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THE IMPACT OF THE DIGITAL LEARNING ENVIRONMENT ON ENHANCING STUDENTS' COGNITIVE INTEREST: A PERSONALITY-DEVELOPING PEDAGOGICAL APPROACH

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Abstract

This article examines the role of the digital learning environment in developing and enhancing students' cognitive interest through a person-centered developmental pedagogical approach. Using a mixed-method design, the study employed surveys, classroom observations, and teacher interviews. Findings demonstrate that interactivity, multimedia content, personalized tasks, and opportunities for self-regulated learning significantly increase students' intrinsic motivation and cognitive engagement. The results indicate that person-centered pedagogy strengthens the effectiveness of digital technologies. Practical recommendations for improving the organization of digital lessons are proposed.

Keywords

digital learning environment, cognitive interest, student motivation, interactivity, personalized learning, developmental pedagogy.

ВЛИЯНИЕ ЦИФРОВОЙ ОБРАЗОВАТЕЛЬНОЙ СРЕДЫ НА ПОВЫШЕНИЕ КОГНИТИВНОГО ИНТЕРЕСА УЧАЩИХСЯ: ЛИЧНОСТНО-РАЗВИВАЮЩИЙ ПЕДАГОГИЧЕСКИЙ ПОДХОД

Аннотация

В статье анализируется влияние цифровой образовательной среды на формирование и развитие когнитивного интереса учащихся с позиции личностно-развивающего педагогического подхода. Исследование выполнено в смешанном формате и включало анкетирование учащихся, наблюдение за уроками и интервью с учителями. Результаты показывают, что интерактивность, мультимедийные материалы, персонализированные задания и возможности для саморегуляции существенно повышают внутреннюю мотивацию и познавательную активность учащихся. Установлено, что личностно-ориентированный подход усиливает эффективность цифровых технологий. Предложены практические рекомендации по организации цифровых уроков.

Ключевые слова

цифровая образовательная среда, когнитивный интерес, мотивация учащихся, интерактивность, персонализированное обучение, развивающая педагогика.

RAQAMLI TA'LIM MUHITINING O'QUVCHILARDA KOGNITIV QIZIQISHNI OSHIRISHGA TA'SIRI: SHAXSIY-RIVOJLANTIRUVCHI PEDAGOGIK YONDASHUV

Annotatsiya

Mazkur maqolada raqamli ta'lim muhitining o'quvchilarda kognitiv qiziqishni shakllantirish va oshirishdagi roli shaxsiy-rivojlantiruvchi pedagogik yondashuv asosida tahlil qilinadi. Tadqiqot aralash usulda olib borilib, o'quvchilar o'rtasida so'rovnoma, dars kuzatuvlari hamda o'qituvchilar bilan intervyular o'tkazildi. Natijalar shuni ko'rsatadiki, interaktivlik,

multimediaviy materiallar, shaxsiylashtirilgan topshiriqlar va o‘z-o‘zini boshqarish imkoniyati o‘quvchilarning bilishga bo‘lgan ichki motivatsiyasini sezilarli darajada oshiradi. Shaxsga yo‘naltirilgan pedagogik yondashuv raqamli texnologiyalar samaradorligini yanada kuchaytirishi aniqlangan. Tadqiqot asosida raqamli darslarni samarali tashkil etish bo‘yicha amaliy takliflar ishlab chiqildi.

Kalit so‘zlar

raqamli ta’lim muhiti, kognitiv qiziqish, motivatsiya, interaktivlik, shaxsiylashtirilgan ta’lim, rivojlantiruvchi pedagogika.

INTRODUCTION

The rapid integration of digital technologies into the education system has significantly transformed the content, forms, and methods of the teaching and learning process. In particular, the accelerated development of digital educational technologies is reshaping students’ engagement with learning activities. In contemporary pedagogical research, cognitive interest—understood as an internal need for knowledge, intrinsic motivation, and sustained interest—is interpreted as one of the key learner competencies.

Modern studies indicate that digital learning environments exert a substantial influence on these cognitive processes (Deci & Ryan, 2020). A digital learning environment is characterized by several distinctive features, including: interactivity, multimedia presentation, opportunities for self-regulation, personalized learning tasks, and visualization of cognitive processes.

