FORMATION OF STUDENTS' INDEPENDENT AND RESEARCH WORK IN THE CONTEXT OF MODERN EDUCATIONAL TECHNOLOGIES

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Аннотация. Рассмотрено влияние современных образовательных технологий на развитие учебной автономии студентов. Обнаружено, что цифровизация образовательной среды усиливает мотивацию к познавательной активности и формирует навыки критического анализа. Установлено, что внедрение смешанных форм обучения и проектных методов повышает самостоятельность и исследовательскую компетентность. Охарактеризованы педагогические условия, обеспечивающие эффективность сопровождения индивидуальной работы обучающихся. Оценено влияние цифровых инструментов на формирование профессиональных компетенций и развитие аналитического мышления. Сделан вывод о необходимости системного использования инновационных технологий для повышения качества подготовки специалистов.

Ключевые слова: учебная автономия, цифровая среда, инновационные подходы, компетентностное развитие, педагогическое сопровождение.

Аннотация. Замонавий таълим технологияларининг талабаларнинг ўқув автономиясини ривожлантиришга таъсири кўриб чиқилди. Таълим муҳитини рақамлаштириш билим фаоллигига бўлган мотивацияни кучайтириши ва танқидий таҳлил қилиш кўникмаларини шакллантириши аниқланди. Таълимнинг аралаш шакллари ва лойиҳа усулларини жорий етиш ўз мустақиллиги ва тадқиқот малакасини ошириши белгиланди. Таълим олувчиларнинг якка тартибдаги ишини кузатиб бориш самарадорлигини таъминлайдиган педагогик шароитлар тавсифланди. Рақамли воситаларнинг касбий компетенсияларни шакллантириш ва таҳлилий фикрлашни ривожлантиришга таъсири баҳоланди. Мутахассислар тайёрлаш сифатини ошириш учун инновацион технологиялардан тизимли фойдаланиш зарурлиги ҳақида хулоса чиқарилди.

Калит сўзлар: ўқув автономияси, рақамли муҳит, инновацион ёндашувлар, малакали ривожланиш, педагогик қўллаб-қувватлаш.

Abstract. The influence of modern educational technologies on the development of students' learning autonomy is examined. It has been found that the digitalization of the educational environment enhances motivation for cognitive activity and develops critical thinking skills. The study establishes that the

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implementation of blended learning and project-based methods increases students' independence and research competence. Pedagogical conditions ensuring the effectiveness of supporting individual student work are characterized. The impact of digital tools on the formation of professional competencies and the development of analytical thinking is assessed. It is concluded that the systematic use of innovative technologies is necessary to improve the quality of specialist training.

Keywords: learning autonomy, digital environment, innovative approaches, competency development, pedagogical support

INTRODUCTION.

Modern educational processes require the active involvement of students in independent and research activities, which contributes to the formation of professional competencies and analytical thinking [1, p. 12], [2, p. 45]. The world scientific literature emphasizes that digital educational technologies, blended learning and project methods are key factors in the formation of educational autonomy [3, p. 78], [4, p. 102].

Huang & Hew (2022) notes that blended learning increases students' motivation and engagement, as well as promotes the development of critical analysis skills [5, p. 23]. Anderson & Dron (2019) identify three generations of distance education and emphasize the importance of actively using technology for independent learning [6, p. 118]. Bates (2021) points out the need for a systematic approach to the integration of digital tools and project methods into the educational process [7, p. 57].

In the last five years, considerable attention has been paid to the study of the impact of online platforms on the development of students' research competencies [8, p. 15], [9, p. 87], including working with scientific databases, organizing project activities and using collaboration tools. According to Means et al. (2020), the effectiveness of technology is determined not only by the availability of resources, but also by the pedagogical support of students, including feedback and mentoring [10, p. 203].

The purpose of the work is to identify the pedagogical and technological conditions for the formation of independent and research activities of students in a digital educational environment.

Research objectives include:

1. Analysis of the current state of the problems of autonomous learning and student research in world practice.

2. Identification of key methods and digital technologies that stimulate independent work.

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3. Modeling of pedagogical scenarios and assessment of their impact on research competencies.

MATERIALS AND METHODS

1. Research concept. The methodological basis of the research is a system—competence approach [7, p. 57], which involves the integration of knowledge, skills, motivation and technological support. The research is carried out in the form of generalized analytical and applied work with modeling of educational processes.

2. Research design. A mixed-method approach was used for modeling, combining qualitative and quantitative elements.:

Literary review — systematization of international publications in 2020-2025 [5, p. 23], [8, p. 15], [9, p. 87].

Scenario design is the development of educational modules using blended learning and design methods [3, p. 78], [4, p. 102]. Results modeling is forecasting the impact of technology on autonomy, motivation, and research competencies [10, p. 203], [11, p. 45].

3. Object and subject of research. The object is the processes of students' independent and research activities.

The subject is pedagogical and technological conditions that ensure the formation of autonomy and research skills [1, p. 12], [2, p. 45].

4. Research methods. Literature analysis — systematization of data on blended learning, online platforms and project-based learning [5, p. 23; 6, p. 118].

1. Modeling pedagogical practices — building scenarios using Moodle, Google Classroom, Microsoft Teams [7, p. 57].

2. Technology effectiveness assessment is a quantitative assessment of the expected impact on autonomy and research skills [8, p. 15].

3. Case analysis is the development of project assignments and problem—oriented scenarios [9, p. 87].

4. Expert assessment — forecasting the results through expert groups [10, p. 203].

Pedagogical tools: Blended learning [5, p. 23]. Design methods [3, p. 78]. Digital platforms: Moodle, Google Classroom, Microsoft Teams, Zoom [7, p. 57]. Information search tools: Google Scholar, Zotero [6, p. 118].

6. Evaluation criteria: Motivation and engagement [5, p. 23]. The degree of independence [10, p. 203]. Development of research competencies [9, p. 87]. The quality of knowledge acquisition [8, p. 15].

7. Modeling procedure:

1. Preparation — collection of information, selection of tools [7, p. 57].
2. Scenario planning [3, p. 78].

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3. Pilot analysis — forecasting the impact of technology [11, p. 45].
4. Results processing and recommendations [5, p. 23].

RESULTS AND DISCUSSION

1. The impact of technology on self-reliance.

Modeling has shown that the integration of online platforms and blended learning contributes to the growth of students' autonomy [5, p. 23], [7, p. 57]. Design methods enhance research activity by forming critical thinking [3, p. 78].

2. Development of research competence

Problem-oriented tasks and mini-projects form research skills [9, p. 87]. The combination of project-based learning and digital platforms increases students' confidence in independent work [11, p. 45].

3. Motivation and engagement

Interactive elements (quests, online tests, joint projects) increase student engagement by 60-70% [5, p. 23]. The digital environment supports feedback and regular execution of tasks [8, p. 15].

4. Limitations and recommendations

Risks: information overload, the need for self-discipline, differences in access to technology [10, p. 203].

RECOMMENDATIONS:

1. System support of independent work [7, p. 57].
2. Use of project and problem-oriented tasks [3, p. 78].
3. Integration of online and offline components [5, p. 23].
4. Application of analysis and planning tools [9, p. 87].

CONCLUSIONS

1. Modern educational technologies contribute to the formation of students' autonomy and research skills.

2. Blended learning and project-based methods increase motivation and responsibility.

3. Pedagogical support is critically important for the effectiveness of independent work.

4. The integration of digital tools and a competency-based approach is necessary for the sustainable development of research activities.

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