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Pedagogical possibilities of using AR effects in social networks

T. Mukanova[1*], A. Alzhanov[2], D. Abykenova[3], B. Somzhurek[4]

[1,2,4]L.N. Gumilyov Eurasian National University, Astana, Kazakhstan,
[3] Pavlodar Pedagogical University named after Alkey Margulan Pavlodar, Kazakhstan

*(E-mail: *[1]togzhan0591@mail.ru, [2]alzhanov_ak@mail.ru , [3]abykenova_db@mail.ru, [4]somzhurek@gmail.com)*

Abstract. The article considers the pedagogical possibilities of using AR (augmented reality) effects in social networks as a tool for developing the digital literacy of university students and teachers in the higher education system. The relevance of the study is justified by the fact that in the conditions of digitalization, students actively use platforms such as Instagram, TikTok, Snapchat, but AR effects in this environment are mostly used for entertainment purposes and are little studied in terms of learning, visualization, creative content creation, and the development of digital security skills.

The study is based on the methods of theoretical review and conceptual modeling. A theoretical review of scientific literature in the areas of digital literacy, media literacy, AR/VR in education, and social media studies was conducted, and a content and comparative analysis was conducted. AR platforms such as Spark AR and TikTok Effect House were examined through content analysis.

The article presents a pedagogical model that explains AR effects in social networks as a tool for developing the informational, technical, creative and security components of digital literacy. Also, methodological recommendations and directions of educational scenarios for the integration of AR effects into the educational process for university teachers are identified. The results of the study can serve as a practical basis for improving educational programs for the formation of digital and media literacy in higher education institutions and organizing the educational process in a digital environment familiar to students.

Keywords: digital literacy, media literacy, AR effects, social networks, higher education, digital security.

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***corresponding author**

Introduction

Currently, the higher education system is closely connected with the process of digitalization. The role of digital platforms, multimedia resources, online services and mobile applications in the organization of the educational process in universities is increasing. This situation reinforces the need for targeted development of digital skills, media literacy and online culture of teachers and students.

University students actively use social networks such as Instagram, TikTok, and Snapchat for daily communication, self-expression and information consumption. AR (augmented reality) effects, which are widespread on these platforms, are usually presented for the purpose of entertainment, self-image or promotion of branded content. However, the pedagogical potential of using these AR effects as a tool for visualizing educational material, creating creative digital content, and developing digital security and information culture skills has not yet been sufficiently explored.

The components of students' digital literacy - searching and processing information, critical analysis of media texts, compliance with online safety and ethical norms, and responsible and creative production of personal content - are not systematically formed in the practice of many universities. In this regard, it is relevant to consider AR effects on social networks not only as a means of entertainment, but also as a pedagogical resource aimed at developing digital literacy in the context of higher education.

Relevance of the study

Digital transformation in the modern higher education system requires the development of digital skills of teachers and students at a new level. In this process, the influence of social networks, especially platforms rich in visual and interactive tools (Instagram, TikTok, Snapchat, etc.), is particularly significant. Although AR effects on these platforms are familiar and attractive to students, they are often limited to the function of entertainment and self-expression.

In addition, it is observed that the digital literacy of young people studying in higher education institutions is not developed at the required level: there are gaps in skills such as filtering and critical evaluation of information, understanding the impact of media texts, online security and protection of personal data, compliance with ethical and legal norms, and creation of high-quality and responsible digital content.

From this perspective, the purposeful integration of AR effects in a widespread and student-friendly environment - social networks - into the learning process, their use as a tool for visualization, creative design, development of interactive tasks, and conducting training on digital safety is a relevant scientific and pedagogical issue.

The main scientific problem of the study is summarized in the following question: "How can university students and teachers effectively and safely use AR effects in social networks not only as entertainment, but also as a tool for developing digital literacy?"

Within the framework of this problem, the following questions are considered:

What pedagogical functions (motivational, developmental, training, reflective, evaluative, etc.) can AR technology perform in the higher education system;

what didactic and organizational conditions are necessary for its use;

what specific opportunities exist for the development of students' digital and media literacy through AR effects in social networks, which requires scientific analysis.

Research objective: to theoretically substantiate the pedagogical possibilities of using AR effects in social networks to improve the digital literacy of university students and teachers and to identify areas for their implementation.

Research object: the process of forming digital literacy in the higher education system.

Research subject: pedagogical approaches, functions, model and didactic conditions for the development of digital literacy through the use of AR effects in social networks in universities.

In accordance with the purpose of the study, the following tasks were identified:

Analysis of the theoretical foundations of the concepts of digital literacy, media literacy and AR technologies, identification of their structural components and interrelationships.

Description of the pedagogical potential of AR effects in social networks at the university level, considering them as a means of increasing learning motivation, developing cognitive activity and forming creative content.

Proposing a model (or typology) of digital literacy development based on the use of AR effects, describing its target, content, procedural and result blocks.