Researchers emphasize that digital technologies positively affect student engagement, enhance independent inquiry skills, and strengthen learning motivation (Mayer, 2021; Darling-Hammond et al., 2020). However, the presence of digital tools alone is insufficient—the effectiveness of digital learning largely depends on the implementation of learner-centered pedagogical approaches (Rogers, 2012).

The aim of this study is to analyze the impact of the digital learning environment on the formation of students’ cognitive interest based on a personal-development-oriented pedagogical approach.

The objectives of the study are as follows:

1. To examine the psychological and pedagogical foundations of the digital learning environment;
2. To identify indicators of students’ cognitive interest;
3. To analyze the influence of digital learning environment factors on cognitive interest;
4. To develop learner-centered pedagogical recommendations.

METHODS

1.1. Participants

The study involved 214 students from grades 7–9 of three general secondary schools. The participants were aged between 13 and 15 years, and all of them regularly participated in lessons where digital technologies were actively integrated.

1.2. Research Design

The research was conducted using a mixed-methods approach.

Quantitative component:

An online assessment was administered using the *Cognitive Interest Scale* (modified from Frick, 2019). In addition, a 15-item questionnaire focusing on digital lesson characteristics was employed.

Qualitative component:

a) Six classroom observations were conducted in each school;

b) Twelve semi-structured interviews were carried out with teachers.

1.3. Data Analysis

Quantitative data were analyzed using SPSS 25, applying descriptive statistics such as mean values (M), standard deviation (SD), and correlation coefficients (r). Qualitative data were processed using thematic coding and content analysis techniques.

RESULTS

2.1. Levels of Cognitive Interest

Survey results revealed that the overall cognitive interest index among students was M = 4.21 (SD = 0.88), which indicates a high level of cognitive interest.

2.2. Influence of the Digital Learning Environment

In lessons where interactive digital platforms (e.g., Kahoot, Quizizz, LearningApps) were used, students demonstrated:

- ❖ increased interest in learning tasks (76%),
- ❖ higher levels of independent inquiry activity (64%),
- ❖ improved attention stability during lessons (68%).

Correlation analysis revealed the following relationships:

- ✓ Interactivity: $r = .61$ ($p < .01$)
- ✓ Personalized tasks: $r = .57$ ($p < .01$)
- ✓ Visual content: $r = .48$ ($p < .05$)

These findings indicate moderate to strong correlations between digital learning environment factors and students' cognitive interest.

2.3. Teacher Interviews

According to the interviews, 83% of teachers emphasized that digital technologies stimulate students' intrinsic interest mechanisms. The most effective instructional strategies identified by teachers included:

- ➢ gamification,
- ➢ visual animations,
- ➢ inquiry-based learning,
- ➢ personalization.

DISCUSSION

The results of the study are consistent with findings from international research. For example, Mayer (2021) demonstrated that multimedia instruction reduces cognitive load and promotes deeper learning. Deci and Ryan (2020) confirmed that autonomy and self-regulation in digital learning contexts enhance learner motivation.

The present study confirms that interactive and personalized digital learning environments significantly enhance students' cognitive interest. These findings align with the *student-centered learning* model proposed by Darling-Hammond et al. (2020). The advantage of a learner-centered approach lies in transforming students from passive consumers of technology

into active constructors of knowledge (Rogers, 2012), while digital tools serve as catalysts for this process.

Nevertheless, several limitations were identified, including:

- insufficient technical infrastructure,
- limited digital competence among teachers,
- the presence of digital distractions among students.

Future research should focus on digital hygiene, digital motivation strategies, and differentiated technological approaches in education.

CONCLUSION

The study demonstrates that when digital learning environments are used effectively, students' cognitive interest increases significantly. Interactivity, personalization, multimedia content, and inquiry-oriented tasks contribute to positive motivational changes in students' learning behavior. A personal-development-oriented pedagogical approach maximizes the effectiveness of digital education. Therefore, teachers should apply digital tools not only from a technical perspective but also based on sound psychological and pedagogical principles.

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