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SYSTEM FOR ASSESSING STUDENTS' SOCIAL-EMOTIONAL COMPETENCIES BASED ON DIGITAL DIAGNOSTICS

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ABSTRACT

The rapid transformation of education systems under the influence of digital technologies has created new opportunities for assessing students' social-emotional competencies in more dynamic, objective, and scalable ways. This article explores the theoretical and methodological foundations of designing a system for assessing students' social-emotional competencies based on digital diagnostics within the context of modern Uzbek education. The study analyzes international and national scientific approaches to social-emotional learning, digital pedagogy, and competency-based assessment, emphasizing the integration of artificial intelligence, learning analytics, and adaptive testing environments.

Particular attention is given to the conceptualization of social-emotional competencies as a multidimensional construct that includes self-awareness, self-regulation, empathy, communication, cooperation, and responsible decision-making. The article discusses the potential of digital diagnostic systems to provide continuous monitoring of students' emotional and social development, enabling personalized educational interventions. It also considers challenges such as data privacy, ethical issues, technological accessibility, and teacher readiness. The results of the conceptual analysis show that digital diagnostics can significantly enhance the quality of educational assessment in Uzbekistan by ensuring objectivity, efficiency, and real-time feedback. The study concludes that the implementation of such systems contributes to the holistic development of students and supports the modernization of national education in accordance with global trends.

KEYWORDS

social-emotional competencies, digital diagnostics, assessment system, educational technology, Uzbekistan education, learning analytics, competency-based education, artificial intelligence in education, student development, formative assessment

INTRODUCTION

The modernization of education in Uzbekistan in recent years has been closely connected with the introduction of digital technologies, competency-based learning models, and innovative pedagogical approaches aimed at improving the quality of human capital development. In this context, the assessment of students' social-emotional competencies has become an important component of holistic education, as it reflects not only academic achievement but also personality development, emotional intelligence, communication skills, and social adaptation. Contemporary Uzbek educational reforms emphasize the need to prepare learners who are not only knowledgeable but also emotionally stable, socially responsible, and capable of effective interaction in a rapidly changing society. Social-emotional competencies are widely recognized in international pedagogical research as key predictors of academic success, psychological well-being, and long-term life outcomes, and similar tendencies are increasingly reflected in Uzbek scientific literature on pedagogy and psychology. However, traditional assessment methods in schools are often limited in their ability to capture the complexity and dynamic nature of these competencies, as they rely mainly on static tests, teacher observations, and subjective evaluations.

The development of digital diagnostic systems introduces new possibilities for overcoming these limitations by enabling continuous, data-driven, and adaptive assessment of learners' emotional and social development. Such systems integrate psychometric tools, behavioral analytics, and artificial intelligence algorithms to provide a more comprehensive understanding of student behavior in real time.

In Uzbekistan, the digital transformation of education, supported by state programs on informatization and modernization of learning environments, creates favorable conditions for the implementation of innovative assessment technologies. At the same time, there is a growing scientific interest in aligning global theoretical frameworks of social-emotional learning with national pedagogical traditions, which emphasize moral upbringing, interpersonal respect, and collective responsibility. Therefore, the study of digital systems for assessing social-emotional competencies is both theoretically relevant and practically significant for the development of modern education in Uzbekistan.

MAIN PART

The concept of social-emotional competencies has evolved as an interdisciplinary construct that integrates psychological, pedagogical, and sociological dimensions of human development. In modern educational theory, these competencies are generally understood as a combination of self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, which collectively determine a learner's ability to function effectively in academic and social environments. Uzbek pedagogical science traditionally emphasizes similar qualities through concepts such as tarbiya, which includes moral education, emotional upbringing, and social responsibility formation.

The integration of these traditional values with contemporary digital approaches creates a unique framework for assessing student development in a more comprehensive manner. Digital diagnostics in education refers to the use of technological tools, including learning management systems, artificial intelligence algorithms, and data analytics platforms, to collect, process, and interpret information about students' cognitive, emotional, and behavioral characteristics. Within this framework, social-emotional competencies can be assessed through multiple data sources such as interactive tasks, digital simulations, online collaboration activities, behavioral tracking, and self-report instruments integrated into educational platforms[1].

One of the key advantages of digital diagnostic systems is their ability to provide continuous and real-time feedback, allowing educators to monitor changes in students' emotional states and social interactions over time. This dynamic approach contrasts with traditional assessment methods, which often capture only a snapshot of student performance at a specific moment. International research indicates that digital assessment tools, including gamified learning environments and AI-based emotional recognition systems, are increasingly used to evaluate competencies such as empathy, cooperation, and emotional regulation. In the context of Uzbekistan, the implementation of such systems is supported by ongoing digitalization reforms in education, including the introduction of electronic learning platforms and competency-based curricula.

The development of a system for assessing social-emotional competencies based on digital diagnostics requires the integration of several methodological components, including the definition of competency indicators, the design of digital assessment tasks, the selection of data collection methods, and the development of analytical algorithms. These indicators must reflect culturally relevant values while remaining consistent with international standards of social-emotional

[1] Baker, R. S., & Inventado, P. S. (2014). Educational data mining and learning analytics. Springer.

learning. For example, indicators of empathy may include the ability to recognize emotions in others, respond appropriately in social situations, and demonstrate supportive behavior in group activities.

