

REVIEW

on the doctoral dissertation «Methodological features of using gamification elements in the training of future informatics teachers», submitted by Ulzhalgas Yesseikyzy for the degree of Doctor of Philosophy (PhD) in the educational program 8D01504 «Informatics», by the foreign scientific consultant, Adem Tekerek (Gazi University, Ankara, Turkey)

Relevance of the Research

The contemporary educational system is evolving in the context of digital transformation, renewal of educational content, and changes in learners' academic experiences. Under these conditions, the preparation of future teachers necessitates a critical reassessment of traditional instructional approaches and an active search for novel pedagogical mechanisms for organising learning activities.

The research conducted by U.Yesseikyzy addresses a highly significant and topical subject, namely the identification of the methodological specifics of applying gamification elements in the training of future informatics teachers. The relevance of this topic is directly associated with the imperative of integrating gamification elements into the professional preparation of future computer science teachers, the practical and activity-based nature of the discipline itself, the formation of a culture of productive error handling, and the objective of sustaining students' consistent academic motivation. At the present time, the preparation of a new generation of teachers who are proficient in emerging technologies and methods, capable of functioning in digital environments, capable of designing the learning process, organising effective feedback, and fostering learners' cognitive activity, is of paramount importance. I consider the proposed research to be a scientifically grounded work aimed at improving the content and methodology of professional preparation of future informatics teachers in the context of a digital society.

Correspondence of Research Findings to the Dissertation Topic

The scientific conclusions and findings presented in the dissertation are fully consistent with the declared topic, and the research logic is systematically structured. The author provides a comprehensive analysis of the scientific, theoretical, and pedagogical foundations of the concept of gamification, thoroughly elucidating its elements within the educational process, its classifications, pedagogical functions, and significance within the educational environment. Furthermore, the work substantiates the influence of gamification elements on motivating learning, developing professional competencies, structuring learning activities, fostering a safe approach to error-making, and forming digital pedagogical competencies. The analysis of the current state of professional preparation of future informatics teachers corresponds precisely to the subject of the research and links theoretical reasoning to concrete educational practice. From this perspective, the content of the dissertation may be assessed as remaining firmly within the scope of the declared topic and consistently addressing the stated scientific objectives.

Originality of the Author's Scholarly Position

The dissertation work of U. Yesseikyzy is distinguished by the independence of scholarly thinking, the capacity to interpret the research problem in accordance with the requirements of contemporary pedagogy, and the systematic structuring of the research object. The author examines gamification elements not merely as tools of external motivation, but as a comprehensive pedagogical mechanism for organising learning activities, developing professional competencies, and designing a digital pedagogical environment. The structural and functional analysis of gamification elements in the work, and their examination in relation to contemporary scientific models, demonstrates that the author approached the research with a thorough theoretical grounding. Furthermore, taking into account the specific character of the informatics discipline, the author advances an independent scientific perspective on the research problem. This underscores the scholarly novelty of the dissertation and the research independence of its author.

Format and Presentation of the Dissertation

The dissertation is structured in a systematic and logically coherent manner, meeting the requirements applicable to academic research. The chapters and subsections of the work are interconnected and subordinated to a unified scholarly argument. The first chapter establishes the scientific and theoretical foundations of the problem, while subsequent chapters encompass the methodological framework, the proposed model, the instructional and methodological support, and the results of the pedagogical experiment. The text is written in an academic style, the terminology is consistent, the content is accessible, and the logic of argumentation is preserved. Illustrative materials, tables, diagrams, and models serve to illuminate the research content and facilitate the comprehension of the presented scientific information. Overall, the presentation of the dissertation reflects the author's responsible and high-quality approach to scholarly work.

Characterisation of the Research Findings

In the course of the research, the author not only systematised the theoretical foundations of applying gamification elements in the training of future informatics teachers, but also provided scientific justification for their role and significance in professional preparation. The dissertation offers a consistent description of the mechanisms through which gamification elements influence academic motivation, cognitive activity, the sustainability of learning engagement, and the formation of professional competencies. The author examines the subject-specific, methodological, and digital pedagogical competencies of future informatics teachers in an integrated manner, substantiating gamification elements as a pedagogical tool oriented towards these professional outcomes. The study also identifies the contradictions and limitations inherent in the current preparation system and substantiates the necessity of methodological solutions aimed at addressing them. The conclusions and methodological guidelines advanced in the work are of considerable value for the practice of higher pedagogical education and may be effectively employed in the process of preparing future informatics teachers.

Conclusion

The dissertation of U.Yesseikyzy, entitled «Methodological features of using gamification elements in the training of future informatics teachers» addresses one of the pressing issues of contemporary pedagogical science and constitutes a study of high scholarly and practical significance. The work is aimed at improving the content of the preparation of future informatics teachers in the context of digital education, developing their professional competencies, and scientifically grounding the integration of gamification elements into the educational process. The dissertation demonstrates the candidate's high level of theoretical preparation, methodological literacy, deep understanding of the research problem, and capacity to conduct independent scholarly inquiry. She has established herself as a purposeful and competent researcher with well-developed professional thinking and considerable scholarly potential.

The PhD candidate demonstrated herself to be a purposeful and skilled researcher. I further note that throughout the period of study, U.Yesseikyzy actively engaged in consultations with me, which contributed to the consolidation of her scholarly position and the broadening of her knowledge in the fields of digital educational technologies and the application of gamification elements. This attests to the high level of the candidate's competence and her readiness for further scholarly work.

The research conducted by Yesseikyzy Ulzhalgas on the topic «Methodological features of using gamification elements in the training of future informatics teachers» was carried out in accordance with the requirements of the Committee for Quality Assurance in Education and Science of the Republic of Kazakhstan, and it is recommended that the dissertation be admitted to defence before the Dissertation Council for the award of the degree of Doctor of Philosophy (PhD) to Yesseikyzy Ulzhalgas under Educational Programm 8D01504 «Informatics»

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