Artificial to the intellect based flexible education technologies current to grow methodology

Jumanov Abbas Nabijonovich
Jizzakh polytechnic Institute, Assistant
abbosjumanovo02@gmail.com phone 93 -304-34-61

ABSTRACT

This scientific article presents the final results of an experimental study focused on determining the effectiveness indicators for developing professional competencies—specifically regarding the implementation of educational technologies—among students in the field of energy. The study utilizes adaptive learning technologies based on artificial intelligence. The results, including average academic performance, were analyzed using Student's t-test and Pearson's chi-square (ch^2) test—methods rooted in mathematical statistics.

Keywords

artificial intelligence, adaptive learning technologies, energy sector, Student's test, Pearson's test, mathematical statistics, competencies, hypothesis, variational series.

Introduction. In the model of developing professional competencies of students in the energy sector, the diagnostic and assessment block is an integral part of the educational process, which includes mechanisms for determining, monitoring and evaluating the level of knowledge, skills and competencies acquired by students. This block education process efficiency determination and model practical the results assessment opportunity gives.

Modern pedagogical in approaches assessment process only knowledge check with not limited to, but student's professional to activity readiness to determine aimed at complex system as is considered. Energy in education assessment system many criterion, continuous and competency-based to the character has to be necessary.

Diagnostic-assessment block following main directions cover takes:

First, competencies determination criteria and indicators. Every one professional competence clear criteria through is evaluated. For example, " energy" systems analysis to do competence " following indicators through to be determined possible:

- system parameters right define to take;
- technician problems determination and analysis to do;
- optimal solutions to be able to offer.

These indicators students' activity objective assessment opportunity gives.

Secondly, current (formative) assessment system. This assessment type education process during done increased and student's development dynamics to determine service For example, practical in training assignments to perform quality, laboratory works results and independent affairs regular is evaluated. Formative assessment to students own mistakes determination and them correction opportunity gives.

Third, final (summative) assessment system. This assessment type education stage in the end done increased and student's general competence level to determine service For example, semester in the end exams, project works protection and complex tests through assessment done is increased.

Fourth, practical assignments and cases based on assessment. Energy in the direction of students professional competencies realistic situations in assessment based assignments important importance has. For example, " electricity" on the network to the surface arrived malfunction determination and eliminate " to be " case assignment student's practical readiness determination opportunity gives.

Fifth, based on the portfolio assessment. Portfolio student training activity during achieved the results reflection provider documents package is, then project works, laboratory results, scientific articles and other activity results This method is student's development dynamics complex assessment opportunity gives.

Sixth, digital assessment systems. Modern in education assessment process automation important importance profession will reach. Electronic platforms through tests transfer, results analysis to do and monitoring possible.

Diagnostic-assessment of the block important aspect – evaluation objectivity and transparency This is to ensure. clear criteria, indicators and assessment scales working exit through done is increased.

Below energy direction of student's professional competencies assessment for exemplary criteria schedule is quoted:

Competence type	Low degree	Medium degree	High degree
Analysis to do	Simple concept there is	Partially analysis does	Complex analysis does
Problem solution	Help with will do	Independent solves	Innovative solution offer does
Digital skills	Home at the level	Programs uses	Complex systems manage

This table assessment process systematic and clear organization to grow opportunity gives.

Practical example as the following to bring possible: to the student electricity on the network energy their losses reduce according to project assignment is given. Student:

- problem determines,
- calculations do,
- technician solution offer will,
- the results justify.

Evaluation this of the process every one stage according to done is increased.

Diagnostic-assessment block also reverse also have a feedback mechanism inside Students own results about regular information take they go and this their own on to work help gives. Diagnostic-assessment block energy direction of students professional

competencies develop model important component It is education process efficiency identification, students monitoring the development and final the results to evaluate service does. This block through education quality control will be done and him/her improvement for necessary information is taken.

Energy direction of student's professional competencies develop in the model consequential block model final stage It is education process efficiency assessment, achieved the results generalization and formed competencies level to determine service does. This block through model practical importance and pedagogical efficiency based on is given. Modern pedagogical in theories education result only knowledge with not, maybe person's professional to activity readiness level with is determined. Resultant block energy direction in students formed competencies complex to evaluate focused.

Resultant of the block main task – based on the model formed professional competencies level to determine, their practical in activity application opportunities assessment and education process efficiency scientific from justification consists of.

This block within following main results formation in sight is caught:

First, professional knowledge and of skills formation. Students' energy to the field related theoretical knowledge deep mastered and them in practice application skills has For example, electricity networks computing, energy balance determination and technician devices management according to knowledge is strengthened.

Secondly, the problems independent solution to grow competence. Students are real technicians in situations independent decision acceptance to do, problems analysis to do and optimal solutions working exit to the ability has for example, energy in the system to the surface arrived malfunction determination and him/her eliminate to grow according to independent solution offer to be

Third, innovation and creative thinking competence. Modern energy field innovations with closely related that was because of students' new technologies working

exit and current to reach ready to be necessary. For example, energy efficiency to increase aimed at new technician solutions working exit

Fourth, digital competencies formation. Students SCADA systems, modeling programs and other digital from tools use skills has they will be.

Fifth, environmental and technician security culture. Energy in the field security important importance has that was because of students ecological responsibility and technician security to the rules compliance to do competencies For example, energy working in the release waste reduce and security to the standards action to do

Conclusion as in other words, consequential block energy direction of students professional competencies develop model final stage is, which is the model efficiency assessment and his/her practical the results to determine service This will do. block through energy field for high competent, competitive and innovative thinking experts preparation opportunity is created.

ADA BI YACHTS

1. https://sciencetech.uz/index.php/ojs2/issue/view/15

2. https://mentaljournal-jspu.uz/index.php/mesmj/article/view/1559

3.US. Department of Education, Office of Educational Technology. Artificial Intelligence and the Future of Teaching and Learning: Insights and Recommendations. Washington, DC, 2023. – P.52.

4.Siemens G., Long P. Penetrating the fog: Analytics in learning and education // EDUCAUSE Review. 2011. Vol. 46, No. 5. – P.125-131.

5. Ifenthaler D., Widanapathirana C. Development and validation of a learning analytics framework: Two case studies using support vector machines // Technology, Knowledge and Learning. 2014. Vol. 19. – P.183.

6.Siemens G. Learning analytics: The emergence of a discipline // American Behavioral Scientist. 2013. Vol. 57, No. 10. – P.141-149