

## The implementation of smartphones in the instructional process in the views of the female students at Hail University



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### ABSTRACT

This study aims to examine the implications of implementing smartphones in the educational process in the views of students at the University of Hail. The descriptive survey method was used in the research. To achieve the goal of the research, a questionnaire was prepared regarding the degree of use of smartphones in the learning process which is consisted of 20 paragraphs. The research sample was the female students at the University of Hail. It is found that the overall degree is medium as the arithmetic average is 3.34 with a standard deviation of 0.28. It was concluded that students are prodigiously interested in reviewing the university sites. Moreover, it was found that students are immensely skilled in using smartphones for the exchange of electronic messages and the exchange of information. However, they are less interested in submitting electronic assignments. Few students are watching educational presentations on smartphones because of their small size screens and high drainage from the batteries. Therefore, it is highly recommended to conduct experimental studies showing the importance of using the smartphone.

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### 1. Introduction

Contemporary societies have faced many defining challenges that have affected the nature of life. It is done by the way which functions the internal working of their various institutions. The concept of education and learning are directly and indirectly affected by the development taking place in this field. It manifests in the emergence of many new forms of education systems. The most prominent of which are mobile learning systems. As a result of the rapid and significant development of educational technology over the past two decades, there is a clear change in communication (Sari, 2009). It is one of the most influential means of communication. Owing to these technological advances, information technology has emerged to obtain data, process it, store it, restore it, and employ it, in making decisions. A myriad of mobile phone applications has been developed to make it possible to transfer the instructional process outside the classroom within the framework of temporal and

spatial freedom (Mahdi, 2008). With the technical development, the mobile phone has appeared as one of the communication tools that depend on the radio waves via broadcast towers. Moreover, the phone is no longer only a means of communication with the rapid technology development. Rather, its use and applications have extended in this present age. It affects all aspects of life at home, school, and university. Many flourished countries have benefitted from this technology in the field of education.

Today, we can use mobile phones in the educational process through the provided technologies and services. It gives new opportunities for traditional learning in the classroom. The use of mobile phones in education is a new form of distance education system. To use mobile phones efficiently and actively, infrastructure must be available. Mobile learning uses mobile devices in the processes of education, training, and support for work at a job. It allows supervisors, lecturers, and teachers to provide their educational training and professional materials on different cell phone devices. It also allows students to follow training exercises, self-learning, and career guidance in work through mobile devices. Essani (2014) has indicated that the entry of smartphones into the lives of individuals is a real revolution that has brought about structural changes in communication operations. It has provided its users with a possibility of changing the

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choice and free interaction with the users. It has worked to shorten the distances between users and save time. Its use is not limited to communication-related to private life and business only. Rather, it is extended to include a wide range of social activities for the individuals. These are making phone calls, sending emails, and writing text messages i.e. Short Message Service (SMS). Moreover, there are other applications and services such as General Packet Radio Service (GPRS), Global Positioning System (GPS), games, movies, camera, and memory for storing documents and photos, watching television (TV), and listening to the radio.

There is a considerable increase in the number of smartphone users across a wide spectrum of social backgrounds. People from different walks of life use smartphones for different purposes. In particular, young people seem to be fond of such technologies (Mackay and Weidlich, 2007). However, many previous studies have indicated that the use of smartphones among the youth is not subjected to family or institutional guidance. Despite the many positive aspects of using smartphones, these have many undesirable effects on the lives of university students like other young people. These are used and overused for non-educational purposes. This research has found that many recent studies have dealt with the topic of social communication networks and their use among university students. But, these studies were not primarily concerned with smartphones and their uses (Nimer, 2016). Hence, there is a need to make studies on smartphones and their use in education and learning for university students. The importance of this research lies in knowing the reality of the implementation of smartphones in the process of learning of students at the University of Hail. This study aims to research the aspects which may enrich the field of educational research in mobile education, especially in university learning through smartphones. It may open the way for other researchers, especially those interested in modern technological tools. It may contribute to shed light on how to take advantage of what we carry from our hands on our phones to make a qualitative leap in the field of education, instead of using them only to send and receive phone calls.