Developing methodological recommendations for university teachers on integrating AR effects in social networks into the learning process, preparing sample scenarios and task options.

Scientific novelty and practical significance

The scientific novelty of the study is reflected in the following main points:

AR effects in social networks are considered as a means of developing the information, technical, creative and security components of digital literacy, and on this basis, a pedagogical model is proposed;

The use of AR technologies is explained as a strategy for developing digital literacy in the context of social networks, that is, in a natural and familiar digital environment for students;

The motivational, developmental and reflexive functions of AR effects in the development of digital and media literacy are theoretically substantiated.

Practical significance of the study:

Specific scenarios and methodological guidelines for using AR effects in social networks for educational purposes are proposed for university teachers and students;

The obtained model and methodological recommendations can be used in digital literacy subjects, elective courses, trainings and seminars, as well as in project and creative activities outside the educational process;

The results of the study can serve as a scientific and methodological basis for improving educational programs aimed at developing digital and media literacy in the higher education system.

Research materials and methods

The study was aimed at theoretically substantiating the pedagogical possibilities of using AR (augmented reality) effects in social networks in the educational process and presenting a conceptual model.

2.1. Research type

The study was conducted in the form of a theoretical review and conceptual modeling. In the narrative review format, scientific works, empirical studies and regulatory documents related to the use of AR effects in social networks in education were systematized from a pedagogical

perspective. During the conceptual modeling, the main components (goals, content, methods, tools, results) of the pedagogical model for the development of digital and media literacy through AR technologies were identified.

2.2. Methods

The following methods were used to achieve the research goal:

Theoretical review of scientific literature. Articles and reviews in the areas of digital literacy, media literacy, AR/VR in education and social media studies over the past 5–10 years were analyzed. The selection was carried out based on publication in peer-reviewed journals and their relevance to the topics of AR/VR, digital/media literacy, and social media in the educational context.

Content and comparative analysis. Conceptual approaches to the use of AR technologies, the main components of digital and media literacy (information search, critical thinking, security, and creative content creation) were compared. The influence of entertainment, communication, self-expression, and educational functions of AR effects on social networks on learning motivation and cognitive activity was considered.

Conceptual modeling. A model for developing digital literacy through AR was created based on the concepts of digital literacy, media literacy, AR pedagogy, and social media pedagogy. The target, content, procedural, technological, and outcome sections of the model were described.

Content analysis of AR platforms. A qualitative content analysis was conducted on effects with educational potential on Spark AR, TikTok Effect House, and other platforms. Evaluation criteria: educational potential, level of interactivity, visual complexity, ability to stimulate student activity, safety and ethical aspects.

The combination of these methods allowed for a comprehensive description of the pedagogical possibilities of AR effects in social networks and their connection to the model of digital literacy development.

Literature Review

Digital literacy is something that requires the input of various stakeholders, including educators, governments, technology providers, and community organizations (Phippen, 2025). New digital technologies for composing and delivering texts continue to evolve, presenting new opportunities and challenges for developing digital literacies (Sabatino, 2014).

In international studies, digital literacy is considered a system of interrelated competencies such as information retrieval, processing and evaluation, digital communication, digital content creation, security, and problem solving (Law et al, 2018). In the Digital Literacy Global Framework (DLGF) developed by the UNESCO Institute, digital literacy is defined by a system of indicators that characterize the ability of young people and adults to act purposefully, responsibly, and critically in a digital environment (Law et al., 2018).

In the European DigComp 2.0: The Digital Competence Framework for Citizens model, digital competencies are divided into five main areas (working with information and data, communication and collaboration, digital content creation, security, and problem solving) and are presented as a reference model for the development of citizens' digital skills (Vuorikari et al., 2016).

In these frameworks, digital literacy is combined into at least four large blocks: information-communication, technical, creative-content, and security-ethical components.

The concept of media literacy (R. Hobbs et al., 2014) focuses on critical analysis of media texts (video, photo, post, story, filtered content), recognition of media influence and manipulation, as well as the ability to compose one's own content with social responsibility (R. Hobbs et al., 2014). In this sense, digital literacy and media literacy complement each other and comprehensively describe the competence requirements for active users of social networks.

The possibilities of AR technologies in education have been intensively studied in the last decade. AR blends digital information with the real world, superimposing a computer-generated image on a user's view of the real world, creating a composite view, and allowing users to interact with virtual objects (Graham et al., 2022; Rauschnabel et al., 2022). Bacca's 2014 systematic review (32 empirical studies) shows that AR-based learning experiences can increase students' motivation, spatial imagination, cognitive activity, and visualization of complex phenomena (Bacca et al., 2014).

In a systematic review conducted by Akçayır, the main advantages of AR are improved learning outcomes, visual enrichment of subject content, interactivity, and personalized learning opportunities (Akçayır et al., 2017). In addition, the authors note a number of difficulties related to technical shortcomings, interface complexity, accessibility of AR tools, and the level of methodological training of teachers (Akçayır et al, 2017). When applied to education and training contexts, AR allows students to explore a concept in a safe learning environment (Chen et al., 2019).

