

METHODOLOGY FOR CHECKING THE KNOWLEDGE OF STUDENTS IN INDEPENDENT EDUCATION THROUGH ARTIFICIAL INTELLIGENCE

Asadova Yulduz Ismatovna

Department of biomedical engineering, biophysics and informatics,

Bukhara State Medical Institute, Bukhara 200100, Uzbekistan

E-mail: sirus8877@google.com

Abstract: In this article, most users are increasing their knowledge by finding answers to their questions using software tools such as OpenAI ChatGPT, which consist of software tools such as OpenAI ChatGPT, can write code based on different programming languages and create standardized tests in a matter of seconds, We examined through AI software tools in order to determine to what extent students have mastered the science in order to assess independent educational topics that students have mastered using courses created by teachers on the basis of electronic platforms in the conditions of the modular-credit system, we planned to conduct an experimental test in order to compare students with their grades In such conditions, students who fully mastered the given subjects achieved a good result when they checked their knowledge through both systems.

Keywords: AI- artificial intelligence, IT, LMS, E-learning, ICT, EE, OpenAI ChatGPT.

Introduction

Today, the rapid development of science techniques and information technology encourages teachers of higher education institutions to keep up with the times when university employees adapt to such a global change in a short time, of course, we will have to constantly increase our knowledge and experience by studying the professors of higher education institutions from the news. A large number of researchers in this field have expressed their opinions based on their experience in scientific research. The use of these tools has the ability to create conversational style text that is very similar to human writing, as well as other visual and auditory media. They can be used to create systems that work in a similar way to human knowledge and behavior (Siemens et al., 2022; Markel et al., 2023; Park et al. A large number of researchers in this field have expressed their opinions based on their experience in scientific research. The use of these tools has the ability to create conversational style text that is very similar to human writing, as well as other visual and auditory media. They can be used to create systems that work in a similar way to human knowledge and behavior (Siemens et al., 2022; Markel et al., 2023; Park et al., 2023). For example, ChatGPT and its derivatives are increasingly used for language translation, human-like conversation with chatbots,

articles, story writing, computer codes, and other forms of written content (cotton et al., 2023). General AI tools promise many benefits of training, such as increasing student engagement in training tasks, providing timely reporting, assistance research and collaboration, and improving accessibility - life (Kansneci et al., 2023). For example, AI technology can report directly through automated evaluation (Mate & Weidenhofer, 2022), and in large cohorts (Bernius et al., 2022). At the same time, AI raises serious concerns about the validity of widely used assessment practices, especially academic integrity and the circumvention of important learning processes (Sviecki), etc., 2022). As standard assessment practice focuses on evaluating end products such as essays to measure learning, researchers have pointed out plagiarism potential as a major problem in the use of ChatGPT for assessment in Higher Education (cotton et al., 2023). Students can use generative AI tools such as ChatGPT to deceive online assessments by sending essays that do not have their job.et al., 2022). As standard assessment practice focuses on evaluating end products such as essays to measure learning, researchers have pointed out plagiarism potential as a major problem in the use of ChatGPT for assessment in Higher Education (cotton et al., 2023). Students can use generative AI tools such as ChatGPT to deceive online assessments by sending essays that do not have their job.s standard assessment practice focuses on evaluating end products such as essays to measure learning, researchers have pointed out plagiarism potential as a major problem in the use of ChatGPT for assessment in Higher Education (cotton et al., 2023). Students can use generative AI tools such as ChatGPT to deceive online assessments by sending essays that do not have their job. The problem may be more common in online assessments where students tend to stay away from their teachers (Papanastasiou & Solomonidou, 2023). Teachers may have difficulty differentiating students 'own work and responses produced by AI tools, making it difficult to assess students' level of understanding and ability to apply mate - rial (Mao et al., 2024).teachers may find it difficult for students to differentiate themselves from work and responses produced by AI tools, making it difficult to assess students' level of understanding and ability to apply a spouse - rial (Mao et al. Teachers may have difficulty differentiating students 'own work and responses produced by AI tools, making it difficult to assess students' level of understanding and ability to apply mate - rial (Mao et al., 2024).teachers may find it difficult for students to differentiate themselves from work and responses produced by AI tools, making it difficult to assess students' level of understanding and ability to apply a spouse - rial (Mao et al., 2024). If teachers and scientific institutions do not adapt generative AI to this new reality can undermine academic integrity in online assessment and students whose goal of higher education is to reduce the signal impact and specific value of the level of formal education (cotton et al., 2023).f teachers and scientific institutions do not adapt generative AI to this new reality can undermine academic integrity in online

