic achievement. They include teaching aids, methodological materials, multimedia tools, and professional support from colleagues. Effective use of these resources requires teachers to have not only subject knowledge, but also the ability to adapt and integrate materials into the educational process [15]. However, international studies highlight a variety of contextual factors influencing the effectiveness of ERs, such as cultural attitudes toward technology and institutional support [16]. Balancing these findings with regional studies from Central Asia helps to better understand both universal and local challenges in the utilization of ERs [17].

### B. PPSTs' Confidence and Skills in Working with Resources

PPSTs' confidence in their professional skills is closely related to the successful use of educational resources. Research shows that the higher the level of teachers' confidence, the more actively and effectively they use various educational tools [18].

In this study, confidence is grounded in Bandura's theory of self-efficacy, which defines it as an individual's belief in their capability to perform specific tasks successfully. In the context of ER use, it refers to teachers' perceived competence in selecting and integrating resources, their readiness to try innovative methods, and their persistence in overcoming difficulties [19]. Empirical studies identify self-efficacy beliefs, willingness to innovate, and problem-solving ability as core indicators of teacher confidence [20]. These indicators provide a framework for assessing PPSTs' preparedness and identifying areas that need targeted support. Although these concepts are well-established in research on in-service teachers, few studies specifically address PPSTs, particularly in Central Asia, where confidence may be shaped by local contextual factors such as limited access to ERs or inconsistencies in initial teacher training [21]. This section therefore reviews existing empirical work to establish both the theoretical underpinnings and practical implications for investigating confidence and skills in the current study. However, the readiness of PPSTs and their perceptions of ERs remain underexplored in the literature [22].

### C. Using ERs in ITT

ITT should include developing not only theoretical knowledge, but also practical skills in working with ERs. However, many pedagogical programs do not sufficiently focus on developing these skills, which reduces the readiness of graduates' for real teaching activities [23, 24]. International research [25] stresses the importance of hands-on training and mentorship to improve ER competency in teacher preparation. Regional studies [26] also indicate that the practical integration of ERs in ITT remains limited, especially in rural areas, impacting graduates' preparedness. This is especially true for primary education, where the quality of resource use directly affects the formation of students' basic competencies [27, 28].

### D. Features of the Education System and Challenges of the CA Region

Central Asian Regional Education (CARE) is undergoing a phase of reforms aimed at improving the quality and accessibility of primary education. At the same time, the region faces challenges such as limited access to modern teaching materials, insufficient technical equipment in schools, and a gap between theory and practice in ITT. These factors significantly affect the confidence and competence of PPSTs in using ERs [29, 30]. Local empirical evidence [31] highlights the uneven distribution of resources and persistent infrastructural challenges. These factors often undermine confidence and practical skills among teacher trainees, necessitating regionally tailored training programs.

### E. Research in the Educational Context of Kazakhstan

Empirical research on the perception and use of ERs by PPSTs in the region is virtually non-existent. In Kazakhstan, most studies focus on general aspects of ITT, while issues of confidence and limitations in working with resources remain under-researched. This creates a need for specialized research that will provide data for adapting curricula to the real needs of PPSTs. The analysis provided insights into the level of preparedness among PPSTs, identifying key factors that influence confidence and skill in ER utilization and highlighting areas where teacher training programs could be improved [32–34].

## III. Materials and Methods

The study employed a quantitative survey approach [35] to explore the preparedness of PPSTs in Kazakhstan for utilizing ERs. Confidence was measured through self-reported Likert-scale items grounded in Bandura's self-efficacy theory, capturing perceived competence and readiness to use educational resources. While this method provides valuable quantitative insights into confidence levels, future research incorporating qualitative methods could offer a deeper understanding of the underlying factors influencing these perceptions.

The study design is summarized in Table 1.

