




A Comparative Study of the Effectiveness of Using Padlet in Distance Learning: Viewpoint of Postgraduate Students

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Abstract

This study focuses on Padlet and discusses some of the ways in which this web application may be used to facilitate interaction and collaboration in distance learning of Postgraduate students at two Jordanian universities. The use of Padlet is summarized in six domains: research resource gathering, class resources, class diary, FAQ, brain storming and online dialogue. In the spring semester of 2020-2021, the researchers developed an attitude scale that consisted of 20 items. The scale satisfied the validity and reliability tests. A sample of 88 participants from both universities was chosen randomly. The results showed a highly positive attitude towards Padlet as a mobile online interactive and collaborative tool. In addition, the results showed a significant difference in means of the university variables. However, there was no significant difference between the means related to gender. The study recommends training staff members on using Padlet in distance learning sessions to increase interactive and collaborative learning.

Keywords: Using padlet, Distance learning, Attitudes, Postgraduate students, Mobile learning, Web applications.

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Contribution of this paper to the literature

The study adds information and knowledge to literature on the effectiveness of using the Padlet application in distance learning for postgraduate students, and reveals the strengths and weaknesses of its use during the educational process, and the extent to which this can be generalized at different stages of study.

1. Introduction

The world is witnessing rapid global technical developments in various fields, and with the spread of the Corona pandemic (COVID-19), interest in technical aspects and digital means of communication has increased, especially in the education field. Distance learning has become a mandatory requirement in all educational institutions to ensure the continuity of learning at all education levels. Consequently, educational institutions in all countries of the world have begun competing to provide educational platforms and adopting electronic applications and programs to achieve their educational goals. Smart mobile devices and their applications have become an integral part of people's lives. These have contributed significantly to bringing about enormous changes and opening global communication channels without the presence of space or time barriers. Learning has become diversified and available to everyone through internet networks and the applications of smart mobile devices, through which most learning activities can be practiced on one's own or through the teacher inside and outside the boundaries of the educational situation.

The recent development and progress of smart mobile devices has led to a noticeable increase in demand for them due to the electronic services and applications that come with them, which contribute significantly to the improvement of the educational process. These applications are simple programs that can be run on smart phones and mobile and portable devices to provide instant interactive means through which information can be obtained in innovative ways and used in the educational process or in various other areas of life such as in social communication. On the other hand, the area of privacy has shrunk in the process and the number of hours consumed by the digital world has increased at the expense of the lives of individuals (Al-Mobaideen, 2021).

As a result of these developments, interest and focus have increased on what is known as "mobile learning." Amin and Al-Halfawi (2008), defined mobile learning as the act of using hand-held digital devices connected to wireless networks, to engage in learning activities at any time or place. Kukulska-Hulme and Shield (2008) further defined mobile learning as learning through mobile wireless devices in a participatory learning situation that is not restricted by place or time. Through these definitions, it becomes clear to us that mobile learning creates a stimulating learning environment through the use and employment of easy-to-use applications to achieve the intended educational goals. The applications of smart mobile devices that can be used in mobile learning are numerous and widespread. Among the many applications that have entered the education field is Padlet, which is a free, easy and enjoyable participatory technical tool that allows for the participation and cooperation of learners with the teacher in a visual way for everyone at all times. It is not required to be used in the education field but this study reveals the effectiveness of using Padlet in the educational process in university distance learning programs in both Amman Arab University and the Arab Open University, and the comparison between the two from the viewpoint of graduate students.

2. Problem Statement

The researchers' experiences while teaching in universities before and during distance learning practices and the differences they observed in the motivation of students towards learning revealed that students were in favor of face-to-face learning over distance learning. Educational institutions faced great challenges during the spread of the Corona pandemic, which included weak motivation among students and their follow-up on distance learning practices and the lack of interaction during synchronous and asynchronous meetings. In order to face these challenges, institutions began to compete among themselves to search for solutions to overcome these challenges, the most prominent of which was the use of interactive and participatory electronic applications and reliance on mobile learning, to encourage students to learn and contribute towards achieving interaction and increasing their motivation towards distance learning practices. Among the applications that were relied upon and employed in teaching postgraduate students at universities was the Padlet application, which was an attempt to encourage student classroom interaction and motivation, to create a participatory environment that ensures the continuity of learning during synchronous and asynchronous meetings.

