

CONCEPTUAL APPROACHES TO DEVELOPING VERIFICATIONAL THINKING IN PEDAGOGICAL EDUCATION

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Annotation: *This article examines the conceptual approaches to developing verificational thinking in pedagogical education as an integrative intellectual competence that enables future teachers to examine educational information, compare evidence, test methodological assumptions, distinguish justified knowledge from unverified opinion, and transform reflective doubt into a culture of responsible pedagogical decision-making. The relevance of the topic is determined by the rapid expansion of digital information, the growth of artificial intelligence tools in learning environments, the increasing complexity of educational reforms, and the need to prepare teachers who are able not only to transmit knowledge but also to validate, interpret, and critically reconstruct it.*

Key words: *Pedagogical education, verificational thinking, critical thinking, epistemological competence, evidence-based pedagogy, teacher training, methodological reflection, source verification, scientific cognition, conceptual approach.*

Introduction: In contemporary pedagogical education, the problem of developing verificational thinking has acquired strategic and methodological significance because the professional activity of a future teacher is no longer limited to the reproduction of ready-made knowledge or the formal application of didactic technologies. The teacher of the twenty-first century operates in an environment in which educational information is constantly expanding, digital resources are multiplying, scientific and pseudo-scientific claims often circulate together, and students are exposed to an unprecedented flow of contradictory data, interpretations, algorithmic recommendations, and social narratives.

A teacher must be able to verify whether a digital platform genuinely improves learning or merely imitates innovation; whether a teaching method corresponds to students' age and cognitive characteristics; whether assessment criteria measure the intended competence; whether feedback supports development; and whether the educational conclusion is supported by observation, reflection, and data. Therefore, verificational thinking is not an abstract philosophical category; it is a practical-professional requirement of pedagogical activity. From a conceptual point of view, verificational thinking is connected with the epistemological foundations of scientific cognition. Pedagogical knowledge becomes scientific when it is based on evidence, conceptual clarity, methodological consistency, and the possibility of practical confirmation.

In teacher education, this means that students should learn to distinguish between assumption and proof, between subjective impression and pedagogical diagnosis,

between external imitation of innovation and real educational effectiveness. For example, when a future teacher observes that students are “active” during a lesson, verificational thinking requires asking what indicators prove this activity, how it is connected with learning outcomes, whether all students participated meaningfully, and what data can confirm the conclusion. In this sense, verification becomes a didactic culture of asking questions before accepting judgments.

The literature analysis of the problem shows that the development of verificational thinking in pedagogical education can be theoretically connected with the works of Uzbek scholars who studied professional competence, independent thinking, scientific worldview, and the methodological foundations of teacher training. In this regard, the scientific contribution of Narzulla Alixanovich Muslimov is particularly significant. His Google Scholar profile identifies his research interests as professional education, didactics, and pedagogy, which directly correspond to the conceptual field of teacher preparation and professional competence formation. In Muslimov’s pedagogical logic, the training of future teachers is not reduced to the transmission of subject knowledge; it requires the development of professional-methodological readiness, the ability to design educational processes, and the capacity to connect theoretical knowledge with practical action. This position is important for verificational thinking because verification in pedagogy always presupposes a transition from abstract methodological recommendation to its evidence-based confirmation in practice. A future teacher must learn to ask whether a certain pedagogical method is appropriate for a concrete educational situation, what indicators confirm its effectiveness, and how the obtained result can be interpreted within a competency-based framework.

Thus, Muslimov’s didactic orientation toward professional competence may be interpreted as a national theoretical basis for developing verification-oriented pedagogical thinking. The second important Uzbek scholarly direction can be associated with the works of Ozoda Nishonova, whose Google Scholar profile presents research in philosophy and social-cultural activity. Although her scientific field is not limited to narrow didactics, the philosophical orientation of her work is relevant to the epistemological dimension of verificational thinking. Verification is not only a methodological procedure; it is also a philosophical culture of treating knowledge as something that requires justification, reflection, and responsible interpretation.

The results of the theoretical analysis indicate that verificational thinking in pedagogical education should be understood as an integrative intellectual-professional formation that enables future teachers to examine the reliability of knowledge, justify pedagogical decisions, and organize educational activity on the basis of evidence, reflection, and methodological consistency.

The first result is the clarification of the conceptual content of verificational thinking. It includes five mutually connected components: the epistemological component, which reflects the ability to distinguish reliable knowledge from assumption; the logical-analytical component, which ensures the evaluation of arguments, causal relations, and internal consistency; the methodological component, which allows the future teacher to

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choose and verify pedagogical methods according to educational goals; the diagnostic-reflective component, which involves observation, self-assessment, feedback, and interpretation of learning outcomes; and the ethical-communicative component, which ensures honest work with sources, respect for evidence, and responsible interaction with students.

The second result is the identification of conceptual approaches that can support the development of verificational thinking. The epistemological approach forms students' understanding of knowledge as a justified and verifiable construct. The competence-based approach links verification with professional readiness and the ability to make independent pedagogical decisions. The reflective approach develops metacognitive control and the habit of examining one's own assumptions. The research-oriented approach transforms the student into a participant in pedagogical inquiry who learns to formulate hypotheses, collect data, compare evidence, and interpret results. The digital-critical approach prepares future teachers to verify online sources, algorithmic outputs, artificial intelligence-generated materials, and multimedia content. The axiological approach connects verification with responsibility, honesty, and respect for truth as an educational value.

The discussion of verificational thinking in pedagogical education becomes more theoretically productive when it is connected with the polemics of foreign scholars who approached the problem of knowledge, experience, and educational judgment from different methodological positions. In this context, the debate between John Dewey and Karl Popper is especially meaningful. Dewey, in his theory of reflective thinking and experiential education, argued that thinking begins with a problematic situation and develops through inquiry, hypothesis, experimentation, and the reconstruction of experience.

Popper's critical rationalism, however, introduces a sharper epistemological demand. For Popper, scientific knowledge does not develop by simply confirming what we already believe; it develops through criticism, falsification, and the readiness to reject hypotheses that do not withstand testing. If Dewey emphasizes the reconstruction of experience, Popper emphasizes the vulnerability of every claim to critical examination. In pedagogical education, this means that a future teacher must not only confirm the usefulness of a method but also search for its limits, possible failures, and conditions under which it may not work. The polemical tension between Dewey and Popper is valuable because it prevents a one-sided understanding of verification.

A second important discussion can be built around Robert Ennis and Paulo Freire. Ennis conceptualized critical thinking as reasonable and reflective thinking focused on deciding what to believe or do. His approach is analytical, criteria-based, and strongly connected with argument evaluation, clarity, inference, credibility of sources, and decision-making. Freire, by contrast, approached thinking through the lens of critical consciousness, dialogue, and liberation from passive acceptance of dominant narratives. This creates a polemical difference: Ennis tends to emphasize formal rationality and the

quality of reasoning, while Freire emphasizes dialogic awareness, social context, and the transformation of consciousness. In pedagogical education, both positions are necessary.

Conclusion: The analysis carried out in this article makes it possible to conclude that verificational thinking is one of the most important intellectual foundations of modern pedagogical education. It should be understood not as a narrow technique of checking facts, but as a complex professional competence that unites critical reasoning, epistemological responsibility, methodological reflection, source analysis, diagnostic culture, and ethical attitude toward knowledge.

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