Table 1. Quantitative study design

| Component | Description |
|---|---|
| Study type | Survey study |
| Research approach | Quantitative |
| Data collection method | Structured questionnaire |
| Participants | Pre-service primary school teachers |
| Key features | Objective measurement using standardized tools |
| | Hypothesis testing |
| | Structured data collection |
| | Statistical analysis |
| | Generalizability and replicability |
| Strengths of approach | High reliability and validity |
| | Ability to replicate findings |
| | Suitable for large sample sizes |

### A. Collection of Research Samples

To ensure representation of both urban and rural internship contexts, a stratified random sampling method was employed. The study sample was recruited from M. Utemisov West Kazakhstan University, reflecting the demographic and institutional characteristics relevant to the study.

Inclusion criteria:

1) Enrollment in the final year of the primary education teacher training program at M. Utemisov West Kazakhstan University;
2) Completion of at least one year of practicum or internship in elementary schools;
3) Ability to provide insights into the use of educational resources;
4) Willingness to participate voluntarily and provide informed consent.

Exclusion criteria:

1) University instructors or teaching staff;
2) Students enrolled in non-primary education programs;
3) Students without any practicum or internship experience.

The sample excluded university staff, including instructors and program coordinators, to ensure that the study focused exclusively on the perceptions and experiences of pre-service teachers.

- Recruitment Process

Initial information letters were sent to university administrators to request approval. Upon approval, invitation letters were distributed to eligible students based on the inclusion criteria listed above.

- Participant Profile

In total, 240 Pre-service Primary School Teachers (PPSTs) responded to the survey. After reviewing the responses for completeness and quality, 200 valid responses were selected for analysis to ensure data reliability and diversity.

All participants had completed internships in either urban or rural schools, providing a broad view of different educational environments. The sample consisted exclusively of female participants, which is consistent with the gender composition of the primary education sector in Kazakhstan, where early-grade teaching is predominantly a female profession. Table 2 shows participant information.

Table 2. Demographic and educational background of participants

| Variable | Category | Frequency (*n*) | Percentage (%) |
|---|---|---|---|
| Total participants | - | 200 | 100% |
| Gender | Female | 200 | 100% |
| | Male | 0 | 0% |
| Average age (SD) | - | 22.0 | (SD = 1.2) |
| Academic level | 4th-year students | 200 | 100% |
| Program | Primary education | 200 | 100% |
| Internship location | Urban schools | 140 | 70% |
| | Rural schools | 60 | 30% |

### B. Instrument

The data were collected using a two-part instrument (see Table A1). The survey was developed based on the Technological Pedagogical Content Knowledge (TPACK) framework, ensuring a strong theoretical grounding. The participants' demographic data were gathered in Section I. To explore how PPSTs utilize educational resources in their teaching practices, Section II was designed to capture multiple dimensions of ER use, including confidence, skills, and challenges, aligned with self-efficacy theory. The questionnaire included demographic questions and Likert-scale items related to confidence and resource use. The survey consisted of Likert-scale items and closed-ended questions. Cronbach's alpha was used to evaluate the internal consistency of the primary scale items ($\alpha = 0.84$), indicating good reliability. The survey was administered in Russian and Kazakh using Google Forms, and participation was voluntary and anonymous.

### C. Procedure

The study and its protocols were approved by the Ethical Committee of the Academic Council at M. Utemisov West Kazakhstan University, Kazakhstan, on 14 February 2024 [3]. The researchers monitored response rates and ensured data completeness. Reminders were sent to students who had not submitted their responses within the first few days. After the survey window closed, all responses were reviewed for quality and completeness. The data were then exported to a statistical analysis program for further processing. This procedure ensured that the data were collected efficiently, ethically, and consistently, providing a reliable foundation

for quantitative analysis.

### D. Data Analysis

The research questions were examined by comparing the analysis of the quantitative data with the relevant research questions. The data and analytical methods were aligned with the research questions. All analyses were performed using IBM SPSS Statistics software, version 27. SPSS was chosen for its comprehensive range of statistical tools and its user-friendly interface, which facilitated efficient data management, analysis, and visualization. Table 3 shows the data examined for each research question.

