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PROBLEMS OF DEVELOPING FUTURE TEACHERS' RESEARCH COMPETENCE IN THE PROCESS OF PROFESSIONAL TRAINING

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Abstract: The article examines barriers to developing future teachers' research competence, including fragmented preparation, reproductive teaching, weak links between university study and school practice, insufficient mentoring, limited research resources, and formal assessment. Research competence is defined as the ability to identify pedagogical problems, select appropriate methods, analyze data, follow academic ethics, and apply findings to improve practice. The study emphasizes the need for a research-oriented training environment that integrates inquiry across disciplines, school practice, mentoring, and assessment.

Keywords: future teacher, research competence, professional training, teacher education, reserch literacy, methodological preparation, pedagogical practice, academic writing, mentoring, evidence-informed teaching.

INTRODUCTION

Contemporary teacher education requires graduates who can analyze educational evidence, investigate classroom problems and improve practice. Research competence supports professional autonomy, responsible decision-making and continuous development. Uzbekistan's Law "On Education" establishes quality, continuity, openness and intellectual development as key principles [1]. The Concept for the Development of the Higher Education System until 2030 promotes practical training, the integration of education, science and innovation, and student research [2]. The "Uzbekistan – 2030" Strategy prioritizes educational quality, human capital and research effectiveness [3].

UNESCO presents teachers as contributors to knowledge production and educational transformation [4]. The OECD emphasizes engagement with research and the connection between research, policy and practice [5], including the ability to interpret and apply evidence [6]. However, research methodology is often taught separately from professional practice. Students memorize concepts but struggle to transform classroom problems into coherent investigations. Fragmented links among pedagogy, psychology, methodology, information technology and school practice reinforce the perception of research as a formal academic requirement.

The BERA-RSA inquiry emphasizes the need for research-literate teachers and research-rich institutions [7]. Simon Borg notes that research engagement is limited by insufficient time, methodological insecurity, weak institutional support and unclear practical value [8; 9].

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The article systematizes the main barriers to future teachers' research competence and identifies pedagogical conditions for improving curriculum, teaching methods, practice, mentoring, information resources, academic communication, assessment and institutional research culture.

MATERIALS AND METHODS

The study was designed as a theoretical, comparative-pedagogical and structural-functional analysis. Its materials included normative documents of the Republic of Uzbekistan, international reports, scientific works on practitioner inquiry, research-based teacher education, professional learning and action research, as well as methodological literature on educational research design. Particular attention was given to factors that influence teachers' and teacher candidates' engagement in research and to institutional conditions supporting sustained inquiry.

The methodological basis combined document analysis, conceptual analysis, comparison, systematization and pedagogical modelling. Document analysis identified national and international expectations concerning the relationship between teacher education, research and evidence-informed practice. Conceptual analysis clarified the meaning of research competence and distinguished it from the ability to complete an academic paper. Comparative analysis related challenges in Uzbekistan to problems identified in international teacher education. Systematization grouped barriers into interconnected levels, while structural-functional modelling showed how deficits in one element affect the entire competence.

Future teachers' research competence was examined through six interdependent components. The motivational-value component includes interest in inquiry, recognition of its professional value, initiative and responsibility for conclusions. The cognitive-methodological component covers research logic, concepts, approaches, designs, validity, reliability and limitations. The operational-research component includes problem formulation, planning, data collection, processing and interpretation. The information-digital component involves source search and evaluation, database use, digital data organization and analytical tools. The communicative-ethical component encompasses academic writing, argumentation, presentation, citation, confidentiality and academic integrity. The reflective-transformative component includes self-assessment, error recognition, comparison of expected and actual results, and redesign of professional action.

The identified problems were classified at four levels. The individual level includes motivation, prior preparation, confidence and self-regulation. The curricular level covers course sequencing, continuity of research tasks and the balance between theory and practice. The organizational level includes workload, resources, mentoring, assessment and institutional incentives. The partnership level concerns cooperation among the university, school, teacher educator, school mentor and student. This classification prevents the problem from being reduced to students' lack of effort.

The study does not present experimental statistical data. Its purpose is diagnostic and methodological: to identify recurring contradictions in professional training and explain their causes, manifestations and consequences. The conclusions may support the development of curricula, research assignments, pedagogical practice and mentoring systems aimed at preparing future teachers as reflective users and producers of educational evidence.

RESULTS

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The first problem is the fragmentation of research preparation. Research competence is often limited to a methodology course or final project, although it develops through repeated movement from observation and questioning to evidence, interpretation and improvement of practice. Weak links among pedagogy, psychology, teaching methodology, information technology and school practice prevent students from integrating knowledge into a coherent investigation.

The second problem is the reproductive teaching of research methodology. Students memorize definitions and formal research structures without understanding the relationships among the problem, purpose, hypothesis, methods and evidence. Insufficient attention to methodological uncertainty also encourages them to conceal limitations and present every hypothesis as confirmed. Research competence requires comparison of alternative designs, justification of decisions and critical evaluation of results.

The third problem is the weak connection between research and pedagogical practice. School observations are rarely transformed into research questions, while teaching outcomes are not systematically compared with collected evidence. Stenhouse's idea of the teacher as a researcher and practitioner-inquiry traditions show that professional knowledge develops through systematic analysis of educational practice [10; 15].