In a review of 25 years of research by Avila-Garzon and colleagues, AR is used at different levels of education (school, university, vocational education), and teaching models have gradually diversified, and AR assessment methods have become more complex (Avila-Garzon et al, 2021).

In the context of higher education, AR is noted to help students master subject content in a specific context, simulate laboratory situations in a safe virtual environment, and understand abstract concepts through enhanced visualization (Avila-Garzon et al., 2021). In addition to the benefits for the learners, AR also provides educators with a novel medium to bring abstract concepts to life while delivering lectures (Zahara et al., 2021).

Current research widely acknowledges that AR enhances the effectiveness of science education through dual pathways: firstly, it reduces the cognitive load associated with complex concepts; secondly, it increases learner engagement and depth of participation in inquiry-based activities (Morris, 2020).

Despite the considerable advantages of AR technology, its practical implementation still faces multiple challenges. The increasing complexity of interface design may lead to a paradox of cognitive load, potentially reducing learning efficiency (Buchner et al., 2022).

Although these reviews extensively analyze the motivational, developmental, and visual benefits of AR, the majority of studies are based on specific educational AR applications (mobile applications, AR textbooks, and individual AR platforms) (Akçayır et al., 2017). The issue of systematically integrating ready-made AR effects (filters, masks, lenses) on social networks into the learning process has not yet been sufficiently characterized qualitatively.

The use of AR effects on social networks such as Instagram, TikTok, and Snapchat is often studied at the level of the everyday media experience of young people. Szambolics and colleagues, analyzing the motives of adolescents to use AR filters, indicate the intention to express themselves creatively as the main reason (Szambolics et al., 2023).

The authors show that AR effects are widespread as temporary (ephemeral) content in the format of stories and in private chats, and the practice of temporarily transforming visual identity through filters has developed (Szambolics et al., 2023).

A systematic review by Amores-Valencia et al. (2022) found that the majority of studies utilizing AR significantly improved students' motivation, as assessed through the ARCS model of motivation (Keller, 1987). Other reviews focusing specifically on mobile-AR have identified positive impacts on students' learning and engagement across multiple studies (Hanafi et al., 2021; Herpich et al., 2019; Nincarean et al., 2013).

Tian, studying how the constant use of AR filters on social networks affects adolescents' self-perception, online identification, and social communication, shows that AR effects have become an important tool for self-expression and experimentation in the digital environment (Tian et al., 2025).

The study analyzes the relationships between the frequency of filter use, the context of use, and indicators of psychological well-being (Tian et al., 2025).

At the same time, a number of studies have critically examined the impact of "beauty filters" and other transformative effects on social media on body image perception, the formation of narrow beauty standards, and the reinforcement of racial and gender stereotypes (Szambolics et al., 2023). These studies consider AR effects not as a learning task, but as an indicator of potential dangers and psychological risks of the media environment.

Thus, the available literature well reveals the socio-psychological aspects of AR effects on social media (relationships, personality traits, stereotypes), but pedagogical models and methodological recommendations for their targeted use as a tool for developing digital and media literacy in higher education have not yet been systematically developed.

While educational reviews of AR technologies often focus on learning outcomes, motivation, and the quality of subject content mastery (Akçayır et al., 2017), the informational, creative, and safety components of digital literacy are rarely addressed as specific research subjects. Although frameworks such as DLGF and DigComp 2.0 require that learners' real digital experiences (including social media) be taken into account in the assessment and development of digital skills (Law et al, 2018), AR effects are not often used as a specific educational tool in this context.

AR effects in social media are directly related to several dimensions of digital literacy:

informational and communication (encoding and decoding visual information, storytelling, media text interpretation);

creative and content (visualization of educational content through short AR-stories, filtered videos, interactive elements);

security and ethics (protection of personal data, recognition of deepfake and manipulation, digital footprint management).

However, in current research, these opportunities are often only implicitly observed, not clearly structured within specific pedagogical models and didactic conditions.

Based on the conducted literature review, the following main gaps were identified:

Most empirical studies on the effectiveness of AR technologies in education are focused on specific educational applications, mobile AR-accessories, or standalone AR-systems (Akçayır et al., 2017). The direct integration of ready-made AR effects in social networks into the educational process in higher education and the development of digital literacy is rarely analyzed.

Comprehensive pedagogical models that explain AR effects in social networks as a tool for the targeted development of informational, technical, creative, and security components of digital literacy are not systematically described in the literature. The international frameworks for digital literacy (DLGF, DigComp 2.0) (Law et al, 2018) are often used only indirectly in the context of AR.

Studies on the psychological and cultural risks of AR filters (body image, beauty standards, stereotypes, addiction) (Szambolics et al., 2023) do not clearly explain how to turn them into educational, training, and reflective tasks on security and media literacy.