Table 3. Mapping of research questions to data and analysis methods

| Research question | Descriptive statistics | Independent Sample t-test | Correlation/ regression analysis |
|---|---|---|---|
| 1. How well do current TTP prepare PPSTs to use ERs in the classroom? | X | – | – |
| 2. What types of ERs are currently accessible to PPSTs, and how does access vary between urban and rural schools? | X | X | – |
| 3. What are the main barriers that prevent PPSTs from effectively utilizing ERs in their classrooms? | X | – | X |
| 4. How does the integration of ERs in ITT impact teachers' preparedness, creativity, and adaptability in classroom settings? | – | – | X |
| 5. How does access to modern resources influence teaching strategies and outcomes? | – | – | X |

## IV. Result and Discussion

Table 4 and Fig. 1 show the results of DS (mean scores of confidence, skill, and access levels).

Table 4. Descriptive data of preparedness indicators by internship location

| Variable | Urban schools | | Rural schools | |
|---|---|---|---|---|
| | Mean | SD | Mean | SD |
| Confidence level | 4.10 | 0.65 | 3.70 | 0.72 |
| Skill in using resources | 4.00 | 0.60 | 3.60 | 0.75 |
| Access to resources | 4.30 | 0.50 | 3.50 | 0.80 |

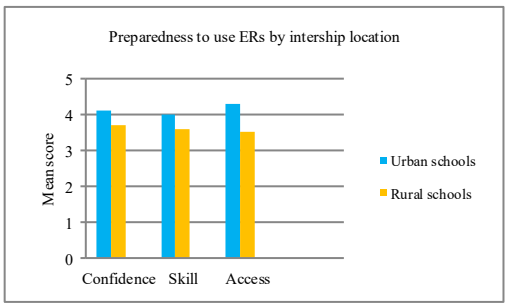


Fig. 1. Preparedness to use ERs by internship location.

The parameters analyzed—confidence, skills, and access to resources, as well as preparedness, creativity, and adaptability—were selected based on the TPACK framework and Bandura's self-efficacy theory. These constructs represent key competencies essential for the effective integration of educational resources into teaching. Confidence and skills indicate teachers' self-efficacy in using ERs, while access reflects the infrastructural readiness that supports resource use. Meanwhile, preparedness, creativity, and adaptability capture broader teaching capabilities that can be enhanced through effective ER use.

As shown in Table 4 and Fig. 1, trainees who completed their internships in urban schools reported higher levels of confidence, skills in using educational resources, and access to ERs compared to those in rural schools, who reported lower mean scores across all three indicators. The findings extend the TPACK framework by illustrating how varied levels of confidence, skills, and resource access affect prospective teachers' ability to integrate technology effectively across different educational contexts. Similarly, the results reinforce the ICT-CFT's emphasis on digital infrastructure and pedagogical support as critical components for competency development. The disparities observed between urban and rural trainees challenge the assumption of uniform ICT readiness, underscoring the need for context-sensitive adaptations in teacher education. These theoretical insights contribute to a more nuanced understanding of how frameworks apply in diverse educational environments and suggest pathways for future research and policy.

Building on these theoretical insights, the findings of this study are situated within the context of Kazakhstan's national education policy and teacher training standards, which emphasize equitable access to educational resources and the development of digital competencies among teachers. The results reveal gaps between these policy aspirations and real-world conditions, particularly in rural areas where resource limitations and lower confidence hinder effective integration of educational resources. Addressing these challenges is essential for meeting Kazakhstan's strategic goals of modernizing education and ensuring all teachers are adequately prepared to support diverse student needs. Strengthening policy implementation and tailoring teacher training programs to address contextual disparities will be critical steps toward achieving these national objectives.

Therefore, these findings underscore the importance of equitable opportunities during teacher training. Trainees in urban placements seem to benefit from stronger institutional support and better resource availability, whereas those in rural settings face infrastructural limitations. Addressing these imbalances is essential for preparing all teacher candidates to integrate educational resources effectively across diverse classroom contexts.

Table 5 and Fig. 2 present the results using descriptive statistics and the results of an independent samples t-test to compare resource accessibility between urban and rural schools.