The problem identified in this study can be addressed by answering the following questions:

Question 1: What is the effectiveness of using Padlet in distance learning from the viewpoint of graduate students at Amman Arab University?

Question 2: What is the effectiveness of using Padlet in distance learning from the viewpoint of postgraduate students at the Arab Open University?

Question 3: Are there statistically significant differences at the level ($\alpha = 0.05$) between the means of sample's responses on the scale of the effectiveness of using Padlet in distance learning based on the variables of university / gender?

3. Research Significance

The theoretical importance of the current study is highlighted through its contribution to related literature on distance learning and the importance of using faculty members in universities to apply Padlet in the educational process; this was implemented remotely during the second semester of the academic year 2020-2021 and the viewpoints of graduate students were recorded.

This study will be useful in revealing the strengths and weaknesses of employing the practical application of Padlet in university distance teaching practices and its effects on the motivation of graduate students towards learning, and how to improve and develop the use of this application in direct and indirect educational meetings.

4. Research Terms and Definitions

- **Padlet application:** A participatory web-based electronic application that can be used via computers or mobile devices, and allows the students to share their ideas by creating virtual walls and digital posters bearing specific titles with attractive backgrounds, and positive interaction with their colleagues and teachers at any time and from anywhere.
- **Mobile Learning:** It is about learning concepts and skills related to master's courses through the Padlet application via mobile devices in a distance learning environment.
- **Distance Learning:** It is intended for master's students at Amman Arab University and the Arab Open University to attend lectures scheduled for them in university courses during the semester through virtual classes via Zoom application without having a face-to-face meeting between the faculty members and the students, or between the students themselves.
- **Students' attitudes towards the use of Padlet:** A state of mental readiness that directs the assessment or response of students to the use of Padlet during university distance learning, and it is measured by the degree obtained by the sample members after their responses to the study tool, which is the scale prepared by the researchers.

5. Research Limits

Spatial Limits: Amman Arab University and the Arab Open University in Jordan.

Human Limits: Graduate students in the College of Educational Sciences for both Amman Arab University and the Arab Open University in Jordan.

Time limits: This study was applied in the second semester of the academic year 2020/2021.

The current study was limited to generalizing the results to the study sample, and to the tools used in the study in light of the validity and reliability of the tools, and therefore it is not possible to guarantee obtaining the same results when other tools are used.

6. Literature Review and Previous Studies

The Corona pandemic has caused several changes to the educational process, including changes in educational institutions' approaches to education by adopting learning management systems, which are at the heart of e-learning. This change facilitates providing educational content via the Internet, through which information for students and parents can be updated. To teach lesson contents electronically, educational institutions use educational platforms such as: Canvas, Blackboard, Moodle and Google Classroom. Among the tools adopted by these institutions during the pandemic are virtual conferences and electronic interaction tools (applications) such as Nearpod, Mentimeter, Live worksheets, Padlet and Kahoot, which help increase interaction during simultaneous learning sessions. They also allow teachers to assess their students during learning by asking questions, implementing interactive activities and using the white board to explain concepts and educational materials (Ilhan, Kaba & Sin, 2021; Lassoued, Alhendawi & Bashitialshaer, 2020; Nenko, Kybalna & Snisarenko, 2020).