assessment and students whose goal of higher education is to reduce the signal impact and specific value of the level of formal education (cotton et al., 2023). To refer to this major problem, scientists have called on AI to apply in classes a self-regulating and more efficient method to help learn, rather than treating it as a substitute for human actions in learning process (Hopfenbeck et al., 2023; Mao et al., 2024; Sviecki et al., 2022). AI can be used by teachers and students created as a variable resource in teaching and learning. Mao et al., 2024; Sviecki et al., 2022). AI can be used by teachers and students created as a variable resource in teaching and learning. The OR problem, scientists have called on AI to apply in classes a method that helps in self-regulating and more efficient learning, rather than et al., 2024; Sviecki et al. can be used by teachers and students created as a variable resource in teaching and learning. The OR problem, scientists have called on AI to apply in classes a method that helps in self-regulating and more efficient learning, rather than treating it as a substitute for human actions in learning process (Hopfenbeck et al., 2023; Mao et al., 2024; Sviecki et al., 2022). AI can be used by teachers and students as a resource to create and change teaching and learning. Veng (2023) offers generative AI tools such as increasing awareness of these work paths tools, using them in class, evaluation and discussion with students about their promises and difficulties. They argue that it is more effective than banning them or giving them a central role in the curriculum. Generative AI can be combined with assessment as well as modify assessment practices and experiences, such as instilling students in a simulated learning environment to practice safe and repetitive skills (Markel et al., 2023). about their promises and difficulties with Alabas. They argue that it is more effective than banning them or giving them a central role in the curriculum. Generative AI can be combined with assessment as well as modify assessment practices and experiences, such as instilling students in a simulated learning environment to practice safe and repetitive skills (Markel et al., 2023). This paradigm shift may require the development of new assessment approaches and policies that achieve a balance between the advantages and disadvantages of AI. operative for maintaining academic integrity (Chan & Chen, 2023). generative AI can be combined with assessment as well as modify assessment practices and experiences, such as instilling students in a simulated learning environment to practice safe and repetitive skills (Markel et al., 2023). This paradigm shift may require the development of new assessment approaches and policies that achieve a balance between the advantages and disadvantages of AI. operative for maintaining academic integrity (Chan & Chen, 2023). Bearman et al. (2023) noted that the educational assessment practice has not continued with digital transformation. Students and teachers require better instruction on meaningful interaction with AI systems for evaluation purposes (Viberg et al., 2024). These interactions are the students' learning process, critical thinking, and assessment skills, not just their knowledge and understanding. (2023) noted that the

educational assessment practice has not continued with digital transformation. Students and teachers require better instruction on meaningful interaction with AI systems for evaluation purposes (Viberg et al., 2024). These interactions are the students' learning process, critical thinking, and assessment skills, not just their knowledge and understanding. operative for maintaining academic integrity (Chan & Chen, 2023). Bearman et al. (2023) noted that the educational assessment practice has not continued with digital transformation. Students and teachers require better instruction on meaningful interaction with AI systems for evaluation purposes (Viberg et al., 2024). These interactions are the students' learning process, critical thinking, and assessment skills, not just their knowledge and understanding. At the end of this, we expect to see revised guidelines and recommendations for Education- including actional assessment policy, stakeholder input - to address the two main questions surrounding AI integration in education: "what" to evaluate (Sabzalieva and Valentini, 2023) and how to evaluate it (Chan and Chen, 2023). Recent developments in generative AI, particularly tools like ChatGPT, have introduced new dimensions to the ongoing discourse on digital assessment (Swiecki et al., 2022). These tools possess the capability to generate human-like text, solve complex problems, produce code, and even simulate entire conversations, raising both opportunities and challenges for assessment practices in higher education.