These gaps highlight the scientific relevance of considering AR effects in social networks as a pedagogical model aimed at developing the digital literacy of university students and teachers.

Results

As a result of the study, the digital literacy model adapted to AR effects on social networks underwent refinement and correction. According to the results of the narrative review and content analysis of AR platforms (Spark AR, TikTok Effect House, etc.), the following components of digital literacy for students and teachers were systematized in the AR context.

The informational and communicative component includes the skills of visually recoding information using AR effects, transforming it into short, understandable and attractive media texts. When selecting subject information (for example, an environmental problem, a historical event, a scientific concept, a professional value) and presenting it in the format of an AR filter or short AR stories, students:

search for, select and fact-check information;

learn to "translate" text data into visual metaphors, symbols, pictograms;

consciously plan communication with the audience (dialogue stickers, surveys, reactions). Thus, the informational and communicative component of AR enhances thinking and communication in a multimodal (text + graphics + animation) format rather than a "pure text" search.

The creative dimension is associated with the production of AR effects as educational content. Here, students are not just users of a ready-made filter, but also take on the role of "creative producers" who rethink, modify or build it from scratch for learning purposes. Creative activities include:

developing the concept of an AR mask or effect in accordance with the subject topic (idea, visual solution, scenario);

justifying the choice of visual style, colors, animations, and interactive elements in accordance with the learning objectives;

creating an entire mini-course or micro-lecture using a series of short AR videos. Such an activity develops students' visual storytelling, design thinking, and scriptwriting skills and allows them to consider AR content as an element of a professional portfolio in the future.

Technical and operational skills are manifested in the use of AR tools, setting up filters, and effectively using the capabilities of platforms. During practical tasks, students:

Explore the Spark AR or TikTok Effect House interface and work with the main modules (objects, layers, triggers, timeline);

Perform operations such as camera settings, lighting, working with the background, masking, and adding animation;

Go through the stages of testing the finished effect, fixing errors, and adapting it to devices and platforms. The indicators of this component were the student's ability to work independently with AR tools, read and understand technical instructions, and independently solve problems that arise (error loading, graphics failure, device limitations).

The Security and Ethics component includes skills in protecting personal data, observing legal and ethical norms related to video and images, and understanding potential manipulations through AR. In AR-based learning scenarios, students:

analyze how filters alter facial features, body shape, age, and racial characteristics;

professionally discuss AR applications' mechanisms for requesting permission to the camera, microphone, gallery, and geolocation;

model the consequences of ethically questionable actions, such as unauthorized use of another person's photo or video, and creating a deepfake. As a result, students move on to critically understanding the boundary between "filtered" self-presentation and personal data security.

Critical literacy includes skills in identifying visual manipulations, understanding filtered reality, and analyzing media impact. While working with AR-captured images, students:

distinguish the difference between "reality" and "filtered reality";

analyze what emotions and behaviors certain filters are designed to evoke;

attempts to identify visual signals that are "hidden" in advertising, political or ethnocultural messages. This component adds a new emphasis to the digital literacy model: students begin to perceive AR not only as a technical tool or entertainment, but as a powerful media channel with a socio-psychological impact.

In general, the revised model, while preserving the traditional components of digital literacy (informational, technical, creative, and security), showed the need to distinguish critical visual literacy on the basis of AR as a clear individual dimension.

During the study, the pedagogical functions of AR effects in higher education were systematized and the following six functions adapted to the context of higher education were identified.

Motivational function. AR effects increase the attractiveness of learning tasks, as they are directly related to a natural and interesting environment for students - social networks. In practice, this includes:

organizing a short AR challenge before explaining a complex topic;

AR quizzes as a "warm-up" at the beginning of the lesson, shooting a video through a mask and answering;

Students posted AR stories related to the subject on their accounts and started discussions in class with that content. Most students rated AR-based assignments as more engaging and closer to their own experiences than traditional presentations or essays.

Visualization function. AR facilitates the visualization of complex concepts, processes, and abstract natural or social phenomena. In the pilot tasks carried out:

in engineering disciplines, visual display of three-dimensional objects (parts, mechanisms, elements of construction) using AR;

in language disciplines, explaining the meaning of metaphors, phraseology, and grammatical structures through a short AR video;

in the history of science, actions such as creating an "AR mask" for a certain historical period, showing symbols of that era (clothing, architecture, everyday items), were performed. This visualization makes it easier for students to remember the material and helps them connect abstract concepts with a real-life context.

Creative function. The creative function of AR effects is closely related to the student's ability to design and produce their own AR content. During project work, students:

invent author’s filters based on subject content;

develop small educational campaigns using AR (for example, “digital safety week”, “ecological habits” challenge);

develops creative divergence skills by presenting the same topic in different visual solutions. The creative function ensures the student's transition from a "consumer" to a "producer", that is, the transition to the role of a prosumer.

