

Research Article

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Smartphone Usage in the Educational Process: from Perspectives of Physical Education Students

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Abstract

Background/purpose. The study aimed to identify the use of smartphones in the educational process among university students, focusing on their advantages, impact, and associated challenges.

Materials/methods. The descriptive approach was employed in this study. The study instrument consisted of 25 items distributed over three main domains (the degree of agreement on the benefits of using smartphones for education, the impact of smartphones on the learning process, and the challenges students face in using smartphones for information retrieval) by gender and academic year. The study population consists of 648 male and female students enrolled in the Physical Education Department at Jadara University. A sample of 123 students from various academic levels was recruited and selected randomly for this study. The data were analyzed using the program SPSS.

Results. Results indicate that students generally perceive smartphones as beneficial to their learning experience, with a high level of agreement on their advantages. Smartphones were also found to have a positive impact on learning, particularly in terms of ease of access and portability. However, students reported facing challenges such as visual strain, battery life issues, and high internet subscription fees. The study also found no significant differences in responses based on gender or academic level, suggesting that university students, regardless of gender or academic year, equally recognize the educational potential of smartphones.

Conclusion. The findings underscore the importance of integrating smartphones into educational practices while addressing the challenges that may hinder their optimal use.

1. Introduction

Modern technologies of all kinds are considered effective motivators for students, as they capture attention and enhance focus on the main goal by stimulating the senses and adding an element of suspense and excitement through the use of presentations, applications, and interactive responses. The most prominent benefit that a student may gain from modern technologies is the acquisition of more continuous learning, as these technologies have been proven to overcome the element of risk of conducting experiments in the actual environment form and as experiments via electronic means can be conducted in a virtual environment with all their details of time, place, sizes, and shapes (Selwyn, 2011). Marta and Antoni (2016) claim that smartphone technology has become overwhelmingly popular worldwide, affecting all users across all age groups. Janković et al (2016) revealed that most university students spend eight and a half hours daily using smartphones. Al-Junahi (2014) stated that many universities worldwide utilize smartphones in their educational processes.

The reliance on smartphones has increased significantly in recent years due to their compact size and user-friendly interface. Their transition into tiny supercomputers with cutting-edge computing and storage capabilities has further driven the trend. Their widespread use has been facilitated by their easy access to the Internet and the variety of applications they provide.

Smartphones have become a valuable educational tool used at home, in schools, or universities, and many countries have incorporated this technology into their educational processes (Ganeshan & Vethirajan, 2022). However, to be employed effectively in education, the infrastructure and financial support must be available, and the parties involved in the educational process must be made aware of their roles in serving it (Fojtik, 2017).

In the education sector, multiple related theories have adopted modern technology-based methods of instruction, encompassing a wide range of techniques that utilize digital tools and resources to enhance the learning process, including blended learning and e-learning. These new technology-instructional methods enable teachers to impart knowledge effectively and provide engaging learning experiences by minimizing the time and effort required to convey the material (Jadallah et al., 2024).

In Jordan, the adoption of smartphones in education has contributed to transitioning from conventional methods based on indoctrination and memorization of information to modern ones centered on technology. Integrating smartphones into the educational process exemplifies the philosophy of distance education, which seeks to reach a broader audience while upholding modern educational principles. This philosophy emphasizes that students have the right to access educational resources without being constrained by time, place, cost, or a certain teaching methodology. It also fosters a more innovative and inclusive learning environment by supporting the concepts of individualized learning, the democratization of education, and students' active engagement in the instructional process.

The importance of this study lies in shedding light on the role of smartphones in the educational process from the perspective of physical education students, and to explore how students benefit from this modern technology to enhance their academic learning, whether through searching for information or communicating with professors and peers. The study also aims to examine the challenges students encounter when using smartphones in this context, including negative effects such as visual fatigue and connectivity issues. This study is particularly important in light of the widespread use of digital technology and the increasing reliance on it in modern educational systems.

The results of this study can provide valuable insights for educational institutions to develop teaching strategies that incorporate smartphones, contributing to the improvement of education

quality and the enhancement of students' academic skills. It is also expected that the results of this study will help spread the culture of self- and continuous learning within the university community through the use of smartphone applications, which enable the improvement and facilitation of the learning process and the development of students' skills at a low cost and with minimal effort. It may also contribute to developing positive attitudes among students, faculty members, and parents toward using smartphones in the educational process.