Method and research results.

The use of Information Communication Technologies, pedagogical software tools, electronic platform tools in the organization of Independent Education of students always leads to development in all areas of educational activity.

Knowledge does not act as a goal, but as a means of developing personality. The richest opportunities for this are provided by modern information and communication technologies (ICT). Unlike traditional technical teaching tools, ICT allows not only to fill the student with a large number of ready-mades, strictly selected, purposefully correctly organized data, effective requirements from distance electronic platforms in students' independent educational activities, as a result of the use in teaching independent education, to acquire intellectual, creative abilities, new knowledge independently, to work with various sources of information. Considered as one of the components of the integrated education system, information technology not only facilitates access to information, reveals the variability of educational activities, the possibilities of its individualization and differentiation, but also allows you to organize the interaction of all educational entities in a new form. The student will be an active and equal participant in educational activities. The introduction of new modern information technologies, LMS Moodle electronic system from distance learning platforms during the student's educational process and independent educational activities allows you to qualitatively and efficiently organize the educational process,

implement a developing educational system, make the most efficient use in the organization of classes, increase the speed of time, create conditions for independent education of students [Асадова, Ю. (2021).].

Control over the use of a computer leads to an increase in the efficiency of assimilation, the activation of the mental activity of students, the ability to receive independent knowledge, independent creative thinking.

One of the main goals of the computer as a teaching tool is to organize the independent work of students using software and pedagogical tools, the effectiveness of which depends on the level of excellence.

The organization of independent education using distance learning platforms the dialogue and described capabilities of the computer, organized on the basis of the Moodle electronic platform, significantly affect the motivational sphere of the educational process and its structure. Computerization of education is one of the large-scale innovations that have arrived in the world and in the educational sphere of Uzbekistan in recent decades. Currently, in the conditions of the credit-modular system of teaching in education, it is customary to distinguish the following main areas of computer equipment implementation by creating e-learning courses through the Moodle electronic platform so that students can master Independent Education, which is allocated to subjects as a result of an increase in the number of hours of Independent Education: [Ismatovna, A. Y. (2021).].

As we noted in the process of analyzing the sources studied above, our observations of the experiences of the world using the basis of advanced teaching technologies at a high level indicate that the application of distance electronic platforms in the teaching of subjects in the organization of Independent Education of students serves to improve the quality of education in the process of independent.

To date, in the context of the credit–modular system of teaching in higher educational institutions, it has been found that there are a number of differences between the traditional teaching system with the design of an educational process based on independent educational technologies based on the Moodle electronic platform in order to qualitatively organize the student’s acquisition of independent education as a result of the [Ismatovna, A. Y. (2021).].

By the decision of the president of the Republic of Uzbekistan “on the parameters of the state order of admission to higher education institutions of the Republic of Uzbekistan in the academic year 2021/2022” of June 22, 2021 PL-5157, a credit-modular system of teaching based on international educational standards was introduced in higher educational institutions of the Republic. Based on the credit-modular system of teaching based on the state educational standard and new curricula, students have increased the balance of independent educational hours accordingly, a new type of curricula, working programs, syllabuses and modern electronic textbooks

are being created .

The pandemic of 2019-2023, which took place in the world, led to a change in the conditions of various natural disasters in which personnel are being trained not only in the daytime, evening (shift), distance (online), forms of education, influenced by the informed environment associated with the globalization process. Therefore, in order for students to qualitatively master their independent education, it was established as one of the main tasks—the ability to understand oneself, to mature an independent thinking person, to master the methodology for using distance learning platforms (Moodle). Having received independent knowledge, trained in such conditions, personnel are required to be able to put theoretical knowledge into practice, to think independently, skillfully get out of problem situations, to work selflessly in educating the future generation, to educate young students as competitive personnel on the basis of the requirements of the time, and to become a mature specialist of his profession.