In addition to learning systems and the services they provide in the field of e-learning, reliance on mobile learning has developed to complement and support learning, to reinforce the idea of learner-centered environments that focus on the educational process and encourage self-learning, asking questions, collecting and evaluating data and cooperative learning inside and outside the educational situation to reach learning based-understanding. The need to increase classroom interaction and the availability of a wide variety of smart applications through mobile and portable devices during distance learning have resulted in faculty members constantly searching for the most appropriate applications during regular and asynchronous meetings, and to reveal the effectiveness of using those applications in the educational process. The increase in the number of mobile devices among members of society has led to a search for ways through which mobile learning can be used in the educational process; several applications have appeared and these can be used in learning, including the application of the digital wall or what is known as Padlet (Albbad & Huwamel, 2020). Padlet application is considered one of the wonderful and easy-to-use applications through which a virtual wall can be created on one of the topics, allowing sharing of publications on it and installing multimedia digital notes. Working on this application requires the teacher to use the Padlet website or download it from the Apple or Android store and create an account on Padlet, and then create virtual walls bearing certain titles of the required content or activity with attractive backgrounds. The teacher and his students are then allowed to participate by sending them the Padlet link to enable interaction between the student and teacher, with the student double-clicking on (+) in the padlet wall and replying to the teacher; participation is either through written texts or notes or attaching multimedia, answer files or link. Via the same page that the student has opened. The teacher can easily export this work after its completion in the form of images or files (PDF, CSV, EXCEL) and share it with students or with other teachers (Al-Zahrani, 2018; Kharis, Dameria & Ebner, 2020). Padlet application is characterized by the ability to create a virtual wall with attractive backgrounds on which everything related to the topic of the wall, including images, notes, links and multimedia can be installed. The application also allows the ability to keep a copy of the work on computers in different formats, and it supports the Arabic language, and it can be used in the educational process in different ways, including: brainstorming; where the application allows the possibility to participate in the presentation of an idea or a problem by the teacher and ask students to comment on it and develop ideas and proposed solutions to them. Another means that the application provides is the possibility for the student to publish his work and scientific production in what is known as the electronic achievement file and share these files on the Padlet wall dedicated to displaying the electronic achievement files, and to provide the opportunity for all students to view all the achievement files, compare them, comment on them and record their likes, and be evaluated by their teachers.

Dewitt, Alias and Siraj (2015) conducted a study that indicated that the Padlet application is a suitable tool for learning that enables students to learn, create and exchange new ideas through cooperation and participation among themselves, as it allows students to see their colleagues' comments and ideas and participate on the padlet platform, which increases their ability to understand and comprehend. This, in turn, has generated positive attitudes among

students towards learning using this tool, and there are other studies that have been conducted on Padlet application in educational processes, as follows:

Al-Zahrani (2021) conducted a quasi-experimental study aimed at investigating the effectiveness of electronic walls (padlet) in developing skills in reading and writing during English courses in general education in the Kingdom of Saudi Arabia. The study sample consisted of 60 first-year secondary school students at Al-Shati Secondary School in Jeddah, divided into two groups of 30 students each, the experimental group using electronic walls and the control group using the conventional method. An achievement test was prepared based on the reading and writing topics of the second unit of the Traveler course. After verifying its validity and reliability, it was applied to the two groups before and after intervention. The results, after being statistically processed with a t-test for two independent samples of the post achievement test, showed that there were statistically significant differences in favor of the experimental group, which showed the effectiveness of electronic walls in developing skills in reading and writing during the English language course. Saetra (2021) conducted a study aimed at revealing the effectiveness of using the Padlet wall in enabling collaborative mediation and online support in a statistics course. The study sample consisted of two different groups of students participating in an introductory course in statistics for economic experts. The Padlet wall was used and interacted by the students and the teacher during the learning and teaching processes, with the students participating in activities and presenting their experiences and evaluations under the supervision of the teacher. After the application, the results showed that computer-supported cooperative learning through Padlet can be an effective complement and a suitable alternative for study groups that cannot participate and interact through the conventional method.

Ansar et al. (2021) conducted a study aimed at revealing the effectiveness of implementing digital media in learning English language using Padlet. The study sample consisted of 69 students who were selected from three classes of the fifth semester of the academic year 2019-2021, who used Padlet in their learning. A qualitative approach was followed to obtain in-depth insights. Analyses of the sample responses, showed that the 69 participants were ready to join the class that used Padlet as a learning tool, but their answers on motivation varied on learning using the Padlet. The results also showed the necessity of shifting, in light of the current situation of the Corona pandemic, from traditional learning to the default mode to create an environment conducive to learning.

