

**METHODOLOGY FOR DEVELOPING SEL COMPETENCES
THROUGH ARTIFICIAL INTELLIGENCE-BASED EDUCATIONAL
PLATFORMS**

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Abstract. *This article scientifically analyzes the pedagogical and methodological capabilities of modern educational platforms based on artificial intelligence (AI) technologies in developing social-emotional competencies (SEL) in students. A four-stage methodological model is proposed for the gradual development of SEL competencies using adaptive learning algorithms, intelligent chatbots, emotional state analysis systems, and learning analytics tools : diagnostic , individualized development, practical exercises, and monitoring-reflection stages.*

Keywords: *Artificial intelligence, SEL competencies, social-emotional learning, adaptive learning platforms, emotional intelligence, digital pedagogy, intelligent chatbot, individualized learning, learning analytics.*

The rapid digitalization of modern society, the deep penetration of artificial intelligence technologies into the education system, as well as the intensification of problems such as emotional stress, social adaptation difficulties, and lack of communication skills among students, have made the issue of social-emotional education a relevant research area in pedagogical science. Numerous studies have proven that the development of SEL competencies in the global education system is directly related to students' academic success, psychological stability, and future social activity.

At the same time, the limitations of traditional SEL programs - the lack of an individual approach, the limited ability to provide real-time feedback, the difficulty of the teacher to monitor the emotional state of a large number of students at the same time - create the need to introduce artificial intelligence technologies into this process. Adaptive algorithms, natural language processing systems, emotion recognition technologies and intelligent learning analytics tools allow creating an SEL learning environment that is tailored to the individual needs of each student and provides real-time feedback.

The concept of social-emotional learning represents the process of developing in students the skills to understand and manage their emotions, express empathy towards others, establish positive relationships and make responsible decisions. The theoretical model developed by the CASEL organization and widely recognized internationally includes five key competencies:

- self - awareness – accurate assessment of one's feelings, values, and capabilities;
- self - management – controlling emotions, behavior, and the process of achieving goals;

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- social awareness – understanding other people's feelings and perspectives, empathy;
- relationship management – building healthy and productive relationships, collaborating, and resolving conflicts;
- responsible decision-making – making constructive choices, taking into account ethical standards and consequences.

The theory of emotional intelligence developed by D. Goleman also forms the psychological basis of SEL competencies, according to which emotional intelligence is a person's ability to understand and effectively use their own and others' emotions. LS Vygotsky's theory of the zone of proximal development theoretically justifies the fact that SEL competencies can be formed gradually, in a learning process guided by adults and technological tools.

Modern SI technologies are used in the educational process in the following areas:

- creating an individual learning path tailored to each student's level of knowledge, interests, and emotional state;
- Intelligent chatbots based on natural language processing - communicating with the reader in the form of a dialogue, asking questions and answering them, encouraging them to express their feelings verbally;
- a reader's emotional state through facial expressions, voice intonation, or text analysis ;
- learning analytics - monitoring the dynamics of a student's socio-emotional development based on their activity, response time, and typology of errors;
- practicing communication and conflict resolution skills by modeling various social situations in a safe digital environment.

used in harmony with traditional pedagogical methods, allow for individualization, real-time monitoring, and objective assessment of the process of developing SEL competencies.

a four- stage methodological model was developed aimed at developing SEL competencies through artificial intelligence-based educational platforms.

The first stage is the diagnostic stage. At this stage, the SI platform conducts diagnostics using intelligent questionnaires, textual and verbal analysis algorithms to determine the initial emotional and social state of the student. Based on the data obtained, an individual SEL profile is formed for each student.

individual development areas for each student (e.g., increasing empathy, stress management, conflict resolution) and provides relevant interactive exercises, case studies, and simulations.

The third stage is the practical exercise and interaction stage. In this stage, the student practices his/her reactions in various social situations (conflict communication, collaboration, expressing difficult emotions) through dialogic communication with an intelligent chatbot. The chatbot analyzes the student's responses, provides constructive feedback in real time, and suggests alternative solutions.

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The fourth stage is the monitoring and reflection stage. The SI system monitors the emotional and social dynamics of the student over time, analyzes the reflective diary entries using NLP algorithms, and presents the results in the form of visual reports (progress dashboard) that are understandable to the teacher and the student. This develops the student's ability to independently monitor his or her own development and self-assess.

For the effective functioning of the proposed methodology, it is necessary to comply with the following pedagogical conditions: special training of teachers in the use of SI tools; combining the recommendations given by the SI system with the professional judgment of the educator (technology should not replace the teacher, but rather support his work); strict adherence to ethical and legal standards (data confidentiality, parental consent) when processing information about the personal data and emotional state of students; regulating the use of technological tools in accordance with age characteristics, limiting screen time.

In conclusion, the study showed that artificial intelligence-based educational platforms have great pedagogical potential in developing SEL competencies in students. A four-stage methodological model, which includes diagnostic, individualized development, practical exercises and monitoring-reflection stages, allows for the formation of SEL competencies in a consistent, individualized and measurable manner. At the same time, the effective use of artificial intelligence technologies will give the expected result only when they are implemented in combination with traditional pedagogical approaches and the direct participation of the teacher. It is advisable to continue future research in the direction of developing a differentiated methodology for developing SEL competencies using artificial intelligence tools for specific educational stages (primary, secondary, higher grades), as well as experimentally verifying the effectiveness of this methodology.

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