The issue of qualitative improvement of Independent Education of students is relevant. Nowadays, in combination with traditional teaching, forms of distance education, mixed education(hybrid) forms are used in teaching. From this point of view, it is aimed at creating conditions in order to constantly analyze the knowledge, experience acquired by students in the study of independent educational topics, to fill the shortcomings and gaps in the knowledge they receive in the course of the lesson, to support the continuous growth of intellectual potential in the educated and talented student-youth .

To study the didactic possibilities of teaching “Information Technology in education” and support the educational process using the LMS Moodle platform by identifying and improving the methodology for designing educational and methodological support on the electronic platform, organizing and controlling Independent Education; development of recommendations on the organization of pilot work, mathematical-statistical processing of the results obtained, monitoring on the basis of the Moodle platform to study the impact of the use of the LMS Moodle platform on the effectiveness of student mastering in the organization of Independent Education. the analysis of the essence of the content of such concepts has been determined.

The role of the development of modern information communication today is of great importance, modern information technology is being used by employees of all spheres and achieving good results it is no secret for anyone that it is not so much that the professors and teachers of the higher education institution today also have a wide range of opportunities for us to achieve good results, Today, there are many types of electron learning platforms, these are different in appearance and with different possibilities which one of them is suitable for the team of a higher education institution, which organizes and uses electron courses organized by setting it up in its own

educational institution. From my own pedagogical experience, one of the electron platforms that is widely used in so many higher education institutions today so that students can get an independent education is the LMS Moodle platform, this platform has so many possibilities that the teacher who likes it has the opportunity to install plagiarism suitable for his science for free so I also chose this platform,- I posted the information in the sequence, posted presentations on lecture sessions, text information, video, independent interpretation assignments, questions and assignments, sent test assignments, and bricked students into the electron course to control their use of the course, and evaluated the process of evaluating them through the final test, controlling the students' mastery of the course. I installed a video surveillance camera with certificate-Taking plagiarism on the Moodle system to encourage students to do well by mastering independent subjects, because I did well by organizing classes using this method so that I could keep students in constant control. I also checked the knowledge of students who have mastered training using an electronic platform by taking tests through an artificial intelligence system control results showed good indicators I will show the results of this study through the following diagram analysis. The assessment results from the study are illustrated in the following diagram.

Generalized appropriation results conducted in three Higher educational institutions in experimental and control groups

