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CONCEPTUAL FOUNDATIONS FOR DEVELOPING THE METHODOLOGICAL COMPETENCE OF FUTURE MORAL EDUCATION TEACHERS BASED ON AN ERGONOMIC APPROACH

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Abstract

In the context of rapid socio-cultural transformations, digitalization of education, and the increasing complexity of pedagogical environments, the professional training of future moral education (tarbiya) teachers requires innovative methodological frameworks that ensure not only pedagogical effectiveness but also human-centered sustainability of teaching practices. This study aims to substantiate the conceptual foundations for developing the methodological competence of future moral education teachers based on an ergonomic approach, which integrates pedagogical, psychological, physiological, and organizational dimensions of the educational process. Employing a systemic and competence-based research design, the study conceptualizes methodological competence as a multidimensional construct encompassing motivational-value, cognitive, operational-technological, reflective, and ergonomic components. The ergonomic approach is interpreted not merely as a physical adaptation of educational environments, but as a holistic pedagogical strategy that optimizes the interaction between the teacher, learner, educational content, and instructional conditions. The research methodology includes theoretical analysis, modeling, pedagogical diagnostics, and comparative interpretation of empirical data obtained through surveys, observations, and expert assessments. The results reveal that the integration of ergonomic principles into the professional preparation of future moral education teachers significantly enhances their methodological readiness, instructional adaptability, and pedagogical sustainability. The study proposes a conceptual model that outlines the structural components, pedagogical conditions, and developmental stages of methodological competence formation within an ergonomic framework. The findings contribute to pedagogical theory by expanding the application of ergonomics in teacher education and offer practical implications for higher education institutions involved in training moral education teachers. The study concludes that an ergonomic

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approach serves as a scientifically grounded and practically effective means of aligning methodological competence development with contemporary educational demands and human-centered pedagogical values.

Keywords: Methodological competence; ergonomic approach; moral education teacher training; teacher education; pedagogical ergonomics; competence-based education; conceptual model.

Introduction

The contemporary transformation of educational systems, driven by globalization, digitalization, and the growing complexity of social and moral challenges, has fundamentally redefined the professional role of the teacher, particularly within the domain of moral education. In many national education systems, including Uzbekistan's, the subject of moral education (tarbiya) is entrusted with the formation of students' ethical values, civic responsibility, cultural identity, and social behavior, thereby positioning moral education teachers as key agents of societal development rather than mere transmitters of curricular content. However, despite the heightened expectations placed upon future moral education teachers, their professional preparation often remains predominantly content-oriented, fragmented, and insufficiently responsive to the real ergonomic conditions of pedagogical practice. Methodological competence, understood as the teacher's ability to design, implement, adapt, and critically evaluate pedagogical methods in alignment with learners' needs and educational goals, has emerged as a central indicator of professional readiness, yet its development is frequently addressed in isolation from the human-centered factors that shape teaching effectiveness. Ergonomics, traditionally associated with optimizing physical work environments, has increasingly evolved into an interdisciplinary field that examines the interaction between humans, technologies, tasks, and organizational contexts, offering substantial theoretical and practical potential for teacher education. When applied to pedagogical training, an ergonomic approach extends beyond classroom furniture or workload management and encompasses cognitive load regulation, emotional well-being, instructional clarity, temporal efficiency, and the sustainability of pedagogical actions. Despite this potential, existing research demonstrates a notable gap in the systematic integration of ergonomic principles

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into the formation of methodological competence among future moral education teachers. Most studies either focus on general pedagogical competencies without addressing subject-specific methodological challenges, or they interpret ergonomics narrowly, neglecting its conceptual relevance to pedagogical design and teacher self-regulation. Consequently, there is a pressing need for a comprehensive conceptual framework that synthesizes methodological competence development with ergonomic principles in the professional training of future moral education teachers. Addressing this gap, the present study aims to substantiate the conceptual foundations for developing methodological competence based on an ergonomic approach, to define its structural components, and to identify pedagogical conditions that ensure the effectiveness and sustainability of this process within higher education institutions. By aligning competence-based teacher education with ergonomic optimization, this research seeks to contribute to both pedagogical theory and practice, offering a scientifically grounded response to the evolving demands of moral education in contemporary society.

