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RESEARCH OF CUTTING-EDGE TECHNOLOGIES: INCORPORATION AND EFFICIENCY IN JOURNALISM EDUCATION

Rapid advancements in technology have revolutionized various aspects of our lives, and journalism education is no exception. As classrooms or lecture halls embrace digital tools, academic disciplines of journalism and media practitioners have the opportunity to reimagine teaching and news reporting experiences, making them more engaging, personalized, and effective. This article aims to highlight the diverse ways in which cutting-edge technology can be leveraged to enhance educational outcomes, promote digital literacy, and equip learners, including aspiring journalists, with the skills needed to thrive in a rapidly evolving world and succeed in journalism practice. The survey of 200 students from two universities in Kazakhstan revealed that the majority were satisfied with the integration of high technologies in the education system. However, challenges such as technical issues, inadequate training and concerns about overreliance on technology were identified. This research has scientific significance as it can inform future studies on digitalization in education. It also has practical significance for journalism institutions, helping them improve the implementation of advanced technologies by considering student feedback. In conclusion, the study contributes to the development of integration of innovative technologies in journalism education since it provides detailed information about students' opinions, who are directly affected by the process of digitalization.

Keywords: innovative technologies, education system, journalism, pedagogy, multimedia content, information and communication technologies.

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Инновациялық технологияларды зерттеу: журналистика біліміндегі интеграциясы және тиімділігі

Мақаланың негізгі мақсаты – ЖОО студенттерінің білім беру үдерісіндегі технологияларға қанағаттанушылығына қатысты сауалнама жүргізу арқылы оның тиімділігін бағалау арқылы білім берудегі, атап айтқанда, «Журналистика» оқу пәндеріндегі инновациялық технологиялардың интеграциясын зерттеу. Сауалнамаға екі қазақстандық жоғары оқу орнының 200 студенті іріктеліп, нәтижесінде олардың көпшілігі білім беру жүйесіне жоғары технологиялардың кіріктірілуіне қанағаттанған. Сандық деректерден басқа, технологияларды біріктіруге байланысты қиындықтар мен алаңдаушылықтар бар екені анықталды. Мәселелер біркелкі жұмыс істеуге кедергі келтіретін байланыс мәселелері және бағдарламалық құрал ақаулары сияқты техникалық қиындықтарды қамтыды. Сонымен қатар, студенттер мен оқытушыларға техникалық қолдау мен нұсқаулықтың жетіспеушілігі осы технологиялардың пайдасын барынша арттыруға кедергі болды. Кейбір қатысушылар сонымен қатар сандық және дәстүрлі әдістерді қамтитын білім берудегі тұтас көзқарасты сақтаудың маңыздылығын атап өтіп, технологияға шамадан тыс тәуелділік туралы алаңдаушылық білдірді. Бұл зерттеудің ғылыми маңыздылығы – келесі зерттеулерде білім берудегі цифрландыру үдерісін толыққанды бағалау үшін осы мақаланың сандық және сапалық талдауы құнды ақпарат береді. Ал зерттеудің практикалық маңызы – респонденттерден жиналған кері байланыстарды ескере отырып, білім беру үдерістеріне озық технологияларды енгізудің анағұрлым жетілдірілген тәсілін әзірлей алатын журналистика мамандарын даярлайтын оқу орындарында қолдануға болады. Қорытындылай келе, зерттеу журналистік білім берудегі инновациялық технологиялардың интеграциясын дамытуға ықпал етеді, себебі цифрландыру үдерісінен тікелей әсер алатын студенттердің пікірлері туралы толық ақпарат берілген.

Түйін сөздер: инновациялық технологиялар, білім беру жүйесі, журналистика, педагогика, мультимедиялық контент, ақпараттық-коммуникациялық технологиялар.

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Исследование инновационных технологий: интеграция и эффективность в журналистском образовании