Table 5. Access to ERs by internship location

| Resource type | Urban mean (SD) | Rural mean (SD) | *t*-value | *p*-value |
|---|---|---|---|---|
| Printed textbooks | 4.5 (0.60) | 4.2 (0.70) | 2.81 | 0.005 |
| Online platforms | 4.3 (0.65) | 3.5 (0.80) | 6.79 | <0.001 |
| Visual aids | 4.0 (0.75) | 3.4 (0.85) | 4.92 | <0.001 |
| Interactive whiteboards | 3.8 (0.90) | 2.2 (0.95) | 11.02 | <0.001 |
| Internet resources | 4.4 (0.55) | 3.1 (0.82) | 12.11 | <0.001 |

The data reveal significantly higher mean access scores for all types of ERs among trainees placed in urban schools

compared to those in rural schools. The most pronounced disparities were observed for interactive whiteboards and internet resources, indicating their limited availability in rural settings. The findings indicate a significant disparity in access to ERs between teacher trainees who completed their internships in urban schools and those in rural placements [36]. Urban-based trainees reported higher access to all categories of resources—particularly interactive whiteboards and internet-based tools, which showed the most substantial mean differences.

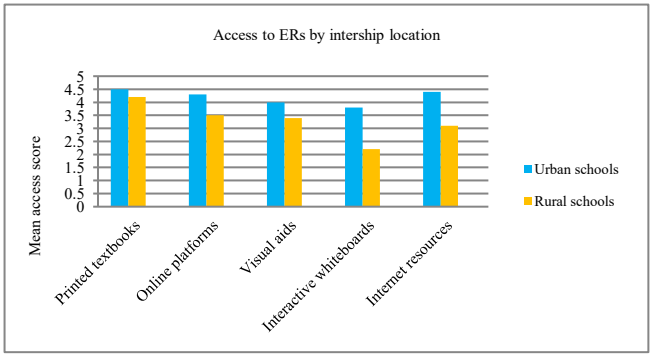


Fig. 2. Access to ERs by internship location.

Table 6 and Fig. 3 present barriers and their association with access to ERs.

Table 6. Barriers to ERs use and their association with access scores

| Barrier type | Frequency (*n*) | Percentage (%) | Correlation with access score (*r*) | Regression coefficient (*β*) | *p*-value |
|---|---|---|---|---|---|
| No internet | 80 | 40% | –0.41 | –0.38 | <0.001 |
| No devices | 55 | 27.5% | –0.35 | –0.29 | 0.002 |
| No training | 92 | 46% | –0.45 | –0.41 | <0.001 |
| Lack of time | 73 | 36.5% | –0.27 | –0.24 | 0.014 |
| Limited support | 68 | 34% | –0.32 | –0.26 | 0.007 |
| None | 30 | 15% | +0.29 | – | – |

Note: Regression model $R^2 = 0.49$

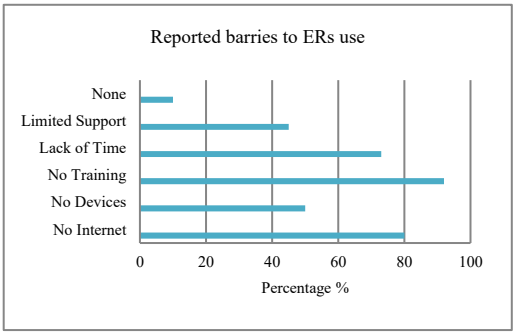


Fig. 3. Reported barriers to ERs use among PPSTs.

The most frequently reported barriers were insufficient training, limited internet access, and time constraints. All major barriers showed significant negative correlations with access to ERs, suggesting that trainees facing more challenges had lower access scores. In the regression model, inadequate training and poor internet connectivity were the strongest negative predictors of resource access, both statistically significant. The model explained 49% of the variance in access scores. These findings highlight that the primary obstacles among PPSTs are insufficient training and restricted internet availability, alongside limited time. The regression analysis confirmed that these factors were the most significant predictors of reduced access.

