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Optimizing The Integration Of Mobile Applications In The Training Of Future Physical Education Teachers

[1]Zokir Akramov O'tkirvich*, [1]Alisher Olimov Isokovich, [1]Baxromov Otabek Tursunovich [1]Rustam Egamberdiyev, [2]Abduvaliyev Xurshid Abdulxayitovich, [3]Akmal Taniberdiyev, [4]Sergey Eshtaev Anvarovich,
[1]Jizzakh State Pedagogical University, Jizzakh City, Uzbekistan
[2]Jizzakh Polytechnic Institute, Jizzakh City, Uzbekistan
[3]Gulistan State University Guliston City, Uzbekistan
[4]Uzbekistan State University of Physical Education and Sports, Tashkent City, Uzbekistan
Email: zokirakramov205@gmail.com*, alisherolimov6777@gmail.com, 3baxromovotabek7999@gmail.com, uraganrus@inbox.ru, xurshidabduvaliyev9@gmail.com, a.taniberdiev@mail.ru, eshtaev84@mail.ru
*Corresponding Author: Zokir Akramov O'tkirvich

Abstract:
This research focuses on improving the teaching methods of future physical education teachers by incorporating mobile applications into the educational process. With the rapid advancements in mobile technology, these tools offer numerous benefits that can significantly enhance teaching effectiveness.
One of the primary advantages of using mobile applications is their ability to foster more interactive and engaging learning experiences. By utilizing these technologies, educators can move beyond traditional teaching methods and create dynamic lessons that promote student participation and motivation. Mobile applications also provide teachers with a wide array of resources, including up-to-date pedagogical materials and research. This access enables educators to stay informed about the latest trends in education, enhancing their professional development. As a result, teachers can implement innovative strategies in the classroom, improving lesson delivery and overall teaching quality. Furthermore, mobile apps strengthen communication between teachers and students. They enable real-time feedback, promoting continuous learning and helping students stay on track with their progress. Personalized learning experiences become possible as teachers can adjust lessons based on individual student needs and performance. Additionally, mobile applications can track student progress and provide valuable data on learning outcomes, allowing teachers to tailor their approach and ensure that each student receives the support they need to succeed. By utilizing mobile technology, physical education teachers can create a more collaborative, student-centered environment that enhances engagement and makes learning more enjoyable and effective. Ultimately, the integration of mobile applications represents a powerful tool for revolutionizing physical education instruction, leading to improved student outcomes and more effective teaching practices.
Keywords: mobile applications, physical education, educational process, innovative approaches, motivation.

INTRODUCTION:

In today's society, new technologies have become essential to everyday life. Innovations in information technology offer us the ability to quickly adopt new methods for acquiring knowledge, organizing production, and structuring social interactions. Consequently, the integration of technology into our lives and the creation of new inventions have both accelerated. The education system is viewed as a key driver of global development and a critical factor for sustainable growth. Priorities currently include improving the education system, organizing it effectively, and integrating mechanisms that deliver quality education into the learning process. Worldwide, the use of mobile applications in the training of future physical education teachers has become a significant area of academic research. Numerous studies are underway to create computerized learning environments, build professional development networks for educators, and develop open educational resources such as courses and textbooks, all aimed at practical implementation. Modern students demonstrate that they are both technically and psychologically prepared to utilize mobile technologies in their learning processes. This readiness prompts the need to

explore new opportunities for more effective use of mobile devices and technologies. Addressing this challenge requires teachers to approach the educational process creatively and engage in various organizational efforts. Consequently, developing and implementing mobile education strategies, forms, and methods within higher education institutions has become an urgent issue.

LITERATURE REVIEW :