Быстрое развитие технологий радикально изменило различные аспекты нашей жизни, и образование в области журналистики не является исключением. По мере того, как лекционные аудитории преобразуются в цифровые инструменты, академические дисциплины в области журналистики и медийные практики имеют возможность переосмыслить образовательные процессы и опыт новостной деятельности, сделав их более увлекательными, персонализированными и эффективными. Целью данной статьи является выявление разнообразных способов использования передовых технологий для улучшения образовательных результатов, содействия цифровой грамотности и оснащения обучающихся, включая будущих журналистов, навыками, необходимыми для успешной адаптации в быстро развивающемся мире, и достижения успеха в журналистской практике. Опрос 200 студентов из двух университетов Казахстана показал, что большинство из них удовлетворены интеграцией высоких технологий в систему образования. Однако были выявлены некоторые технические проблемы, недостаточная подготовка и медленное применение технологий среди преподавателей, и опасения из-за чрезмерной зависимости от технологий. Это исследование имеет научное значение, так как оно может информировать будущие исследования в области цифровизации в образовании. Практическая значимость этого исследования может быть применена к учебным заведениям в области журналистики, которые могут разработать более совершенный подход к внедрению передовых технологий в учебные процессы с учетом собранных отзывов респондентов. Подводя итоги, исследование способствует развитию интеграции инновационных технологий в журналистское образование, поскольку дает подробную информацию о мнениях студентов, на которых процесс цифровизации оказывает непосредственное влияние.

Ключевые слова: инновационные технологии, система образования, журналистика, педагогика, мультимедийный контент, информационно-коммуникационные технологии.

Introduction

In this 21st century, the term “technology” is an important issue in many fields including education. This is because technology has become the knowledge transfer highway in most countries. As part of this, schools and other educational institutions which are supposed to prepare students to live in “a knowledge society” need to consider ICT integration in their curriculum (Ghavifekr, Afshari & Amla Salleh, 2012). Teacher educators and educational institutions must realize the importance of broadening the horizons of educational technology beyond its current boundaries, and cultivate a more profound understanding of pedagogical principles. The field of educational technology should aim to extend its influence and outreach beyond just teacher training institutions. Having emerged in the manufacturing sector, the technological approach represented a new level of development, the introduction of scientific achievements into practice, an increase in productivity and professionalism. Further, the technological revolution ensured the transition of technologization into the sphere of social relations,

and then into the sphere of the pedagogical process. New technology-assisted learning tools such as mobile devices, smartboards, MOOCs, tablets, laptops, simulations, dynamic visualisations, AR, VR tools and virtual laboratories have altered education in schools and institutions. The Internet of Things (IoT) is proven to be one of the most cost-effective methods of educating young brains (A. Haleem, M. Javaid, M. Qadri, R. Suman, 2022).

Higher education facilities in the field of educational technology are consistently striving to develop innovative solutions that enhance educational access for those who lack proper learning resources. Social media, when used as an educational tool, has made significant progress. A significant number of both educators and learners now incorporate social media into their e-learning experiences. It plays a vital role in the exchange of information on important subjects today. Beyond its capacity to facilitate information sharing anytime and anywhere, social media platforms also offer valuable networking opportunities, fostering social interactions and potentially creating career prospects for graduates. Integration of Information and Communication Tech-

nologies (ICT) into education has been an important concern in many countries. Recently, the Turkish Ministry of Education has also made great efforts and major financial investments to implement ICT into teaching and learning environments. However, as in many developing countries, ICT tools are provided to teachers without considering their attitudes toward ICT (B.Cavas, P.Cavas, B.Karaoglan, T.Kisla, 2009).

In most cases, the challenge for academic staff in their work is how to engage effectively with the images and technologies of the postmodern world. They must be both competent users of and innovators with technology, and moral guardians against its most superficial and trivializing effects. But this is not the only way in which teachers and their work are affected by the digitalization effect. Today, in Kazakhstan, there are abundant opportunities for exploring the potential of scientific research. Ensuring the integration of theory and practice paves the way for uncovering the genuine essence of modern pedagogical technology. In the context of journalism education, the incorporation of cutting-edge technologies presents a complex set of issues. While these technologies can empower aspiring journalists with multimedia storytelling tools, data analysis capabilities, and digital platforms for dissemination, they also introduce challenges related to media ethics, information credibility, and the evolving role of journalists in the digital age. Maintaining a curriculum that equips journalism students with both technological proficiency and a strong ethical foundation is a critical concern in journalism education today. It requires striking a delicate balance between embracing innovation and upholding the fundamental principles of responsible journalism. This study seeks to achieve the following objectives: to examine the implementation of digital technology in higher education in the area of journalism, to evaluate student satisfaction with new educational technologies, identify how do faculty members perceive the use of digital tools in teaching, and what challenges do they face in integrating these technologies into their pedagogical approaches and to make conclusion regarding the effectiveness of using of cutting-edge technologies in journalism education in general.