Information technology and technological advancements have brought about significant changes in every industry, including education, which has seen a true revolution due to the widespread usage of this technology, which is now accessible to everyone, particularly university students. The researchers have observed students in the physical education department at universities occasionally using their smartphones improperly, which deviates from the intended educational goals despite their best efforts to enhance the learning process. They discovered this by reviewing scientific research, prior studies (Al-Mutairi & Al-Qahtani, 2019; Al-Azzam, 2017), theoretical literature, and conversations with colleagues. This fact has urged the researchers to examine the scope of using smartphones in the educational process from the students' perspective.

1.1. Objectives

This study aimed to identify:

1. The extent to which Physical Education Department students use smartphones in the educational process, from their perspective.
2. The statistically significant differences in the significance ($\alpha \leq 0.05$) between the mean responses of the students regarding using smartphones in education by (gender and academic year) variables.

1.2. Questions

1. To what extent do students in the physical education department use smartphones in their education from their perspective?
2. Are there statistically significant differences in the significance ($\alpha \leq 0.05$) between the mean responses of the students regarding using smartphones in education by (gender and academic year) variables?

2. Methodology

2.1. Approach

The descriptive approach was employed in this study as it accurately and systematically describes the population and phenomenon. The study dealt with three main domains (the degree of agreement on the benefits of using smartphones for education, the impact of smartphones on the learning process, and the challenges students face in using smartphones for information retrieval).

2.2. Population and Sample

The study population consists of 648 male and female students enrolled in the Physical Education Department at Jadara University. A sample of 123 students from various academic levels participated in the study, which was recruited and selected randomly during the first semester of the 2024/2025 academic year. Table 1 illustrates a detailed description of the participants.

Table 1. Characteristics of the Study Sample (N=123)

	Variables	N	%
Gender	Male	61	%49.6
	female	62	%50.4
	Overall	123	%100
Academic year	Bachelor's (1 st + 2 nd year)	71	%57.7
	Bachelor's (3 rd + 4 th year)	52	%42.3
	Overall	123	%100

2.3. Instrument

The researchers followed various procedures for developing the study instrument before applying it to students in the Department of Physical Education at Jadara University: (Theoretical literature related to the subject of the study (Al-Mutairi & Al-Qahtani, 2019; Al-Azzam, 2017), the questionnaire was prepared and then presented to a specialized panel in motor learning, sports psychology, measurement, and evaluation to verify the suitability of the items for each domain, the final version of the questionnaire comprises 25 items distributed across three domains (the degree of agreement on the benefits of using smartphones for education, the impact of smartphones on the learning process, and the challenges students face in using smartphones for information retrieval).

A descriptive analysis was conducted, and means and standard deviations were computed. After converting a five-point Likert scale, a three-level rating scale was used to describe the arithmetic mean levels: (1.00-2.33) represents a 'low level,' (2.34-3.67) 'moderate level,' and (3.68-5.00) 'high level.' The Cronbach Alpha reliability coefficient was calculated for all domains of the tool to measure how frequently Department of Physical Education students use smartphones in the educational process. Table 2 illustrates that.

Table 2. Results of the Reliability Coefficient and the Internal Consistency (n=123)

Domains	(α)
The degree of agreement on the benefits of using smartphones for education	0.87
The impact of smartphones on the learning process	.091
The challenges students face in using smartphones for information retrieval	0.86
Overall	0.80

Results in Table 2 demonstrate a high-reliability value; the influence of the degree of agreement on the benefits of using smartphones for education was 0.87. And the impact of smartphones on the learning process was 0.91. The challenges students face in using smartphones for information retrieval were rated as 0.86. The total level of students' use of smartphones in the educational process reached 0.80. All of these values are considered acceptable for the purposes of this study.

2.4. Statistical Analysis

The Statistical Package for the Social Sciences (SPSS) program was employed to analyze the study data as follows: (Computing the reliability coefficient using Cronbach's alpha, calculating means and standard deviations of the students' responses, T-test to find the differences between students' responses in gender and academic year).

3. Results and Discussion

Results of the first question: To what extent do students in the physical education department use smartphones in their education from their perspective? Means and standard deviation were computed to answer this question; Table 3 illustrates that.