Dianati, Nguyen, Dao, Iwashita and Vasquez (2020) conducted a study aimed at revealing university students' perceptions of the technological tools for flipped learning represented by padlet, Kahoot and Cirrus. To achieve the aim of the study, the Technology Acceptance Model (TAM) was adopted by Venkatesh & Davis who conducted group interviews for the study members. The results of these interviews revealed differences in students' perceptions of the degree to which the use of each of these tools impact flipped learning. Some of them showed that Padlet is useful for both independent and collaborative learning, but is less user-friendly when there is a lot of content. Kahoot is the most useful and easiest to use for reviewing acquired concepts, while Cirrus is easy to use but is less useful for creative tasks. Kharis et al. (2020) conducted a study aimed at revealing students' perceptions of using Internet technology in learning and their acceptance of the Padlet platform as a micro-codification platform for writing skills of the German language. The study sample consisted of 21 students (2 males and 19 females) aged 19-22 years. To achieve the goal of the study, open and closed questionnaires were constructed and after verifying their validity and reliability, they were administered to the study members. The results showed that the students had positive perceptions of the use of Internet technology in learning. However, they did not accept Padlet as a micro-blogging platform to learn German writing skills due to several factors, including the weakness of the Internet and the existence of phone devices that do not support the use of Padlet. In order to overcome these obstacles, it is necessary to provide students with modern equipment, technical environments and smart phones.

Ab Hamid, Rosli and Yunus (2019) conducted a study aimed at identifying the effectiveness of electronic walls in acquiring linguistic vocabulary and students' attitudes towards its use. The study sample consisted of 30 students from the town of Mersing in Malaysia. To achieve the aim of the study, two tools were used, the achievement test and a questionnaire to measure students' attitudes. The results showed the effectiveness of electronic walls in acquiring linguistic vocabulary and there were positive attitudes towards its use by the students.

Abdel-Fattah and Khalaf (2019) conducted a descriptive study aimed at knowing the extent of the use of the Padlet digital wall and its educational applications in primary schools. The study sample consisted of 200 male and female teachers. To achieve the goal of the study, a questionnaire consisting of 21 items was prepared and distributed on four domains which included understanding and absorbing knowledge through the digital wall, the teaching methods used in it, the communication mechanism and the applications of the digital wall. After verifying the validity and reliability of the study tool, it was applied to the study sample. The results showed that 13 items were verified, distributed over the four domains, compared to 8 items that were not achieved through the digital wall. Based on the results, the study recommended the use of Padlet in different systems on different domains and samples.

The past studies reviewed here clearly agree on the importance of employing the Padlet wall in the educational process, particularly in areas of learning reading and writing skills, such as the studies by Al-Zahrani (2021); Abdel-Fattah and Khalaf (2019) and Ab Hamid et al. (2019). It is also shown through previous studies, such as the study by Saetra (2021) and Ab Hamid et al. (2019) that there are positive attitudes among students towards the use of Padlet in learning. However, the results of Kharis et al.(2020) showed negative attitudes among students and their unwillingness to use Padlet in learning writing skills due to technological and technical reasons.

As for the methodology used in the studies reviewed above, most of them have employed the quasi-experimental method to identify the effectiveness of using the Padlet application. The current comparative study aims to reveal the effectiveness of using the padlet wall in remote university teaching among graduate students from the perspective of the students themselves from two different universities, and this area has not been investigated in previous studies.

7. Research Methodology

In line with the study's aim and research questions, the descriptive analytical approach was applied to an intentional sample of graduate students in two universities in Jordan, the Amman Arab University and the Arab Open University.

7.1. Research Sample

The study sample consisted of (88) male and female graduate students who were intentionally selected from two private universities in Jordan, Amman Arab University and the Arab Open University, and the number of sample members selected from each university was (44) students in their second semester of the academic year 2020/ 2021.

7.2. Research Tool

A scale on attitudes towards the use of padlet in distance learning was prepared by researchers, consisting of 20 items, and the validity of the scale was verified by presenting it to a group of 7 specialized referees. The internal consistency of the scale was also verified using Cronbach alpha coefficient, where the reliability coefficient was 0.86, which is acceptable for research purposes.

8. Findings and Discussion

To answer the first and second research questions, the arithmetic means and standard deviations of the students' responses on the trends scale were calculated.