1 Research question: to examine the implementation of digital technology in higher education in the area of journalism

2 Research question: to evaluate student satisfaction with new educational technologies

3 Research question: identify how do faculty members perceive the use of digital tools in teaching

4 Research question: what challenges do they face in integrating these technologies into their pedagogical approaches

5 Effectiveness of using of cutting-edge technologies in journalism education

Materials and methods

For this study we used a mixed-methods approach, combining quantitative and qualitative research methods to comprehensively explore the implementation of cutting-edge technologies in journalism education in higher institutions. The research involved two distinct groups of participants: journalism students of Al-Farabi Kazakh National University and L.N. Gumilev Eurasian National University located in different regions of the country. The sample consisted of 200 students. The goal of the survey was to identify what is the level of students' satisfaction on integration of advanced technologies into their study process. It was hypothesized that the integration of innovative technologies in journalism education has a positive impact on student satisfaction. The investigation process consisted of three phases: survey design, sampling and data collection. Survey design was based on an online questionnaire, which included both closed-ended and open-ended questions. While closed-ended questions were determined to gather statistical information such as age, level of study or satisfaction, open-ended questions were designed for respondents to elaborate on given answers, make comments or share their concerns regarding technologies in education.

Sampling procedure was used to select a representative sample of 100 students from each university. To make the sample more diverse, selected students were from different study levels, social backgrounds, nationalities and gender. However, all of them were studying journalism. To make the data collection process easier and statistically accurate, it was decided to conduct the survey electronically and distribute it via social media platforms to the participants. Primarily, respondents were notified guaranteeing the privacy and anonymity of their responses. Overall, 2 weeks were devoted to the data collection process to ensure an adequate sample size.

According to the results, 78% of 200 students from two universities expressed satisfaction with the usage of innovative technologies in their studies, while 22% of participants were dissatisfied with the innovations. Open-ended questions helped to identify the reasons for dissatisfaction. From students' perspective, challenges include technical issues,

lack of pre-training and concerns about overreliance on technology. Nevertheless, most respondents highlighted advantages of innovative technologies such as improved engagement, accessibility to resources and advanced collaborative learning experience.

Hypothesis is strongly supported by the findings of this survey. However, further research is needed to identify solutions for determined problems and concerns regarding the effectiveness of technologies in education. The qualitative semi-structured interviews with twenty academicians, postdocs, were conducted. All interview partners were in leading positions as curriculum developers, program developers and researchers. In the interviews, they took a double role: they were research subjects when they answered questions about their own institutions (e.g., about the specifics of the curriculum and curriculum management) and experts when they answered questions about the wider field of journalism education (e.g., its evolution, aims and challenges in pedagogical technology).

Literature review

Literature review demonstrates that the impact of digital technology on journalism education is multifaceted, encompassing changes in curricula, student perspectives, faculty challenges, ethical considerations, and access issues. While digital technology offers exciting opportunities, it also presents challenges that must be addressed to ensure a balanced and effective journalism education. The integration of digital technology into higher education, specifically within journalism programs, has gained significant attention in recent years. This section provides an overview of the existing literature, highlighting key findings, trends, and gaps in understanding the role of digital technology in journalism education. The journalism field has witnessed a significant shift in recent decades, with digital technologies reshaping news production, dissemination, and consumption. At the same time, journalism education is undergoing changes as well.

In many countries, a growing number of educational institutions and programs lead to more competition, and in Europe the Bologna process, the European Qualification Framework and the ongoing exchange among journalism educators lead to more standardization on an international level (Nowak, 2019). Education institutions not only face the task of preparing students for a rapidly changing work environment, which is growing ever more complex.

They often find themselves in education markets with constant restructurings, adaptations and increased competition. Anderson C.W. (2018) notes that journalism education has had to adapt to these changes by incorporating digital tools and platforms into curricula. University curricula not only have become attuned to transformations in the field but also have been redesigned to further invite students to consider changes in journalism practice in light of the role and function of journalism in democratic societies (Adam, 2010). This shift aligns with the broader transformation of journalism practices towards online and multimedia storytelling (Brown, 2020).