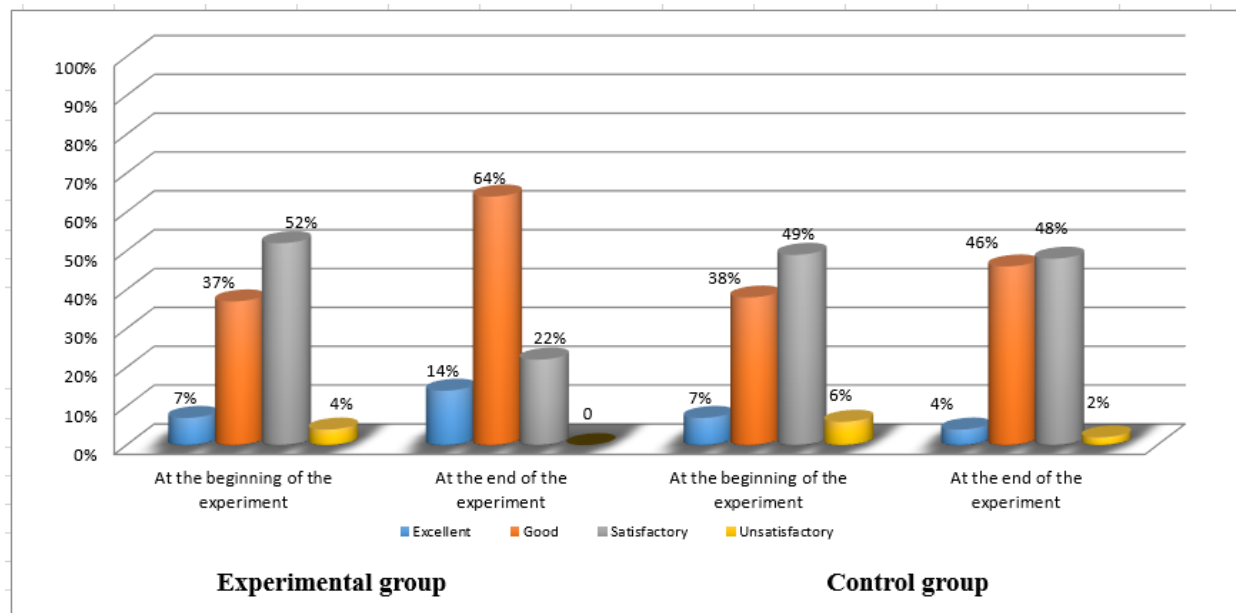


Figure 1. A generalized diagram of the results of the experiment-test conducted in three Higher educational institutions

Conclusion

In general, it is understood that in higher education institutions there are two main aspects of the educational process that play a decisive role in facilitating independent education for students. The study was carried out in order to use the distance learning platform in the organization of Independent Education of students, as well as to

improve the methodology for assessing the knowledge received by students using artificial intelligence and comparing the results obtained, this work was based on the methodology developed for this purpose. Technologies for managing the Independent Education of students through electronic platforms can intertwine artificial intelligence with competency - oriented educational technologies. In this regard, it may be possible to coordinate all participants in the educational process to a higher level in order to achieve the main goals in the educational services market. If I say so, the concept of the implementation and control of professional training has a certain specificity in its content. Typically, the LMS Moodle platform and artificial intellect ChatGPT can be applied to the organization of student Independent Education Management in the learning process and to control and evaluate the knowledge received by students. The organization of this process is of course required under the supervision of a teacher and is used as a means of managing goals based on compliance with the established criteria and indicators.

Data Availability No datasets were generated or analyzed during the current study.

DECLARATIONS

Competing Interest The author declare no competing interests.

Funding Declaration There is no any funding for this work.

References:

Acemoglu, D., & Restrepo, P. (2018). The race between man and machine: Implications of technology for growth, factor shares, and employment. *American economic review*, 108(6), 1488-1542.

Aboelfotoh, T. M., Sayed Ahmed, H. A., El Dahshan, N. A., Diab, M. M., & Hosny, S. (2022). A Novel Blended Learning Module in Family Medicine: An Interventional Study at the Faculty of Medicine, Suez Canal University, Ismailia, Egypt. *Education in Medicine Journal*, 14(1). Doi: <https://doi.org/10.21315eimj.2022.14.1.4>

Abuhassna, H., & Alnawajha, S. (2023). The transactional distance theory and distance learning contexts: Theory integration, research gaps, and future agenda. *Education Sciences*, 13(2), 112.doi: <https://doi.org/10.3390/educsci13020112>

Aguilera-Hermida, A. P. (2020). College students' use and acceptance of emergency online learning due to COVID-19. *International journal of educational research open*, 1, 100011. doi: 10.1016/j.ijedro.2020.100011

Ahern, T., & Biedermann, N. (2022). Nursing and midwifery educators teaching postgraduate online courses: A cross-sectional survey. *Teaching and learning in*

nursing, 17(2), 185-190.doi: <https://doi.org/10.1016/j.teln.2021.12.003>

Artino Jr, A. R., & Jones II, K. D. (2012). Exploring the complex relations between achievement emotions and self-regulated learning behaviors in online learning. *The internet and higher education*, 15(3), 170-175. doi: <https://doi.org/10.1016/j.iheduc.2012.01.006>

Bower, M. (2019). Technology-mediated learning theory. *British Journal of Educational Technology*, 50(3), 1035-1048.doi: <https://doi.org/10.1111/bjet.12771>