## 2. The reality of using smartphones for education

The agreement between the manufacturers of mobile phones did not take place on a unified definition of the smartphone. Generally, it is known that the smartphone is the phone that provides the advantages of surfing the internet, synchronizing e-mails, opening Microsoft Office files, and it contains a full keyboard. But the most correct and most accepted definition today is that it is the mobile that works on one of the operating systems such as Windows Mobile, Symbian or its derivatives, Linux or its derivatives, and BlackBerry. These have been known as smart device learning through the techniques these have used. It is learning using mobile phones or wireless devices (Aderinoye et al.,

2007). Hosler (2013) defined mobile learning as the learning that allows the learner to navigate using handheld devices (smartphones, iPhones, iPads, and MP3 players) and wireless internet access. The learner can move flexibly across time and space to access learning content, information, and discussions necessary to learn anywhere and anytime. It is noted that it focuses on exploratory characteristics. The structural nature of mobile learning and focus on the learner is the educational process.

The researcher believes that it is possible to say that all the previous directions in the definition of learning smartphones are validated. Each definition means something different from the point of view of each researcher. However, it can be said that learning with smartphones includes three dimensions. These are mobility, the fact that devices are present everywhere, and finally the personalization. It is the learner's motivation to actively participate in the learning process. These are the justifications for using the smartphone in the education process. Several justifications lead to the use and implementation of mobile phones in the educational process. The most important of which is the growth in the use of smartphones. The world has resulted in the fact that portable technology devices in the present era have become technological tools that do not leave their users over a day or a night. Moreover, this technology has become cheaper and the number of its users has increased. The cost associated with the devices has become reasonable and the mobile phone has turned into one of the most famous devices. The device is used only for a certain category of individuals to the essential thing that cannot be dispensed. Numerous studies have emerged that the mobile phone is the most used technological device. We use the keys, the wallet, and the mobile phone. When the mobile phone appears, its users have been multiplied with the growing communication revolution. The features of the mobile phone were invested by developing files and software that transformed educational programs. It can be read and installed to reach a large number of students.

## 3. The relationship between smartphone learning and e-learning

It is one of the most controversial issues. Some researchers think that mobile learning is one of the forms or approaches of e-learning that rely on mobile computing. They believe that advanced mobile devices can provide electronic content using the means of communication with the web and navigation through Bluetooth. Otherwise, Basyouni (2007) believed that mobile learning and e-learning are two different concepts that require two approaches. He finds that mobile learning can only be presented through devices and technologies related to its special strengths and weaknesses. Moreover, he believes that design requirements related to e-learning in general in the context of mobile learning cannot be applied.

#### 4. Benefits of mobile phones in the educational process

The teacher may use mobile technology for the distribution of class tasks among students. It also facilitates increasing the interaction between students and teachers and it can be used without the restriction of time and place. It may also reduce the dropout ratio of students because of the convenient way of communication. It improves the motivation of learning among students and students are more committed due to this technology. It facilitates education from the home and the SMS facility helped the education process with faster communication of messages with ease. In addition, e-mail can also be done with help of mobile, which may help in deciding the schedule of academic activities, which facilitate the teachers (Salem, 2006). It is a source of direct communication among all stakeholders of the educational process including parents of students and teachers. The parents are also facilitated as they can have the progress report of their children directly and immediately, which may help to up bring the educational performances of students. It also facilitates the communication about absent, excuse or latecomers in the class and emergency situation can be dealt with easily with a help of mobile technology. The direct communication of teachers and parents facilitates the parents to understand the remedies in case of students' failures. These remedies would reduce the chance of failure among students. It would particularly help the university students with a great geographical distribution and distances to continue their studies. Mostafa (2017) argued that mobile technology would support in case of urgent announcements or any administration-related decisions such as changing exam dates, submission of homework, and any type of excuse in terms of absence from class or of a delay in homework.

#### 5. The services and advantages of the smartphones

Smart devices and tablets have invaded markets, homes, and even schools. It is necessary to take advantage of these modern technologies to benefit our children and students in their academic achievement. We may take the motivation factor that most of them use in their devices within the classroom and the long time wasted in front of them. The most important advantages of mobile education are discussed by making it necessary in the process of learning and teaching. It increases the motivation of the learner. Studies have shown that students achieve greater proportions of instructions when using smart devices. The technology facilitates the process of their responses to lessons and consolidates their educational materials in the long run. It creates a sense of independence for the learner. A person can learn the way that suits him as per his love for educational materials according to his inclinations, abilities, and free time. It urges

communication between the learner and the teacher. Learning using the mobile phone ensures the continuity of the learning process and the acquisition of knowledge and skills from childhood to a late age, whether inside or outside the classroom during the study. By providing the opportunity for educational interaction in new forms inside and outside the classroom, mobile learning can be of all forms of interaction and communication between the learners. It makes the learner free from time and space limitations. Most students today have advanced smart devices or mobile phones at a relatively low cost compared to desktop computers. This is an important feature that is unique to mobile learning, and therefore learners can learn anywhere.