Researchers have explored the pedagogical implications of incorporating cutting-edge technologies. Technology-rich learning environments offer opportunities for students to develop crucial skills, including data analysis, multimedia storytelling, and audience engagement. These immersive experiences enable journalism students to bridge the gap between theory and practice (Reese, 2021). While digital technologies hold promise, they also present challenges in journalism education. Faculty members may encounter barriers related to access to technology, resistance to change, and the need for ongoing professional development (Jones, 2022). Teachers must be both competent users of and innovators with technology, and moral guardians against its most superficial and trivializing effects. But this is not the only way in which teachers and their work are affected by the profusion of visual images that characterize the postmodern world (Hargreaves, 1994). The literature anticipates the increasing use of emerging technologies in journalism education. Virtual reality (VR), augmented reality (AR), artificial intelligence (AI), and data journalism tools have gained traction (Martinez & Rodriguez, 2022). These technologies offer innovative ways to teach and practice journalism, enabling students to create immersive, data-driven, and interactive news content.

Talking about the use of AI and AR technologies, they have gained prominence in journalism as tools for content generation, data analysis, and audience engagement. In the educational context, AI-driven applications offer journalism students valuable experiences. For instance, AI-based content generators can aid students in understanding automated news production processes (Carlson, 2020). AI algorithms can also be utilized for data mining and analysis, allowing students to develop data-driven storytelling skills (Stewart, 2019). Aug-

mented reality (AR) is distinguished by its ability to enhance our sensory perception of the real world by overlaying digital elements, which can be accessed through technological devices. These types of technological developments that connect virtual content with real environments (Azuma, 2017) have great potential for the generation of journalistic content. AR-enhanced field reporting simulations offer students realistic training experiences. While AI, AR, and VR hold immense potential for journalism education, challenges remain. Faculty members may lack expertise in these technologies, necessitating ongoing training. Access to high-quality hardware and software can be a barrier, especially in resource-constrained educational institutions. Ethical considerations, such as AI-driven content biases and AR/VR content accuracy, also require attention (Zhang & Wang, 2020).

The digital divide among students, based on socioeconomic factors, may exacerbate disparities in technology utilization (Chen, 2019). The connection between journalism education and the media industry has frequently been characterized by tension, as it involves issues related to their mutual autonomy, cooperation, advancements, and standards of quality. Nonetheless, the recent shift towards increased collaboration between educational institutions and media companies can prove advantageous for both parties. For example, this theory works in developing and testing innovative products in student news labs (Spillman, Kuban, and Smith 2017). The effective integration of these technologies requires a balanced approach that considers both their advantages and limitations. While challenges related to access and faculty development persist, the potential for enhancing student engagement, skills development, and innovative storytelling is evident. As the journalism field continues to evolve, understanding how to effectively incorporate and optimize these technologies remains a central focus for educators and researchers alike.

Findings

This study provides significant results for the development of digitalization in journalism education. To answer the research question 2, students were first asked to describe examples of good practice courses from their programs. Follow-up questions explored the teaching regarding the survey outcomes, both quantitative and qualitative analyses were conducted to reveal key conclusions.

According to the quantitative analysis, it was identified that most of the respondents (78%) are

completely satisfied with the use of advanced technologies in the learning process. This result confirms findings of previous research that has highlighted the potential advantages of advanced technologies in education, including high level of engagement, easy access to resources and collaborative learning opportunities. The qualitative analysis suggests that respondents were especially satisfied with various interactive multimedia content, online platforms and virtual simulations used in their studies. They emphasized that such an approach facilitated their understanding of complex concepts and encouraged active participation.

The other side of quantitative analysis revealed that 22% of participants expressed dissatisfaction with the usage of innovative technologies in education. According to the qualitative analysis, the reason for dissatisfaction is mostly connected to technical issues, which contain connectivity problems, software glitches, lack of proper training and technical support. Moreover, some students are concerned about the overreliance on technology, and they mostly appreciate a balanced approach that combines both digital and traditional methods.

In answer to Research question 1, 3, 4 the key topics of the education discourse were addressed in the interviews. Interview partners were asked about the most important skills and knowledge of journalism education should teach; about the relevance of teaching new journalism education using cutting-edge technologies, its effectiveness, comparing to the teaching of basics such as research, storytelling etc.; about what they consider as the core of a good journalism education; and about the challenges of the rapid evolution of digital media. We initially asked interviewees to describe successful courses within their programs. We then dug deeper to understand the teaching methods used and their experiences with other teaching approaches. Only after this discussion did we inquire about any innovative teaching methods they hadn't mentioned before, in line with Research Question 3. Innovative methods could include the inverted classroom, design thinking, peer group learning, and community or service-oriented learning, among others. Notably, some interviewees were unfamiliar with these methods and requested explanations.