Table 3. Results of the Descriptive Analysis for the Use of Smartphones

Domains	M	SD	Level
The degree of agreement on the benefits of using smartphones for education	4.11	0.64	high
The impact of smartphones on the learning process	4.02	0.76	high
The challenges students face in using smartphones for information retrieval	3.81	0.80	high
Overall	3.92	0.54	high

Table 3 indicates the details about values of the arithmetic mean and standard deviations for using smartphones in the educational process from participants' viewpoints. In general, all the domains obtained a high degree. The overall value of the scale was high (M 3.92) (SD 0.54). Students in the Department of Physical Education agree that using smartphones in education has several advantages and a high impact on the educational process. Additionally, they reported a high degree of challenges facing their use of smartphones in searching and retrieving information; Tables 4, 5, and 6 illustrate that.

Students' use of smartphones for learning, as shown in Table (3) was high (3.92); this result can be attributed to their awareness of the importance of using their smartphones to obtain better learning and benefit from the capabilities of smartphones for downloading learning applications and accessing online learning, which can contribute to saving students time and effort. This result consistent with (Al-Mutairi & Al-Qahtani, 2019), that the students primarily use their phones to search for the required information through search engines, this is expected, as universities students generally use search engines to log into university systems, browse websites for further sports-related material, and look up new advertisements for tests and the academic calendar. The researchers explain this by saying that social networking applications, which enable file transfers and support audio and video communication, have rendered text messaging obsolete.

Table 4. Results of the Domain of the Degree of Agreement on the Benefits of Using Smartphones for Education

Items	M	SD	Level
A method for searching the Internet via search engines.	4.36	0.79	high
Ease and speed of access to information.	4.27	0.81	high
Ease and speed of exchanging files via smartphones.	4.26	0.87	high
Access to electronic information sources.	4.14	0.85	high
Increasing learning and research skills.	4.10	0.90	high
Increasing the number of applications for searching and retrieving information.	4.00	0.98	high

Items	M	SD	Level
Encourages the use of modern technologies in education (Teams program, Zoom program)	3.95	1.09	high
Make education more fun and easy.	3.94	1.12	high
Communicate with the teacher via text messages to ask questions about the material.	3.93	1.06	high
Overall	4.11	0.98	high

Table 4 presents the values of the arithmetic mean and standard deviations for the items within the domain "the degree of agreement on the benefits of using smartphones for education." According to the arithmetic mean values. The total degree was 4.11, and this value is considered a high level according to the scale ranking criteria. According to the researchers, smartphones are lightweight, making it easier for users to carry and use them whenever needed. This is in contrast to carrying heavy bags full of books and papers, which puts more strain on students. The researchers agree with Cavus (2010) in explaining this outcome, as motivation is the primary factor guiding students toward accomplishing their goals. Students' drive for learning is greatly boosted by using smartphones, which also helps to improve their thinking and makes them more responsible for obtaining their education.

Table 5. Results of the Domain of the Impact of Smartphones on the Learning Process

Items	M	SD	Level
The ease of carrying, compact size, and low weight of smartphones all help to simplify the learning process.	4.11	1.02	high
One can quickly and unrestrictedly access knowledge sources when learning with a smartphone.	4.10	0.87	high
Active self-learning is supported by smartphone learning.	4.08	0.90	high
Using smartphones for learning facilitates communication between teachers and students.	4.02	1.04	high
Students learn more collaboratively when they utilize smartphones.	3.99	1.00	high
Using smartphones for learning makes it easier to receive immediate feedback on assignments.	3.99	1.00	high
Using smartphones increases students' motivation toward learning.	3.82	1.08	high
Overall	4.02	0.76	high

Table 5 indicates the values of the arithmetic mean and standard deviations for the items of the domain "Results of the domain of the impact of smartphones on the learning process". According to the arithmetic mean values. The total degree was 4.02, and this value is considered a high level according to the scale ranking criteria. The researchers agree with Marta and Antoni (2016) in explaining this result, as students using smartphones increase their motivation and love for technology, and consolidate their educational materials. This result, however, does not agree with Suki (2011). It was found that the participants had negative attitudes toward using mobile phones in learning, as they believed that mobile learning would not improve the learning process.