Mobile phones can accomplish many educational tasks through available technologies. The most prominent of these technologies are summarized here. It possesses a web service, which is a Wireless Protocol. It is a collective standard that includes specifications and rules agreed upon by a group of companies. It helps the users to access the internet wirelessly using portable wireless devices i.e. a mobile phone. It transfers a program that converts internet pages designed for the computer to make it small in a way that suits the screens of the mobile phone or other devices. The first is mobile devices, such as phone devices, pocket accounts, and smart devices, for accessing the internet. The second is for computers and the internet. It also possesses Short Message Service (SMS). It is the way for mobile phone users to exchange short text messages and information between them so that the single letter does not exceed 160 characters. The short message service is economical, entertaining, and an easy way to contact another person on his mobile phone anywhere. The Bluetooth service is also available. It is a wireless technology that connects a group of mobile communication devices with short-term links such as a mobile phone with a computer to exchange files, data, and information between these wirelessly. It facilitates the educational process and increases communication between the students and the teachers by establishing the teacher in the immediate evaluation and response mode to the students' inquiries. There is another service called Multimedia service (MMS). It allows the user to send and receive MMS. It facilitates to exchange of text messages, animations, images, and video clips. Moreover, General Packet Radio Service (GPRS) is a very new and innovative technology. It allows mobile phones to enter the internet quickly. It is the ability to receive data and files, store and retrieve them wirelessly and quickly and enter the largest amount of information available at the lowest cost.

Mobile learning is categorized by a set of characteristics. It differs from learning the traditional classes, the educational activities depend on linking with time and space through which the rich environment provides the tools that support a lifelong learning context by providing high mobility (Heba, 2016). The most prominent of those characteristics are mentioned here. It allows

interaction easily between the parties of the educational process. Learning with mobile makes it easy to exchange messages between learners through SMS or MMS. It facilitates the exchange of files and e-books between learners. This is also done by using Bluetooth or infrared technology. It is just as easy as other e-learning styles. The learning takes place every time and place. This is not necessary to be present in specific places or at certain times to learn, as it is not required to sit in front of desktop computers. E-learning has carried traditional education systems outside of schools and universities. Education on the mobile phone has taken education far away from any fixed pick-up. It helps in achieving the participation and cooperation that transcends the geographical distance between students with each other, and between them and between their teachers. It offers freedom in education inside and outside the walls of educational institutions and classrooms. It provides high and fast access capabilities. These are through the existing services available in mobile phones, especially modern ones. It is possible to obtain and access information and educational data as quickly as other media. It comes through internet services or even the exchange of messages between learners themselves or between them and the teacher. It stipulates the ease of mobility and movement during learning. The small size of mobile phones facilitates the process of movement during the education process. In a comparison of a load of instant learner bags, organizing the flow of features makes it easier to carry it than the learner's instant bags.

Some previous studies related to the topic of learning using a mobile phone are presented here. It considers the arrangement from the oldest to the most recent. It presents what was included in each study in terms of purpose, sample, and performance. Some of the findings are discussed here. [Walsh et al. \(2008\)](#) tried to relate education and mobile phones. It has demonstrated the negative effects of mobile learning. They have conducted a study aiming at identifying psychological factors that are related to the mobile use of Australian teenagers. The sample of the study consisted of 32 students who were between 14 to 16 years old. They have participated in deep discussions. The analysis of its content was aimed at knowing the psychological consequences of using the mobile and the way it turns into an addiction. The results have shown that many students are attached to phones with behavioral symptoms indicating the addiction to their use. Similarly, [Shuler \(2009\)](#) has conducted a study. Through this study, he was able to monitor the challenges facing mobile devices and education. It has identified a negative aspect that it takes a long time for the learner in front of the screen. Also, it is difficult to monitor the learner while learning and to provide an area of dispersion in ideas. With a focus on learning colloquial languages and using devices to facilitate exams, it was found that learners use to cheat by entering the answers sites or receiving answers from abroad. It is also used in