Tables 5 and 6 reveal critical disparities in access to various educational resources between urban and rural trainees. The substantially lower access scores in rural settings reflect infrastructural and support challenges, such as limited internet connectivity and insufficient training opportunities, which emerged as major barriers. These findings emphasize the persistence of the digital divide, consistent with prior research on rural education contexts [37]. Addressing these obstacles is essential for fostering equitable teaching preparedness and enabling effective ER use across diverse settings [38, 39].

This suggests that without sufficient digital infrastructure and pedagogical support, even highly motivated teacher trainees may face difficulties in effectively utilizing ERs. These findings align with Rawal's [40] research on digital readiness among teacher trainees in rural South Asia. That study similarly highlighted inadequate infrastructure and limited ICT training as major barriers to resource integration, especially during practicum experiences. Furthermore, it concluded that teacher education programs need to invest in both improving technical access and enhancing pedagogical skills to bridge the digital gap between urban and rural teaching contexts.

To enhance the preparedness of PPSTs in rural areas, it is crucial for ITT/TTP programs to implement targeted strategies that address the resource disparities between urban and rural settings. These strategies could include forming partnerships with rural schools to guarantee equitable access to technological tools and mentorship opportunities, integrating digital literacy training into the core curriculum, and providing blended practicum experiences that allow students to gain exposure in both urban and rural environments. Furthermore, remote training modules and mobile ICT labs offer scalable approaches to overcoming infrastructural challenges in hard-to-reach areas. Such measures would not only boost PPSTs' confidence and flexibility but also help ensure a more uniform quality of teaching across varied educational contexts.

The study's findings further emphasize that mere access to resources is not enough—without comprehensive teacher training programs and adequate time for hands-on exploration, PPSTs may struggle to build the confidence and skills necessary for meaningful resource integration. This perspective aligns with UNESCO's ICT Competency Framework for Teachers, which stresses that digital literacy needs to be combined with effective instructional strategies to achieve impact [41].

Table 7 illustrates the effect of the independent variable (integration within training) on various dependent variables, including preparedness, creativity, and adaptability.

Table 7. Multiple regression results

| Dependent variable | Predictor | *β* (Beta) | *t* | *p*-value | $R^2$ |
|---|---|---|---|---|---|
| Preparedness | Integration in training | 0.48 | 6.21 | <0.001 | 0.32 |
| Creativity | Integration in training | 0.35 | 4.12 | <0.001 | 0.21 |
| Adaptability | Integration in training | 0.42 | 5.05 | <0.001 | 0.27 |

Regression analysis revealed that integration of ERs within

training programs significantly predicted levels of preparedness, creativity, and adaptability. The model accounted for 32%, 21%, and 27% of the variance in these respective outcomes. These findings indicate that incorporating educational resources into teacher training programs substantially enhances PPSTs' readiness and their capacity for innovative and flexible teaching. This aligns with Fan *et al*. [42], who demonstrated that experiential training methods involving active engagement with both digital and traditional resources markedly improve teacher efficacy and adaptability. Likewise, Ajani [43] highlighted the crucial role of resource integration in fostering adaptive teaching skills suited to evolving classroom dynamics.

Table 8 displays the results of multiple linear regression analyses, detailing the strength, direction, and statistical significance of resource access on various teaching outcomes, controlling for other factors.

Table 8. Multiple regression results

| Dependent variable | Predictor | $\beta$ (Beta) | $t$ | $p$-value | $R^2$ |
|---|---|---|---|---|---|
| Use of active strategies | Access to modern resources | 0.41 | 5.03 | <0.001 | 0.29 |
| Student engagement | Access to modern resources | 0.38 | 4.61 | <0.001 | 0.24 |
| Teaching skill level | Access to modern resources | 0.46 | 5.72 | <0.001 | 0.31 |

Regression analyses presented in Tables 7 and 8 demonstrate that access to modern Educational Resources (ERs) significantly predicts crucial teaching outcomes. These outcomes encompass the application of active instructional strategies, increased student engagement, overall teaching effectiveness, as well as levels of preparedness, creativity, and adaptability. The findings underscore the pedagogical importance not only of ensuring availability of such resources but also of their meaningful integration within teacher education programs. This empirical evidence aligns with theoretical frameworks that highlight experiential learning and the cultivation of self-efficacy as fundamental to developing adaptive and competent educators [44].