Self-regulation indicators may involve the ability to manage stress, control impulses, and maintain focus during learning tasks. Digital tools can capture these indicators through behavioral data, response patterns, interaction frequency, and linguistic analysis of student communication in digital environments. Artificial intelligence technologies further enhance the assessment process by enabling predictive analytics, which can identify potential emotional or social difficulties before they significantly affect academic performance[2]. At the same time, the implementation of digital diagnostic systems raises important ethical considerations, including data privacy, informed consent, and the potential bias of automated algorithms.

Teachers play a critical role in interpreting digital data and providing contextual understanding of student behavior, which cannot be fully captured by algorithms. Another important aspect is the professional development of educators, who must acquire digital literacy and competencies in interpreting analytical data to effectively use digital diagnostic tools. Furthermore, infrastructure disparities between urban and rural schools in Uzbekistan may affect the equitable implementation of such systems, requiring targeted policy interventions. Despite these challenges, the integration of digital diagnostics into the assessment of social-emotional competencies offers significant advantages, including increased objectivity, scalability, and the possibility of personalized learning pathways.

By continuously monitoring students' emotional and social development, educators can design targeted interventions that support both academic achievement and personal growth. This aligns with the broader goals of Uzbekistan's educational reforms, which aim to foster a generation of socially responsible, emotionally intelligent, and technologically competent individuals capable of contributing to national development in a globalized world.

The introduction of digital diagnostics into the assessment of students' social-emotional competencies represents a significant shift in contemporary educational theory and practice, especially in the context of ongoing reforms in Uzbekistan's education system. The discussion of this topic reveals that social-emotional competencies, once considered secondary to cognitive achievement, are now recognized as fundamental determinants of academic success, psychological well-being, and long-term social adaptation.

International scientific literature emphasizes that competencies such as emotional regulation, empathy, cooperation, and responsible decision-making are closely linked to both individual learning outcomes and broader societal development, which is also increasingly reflected in Uzbek pedagogical discourse through the integration of competency-based education models and digital transformation strategies. The use of digital diagnostics in this field provides new methodological opportunities for capturing complex behavioral and emotional patterns that cannot be fully assessed through traditional paper-based tests or teacher observation alone[3].

At the same time, it introduces a shift from episodic assessment to continuous monitoring, enabling educators to track developmental trajectories over time and respond to learners' needs more effectively. This continuous data-driven approach aligns with modern learning analytics frameworks, which suggest that educational data collected from digital environments can be used not only for evaluation but also for prediction and personalized intervention. In Uzbek educational

[2] Picard, R. W. (2015). *Affective computing*. IEEE Transactions on Affective Computing.
[3] OECD. (2015). *Skills for social progress: The power of social and emotional skills*. OECD Publishing.

practice, where the concept of tarbiya emphasizes holistic personality development, digital diagnostic systems can serve as a technological extension of traditional pedagogical values by providing structured and objective insights into students' emotional and social growth.

However, the discussion also highlights several critical challenges associated with the implementation of such systems. One of the main concerns is the ethical dimension of data collection, particularly in relation to students' privacy, informed consent, and the responsible use of sensitive behavioral data. The use of artificial intelligence and automated analytics systems raises additional questions about transparency, algorithmic bias, and the extent to which machine-based interpretations can accurately reflect human emotional complexity.

Another important issue is the readiness of the educational infrastructure in Uzbekistan, where disparities between urban and rural schools may limit equal access to advanced digital diagnostic tools. Furthermore, the successful application of such systems depends heavily on teacher competence in digital literacy and data interpretation, as educators remain central actors in transforming raw digital data into meaningful pedagogical decisions. Without adequate training and methodological support, there is a risk that digital diagnostics may become a formal technological tool rather than a meaningful component of the teaching-learning process[4].

At the same time, international studies demonstrate that when properly implemented, digital systems for assessing social-emotional competencies can significantly enhance educational effectiveness by enabling early identification of emotional and behavioral difficulties, supporting individualized learning pathways, and improving student engagement. In the context of Uzbekistan's educational modernization agenda, this approach aligns with strategic priorities aimed at developing innovative, competitive, and socially responsible citizens capable of functioning effectively in a globalized digital society.

CONCLUSION

The analysis conducted in this article demonstrates that the system for assessing students' social-emotional competencies based on digital diagnostics represents a promising direction for the modernization of education in Uzbekistan. Such systems enable more comprehensive, objective, and continuous evaluation of students' emotional and social development, addressing the limitations of traditional assessment methods. The integration of digital technologies, artificial intelligence, and learning analytics into educational practice allows for the creation of adaptive and personalized learning environments that support both academic and socio-emotional growth. At the same time, successful implementation requires careful consideration of ethical issues, infrastructure development, and teacher training. The harmonization of international theoretical frameworks with Uzbek pedagogical traditions provides a strong foundation for developing culturally relevant and scientifically grounded assessment systems. Ultimately, the introduction of digital diagnostic approaches contributes to improving the quality of education, enhancing student well-being, and preparing learners for the demands of modern society.

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