Brahm, T., & Jenert, T. (2015). On the assessment of attitudes towards studying—development and validation of a questionnaire. *Learning and Individual Differences*, 43, 233-242..doi: <https://doi.org/10.1016/j.lindif.2015.08.019>

Bearman, M., & Luckin, R. (2020). Preparing university assessment for a world with AI: Tasks for human intelligence. In *Re-imagining university assessment in a digital world* (pp. 49-63). Cham: Springer International Publishing

Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. *The internet and higher education*, 27, 1-13.doi: <https://doi.org/10.1016/j.iheduc.2015.04.007>

Connolly, T., & Svoboda, E. (2023). Open educational resources in nursing curricula: A systematic review. *Journal of Nursing Education*, 62(3), 147-154.doi: <https://doi.org/10.3928/01484834-20230109-04>

Dunn, T. J., & Kennedy, M. (2019). Technology Enhanced Learning in higher education; motivations, engagement and academic achievement. *Computers & education*, 137, 104-113.doi: <https://doi.org/10.1016/j.compedu.2019.04.004>

Everett-Thomas, R., Joseph, L., & Trujillo, G. (2021). Using virtual simulation and electronic health records to assess student nurses' documentation and critical thinking skills. *Nurse education today*, 99, 104770.doi: <https://doi.org/10.1016/j.nedt.2021.104770>

Hakkarainen, T., Salminen, L., Alastalo, M., & Virtanen, H. (2024). Online degree programmes in nurse education—Students' perceptions and academic performance: An integrative review. *Nurse Education Today*, 106148.doi: <https://doi.org/10.1016/j.nedt.2024.106148>

Holley, K. A., & Taylor, B. J. (2009). Undergraduate student socialization and learning in an online professional curriculum. *Innovative Higher Education*, 33, 257-269. DOI 10.1007/s10755-008-9083-y

Ismatovna, A. Y. (2021). Passing the Traditional Lesson with the Help of Open Moodle Platforms. *International Journal of Human Computing Studies*, 3(5), 1-8. DOI: 10.31149/ijhcs.v3i5.2056

Lam, P., McNaught, C., Lee, J., & Chan, M. (2014). Disciplinary difference in students' use of technology, experience in using eLearning strategies and perceptions

towards eLearning. Computers&Education, 73,111-120.doi: <https://doi.org/10.1016/j.compedu.2013.12.015>

Lin, C., & Ha, L. (2009). Subcultures and use of communication information technology in higher education institutions. The Journal of Higher Education, 80(5), 564-590.doi: <http://doi/abs/10.1080/00221546.2009.11779032>

Metersky, K., Haghiri-Vijeh, R., Balakumaran, J., & Muhunthan, M. (2024). Open educational resource case studies: responding to nursing student educational needs in the moment. Teaching and Learning in Nursing, 19(3), 275-278..doi: <https://doi.org/10.1016/j.teln.2024.04.011>

Michinov, N., Brunot, S., Le Bohec, O., Juhel, J., & Delaval, M. (2011). Procrastination, participation, and performance in online learning environments. Computers & Education, 56(1), 243-252.doi: <https://doi.org/10.1016/j.compedu.2010.07.025>

Papageorgiou, V., Meyer, E., & Ntonia, I. (2025). Investigating the relationship between collaborative design, online learning and educator integrated professional development. The Internet and Higher Education, 100997.doi: <https://doi.org/10.1016/j.iheduc.2025.100997>

Smith, G. G., Heindel, A. J., & Torres-Ayala, A. T. (2008). E-learning commodity or community: Disciplinary differences between online courses. The Internet and Higher Education, 11(3-4), 152-159.doi: <https://doi.org/10.1016/j.iheduc.2008.06.008>

Асадова, Ю. (2021). The use of Moodle platform in the traditional transition of Information Technology Science in medicine to foreign students accepted on the basis of MBBS program at Bukhara State Medical Institute. Общество и инновации, 2(7), 35.doi: DOI:10.47689/2181-1415-vol2-iss7/S-pp35-43