Table 6. Results of the Domain of the Challenges Students Face in Using Smartphones for Information Retrieval

Items	M	SD	Level
Fatigue and visual strain due to using these devices for a long time	3.95	1.09	high
The need to constantly charge the device's battery	3.92	1.15	high
High subscription fees for Internet service through these devices	3.88	1.19	high
The faculty does not provide training courses on the use of these devices	3.85	1.18	high
Lack of support for mobile learning within the university	3.82	1.05	high
Lack of knowledge of the information services provided by these devices	3.77	1.10	high
Difficulty obtaining appropriate technical support	3.74	1.10	high
Difficulty in identifying appropriate applications for education and research	3.71	1.22	high
Lack of knowledge of the optimal use of these devices in searching for information	3.69	1.15	high
Overall	3.81	0.80	high

Table 6 presents the values of the arithmetic mean and standard deviations for the items in the domain "the challenges students face in using smartphones for information retrieval." According to the arithmetic mean values. The total degree was 3.81, and this value is considered a high level according to the scale ranking criteria. The researchers attribute this result to that students faced challenges in using their smartphones to search for information regarding their learning, among these challenges are fatigue and visual strain due to using these devices for a long time, the need to constantly charge the device's battery, and high subscription fees for Internet service through these devices, where the least challenge students encounter is the lack of knowledge of the optimal use of these devices in searching for information. This result is consistent with (Al-Omari, 2014). The researchers attribute these results to the small number of courses, lectures, and seminars that students benefit from for the optimal use of smartphones.

Results of the second question: Are there statistically significant differences in the significance ($\alpha \leq 0.05$) between the mean responses of the students regarding using smartphones in education by (gender and academic year) variables? Tables 7 and 8 illustrate that.

Table 7. The Mean Responses of the Students Regarding Using Smartphones in Education by Gender Variable

Domains	Gender	M	SD	T	P
The degree of agreement on the benefits of using smartphones for education	male	4.15	0.66	0.645	0.283
	female	4.07	0.63		
The impact of smartphones on the learning process	male	4.08	0.73	0.900	0.834
	female	3.96	0.79		
The challenges students face in using smartphones for information retrieval	male	3.65	0.90	0.135	0.168
	female	3.63	0.68		
Overall	male	3.96	0.54	0.701	0.844
	female	3.89	0.55		

Table (7) indicated the values of the arithmetic mean and standard deviations and t-test for independent samples for the students regarding using smartphone in education, the t value was (0.701), the p-value of the total score was (0.844) compared to the significance value of 0.05; it becomes clear that these values are higher, indicating the differences between the mean scores were not statistically significant by gender variable. The researchers attributed this to the fact that both male and female students use smartphones to complete assignments and are fully aware of the benefits and drawbacks of using them in the learning environment. This result is consistent with those of Al-Azzam (2017) and Al-Anzi (2012). This was not consistent with Jaber and Al-Titi (2016), as statistically significant gender differences were evident, favoring females.

Table 8. The Mean Responses of the Students Regarding Using Smartphones in Education by Academic Year Variable

Domains	Academic year	M	SD	T	P
The degree of agreement on the benefits of using smartphones for education	Bachelor's 1 st +2 nd year	4.12	0.62	0.385	0.448
	Bachelor's 3 rd +4 th year	4.05	0.82		
The impact of smartphones on the learning process	Bachelor's 1 st +2 nd year	4.03	0.76	0.483	0.437
	Bachelor's 3 rd +4 th year	3.92	0.77		
The challenges students face in using smartphones for information retrieval	Bachelor's 1 st +2 nd year	3.64	0.82	0.011	0.131
	Bachelor's 3 rd +4 th year	3.64	0.57		
Overall	Bachelor's 1 st +2 nd year	3.93	0.54	0.352	0.916
	Bachelor's 3 rd +4 th year	3.87	0.58		

Table (8) indicated the values of the arithmetic mean and standard deviations and t-test for independent samples for the students regarding using smartphone in education, the t value was 0.352, the p-value of the total score was 0.916 compared to the significance value of 0.05; it becomes clear that these values are higher, indicating the differences between the mean scores were not statistically significant by academic year variable. The researchers attribute this to the fact that university students are typically mature and recognize how to use their phones for educational purposes and have the right attitudes. This finding is consistent with the study by Al-Azzam (2017) and Younis (2013), which emphasized that the most significant advantage of mobile phones in education is that they foster a sense of independence and promote self-learning among students at their own pace.

4. Conclusion & Recommendations

We conclude from this study that smartphones play a significant role in the educational process from the perspective of physical education students at Jadara University, as they utilize them to access information, communicate with faculty members, and engage academically. We also conclude that they have a negative impact if used incorrectly and for extended periods. The researchers recommended using smartphones effectively in the educational process and motivating students to leverage the beneficial characteristics of smartphones. And organizing the training sessions to encourage students to use smartphones in the educational process.

5. Limitations & Funding

The generalizability of the results of this study is limited to the students in the physical education department at Jadara University, as well as the instrument and methodology used. This study was

conducted in the first semester of the academic year 2024/2025. The study did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declarations

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