entertainment and it threatens privacy in the data sent from the school to the learners. On contrary, it is represented in cultural trends, which is a feeling among parents and some members of society that the apparatus distance learning is from other interests. The other aspect is the absence of a theory. Moreover, it is difficult to track the rapid development of technologies used in wireless communications by teachers or parents. Besides, it is the variation in program design where it was intended for the desktop computer, but these programs were reduced to suit the mobile. [Suki and Suki \(2011\)](#) aimed at knowing the extent to which the learner accepts the idea of using technology through the mobile phone. The research has prepared a questionnaire from five open questions distributed to a sample of 20 students at the professional university in Selangor, Malaysia. Its results have shown that learners have not cared to use the technology of mobile education. They are more composed to use the lectures pictorial or face-to-face learning. The study has concluded that learners have not seen any improvement that could occur in the process of mobile education. Rather, the learners have shown a negative trend for this technology. [Al-Hazali \(2013\)](#) has performed a study aiming at identifying the reality of mobile phones' use by the students at the College of Education at King Saud University for social networks in teaching and learning. The study has focused on the impact of social networks in the development of female students learning and the extent of their viewpoint change in the effectiveness of using social networks in the learning process. The educations according to the variable of specialization and the results have shown that 73% of the sample students have used networks and that 27% have not used these. Moreover, it was found that 75.7% of networks have been contributed to enriching the cognitive outcome in their specialization and have shown the importance of networks in social communication. They have also affected the formation of research groups for about 87% of them. Whereas, 72% of the sample was observed in social networks which is an important and rich source of useful scientific and research information. It is aimed to reveal the degree of the above-university learner's use of effective learning applications. The study has included a request for postgraduate studies at Yarmouk University and the obstacles to their use. It has attempted to know the impact of variables i.e. specialization, age, gender, level, and rate of use. The research has used the survey descriptive approach in conducting the study. It was included a sample of 342 students from the Faculty of Education at Yarmouk University. A questionnaire was designed to collect information consisting of 43 paragraphs, which were distributed to the three sections. It was distributed among three departments in the college using a random sampling technique. The results have shown that the degree of using applications has come to an average arithmetic mean of 3.23 with the presence of human handicaps. The most important



of which is that the university laws and regulations have prohibited the use of mobile phones during lectures. Whereas, the presence of financial constraints has represented in the high participation fees in favor of internet networks with the presence of statistically significant differences at the level 0.05 in the rate of use in favor of the daily use of mobile learning. It shows the absence of statistically significant differences at the level of 0.05 in the rest of the variables.

## 6. Methodology and procedure

To achieve the goals of the research, the theoretical and educational literature and studies, and periodicals related to the current research topic were reviewed. It is a field study from the viewpoint of students at the University of Hail. The research has used the survey descriptive approach. The research was limited to 100 female students from the University of Hail in the Kingdom of Saudi Arabia. It was performed during the second semester of the academic year 2019/2020. The research tool was a questionnaire, which was prepared to collect the research data. It included a set of demographic variables as the first part of the questionnaire. The second part contained paragraphs to know the reality of the employment of students at Hail University for smartphones in the educational process. A description of this tool consists of 20 paragraphs.

To verify the reliability of the research tool, the researcher has presented the questionnaire in its initial form to several specialists in the field of educational technology, curricula, teaching methods, educational psychology, and information technology by expressing their opinions and suggestions about the vocabulary of the questionnaire. The paragraphs were also judged by professors with expertise and competence, and the researcher has considered their observations in the implementation of all proposals and amendments made by the arbitrators of the questionnaire. Moreover, the stability of the research tool was confirmed by using two methods. First is the internal consistency method, which was applied using the Cronbach-Alpha equation. It was found that the Cronbach-Alpha coefficient is 0.84. The second is the test-retest method. The questionnaire was applied to 20 individuals from outside the research sample before final use.

The Likert quintet scale has been used because it is considered one of the most widely used scales. It is easy to understand and balance its scores. The members of the sample subjected to the test indicate the degree of their agreement to each of the variables. A very large, large, medium, few, and very few are correspond to 5, 4, 3, 2, and 1, respectively. Accordingly, the standard of judgment i.e. the low, intermediate, and high levels will be 1-2.33, 2.34-3.67, and 3.68-5 respectively. Table 1 shows the extent of use of smartphones in education by students at the University of Hail.