Data collection for research in physical education seems to be entering a new era. In this era, electronic data collection tools will combine with traditional measurement methods to enhance the efficiency of storing, analyzing, and transporting data.[1] The latter half of the 20th century is marked by the digital revolution and technological advancements that have transformed every aspect of society. [2]. The integration of digital technology in physical education is an important instructional resource due to its ability to enhance the teaching and learning process in ways that align with the nature of PE (Casey et al.,) [3]. For example, digital technologies such as interactive whiteboards, tablets, video cameras, electronic devices, and smartphone applications provide students with opportunities to enhance their learning and promote their independence (Hyeonho & Taemin). [4]. Recently, the use of app-integrated physical education (PE) has increased, as several apps are utilized on smartphones to enhance the teaching and learning process (Krause & Sanchez, 2014; Zhu & Dragon, 2016) [5; 6]. Experts in Physical Education have suggested that smartphone apps can enhance the quality of Physical Education in several ways: a) They can act as communication tools, serving functions such as scoreboards, whiteboards, or display platforms. b) They can serve as classroom management tools, useful for timers, music displays, and microphones. c) They can be utilized for information delivery, providing feedback, lesson plans, and assessments. d) Additionally, these apps should be personalized to meet the individual needs and skills of each student (Goodyear et al., 2019; Penney et al., 2012; Pyle & Esslinger, 2014; Sinelnikov, 2012).[7; 8; 9; 10]. Digital technology has the potential to enhance the variety of instructional strategies in Physical Education (PE) while fostering students' attitudes, knowledge, and behaviors toward a more active lifestyle. Therefore, it is important for teachers to experiment with apps that are relevant to the teaching and learning process in Physical Education (Yu et al., 2018) [11].. Previous research on the use of apps in the context of Physical Education in schools has shown several advantages, including increased motivation, improved knowledge of results, enhanced assessment, and greater student autonomy, among others (Kerner & Goodyear, 2017; Klenk et al., 2017; Phillips et al., 2014; Vega-Ramírez et al., 2020) [12; 13; 14; 15]. Schwartz and Baca (2016) [16] point out that many Physical Activity apps are based on behavioral theory and use elements of gamification for success, with personal goals and specific feedback. Lee (2018) [17] recommends using apps to facilitate students' group activities, as well as the knowledge of results. Research has increasingly shown that the use of smartphone apps is an effective instructional strategy for enhancing physical activity within the classroom and promoting leisure-time physical activity among adolescent students. This has been supported by studies conducted by Böhm et al. (2019), Brickwood et al. (2019), Gil-Espinosa et al. (2020), and Lau et al. (2011). [18; 19; 20; 21]

METHODOLOGY:

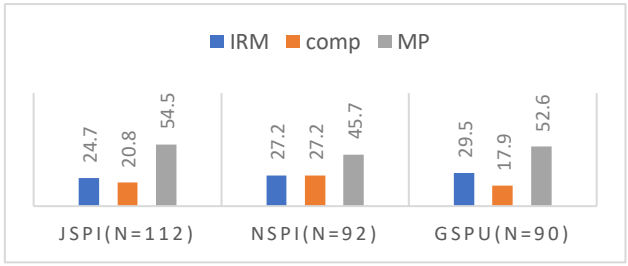
The object of the study, as a control group, is the process of using mobile applications in teaching the subject "Theory and Methodology of Physical Culture," and the experimental work involved 122 students from the Physical Culture Education department of the Jizzakh State Pedagogical Institute of the Republic of Uzbekistan. The subject of the study is the content, forms, methods, and tools of using mobile applications in teaching "Theory and Methodology of Physical Culture." The methods of the study include the analysis and review of scientific and methodological literature, pedagogical observation, pedagogical control, surveys, interviews, pedagogical experimentation, and mathematical-statistical analysis of the research results. In the process of preparing future physical education teachers, it emphasizes the integration of a correction block within the pedagogical control system at the targeted component level. This approach takes into account educational, methodological, and innovative-pedagogical activities, offering a significant opportunity for professional development. By focusing on competency-based methods, the approach aims to enhance professional and practical physical preparation, technological

proficiency, reflective capabilities, and individual development for future teachers. Additionally, the methodology is centered on mobile applications such as "Physical Culture," "Lectionsport," and " theory of physical culture and Innovative Test," which facilitate students' independent mastery of theoretical and practical knowledge. Moreover, the research highlights the systematic application of mobile technology in teaching methodologies, incorporating principles of distance learning and adjusting physical games to align with students' physical readiness. This approach is designed to improve students' theoretical and physical preparedness.[22] The methodology for achieving this has been refined, ensuring the preparation process for future physical education teachers is in line with current educational trends. This includes adhering to qualification requirements, defining educational content based on established criteria, and utilizing control and corrective tools to enhance the overall pedagogical framework.[23] Through these enhancements, the mechanism for preparing physical education teachers has been significantly improved.

RESULT AND DISCUSSION:

A survey was conducted among future specialists in the field of physical culture at higher education levels, and we studied which tools are most convenient for them to use in acquiring information and knowledge in their respective subjects (see Figure 1). According to the survey results, 24.7% of students from Jizzakh State Pedagogical Institute, 27.2% from Navoi State Pedagogical Institute, and 29.5% from Gulistan State University use information resource centers to obtain information and improve their knowledge in their fields.

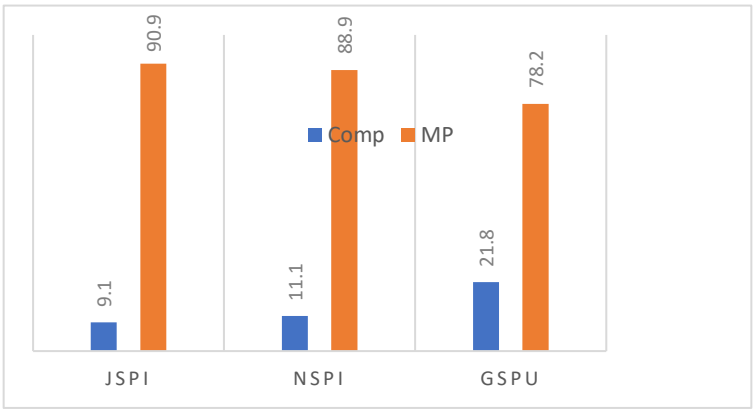
Figure 1



Note: JSPI - Jizzakh State Pedagogical Institute, NSPI - Navoi State Pedagogical Institute, GSPU - Gulistan State University, IRC - Information Resource Center, MP - Mobile Phone, comp-computer.

