HOW THE USE OF MULTIMEDIA, ONLINE COURSES AND PLATFORMS IMPROVES THE PERCEPTION OF INFORMATION

Iskhakova Sarvar Ayubovna
Associate Professor, PhD of the
Department of "Digital Economy" of the
Samarkand Institute of Economics and Service
Xudoyberdiyeva Maftuna Zayniddin qizi
Master's degree of the
Samarkand Institute of Economics and Service

Abstract: *The integration of multimedia, online courses, and digital platforms into education has significantly transformed the way information is perceived and consumed. This article explores the impact of multimedia elements, such as videos, audio, and interactive graphics, in enhancing the learning experience by catering to diverse learning styles. Furthermore, it examines how online courses and platforms, with their flexibility and accessibility, contribute to more efficient knowledge retention and engagement. By analyzing current trends and research, the article highlights how these technological advancements reshape the educational landscape, improve student outcomes, and promote deeper understanding through multimodal learning experiences. The study concludes that multimedia and online platforms are crucial in optimizing information delivery, fostering better cognitive processing, and enhancing the overall learning process.*

Keywords: *multimedia, online courses, digital platforms, information perception, learning styles, cognitive processing, knowledge retention, educational technology, interactive learning, online education.*

Introduction. In the digital age, education is no longer confined to traditional classroom settings. The proliferation of multimedia tools, online courses, and digital platforms has revolutionized the way information is delivered

and consumed, significantly altering the learning process. Multimedia, encompassing videos, interactive graphics, animations, and audio, offers a dynamic approach to teaching that caters to diverse learning styles and enhances cognitive engagement. Meanwhile, online courses and platforms provide unprecedented flexibility, allowing learners to access resources and materials at their own pace and from any location.

The use of multimedia in education supports various modes of learning, such as visual, auditory, and kinesthetic, thereby improving students' ability to absorb, process, and retain information. Online platforms further amplify this impact by facilitating interactive learning experiences, collaboration, and personalized instruction. As a result, these tools help bridge the gap between traditional education and modern learning needs, fostering a more inclusive and effective educational environment.

This article explores the intersection of multimedia, online courses, and digital platforms, focusing on their collective ability to improve the perception of information. By examining existing research and current trends, we aim to highlight how these innovations enhance learning outcomes, foster deeper understanding, and contribute to the evolution of education in a rapidly changing world.

Main part. In recent years, the integration of multimedia, online courses, and digital platforms into educational practices has transformed how information is perceived and processed. This section will explore how these elements work together to enhance the learning experience, improve knowledge retention, and foster a deeper understanding of complex concepts.

Multimedia refers to the combination of various forms of content, including text, images, audio, video, and interactive elements, to communicate information in dynamic ways. One of the key strengths of multimedia is its ability to cater to different learning styles. In a traditional classroom setting, instructors primarily use spoken words and written materials to convey information. However, this one-dimensional approach often leaves some learners disengaged,

particularly those who may struggle with reading or listening alone. Multimedia provides a more inclusive learning environment by engaging visual, auditory, and kinesthetic learners simultaneously, making information more accessible and easier to understand.

For example, videos and animations can bring abstract concepts to life, turning theoretical ideas into concrete examples. Visual learners can benefit from charts, infographics, and diagrams, which help simplify complex data. Meanwhile, auditory learners can better grasp information through podcasts, voiceovers, or narration. Interactive multimedia, such as quizzes or simulations, allows learners to apply knowledge in real-time, reinforcing what they've learned and enhancing memory retention.

Research has shown that multimedia-based learning environments lead to improved comprehension and retention. When learners are exposed to multiple formats, such as text paired with images or videos, their brains process the information more effectively, leading to a stronger and longer-lasting understanding of the material. The ability to engage with content in multiple ways is also known to reduce cognitive overload, as learners can approach challenging topics through various angles, making it easier to absorb information without feeling overwhelmed.

Online courses and digital learning platforms have become an integral part of modern education. These platforms offer a diverse array of educational resources, such as video lectures, discussion boards, interactive assignments, and live webinars. One of the most significant advantages of online education is its flexibility. Unlike traditional classroom-based learning, online courses allow learners to study at their own pace, access content from anywhere, and revisit materials as needed. This flexibility helps accommodate diverse learning preferences, schedules, and locations, enabling a more personalized and inclusive learning experience.

Online courses also break down geographical barriers, allowing students from different parts of the world to access high-quality educational content

without needing to travel. This global reach not only broadens the scope of knowledge but also creates a community of learners who can share ideas and collaborate on projects, fostering a sense of connectedness and support. Furthermore, many online platforms use adaptive learning technologies, which tailor the content and pace to individual progress, ensuring that learners are always engaged and challenged at the right level.

The interaction provided by online platforms enhances information perception by encouraging active participation. Discussion forums, peer reviews, and collaborative projects provide opportunities for learners to engage with the material on a deeper level, discuss concepts with peers, and receive immediate feedback. This interactivity fosters critical thinking and reflection, key components of deeper learning. Additionally, the use of multimedia in these platforms—whether through instructional videos, digital textbooks, or virtual simulations—supports varied learning styles and allows learners to engage with the content in a way that suits them best.

The use of multimedia and online platforms significantly improves cognitive processing, leading to more efficient learning. Cognitive load theory suggests that learners can only process a limited amount of information at a time. By incorporating multimedia into the learning process, educators can manage cognitive load more effectively by distributing the learning experience across multiple channels (visual, auditory, kinesthetic), allowing learners to process and integrate information more seamlessly.