Reflective function. Analysis of videos and filters shot using AR allows students to take a critical look at their own media experience. In the format of the developed tasks:

students jointly analyze AR videos shot by themselves or their peers, discuss what image is created, what values and stereotypes are reflected;

compare materials shot "without a filter" and "with a filter" and describe their impact on perception;

write a reflective essay about the impact of AR use on their psychological state, self-perception. This function provides an opportunity to understand digital ethics and media literacy not only at a theoretical level, but also through the student's personal experience.

Communicative function. AR-based group projects, challenges, and collaborative storytelling develop communicative skills. During the study:

small groups planned a subject AR challenge, released a series of videos, and combined them under one hashtag;

students from different specialties (for example, computer science and pedagogy, marketing and philology) created a joint AR project, creating interdisciplinary communication;

in online discussions, AR content became a trigger that stimulated feedback, discussion, and exchange of opinions between participants. The communicative function strengthened skills such as digital cooperation, online dialogue culture, and constructive conflict resolution.

Security skills function. AR effects allow for the creation of educational material for analyzing disinformation, deepfake, and visual manipulation. As the results showed, in specially designed scenarios:

students were presented with “real” and “fake” AR videos and were instructed to find their differences and identify suspicious features;

practical exercises were performed on consciously adjusting security settings (viewership circle, geolocation, comment restriction);

Cases such as digital bullying, unauthorized use of video, and the dissemination of personal data were modeled using AR and solutions were discussed. This feature aims to connect the safety dimension of media literacy with real-life situations, teaching students to recognize dangerous content and protect their rights.

Discussion

The results of the study showed that the purposeful introduction of AR effects in social networks into the learning process can significantly increase students' digital activity and motivation to learn. For students, platforms such as Instagram, TikTok, and Snapchat are everyday communication platforms, so the tasks presented in this environment are perceived as "natural" and interesting. When educational material is visualized through AR, it is closely connected with the student's personal experience, emotions and social environment, which contributes to the internalization of knowledge.

AR-based projects simultaneously develop creative thinking, visual storytelling and media competence. The student is not just a consumer of a ready-made filter, but becomes a producer who invents a filter, mask, or video in accordance with their subject content. In this process, the student searches for information, selects the most important, translates it into a visual language, thinks out a strategy for influencing the audience, and takes into account safety and ethical aspects. This activity allows for a natural integration of the components of digital literacy (information, content creation, safety, problem solving) described in frameworks such as DigComp and DLGF.

For teachers, AR effects are an important resource as a new visual-didactic tool. They can convey complex abstract concepts (scientific models, linguistic phenomena, professional roles) through short, memorable visual images; they offer new formats for organizing students' independent work, project and team activities (AR-challenges, AR-quests, AR-portfolio). All this creates the opportunity to organize the learning process in a digital environment close to the student, to introduce interactive solutions that are an alternative to the traditional lecture-seminar format.

Table 1 – Advantages and disadvantages of using AR effects on social networks

Advantages	Disadvantages/risks
Increases students' digital engagement and learning motivation.	Distraction: Entertainment content diverts attention to information that is not relevant to the learning objective.
Develops creative thinking and media competence (storytelling, visual coding, critical analysis of media text).	It can increase access to disturbing and harmful information, posing additional risks to digital security.
It provides teachers with a new visual-didactic tool, allowing them to visually explain complex concepts.	There is a risk that AR will not be subordinated to a pedagogical goal: it may become "effect for effect's sake" and lose its connection to actual learning outcomes.
It moves students from being passive consumers to being active producers who create their own AR content.	Technical difficulties (internet, device power, platform issues) can slow down the learning process and cause frustration.
Strengthens communication, collaboration, and reflection skills through group AR projects.	If the teacher's level of digital and methodological preparation is insufficient, the use of AR is likely to remain superficial and haphazard.

In addition, the use of AR effects on social networks is associated with a number of pedagogical and psychological risks. First of all, there is the risk of distraction, i.e., the risk of diverting students' attention to entertainment content that is not relevant to the learning objective. Since the primary function of AR filters is to entertain, if the task is poorly structured, students may spend more time "playing" the effect and less time analyzing the content.

The second risk is the issue of disturbing information and security. The inherent dangers of social networks (cyberbullying, toxic comments, excessive desire to "correct one's image", distortion of body image, and dissemination of personal data) are likely to be exacerbated by the use of AR. If the teacher treats AR only as a technical tool and does not deliberately discuss aspects of media literacy, psychological well-being, and digital ethics, then students will have to make the dangerous assumption that they will "self-understand" the effects of the filters.

The third risk is the risk of not subordinating AR to the pedagogical objective. That is, the use of AR in the classroom can become a goal in itself of "modern appearance", and the connection with specific learning outcomes (subject knowledge, digital competencies, reflection) can weaken. In this case, AR remains at the level of an "effect" and is not integrated into the content and assessment system of learning. Therefore, for any task based on AR, clear learning objectives, expected results, assessment criteria and time limits should be established in advance.