Discussion

The primary objective of the interviews and survey were to explore how the viewpoints of various stakeholders in journalism training and education,

and students align with the global conversation surrounding suitable journalism education in the digital era. The rapid pace of technological advancement is commonly viewed as a significant obstacle in the process of digitalization. In the eyes of the interview partners the discourse and practices of journalism combine in a constant demand for new tools, the associated teaching of new technical skills and a new “mind set” (Nordenstreng, Kaarle, 2009). As per insights from the interviewees, progressive educational techniques and teaching methods are not widely adopted. Despite the frequent emphasis on the necessity for these approaches in educational discussions, methods like the inverted classroom, peer group learning, community-focused learning, or design thinking are infrequently recognized or put into practice.

It is assumed that the explanation can be found in the relationship between technological tools in journalism and educational practice: While journalism is evolving fast, education tends to lag be-

hind due to structural constraints, e.g., the implementation process for new course modules or the costs for new hard- and software. On a very general level journalism training in Kazakhstan has answered the call of digitalisation. Digital media practice and discourses are integrated into the curricula by making related skills and knowledge one of the dominant topics. In fact they have become so ubiquitous that a number of programs explicitly carry the label “digital”, such as the master programs Digital Journalism, Big data journalism, Digital Media Communication, Digital PR, and Journalism and New Media at universities like Al-Farabi KazNU for instance.

Between one quarter and almost one half of the courses which teach journalism (and not another media-related topic) center on online and social media issues in one way or another (see figure 1). To these, the courses which make no explicit reference to online and social media in the course descriptions must be added (Kirchhoff, 2022).

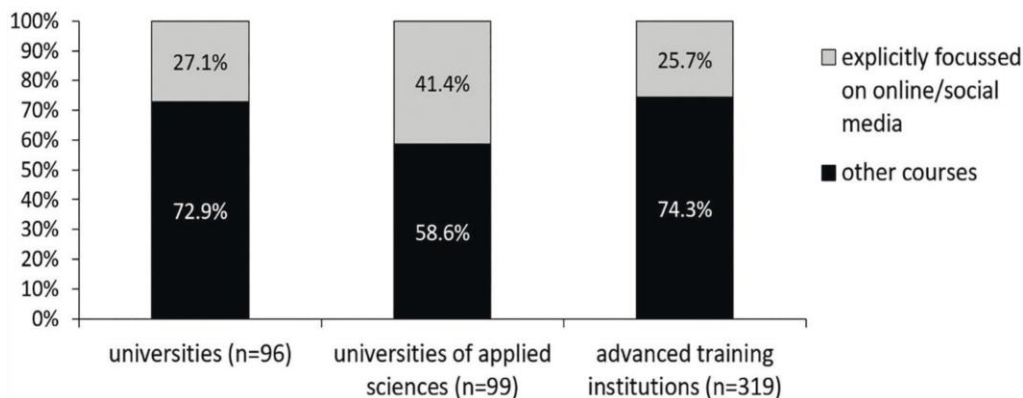


Figure 1 – Online and Social Media orientation of journalism classes (n=514).

Conclusion

Despite differences in the respective national educational landscapes, journalism education in Kazakhstan is facing similar challenges in view of digitalization and the changes in journalism that accompany it. The survey and the interviews with stakeholders from the various education and training institutions have shown that these challenges are largely perceived in Kazakhstan’s higher education system as well. The findings of this study support the hypothesis that the integration of innovative technologies can enhance the learning experience

and overall satisfaction of students. Nowadays, advanced technologies are widely integrated into journalism disciplines, which gives students an opportunity to explore the frameworks of their learning process in the digital world. For educators, the primary challenge they face in their work revolves around effectively engaging with the imagery and technologies of the postmodern era. They need to be not only proficient users of technology but also creative in its application, all while maintaining a vigilant stance against its more superficial and trivial aspects. However, the impact of digitalization on teachers and their work goes beyond this. In Kazakhstan today,

there are sample opportunities to explore the potential of scientific research, particularly in bridging the gap between theory and practice to reveal the true essence of modern pedagogical technology.

In spite of a considerable number of positive evaluations regarding the effectiveness of multimedia technologies, there is still room for improvement in the matter of some problems such as: technical issues, a lack of training, and concerns about over-reliance on technology. It is crucial to continue re-

searching and evaluating the implementation and effectiveness of innovative technologies in education. Addressing the identified challenges and leveraging the potential of these technologies will optimize their usage and ensure the best possible learning experience for students. Further research should focus on developing comprehensive training programs, enhancing technical support, and promoting a balanced approach that combines digital tools with traditional teaching methods.

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