An arithmetic mean greater than or equal to 3.5 was considered to represent a high trend towards the item; an arithmetic mean ranging between 2.5 - 3.5 was considered to represent a moderate trend while a mean of less than 2.5 was considered to represent a weak trend towards the item.

* Results for Question 1 and discussion: What is the effectiveness of using Padlet in distance learning from the viewpoint of graduate students at Amman Arab University?

To answer this question, the arithmetic means and standard deviations of the responses of Amman Arab University students were calculated on the scale of attitudes towards Padlet application in distance learning, as shown in Table 1. It is noted from Table 1 that graduate students at Amman Arab University have high positive attitudes towards the use of padlet in distance learning, which was applied interactively in their university education by the researcher for the first time, in their second semester of the academic year 2020-2021. This indicates that the use of padlet in distance education was effective from their point of view. It gave them the opportunity to hold dialogues, interact, express their opinions and ideas about educational content and publish them on the padlet wall, as well as compare and comment on them. The items that indicated that the use of padlet application allows students to exchange experiences while learning, encourages them to take initiative and compete with their colleagues in presenting new ideas, and helps them to diversify in presenting ideas and increases their motivation towards gaining new experiences came in the advanced ranks with a high arithmetic mean ranging between 3.55-4.80. On the other hand, their attitudes towards using the application were moderate at all levels of study, and this may be attributed to their belief that the application requires students to have good technical skills or good computer experience. The eighth item related to causing embarrassment when the students present their ideas in front of their colleagues ranked last with a low mean of 2.43.

Table 1. Arithmetic means and standard deviations of Amman Arab University student's responses on the scale of attitudes towards the use of Padlet in distance learning, ranked in descending order.

Degree	Std. Deviation	Mean	Items
High	0.550	4.800	1- The use of padlet allows the exchange of experiences between students.
High	0.480	4.770	6-It encourages me to take the initiative and compete with my colleagues in presenting new ideas.
High	0.490	4.750	13- Diversifying the presentation of ideas on the padlet wall increases my motivation to gain new experiences and knowledge.
High	0.650	4.750	5-The Padlet encourages me to learn more electronic skills and applications.
High	0.500	4.730	2- The use of padlet in teaching raises enthusiasm and interaction among students.
High	0.570	4.660	15- Employing padlet in teaching allows students to acquire electronic communication skills.
High	0.530	4.640	4-The use of padlet helps me understand the educational content.
High	0.620	4.610	20- Participating in the use of the padlet application encourages me to employ it in my field of work.
High	0.690	4.590	14-Using the padlet application in teaching encourages students to interact and participate outside lecture time.
High	0.590	4.570	16- Employing padlet in teaching is an appropriate way to evaluate students' performance remotely.
High	0.700	4.570	12- The teacher's use of the padlet application increases my self-confidence.
High	0.620	4.570	10- There is a need to use padlet as a means of presentation and discussion in all subjects.
High	0.550	4.570	7- The padlet application is an appropriate way to detect individual differences between students.
High	0.760	4.480	3- The padlet application allows the teacher to practice brainstorming with students.
High	0.660	4.450	9- The padlet application gives me the opportunity to discuss and express my opinion on the subject.
High	0.700	4.450	17- The success of using padlet depends on the technical skills and management of the teacher.
High	0.860	3.950	19- Using this application requires students to have technical skills.
High	1.250	3.550	11- Participation on the padlet wall does not require students to have technical skills.
Medium	1.190	3.270	18- It is difficult to employ padlet application in all the different educational levels.
Low	1.250	2.430	8- The teacher's use of padlet causes me embarrassment in presenting my ideas to colleagues.
High	0.400	4.360	Total

The above results explain that the remote padlet application has enabled students and encouraged all of them to participate and interact more by commenting on the ideas presented on the padlet wall and discussing and voting on

them, especially those who suffer from fear or embarrassment with colleagues during their face-to-face learning, since the majority of the study sample members are females at a percentage of approximately 80% of the total sample. These results agree with the results of Donaldson et al. (2017); Ab Hamid et al. (2019) and Ansar et al. (2021) which indicated that there are positive attitudes towards using padlet application in distance learning and the need to activate it to achieve interaction between students in the educational process.