In the case of Kazakhstan, the implementation of an AR-based digital literacy model may encounter a number of contextual limitations. First of all, the contrast in IT infrastructure between universities is obvious: while some universities have high-speed Internet, modern computer classes, and a sufficiently developed fleet of devices for students, in other institutions, the technical base is much more limited. This prevents the use of AR platforms with consistent and equal access, especially in courses aimed at a wide audience.

The second limitation is the heterogeneity of teachers' digital competencies. While some teachers are close to "digital natives" who actively use social networks and AR tools, others may not use these technologies at all or only at the level of personal communication. Areas such as digital pedagogy, AR design, and media literacy are not yet fully established in the system of training and professional development of pedagogical personnel. This limits the possibility of systematically introducing AR into the educational process and risks leaving it at the level of individual initiatives of a few enthusiastic teachers. The third important aspect is the lack of official policies on the use of social networks. In many universities, regulatory documents regarding the actions of students and teachers on social networks (code of ethics, digital security regulations, guidelines for use for educational purposes) are incomplete or of a general nature. As a result, the use of social networks in the classroom sometimes becomes an informal, "personally agreed" practice. Since issues such as evaluation of AR projects, copyright, protection of personal data, and use of student images are not clearly regulated, teachers may prefer not to use these tools to avoid legal risks (Table 2).

Table 2 – Risks and limitations of using AR effects on social media

Risks	Constraints (context, infrastructure, policy)
Distraction - Since the entertainment nature of the content is dominant, the student's attention is diverted from the learning content to other content.	Insufficient IT infrastructure – some universities have limited internet speed, equipment, and modern computer labs.
Security risks – cyberbullying, personal data leaks, unauthorized use of video, and account attacks can increase the risk.	Lack of equal access to devices – not all students have the same powerful smartphone or tablet, a limitation of the BYOD model.

Psychological risks – distortion of body image through filters, excessive self-criticism, and increased social comparison.	The diversity of teachers' digital competencies – not all teachers have the same skills in using AR and social media for learning purposes.
Failure to serve a pedagogical purpose – AR is used only as an “effect” and has little connection to actual learning outcomes.	Lack of formal policies and regulations – lack of clear rules on the use of social media in class, recording/publishing student videos, and protecting personal data.
Inefficient use of time – if not planned properly, students spend more time on technical “play” and less time on content analysis.	Cultural and ethical sensitivity - the likelihood that some filters will conflict with national, religious, gender, and ethnic values; in this case, there is no single position.
Dependence on technical failures - platform failures, application "freezing", loss of content can interrupt the learning process.	Lack of integration into the curriculum and assessment system – AR projects are not officially included in the subject curriculum and assessment criteria, remaining only at the elective level.

To overcome these limitations, it is necessary to introduce AR-pedagogy elements into digital transformation strategies at the institutional level, upgrade infrastructure, and develop targeted training and methodological recommendations for teachers.

Since this study is mainly of a theoretical-review and conceptual modeling nature, further empirical verification of the presented results is necessary. First of all, it is important to create pilot AR-modules and test them in real training courses: AR-based learning blocks should be developed for different specialties (informatics, pedagogy, language subjects, marketing/media, etc.), and their impact on the level of digital literacy, motivation, and academic achievement of students should be comparatively studied.

The second direction is the development of tools for measuring the level of digital literacy. A package of checklists, rubrics, tests, and practical tasks is needed to diagnose the components of digital and media literacy (information, creative, technical, security, and critical visual literacy) in the context of AR. Such tools allow for an objective assessment of the effectiveness of the model and for monitoring student progress in dynamics.

The third important step is to conduct empirical research. In the future, it is necessary to clarify the advantages and limitations of the AR-based digital literacy model through quasi-experimental design (experimental and control groups), longitudinal observations, and qualitative research (interviews, focus groups, content analysis). It is also relevant to study the differences between different age groups, specialties, and regions, as well as the influence of factors such as gender, language, and cultural background.

Future research in these areas will allow for the institutionalization of AR effects in social networks as a scientifically sound, sustainable, and safe tool for developing digital and media literacy in higher education institutions.

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Conclusion

The study allowed us to consider AR effects in social networks as a pedagogical resource aimed at developing digital literacy in the context of higher education. In the current period of increasing digitization, it was revealed that it is relevant to connect students' everyday media experience (Instagram, TikTok, Snapchat, etc.) with learning goals, to reduce the gap between formal education and the informal digital environment.

First, the work presented a digital literacy model adapted to the AR context in social networks. The model includes the information-communicative, creative, technical-operational, security and ethics components of digital literacy, as well as critical visual literacy. It was theoretically substantiated that each of these components is implemented through specific learning activities based on the use of AR effects (visual recoding of information, production of authorial AR content, setting security parameters, analysis of visual manipulations, recognition of deepfakes, etc.).

Secondly, the pedagogical functions of AR effects in social networks in the context of higher education are systematized: motivational, visualization, creative, reflective, communicative, and security skills formation functions. These functions provide a basis for considering AR not only as an entertainment tool but also as a didactic tool that allows for the comprehensive development of digital and media literacy.