Methods

The methodological framework of this study is grounded in a systemic, competence-based, and ergonomic research paradigm aimed at substantiating the conceptual foundations for developing the methodological competence of future moral education teachers. The research design integrates qualitative and quantitative approaches and is structured around several interrelated methodological levels, including philosophical, general scientific, and specific pedagogical methods. At the philosophical level, the study relies on humanistic, activity-oriented, and systems theories, which conceptualize teacher education as a dynamic interaction between the individual, the educational environment, and professional activity. The general scientific level employs analysis, synthesis, modeling, comparison, and abstraction to examine existing theoretical perspectives on methodological competence and ergonomics in education. At the specific pedagogical level, the ergonomic approach serves as the core methodological principle, interpreted as a holistic strategy for optimizing pedagogical activity through the alignment of cognitive, emotional, physical, and organizational factors within the educational process. Methodological competence is operationalized as a

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multidimensional construct comprising motivational-value, cognitive, operational-technological, reflective-evaluative, and ergonomic components, each defined by specific indicators and developmental criteria. The empirical component of the study involves pedagogical diagnostics conducted among undergraduate students enrolled in moral education teacher training programs, utilizing surveys, structured observations, self-assessment scales, and expert evaluations to assess the initial and developmental levels of methodological competence. Data collection is complemented by the design and implementation of a conceptual ergonomic model integrated into methodological training courses, which emphasizes instructional clarity, workload balance, adaptive teaching strategies, and reflective self-regulation. Statistical and comparative analysis methods are applied to interpret empirical findings, identify developmental dynamics, and evaluate the effectiveness of ergonomic integration in methodological competence formation. The reliability and validity of the research results are ensured through methodological triangulation, repeated measurements, and expert consensus, allowing for a comprehensive and scientifically substantiated interpretation of the data. This methodological approach enables a systematic examination of how ergonomic principles enhance the sustainability, adaptability, and effectiveness of methodological competence development in future moral education teachers within higher education contexts.

Results and Discussion

The results of the study demonstrate that the systematic integration of an ergonomic approach into the professional preparation of future moral education teachers produces a measurable and conceptually significant enhancement of their methodological competence, both in its structural coherence and functional effectiveness. The implementation of the proposed conceptual model revealed that methodological competence develops most sustainably when its components are addressed not as isolated pedagogical skills but as an interdependent system shaped by ergonomic optimization. Empirical data indicate that students exposed to ergonomically designed methodological training exhibited higher levels of motivational engagement, instructional clarity, and adaptive decision-making compared to those trained under traditional, content-centered approaches. In particular, the ergonomic component functioned as a mediating factor that

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strengthened the relationship between cognitive knowledge and practical methodological application, reducing cognitive overload and enhancing reflective self-regulation. The analysis further showed that the operational-technological component benefited from ergonomic alignment through improved lesson structuring, time management, and the selection of pedagogical methods that correspond to learners' psychological and physiological capacities. From a theoretical perspective, these findings support and extend existing competence-based models by demonstrating that methodological competence cannot be fully realized without considering the ergonomic conditions under which pedagogical activity occurs. Comparative discussion with international studies on pedagogical ergonomics and teacher competence development reveals both convergence and originality: while prior research emphasizes ergonomics primarily in relation to classroom design or teacher well-being, the present study advances a broader conceptualization in which ergonomics is embedded within methodological decision-making itself. This integrative interpretation aligns with contemporary human-centered educational paradigms and responds to calls for sustainable teacher education practices. Moreover, the results underscore that the ergonomic approach contributes not only to immediate instructional effectiveness but also to the long-term professional resilience of future moral education teachers, equipping them with the capacity to adapt their methodologies to diverse educational contexts without compromising pedagogical quality or personal well-being. Thus, the discussion confirms that the proposed conceptual framework offers a scientifically grounded and practically viable model for enhancing methodological competence through ergonomic principles, positioning it as a valuable contribution to both national and international pedagogical discourse.

Conclusion

The present study substantiates that the development of methodological competence in future moral education teachers is most effective when grounded in a comprehensive ergonomic approach that harmonizes pedagogical objectives with human-centered educational conditions.

The research confirms that methodological competence should be conceptualized not merely as a set of instructional techniques, but as an integrated professional quality encompassing motivational, cognitive, operational, reflective, and

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ergonomic dimensions. The proposed conceptual framework demonstrates that ergonomics functions as a unifying pedagogical principle that optimizes the interaction between the teacher, learners, instructional content, and the educational environment, thereby enhancing both instructional effectiveness and professional sustainability. The findings reveal that the incorporation of ergonomic principles into teacher education reduces cognitive overload, strengthens adaptive methodological decision-making, and fosters reflective self-regulation, which are particularly critical in the context of moral education, where emotional, ethical, and social dimensions of teaching are pronounced. The study contributes to pedagogical theory by expanding the interpretative scope of ergonomics within competence-based teacher education and offers practical implications for higher education institutions by providing a scientifically grounded model for methodological training. Despite its contributions, the research is limited by its focus on a specific subject domain and institutional context, suggesting the need for further empirical validation across diverse educational settings and cultural environments. Future research may explore the longitudinal impact of ergonomic-based methodological training and its integration with digital learning technologies. Overall, the study concludes that an ergonomic approach represents a strategically important and methodologically justified direction for advancing the professional preparation of future moral education teachers in alignment with contemporary educational demands and humanistic pedagogical values.

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