For example, combining text with relevant images or videos can reduce the cognitive burden of trying to visualize the information, allowing learners to focus on understanding the concept instead. Interactive features such as quizzes, drag-and-drop activities, or real-time simulations encourage active learning, requiring learners to apply their knowledge in practical scenarios. This type of learning is more engaging and effective than passive reading or listening, as it helps solidify the learned material through practice and repetition.

Research in cognitive psychology also supports the idea that learners perform better when they are actively engaged in the learning process rather than passively absorbing information. Active learning techniques, such as those embedded in online platforms, promote a deeper understanding by requiring students to interact with the material, collaborate with others, and reflect on their learning experiences.

Personalization is another significant advantage of online courses and digital platforms. These technologies can use algorithms and data analytics to adapt the learning experience to each individual's needs. This personalization helps learners progress at their own pace, receive content tailored to their current understanding, and focus on areas that require more attention. For instance, if a learner struggles with a particular topic, the system can provide additional resources or alternative explanations to ensure better comprehension.

Adaptive learning technologies also allow for the continuous assessment of a learner's progress. Through quizzes, tests, and other interactive elements, learners receive instant feedback, enabling them to identify strengths and weaknesses and adjust their study strategies accordingly. Personalized learning paths ensure that students are neither bored with content that is too easy nor overwhelmed by material that is too difficult.

By providing targeted, individualized support, online platforms enhance the learning experience, making it more effective and efficient. This personalized approach helps students stay engaged and motivated, improving both the perception and retention of information.

The integration of multimedia, online courses, and digital platforms has revolutionized the educational landscape, improving the perception and processing of information. By catering to diverse learning styles, offering flexibility and accessibility, and providing interactive, personalized learning experiences, these tools have transformed the way students engage with content. As technology continues to advance, the potential for even more immersive and effective learning environments grows, further enhancing the ability to

comprehend and retain information. In a rapidly evolving world, these innovations not only make learning more accessible but also promote deeper, more meaningful educational experiences.

Conclusions. The use of multimedia, online courses, and digital platforms has brought a transformative shift to the educational landscape, offering numerous benefits in improving the perception and understanding of information. These tools enable a multi-sensory learning experience that accommodates diverse learning styles, engages students actively, and helps foster a deeper comprehension of complex concepts. By incorporating visual, auditory, and interactive elements, multimedia ensures that learners are not only exposed to information in varied formats but are also encouraged to engage with the content on a deeper level. This approach not only improves retention but also reduces cognitive overload, making learning more efficient and effective.

Online courses and platforms further enhance the educational experience by offering accessibility, flexibility, and the opportunity for personalized learning. The ability to study at one's own pace, access materials from anywhere, and engage in global communities of learners promotes a more inclusive and supportive learning environment. Moreover, adaptive technologies used in online platforms enable learners to progress according to their unique needs, ensuring that content is tailored to individual learning preferences and abilities.

In conclusion, the combination of multimedia and online learning platforms has proven to be a powerful tool for improving the way information is perceived, processed, and retained. These technological advancements have created a more interactive, engaging, and personalized learning experience that benefits learners of all backgrounds and abilities.

Offers:

- The continued integration of emerging technologies such as augmented reality (AR) and virtual reality (VR) can further enhance the multimedia experience, allowing learners to engage with content in immersive,

real-world contexts. Educational institutions and platforms should explore these innovations to offer more dynamic and experiential learning opportunities.

- As online platforms continue to evolve, there should be an increased emphasis on personalized learning pathways. Incorporating more sophisticated adaptive learning algorithms can ensure that every learner receives content that matches their level of understanding and pace, fostering better outcomes and improving learner engagement.
- For the full potential of multimedia and online platforms to be realized, collaboration between educators, content developers, and technology providers is crucial. Educators must be trained to effectively incorporate these tools into their teaching practices, while content developers should focus on creating high-quality, interactive, and engaging materials that cater to diverse learning needs.
- There should be a concerted effort to ensure that multimedia and online learning platforms are accessible to all learners, including those with disabilities. This includes implementing features such as closed captions, voice-to-text options, and customizable interfaces that cater to diverse needs, ensuring that all students can benefit from these technologies.

By adopting these strategies, educators and institutions can fully harness the power of multimedia and online platforms, creating a more engaging, personalized, and effective learning environment that supports deeper learning and better information retention.

REFERENCES:

1. Mayer, R. E. (2009). Multimedia Learning (2nd ed.). Cambridge University Press.
2. Sweller, J., Ayres, P., & Kalyuga, S. (2011). Cognitive Load Theory. Springer Science & Business Media.
3. Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. Journal of Personality and Social Psychology, 78(4), 772-790.

4. Clark, R. C., & Mayer, R. E. (2016). E-Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning (4th ed.). Wiley.

5. Dabbagh, N., & Kitsantas, A. (2012). Using web-based technologies to support active learning and student engagement. The Internet and Higher Education, 15(1), 1-10.

6. Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. The American Journal of Distance Education, 15(1), 7-23.

7. Topping, K. J. (2017). Peer tutoring in learning and instruction: International perspectives. Educational Psychology Review, 29(3), 227-259.

8. Bates, T. (2015). Teaching in a Digital Age: Guidelines for Designing Teaching and Learning for the Digital Era. Tony Bates Associates.