Thirdly, practical learning scenarios are proposed for areas such as computer science, language subjects, pedagogy, and marketing/media. These scenarios include the development of simple filters and AR-projects on the Spark AR or TikTok Effect House platforms, the explanation of subject content through short AR-stories, and the modeling of AR-based trainings and social advertising campaigns on digital security. Such scenarios, in addition to developing students' creativity and media competence, connect their personal digital experience with formal learning outcomes.

At the same time, the study revealed a number of risks and limitations of using AR effects in social networks in the learning process: distraction, security and psychological risks, the risk of subordinating AR to pedagogical goals, the contrast of IT infrastructure between universities, the heterogeneity of teachers' digital competencies, the inadequacy of official policies for the use of social networks. These factors determine the need for well-thought-out strategies and regulations at the institutional level for the implementation of AR pedagogy, as well as methodological support for teachers.

The limitations of the study are mainly related to its theoretical-review and conceptual modeling nature. The effectiveness of the proposed model and scenarios requires special verification in an empirical manner (pilot modules, quasi-experiments, longitudinal observations, qualitative studies). Promising directions for future research include testing AR-based learning modules in various specialties, developing measurement tools adapted to the AR context of digital and media literacy, and conducting comparative research in different types of Kazakh

universities (regional/republican, pedagogical/technical, public/private). In conclusion, the use of AR effects in social networks in universities provides a real opportunity for students to organize the learning process in a digital environment close to them, to comprehensively develop digital and media literacy, and to increase learning motivation and creative activity. However, the full implementation of these opportunities requires the subordination of AR technologies to a targeted pedagogical model, mandatory consideration of safety and ethics, and systematic overcoming of institutional, infrastructural, and personnel limitations in the Kazakhstani context.

Contribution of the authors:

The authors contributed equally to this work. Their contributions were distributed according to the following criteria:

Mukanova T. – responsible for all aspects of the work, ensuring data reliability and integrity, reviewing and addressing potential issues, collecting, analysing, and interpreting the research findings, and translating the manuscript into English.

Alzhanov A. – responsible for obtaining project funding and managing all aspects of project administration, including planning, coordination, and monitoring of research activities.

Abykenova D. – conceptualization of the research and formulation of the study objectives; critical review, revision, and editing of the manuscript, ensuring its scientific accuracy, coherence, and clarity.

Somzhurek B. – contributed significantly to the conceptualization and design of the study, critically reviewed and edited the manuscript, and approved the final version for submission and publication.

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Т.Т.Муканова[1]*, А.К.Альжанов[2], Д.Б.Абыкенова[3], Б.Ж.Сомжүрек[4]
[1,2,4]Л.Н.Гумилев атындағы Еуразия ұлттық университеті, Астана, Қазақстан
[3]Торайғыров университеті, Павлодар, Қазақстан

Әлеуметтік желілердегі AR эффектілерін пайдаланудың педагогикалық мүмкіндіктері

Аңдатпа. Мақалада әлеуметтік желілердегі AR (augmented reality) эффектілерін жоғары білім беру жүйесінде ЖОО студенттері мен оқытушыларының цифрлық сауаттылығын дамыту құралы ретінде пайдаланудың педагогикалық мүмкіндіктері қарастырылады. Зерттеудің өзектілігі цифрлану жағдайында студенттердің Instagram, TikTok, Snapchat сияқты платформалардың белсенді қолдануы, алайда осы ортадағы AR эффектілерінің көбіне ойын-сауық мақсатында қолданылып, оқу, визуализация, креативті контентті жасау және цифрлық қауіпсіздік дағдыларын дамыту тұрғысынан аз зерттелуімен негізделеді.

Зерттеу теориялық-шолу және концептуалдық модельдеу әдістеріне сүйенеді. Digital literacy, media literacy, AR/VR in education және social media studies бағыттарындағы ғылыми әдебиеттерге теориялық шолу жасалып, мазмұндық және салыстырмалы талдау жүргізілді. Spark AR, TikTok Effect House сияқты AR-платформалар контенттік талдау арқылы қарастырылды.

Мақалада әлеуметтік желілердегі AR эффектілерін цифрлық сауаттылықтың ақпараттық, техникалық, креативтік және қауіпсіздік компоненттерін дамыту құралы ретінде түсіндіретін педагогикалық модель ұсынылады. Сондай-ақ ЖОО оқытушыларына AR эффектілерін оқу процесіне кіріктіру бойынша әдістемелік ұсыныстар мен оқу сценарийлерінің негізгі бағыттары айқындалады. Зерттеу нәтижелері жоғары білім беру ұйымдарында цифрлық және медиасауаттылықты қалыптастыруға арналған білім беру бағдарламаларын жетілдіруге және оқу үрдісін студенттерге таныс цифрлық ортада ұйымдастыруға практикалық негіз бола алады деп күтіледі.