The fourth problem is insufficient mentoring and a weak research community. Students need regular intellectual dialogue with university supervisors and school mentors rather than occasional correction of written work. Borg identifies time, methodological knowledge, mentoring and perceived relevance as key conditions influencing teachers' research engagement [8; 9]. Without coordinated support, additional assignments may increase formal compliance rather than competence.

The fifth problem concerns information-digital literacy. Students may use unreliable or outdated sources, lack database-search and source-evaluation skills, and apply digital tools without understanding their methodological purpose. They may also overlook confidentiality, informed consent and data security. Technical competence must therefore be combined with critical evaluation and ethical responsibility.

The sixth problem is weak academic communication and integrity. Students often confuse description with analysis, evidence with opinion and results with interpretation. Literature reviews become lists of authors, while conclusions exceed the available data. Plagiarism may also arise from weak paraphrasing, citation difficulties and dependence on templates. Academic writing and ethics should therefore be developed through guided practice. The seventh problem is formal assessment. Research is often evaluated through formatting, the final document and defence, while question quality, methodological justification, ethical conduct, revision and reflection receive less attention. This reinforces the perception of research as a bureaucratic requirement rather than a professional tool.

The eighth problem is the separation of research and teaching cultures. Faculty research is not always visible to students, and research findings rarely influence pedagogical practice. OECD analyses show that meaningful research use depends on collaboration, knowledge mobilization and supportive institutional relationships [5; 6]. These problems are interconnected. Fragmented curricula weaken practice integration, limited relevance reduces motivation, insufficient mentoring increases uncertainty, and formal assessment encourages superficial work. The central contradiction lies between the expectation that future teachers should become evidence-informed reflective professionals and a training system that treats research as a separate academic product.

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DISCUSSION

Research competence should be developed throughout professional training rather than within one isolated course. Healey and Jenkins emphasize that students should learn both about research and through inquiry [12]. Therefore, research tasks must be integrated into pedagogy, psychology, teaching methodology and school practice, progressing from problem identification and source analysis to independent small-scale investigation.

Assignments should be vertically connected: literature analysis may support later observation, instruments developed in methodology courses may be tested during practice, and reflection may generate questions for final research. Pedagogical practice should include observation, problem identification, literature review, limited intervention, evidence collection and evaluation of results.

Action research can support this integration. Kemmis, McTaggart and Nixon describe it as a participatory process linking reflection, action and transformation [17]. However, methods must correspond to the research question and may also include observation, comparison, document analysis or case study.

Mentoring should unite the university supervisor, school mentor and student. The supervisor supports research design and academic standards, the school mentor explains the practical context, and the student takes responsibility for decisions and reflection. Cochran-Smith and Lytle interpret inquiry as a professional stance rather than a temporary technique [10].

A research-rich environment requires access to evidence, collaboration and institutional support, as emphasized by BERA [7]. Students need databases, research seminars, academic-writing consultations, shared instruments and school partnerships. Digital preparation should combine information search, source evaluation, data analysis, citation, ethics and responsible use of technological tools.

Academic writing must be developed through short, repeatedly revised research texts. Assessment should evaluate not only the final paper but also question formulation, methodological justification, evidence, ethical conduct, analysis, limitations and reflection. Research portfolios and formative feedback make revision a normal part of inquiry. Research tasks should address authentic professional problems while preserving space for conceptual analysis. Brew notes that students' understanding of knowledge changes when they recognize its uncertain and contested nature [13]. Teacher educators also require sustained professional learning, collaboration and mentoring conditions, as emphasized by Darling-Hammond, Hyler and Gardner [14]. Uzbekistan's educational reforms provide a basis for research-oriented teacher training [1–3]. However, progress should be measured not by the number of papers or conferences but by graduates' ability to analyze pedagogical problems, use evidence, justify decisions and evaluate consequences.

A comprehensive solution requires coordinated changes at the individual, curricular, organizational and partnership levels. OECD studies show that evidence use depends on interpretation, collaboration and knowledge mobilization [5; 6]. Research competence therefore enables future teachers to connect scientific evidence, professional experience and local educational conditions.

CONCLUSION

Future teachers' research competence is hindered by fragmented preparation, reproductive methodology teaching, weak links with pedagogical practice, insufficient mentoring, limited

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information-digital literacy, academic writing and ethical difficulties, formal assessment, and separation between research and teaching. These factors reduce inquiry to a compulsory written task.

Research competence should integrate motivation, methodological knowledge, practical inquiry, information analysis, academic communication, ethics and reflection. Its development requires progressively structured tasks across disciplines and school practice, authentic small-scale studies, university-school mentoring, reliable resources, digital tools, iterative writing and portfolio assessment.

The goal is not to prepare every graduate as an academic researcher, but to form a teacher capable of investigating professional problems, critically interpreting evidence, recognizing limitations, protecting participants, justifying decisions and improving practice.

In Uzbekistan, strengthening research competence supports the integration of education and science, improves teacher quality and modernizes school practice. Universities should therefore treat research as a continuous culture of professional learning rather than an isolated graduation requirement.

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