Among the respondents, 20.8% of JSPI students, 27.2% of NSPI students, and 17.9% of GSPU students reported using personal computers. "Figure 2 illustrates the tools used by future specialists for working in the internet system (%), based on the findings. The rapid development of information technology is bringing significant changes to this field. Mobile phones, which were previously only used as communication tools, now allow smartphones with various operating systems to perform nearly all tasks that computers do. As a result, 54.5% of JSPI students, 45.7% of NSPI students, and 52.6% of GSPU students prefer to work through mobile phones. We studied which device participants use more for accessing the internet, whether it is a personal computer or a mobile phone (see Figure 2). Among the respondents, 9.1% of JSPI students, 11.1% of NSPI students, and 21.8% of GSPU students reported using a personal computer to access the internet. According to the data obtained from the respondents, 90.9% of JSPI students, 88.9% of NSPI students, and 78.2% of GSPU students prefer to work via mobile phones.

Figure 2.



Note: JSPI – Jizzakh State Pedagogical Institute, NSPI – Navoi State Pedagogical Institute, GSPU – Gulistan State University, MP – Mobile phone.

1st Table

№	Indicators	Experimental group (n=25)	Control group (n=25)	t	P
1.	60 m sprint (sec)	9,3±0,4	9,2±1,2	2,72	>0,05
2.	Pull-ups (times)	11,3±0,5	11.8±0,3	1,12	>0,05
3.	Standing long jump (cm)	200,2±2,4	202,1±2,2	1,53	>0,05
4.	Bending the arms while resting on the floor and writing (times)	19,4±0,1	19,2±0,2	0,96	>0,05
5.	Running and long jump (cm)	360,8±1,4	358,4±1,2	1,82	>0,05
6.	5 m with a tennis ball. distance 20x20 cm. hit the target (times)	3.4±0,1	3.3±0,4	0.91	>0,05

At the beginning of the pedagogical practice, the physical preparedness indicators of the control and experimental group students (n=25) are shown (see Table 1).The following tests were used to assess physical preparedness: 1) Running 60 meters; 2) Pull-ups on the bar; 3) Standing long jump; 4) Push-ups and writing while lying on the floor. 5) Running and long jumping; 6) Hitting a target 20x20 cm at a distance of 5 meters with a tennis ball. At the beginning and end of the academic year, students from both groups underwent physical fitness control standards. The results of the research at the beginning of the pedagogical practice are presented in Table 1. From the table, we can conclude that no significant statistical differences were found between the experimental and control group students ($p>0.05$). At the start of the experiment, the students in both groups demonstrated approximately the same level of physical preparedness. The physical fitness indicators of the control and experimental group students at the beginning of the pedagogical practice (n=25) are shown in Table 1. (n=25, $\overline{X}\pm\sigma$)

2nd Table

№	Indicators	Experimental group (n=25)	Control group (n=25)	t	P
1.	60 m sprint (sec)	8,9±0,4	9,0±0,5	0,83	<0,05
2.	Pull-ups (times)	13,4±0,9	12,1±1,7	2,91	<0,05
3.	Standing long jump (cm)	218,2±3,2	208,1±2,1	2,86	<0,05
4.	Bending the arms while resting on the floor and writing (times)	25,4±1,5	22,8±1,9	2,53	<0,05
5.	Running and long jump (cm)	380,4±1.9	372,8±2.1	2.61	<0,05
6.	5 m with a tennis ball. distance 20x20 cm. hit the target (times)	4,1±0,2	3.8±0,3	2.78	<0,05

"During the pedagogical experiment's test trials, by the conclusion of the academic year, all of the students participated in the retake examination (refer to Table 2). The data presented in the table reveals that significant statistical differences were observed across all evaluated indicators. These findings strongly support the efficacy of utilizing specialized mobile applications in the training and development of future physical education teachers, highlighting the potential for technological integration to enhance educational outcomes."

CONCLUSION:

The research studied the effectiveness of using mobile applications in the training of future physical education teachers. The relevance of applying mobile technologies in teaching the subject "Theory and Methodology of Physical Culture" in higher education institutions was demonstrated. Mobile applications, including "Lectionsport" and "Physical Culture," help make the learning process effective and engaging. In the experimental group, the level of knowledge and physical fitness indicators of students were higher compared to the control group, which confirms the positive impact of integrating mobile applications into the educational process. The results of the study showed that mobile applications create significant opportunities to enhance the level of professional training and the effectiveness of knowledge acquisition.

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