* Results for research question 2 and discussion: What is the effectiveness of using Padlet in distance learning from the viewpoint of postgraduate students at the Arab Open University?

To answer this question, the arithmetic means and standard deviations of the responses of the Arab Open University students were calculated on the scale of attitudes towards the use of padlet, as shown in Table 2.

Table 2. Arithmetic means and standard deviations of the responses of Arab Open University students on the scale of attitudes towards the use of Padlet in distance learning, ranked in descending order.

Degree	Std. Deviation	Mean	Item
High	0.500	4.450	2- The use of padlet in teaching raises enthusiasm and interaction among students.
High	0.710	4.320	1- The use of padlet allows the exchange of experiences between students.
High	0.460	4.300	3- The padlet application allows the teacher to practice brainstorming with students.
High	0.450	4.270	20- Participating in the use of the Padlet application encourages me to employ it in my field of work.
High	0.440	4.250	15- Employing padlet in teaching allows students to acquire electronic communication skills.
High	0.580	4.250	5- The padlet encourages me to learn more electronic skills and applications.
High	0.550	4.200	14-Using padlet application in teaching encourages students to interact and participate outside lecture time.
High	0.540	4.180	6- It encourages me to take the initiative to compete with my colleagues in presenting new ideas.
High	0.640	4.160	17- The success of using padlet depends on the skills and management of the technical teacher.
High	0.530	4.160	13- Diversifying the presentation of ideas on the padlet wall increases my motivation to gain new experiences and knowledge.
High	0.540	4.110	9- The padlet application gives me the opportunity to discuss and express my opinion on the subject.
High	0.730	4.070	4-Using padlet helps me understand the educational content.
High	0.460	4.020	12- The teacher's use of padlet enhances my self-confidence.
High	0.650	3.950	10- There is a need to use padlet as a means of presentation and discussion in all subjects.
High	0.780	3.840	7- padlet is an appropriate way to reveal individual differences between students.
High	0.960	3.840	11- Participation on the padlet wall does not require technical skills for students.
High	0.810	3.640	16- Employing exchanges in teaching is an appropriate way to evaluate students' performance remotely.
Medium	1.050	3.300	18- It is difficult to employ padlet application in all the different educational levels.
Medium	1.140	2.840	19- Using this application requires students to have technical skills.
Medium	1.080	2.660	8- The teacher's use of padlet causes me embarrassment in presenting my ideas to colleagues.
High	0.290	3.940	Total

It is noted from Table 2 that the students of the Arab Open University have high positive attitudes towards the use of the padlet application in distance learning, which has already been practiced and practically applied by them during previous semesters and in different ways. This university has been practicing distance learning since its establishment.

The items that indicate that the use of this application in teaching initiates enthusiasm and interaction between them and their colleagues and teachers, helps to exchange experiences among them, enables the teacher to practice brainstorming and encourages them to employ it in the practical field during their work as teachers in schools topped the ranks with high arithmetic means. However, their attitudes towards the employment of the application were moderate at all levels of study and this may be due to their belief that the application requires students to have good technical skills or good computer experience.

The eighth item related to causing embarrassment when the students present their ideas in front of their colleagues came last in the ranks, with an average mean of 3.30. This result explains that padlet application which is shared remotely has enabled students and encouraged all of them to participate and interact more and express their opinions with confidence and comment on the presented ideas on the padlet wall, especially the students who were suffering from fear and embarrassment while answering in a face-to-face manner, since the majority of the study sample members were females making up 77 % of the total sample. This result is in agreement with the results of the study by Ab Hamid et al. (2019) and Ansar et al. (2021) which indicate that there are positive trends towards the use of padlet application and the need to activate it to achieve interaction between students in the educational process.

Results for research question 3 and discussion: Are there statistically significant differences at the level ($\alpha = 0.05$) between the means of sample's responses on the scale of the effectiveness of using Padlet in distance learning based on the variables of university / gender?

To answer this question, a t-test was conducted to compare the average responses of Amman Arab University students and those of the Arab Open University based on the university / gender variables. Table 3 and 4 show the values of the (t) test of each of these variables.

Table 3. Means, standard deviation and t-test results for students' attitudes based on the university variable.