Creativity, adaptability, and teaching readiness were explored both as theoretical constructs and through specific survey items. These items evaluated how prospective teachers incorporated ERs into lesson planning, adapted materials to address diverse learner needs, and assessed their own readiness for real-world classroom situations. The results confirm that participants who reported greater confidence and competence in utilizing ERs were more inclined to implement creative instructional methods and customize their teaching strategies to meet particular classroom challenges. This finding aligns with both the TPACK framework and self-efficacy theory, emphasizing the importance of concurrently developing technical skills and pedagogical expertise [45].

To optimize learning outcomes, teacher education curricula should integrate systematic hands-on experiences with educational resources and encourage active pedagogical experimentation. This approach not only strengthens practical skills and professional confidence but also nurtures the innovative mindset essential for teaching in dynamic, resource-rich learning environments.

Although primary school teachers and university educators work in different contexts, the insights from this study—especially those related to prospective teachers' confidence, skills, and perceived barriers in utilizing educational resources—are highly relevant to university-based teacher preparation. These findings provide valuable guidance for curriculum development and training programs that aim to better align pre-service teacher education with the complex realities of modern primary education, ultimately enhancing the overall effectiveness of teacher training.

### *A. Limitations of the Study*

This study provides valuable insights into the preparedness of teacher trainees to utilize educational resources in Kazakhstan. However, several limitations must be acknowledged. First, the sample consisted entirely of female participants, reflecting the gender distribution within Kazakhstan's primary education sector. This gender uniformity means the findings may predominantly capture gender-specific experiences and attitudes towards educational resource use, which limits the broader applicability of the results. Future research should explore whether male prospective teachers exhibit different confidence levels or face unique challenges. Additionally, including more gender-diverse and geographically varied samples would strengthen external validity. Second, the study utilized a cross-sectional quantitative design based on self-reported measures to assess confidence. While some open-ended responses offered contextual insights, particularly regarding barriers and training integration, no systematic qualitative analysis was conducted. Employing a mixed-methods approach that incorporates qualitative data would enable a richer understanding of the experiences and factors influencing confidence. Future studies might also adopt longitudinal designs to track the development and application of competencies related to educational resources over time in real classroom environments. Third, although the survey addressed commonly reported barriers to using educational resources, certain context-specific challenges may have been overlooked. The inclusion of an "Other" option provided some flexibility, but future instruments could benefit from preliminary qualitative investigations to identify culturally and institutionally relevant barriers more comprehensively. Finally, the relatively brief data collection period may have constrained participation, particularly among trainees with busy academic schedules. Extending the collection timeframe and recruiting participants from multiple teacher education programs would enhance the robustness and generalizability of future research outcomes.

### *B. Recommendations*

In light of the study's findings, it is essential that policymakers prioritize targeted investments aimed at improving digital infrastructure and broadening access to educational resources within rural and remote teacher training environments. Such commitments are vital to mitigate the stark disparities in resource availability that currently undermine trainee preparedness in these areas.

Teacher education curricula should be restructured to integrate context-sensitive content with an emphasis on experiential learning involving diverse educational resources. This strategy should foster critical competencies such as

adaptability, creativity, and technological fluency, which are indispensable for effective modern teaching.

Moreover, ongoing professional development programs need to be implemented to equip teacher educators with practical strategies that support prospective teachers facing infrastructural deficits and pedagogical obstacles. Customized training initiatives will enable educators to better guide resource integration and encourage instructional innovation.

Together, these actions will help bridge the urban-rural gap in teacher readiness, ensuring equitable access to quality teacher education across varied geographical contexts. Ultimately, such efforts will contribute to cultivating a resilient, skilled teaching workforce capable of responding to the dynamic needs of contemporary education.