**Table 1:** Extent of use of smartphones in education by students at the University of Hail

No.	Criterion	Arithmetic Average	Standard Deviation	Rank	Degree of Use
11	View the university announcements from the university's website.	4.01	0.58	1	High
2	Use of a smartphone to exchange electronic messages.	3.96	0.55	2	High
3	The extent of using the smartphone to access social networks.	3.90	0.69	3	high
20	Finding smartphone education more useful than the traditional method.	3.86	0.67	4	High
19	The use of a smartphone to maintain continuity of interaction between the parties to the educational process.	3.77	0.75	5	High
18	The use of a smartphone brings freedom to learn outside the educational institution.	3.69	0.91	6	High
1	Use a smartphone to access learning resources such as search engines and digital libraries.	3.41	0.84	7	Medium
12	The use of a smartphone supports the learning process and considers the individual differences of the learner.	3.39	0.88	8	Medium
7	Using a smartphone to exchange text messages with colleagues for educational purposes.	3.37	0.85	9	Medium
16	Using the smartphone to record lectures with audio or video.	3.32	0.88	10	Medium
4	Using the smartphone to access blogs, forums, and private sites for educational purposes.	3.28	0.97	11	Medium
10	Save the educational information and use it in need on my mobile phone.	3.27	0.97	12	Medium
15	Use of the smartphone to record distances.	3.26	0.94	13	Medium
14	Using the smartphone to coordinate the dates of lectures, tests, and assignments.	3.24	0.84	14	Medium
6	Using a smartphone to take pictures and videos of the educational process.	3.23	0.87	15	Medium
8	Use a smartphone to browse books and studies as pdf or word files.	3.17	0.74	16	Medium
17	Using a smartphone makes it easy for the learner to access information.	3.04	0.68	17	Medium
9	Use of the smartphone to send announcements and urgent news to colleagues.	2.84	0.93	18	Medium
13	Using a smartphone to deliver the interface and follow up on the feedback.	2.52	0.59	19	Medium
5	Smartphones use for presentations and educational films.	2.31	0.76	20	Low

It is noted from Table 1 that the degree of use by students at the University of Hail for smartphones in education was average where the first rank was

paragraph 11. It states, "See the university announcements regarding the university's location" with an average score of 4.01 and a standard

deviation of 0.58. As a result of students' interest in reviewing the site and looking at various matters such as the university calendar and the presence of courses or exam dates, these are consistent with the result of the study of the tigress (Nimer, 2016). Paragraph 2 was ranked second. It states, "The use of a smartphone to exchange electronic messages" with an average score of 3.96 and a standard deviation of 0.55. It stands with a high degree and indicates the skill of the students and their accreditation using the smartphone for the exchange of electronic messages and the exchange of information. Paragraph 13 is the penultimate ranked. It states, "The use of a smartphone to deliver duties and follow-up feedback on them" with average arithmetic of 2.52 and a standard deviation of 0.59 which is of moderate degree. This result may be due to the low interest of all students in submitting their electronic duties. Their dependence on the traditional method is greater. This result is consistent with the results of the study of the tigress (Nimer, 2016). The last rank is paragraph 5. It states, "The use of smartphones for shows on academic and educational media" with average arithmetic of 2.31 and a standard deviation of 0.76 which is of a low degree. This result is due to the small number of students using the smartphone to view presentations and educational films. The reason may be due to the small size screen of the smartphone. The reason may be due to high drainage from the battery to watch these shows and films. These results are also consistent with the results of the tigress (Nimer, 2016).

## 7. Conclusions and recommendations

The results have revealed the reality of the implementation of smartphones in educating female students at the University of Hail in the Kingdom of Saudi Arabia. The paragraphs were ranked in high, medium, and low grades. It is found that the overall degree is medium as the arithmetic average is 3.34 with a standard deviation of 0.28. Among the high grades, paragraph 11 is ranked at the highest with an arithmetic average of 4.01 and a standard deviation of 0.58. It indicates the students' prodigious interest in reviewing the site and looking at various matters such as the university calendar, subject courses, and exam dates. The second-highest paragraph 2 is ranked with a high degree too. Its arithmetic average is 2.52 with a standard deviation of 0.59. It indicates the eminent skill of the students using smartphones for the exchange of electronic messages and the exchange of information. The second last ranked paragraph 13 is also of moderate degree with an average arithmetic mean of 2.52 and a standard deviation of 0.59. It indicates the little interest of students in submitting their electronic assignments. They rely more on traditional methods of submissions of assignments. The last ranked paragraph 5 is low degree with an average mean of 2.31 and a standard deviation of 0.76. It indicates the small number of students using smartphones to watch presentations and educational films attributed

due to their small size screens and high drainage from the battery of smartphones.

Based on the results of this research, the research recommends holding special sessions for each of the students to employ and to use smartphones in the educational process. There is a need to conduct experimental studies showing the importance of using the smartphone in teaching and learning. It is essential to inform the results of this research to the students at the University of Hail. It may benefit in raising the awareness of the degree of use of smartphones in the teaching and learning process.

## Compliance with ethical standards

## Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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