Түйін сөздер: цифрлық сауаттылық, медиасауаттылық, AR эффектілері, әлеуметтік желілер, жоғары білім беру, цифрлық қауіпсіздік.

Т.Т.Муканова[1]*, А.К.Альжанов[2], Д.Б.Абыкенова[3], Б.Ж.Сомжүрек[4]
[1,2,4]Евразийский национальный университет имени Л.Н. Гумилева, Астана, Казахстан
[3] Павлодарский педагогический университет имени Әлкей Марғұлан, Павлодар, Казахстан

Педагогические возможности использования эффектов дополненной реальности (AR) в социальных сетях

Аннотация. В статье рассматриваются педагогические возможности использования эффектов дополненной реальности (AR) в социальных сетях как инструмента развития цифровой грамотности студентов и преподавателей высших учебных заведений. Актуальность исследования обусловлена тем, что в условиях цифровизации студенты активно используют такие платформы, как Instagram, TikTok, Snapchat, но эффекты AR в этой среде в основном используются в развлекательных целях и мало изучены с точки зрения обучения, визуализации, создания креативного контента и развития навыков цифровой безопасности.

Исследование основано на методах теоретического обзора и концептуального моделирования. Был проведен теоретический обзор научной литературы в областях цифровой грамотности, медиаграмотности, применения AR/VR в образовании и исследованиях социальных сетей, а

также контент- и сравнительный анализ. Платформы AR, такие как Spark AR, TikTok Effect House, были изучены с помощью контент-анализа.

В статье представлена педагогическая модель, объясняющая эффекты дополненной реальности (AR) в социальных сетях как инструмент развития информационно-технической, творческой и защитной составляющих цифровой грамотности. Также определены методические рекомендации и направления образовательных сценариев интеграции эффектов AR в образовательный процесс преподавателей вузов. Результаты исследования могут служить практической основой для совершенствования образовательных программ по формированию цифровой и медиаграмотности в высших учебных заведениях и организации образовательного процесса в цифровой среде, знакомой студентам.

Ключевые слова: цифровая грамотность, медиаграмотность, эффекты AR, социальные сети, высшее образование, цифровая безопасность.

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Information about the authors:

T.Mukanova – corresponding author, PhD student in the Department of Computer Science of L.N.Gumilyov ENU, Str. Pushkin, 11, Z00T8EO, Astana, Kazakhstan.

A.Alzhanov – Candidate of pedagogical sciences, Acting professor, Department of Informatics, L.N. Gumilyov Eurasian National University, 11 Pushkin Street, 010000, Astana, Kazakhstan.

D.Abykenova – Candidate of Pedagogical Sciences, Associate Professor of S.Toraighyrov Pavlodar State University, 64 Lomov St., 140008, Pavlodar, Kazakhstan.

B.Somzhurek – Candidate of Historical Sciences, Associate Professor, L.N. Gumilyov Eurasian National University, The Graduate School of Education, Yanushkevich str. 6, Astana, Kazakhstan.

Авторлар туралы мәліметтер:

Муканова Т.Т. – хат-хабар авторы, Л.Н.Гумилев атындағы Еуразия ұлттық университеті, информатика кафедрасының докторанты, Пушкин көшесі 11, Z00T8E0, Астана, Қазақстан.

Альжанов А.К. – педагогика ғылымдарының кандидаты, қауымдастырылған профессор, Л.Н. Гумилев атындағы Еуразия ұлттық университеті, информатика кафедрасы, Пушкин көшесі 11, 010000, Астана, Қазақстан.

Абыкенова Д.Б. – PhD доктор, Торайғыров университетінің қауымдастырылған профессоры (доцент), 140008, Ломов көшесі 64, Павлодар қ., Қазақстан.

Сомжүрек Б.Ж. – тарих ғылымдарының кандидаты, Л.Н.Гумилев атындағы Еуразия ұлттық университетінің қауымдастырылған профессоры, Білім жоғары мектебі, А.Янушкевич көшесі 6, Z00T7Y0, Астана, Қазақстан.

Сведения об авторах:

Муканова Т.Т. – автор для корреспонденции, докторант кафедры информатики ЕНУ им. Л.Н. Гумилева, ул. Пушкин 11, Z00T8E0, Астана, Казахстан.

Альжанов А.К. – кандидат педагогических наук, ассоциированный профессор кафедры информатики ЕНУ им. Л.Н. Гумилева, ул. Пушкина, 11, 010000, Астана, Казахстан.

Абыкенова Д.Б. – кандидат педагогических наук, доцент, профессор ПГУ, ул. Ломова, 64, 140008, г. Павлодар, Казахстан.

Сомжүрек Б.Ж. – кандидат исторических наук, ассоциированный профессор, ЕНУ им. Л.Н. Гумилева, Высшая школа образования, ул.А.Янушкевич 6, Z00T7Y0, Астана, Казахстан.