## V. Conclusion

The purpose of this study was to investigate the confidence, skills, and barriers affecting prospective primary school teachers' readiness to utilize educational resources during their teaching practicum. The findings revealed significant disparities in preparedness based on practicum location, with trainees in urban settings reporting higher confidence levels and better access to educational resources compared to those in rural areas. The results suggest that teacher training programs in Kazakhstan currently provide only foundational preparation for using educational resources, with limited opportunities for prolonged, practical engagement. A marked urban–rural gap in access to digital tools and infrastructure adversely impacts both the readiness of pre-service teachers and the broader goal of educational equity. While urban trainees benefit from greater access and institutional support, their rural peers often encounter resource constraints that impede their professional growth. Beyond differences in access, variations in confidence highlight the crucial influence of environmental exposure and contextual backing. This underscores the need for teacher education programs to prioritize boosting self-efficacy among trainees, particularly in rural regions. Although confidence in using traditional teaching materials was relatively high, both confidence and skills related to digital tools remain inadequate. The findings suggest a need to revise teacher preparation programs by strengthening practice-oriented components, improving equitable access to ERs, and more systematically integrating digital technologies into pre-service training. Strengthening these dimensions will contribute to the development of essential competencies—namely, teaching readiness, instructional creativity, and adaptability—among future educators. The study's findings can guide the development of targeted training modules, instructional resources, and professional development initiatives for students, while also supporting institutional strategies aimed at aligning teacher preparation with real classroom demands. Additionally, the findings offer a valuable basis for informed policymaking to ensure that schools are sufficiently resourced, thereby enabling novice teachers to transition more effectively into professional teaching roles. In the broader perspective, this study contributes to the development of a more sustainable and responsive teacher education system—one that is essential for enhancing the quality of primary education both in Kazakhstan and across the Central Asian region.

## Appendix

Table A1. Survey

| Section | Item | Response options |
|---|---|---|
| 1. Access to ERs | 1. Did you have access to teaching resources during your teacher education program? | ☐ Yes ☐ No |
| | 2. What types of resources were available to you? *(Select all that apply)* | ☐ Printed textbooks<br>☐ Online platforms<br>☐ Visual aids<br>☐ Interactive whiteboards<br>☐ Internet-based resources<br>☐ None |
| 2. Experience with resources during practicum | 3. Did you use ERs during your practicum? | ☐ Yes ☐ No |
| | 4. Which resources did you use most frequently? *(Select one or more)* | ☐ Textbooks<br>☐ Teacher-developed materials<br>☐ Digital tools (e.g., apps, online platforms)<br>☐ Printed worksheets<br>☐ Other: _____ |
| 3. Confidence in using ERs *(Likert scale: 1 = Strongly Disagree, 5 = Strongly Agree)* | 5. I feel confident using printed educational materials. | ☐1 ☐2 ☐3 ☐4 ☐5 |
| | 6. I feel confident using digital tools. | ☐1 ☐2 ☐3 ☐4 ☐5 |
| | 7. I can adapt ERs to meet students' learning needs. | ☐1 ☐2 ☐3 ☐4 ☐5 |
| | 8. I know how to search for online teaching resources. | ☐1 ☐2 ☐3 ☐4 ☐5 |
| | 9. My teacher education program prepared me to use ERs effectively. | ☐1 ☐2 ☐3 ☐4 ☐5 |
| 4. Barriers to ERs use | 10. What barriers have you encountered in using ERs? *(Select all that apply)* | ☐ Lack of internet access<br>☐ Lack of devices<br>☐ Inadequate training<br>☐ Limited time<br>☐ Limited support from mentors/supervisors<br>☐ None |
| | 11. What kind of support would help you use ERs more effectively? | *(Open-ended response)* |

## Conflict of Interest

The authors declare no conflict of interest.

## Author Contributions

Conceptualization, DK and AZ; methodology, IK; software, GY; validation, MA, AK and AZ; formal analysis, DK; investigation, AZ; resources, IK; data curation, GY; writing—original draft preparation, MA; writing—review and editing, AK; visualization, DK; supervision, AK; project administration, AZ; funding acquisition, MA. All authors have read and agreed to the published version of the manuscript.

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