University	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Amman Arab University	44	4.3580	0.39926	5.591	86	0.000
Arabic Open University	44	3.9409	0.29220			

Table 3 shows that there is a statistically significant difference between the averages of the responses of the students from the two universities in favor of the Amman Arab University students. This may be explained by the fact that teachers of Arab Open University are constantly using padlet application and other interactive applications and multimedia, since it has been a university specializing in distance education since its establishment, and this may lead to a kind of familiarity that has contributed to affecting the results compared with the students of Amman Arab University who did not use this application for the first time while they were learning and therefore their attitudes towards using it were more positive. The presence of positive attitudes among students in both universities towards learning through padlet may be attributed to the fact that it was used interactively, as students were given the opportunity to comment on the ideas of their colleagues that were written and published on the padlet wall, and to express their opinions about them and vote on them, and make comparisons between these ideas and the extent of their differentiation and evaluation by the teacher and students. This is what prompted the students to be serious about participating and interacting with what was presented on the padlet wall and presenting their ideas to gain the admiration of those interacting with them. Therefore, it can be said that using padlet with students in both universities gave them the opportunity to initiate and participate in distinguishing ideas and follow up on the ideas presented and benefit from them and use them to achieve an understanding of the educational content. Subsequently, this is what led to an increase in the degree of positivity among Amman Arab University students. This result may be attributed to the fact that this experience is new to them and they were not entrusted to work on it previously as the students of the Arab Open University. It was good quality experience for them and not a routine that was made available to them during learning by the teacher, with reinforcement and encouragement for them to participate and interact continuously with what is presented to them on the padlet wall. This result is consistent with the results of previous studies such as the study by Donaldson et al. (2017) whose results indicated the positive impact of using educational technologies such as Padlet application, Twitter and Wikispaces on student learning and collaborative participation among them.

Table 4. Means, standard deviation and t-test results for students' attitudes based on the gender variable.

Gender	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Female	69	4.1790	0.40397	1.306	86	0.195
Male	19	4.0421	0.40663			

Table 4 shows that there is no statistically significant difference between the averages of students' responses based on the gender variable, and this indicates that gender is not a variable that has an effect on the trend towards application because both genders used the application in distance learning according to the specific requirements and tasks given by the teacher without discriminating between the students. This result agrees with the results of previous studies such as Saetra (2021) whose results showed that the majority of participating students indicated the importance and effectiveness of padlet application in their learning, and this confirms the extent to which students, male and female, need such an application and other applications to achieve tangible effects and a positive impact on the educational process.

9. Conclusion

Among the challenges faced by educational institutions during the Corona pandemic in distance education, the most prominent was the weak motivation of students and their follow-up to distance learning and the lack of interaction during synchronous and asynchronous meetings. In order to meet these challenges, educational institutions began to compete with each other to search for solutions that contribute to reducing these challenges and increasing the effectiveness of distance learning. One of the most prominent of these solutions was the use of interactive and participatory electronic applications and reliance on mobile learning while students learn to improve their attitudes towards distance learning and increase their use of it. In this study, the focus was on the padlet application and its effectiveness in achieving classroom interaction and motivation towards distance learning among university students after they were taught using it for one semester. The study sample was given the opportunity through this application to participate and interact through the padlet wall at all times and exchange experiences and ideas related to the academic content, to achieve understanding and assimilation. The application also allowed students to publish and share their work and scientific contributions contained in the student's electronic achievement file on the padlet wall designated for them by the teacher, and to view these works, comment on them, compare them, record their likes and have them evaluated by the teacher. The application also made it possible for students to participate in the exchange wall in asking questions and discussing related contents. The current study has tried to highlight the need to search for interactive electronic applications, try them and verify the extent of their effectiveness in distance education, and show the results and recommendations related to their practical application to contribute to the development of distance learning and achieve the desired educational goals. It was found through this study that there were high positive attitudes among students towards the use and employment of this application in distance learning, which was represented through their increase in classroom interaction and motivation towards distance learning. This indicates the need to pay attention to this and other interactive applications, and to train teachers on how to use them in the teaching process.

10. Recommendation

Based on the results of the study, the researchers recommend the following:

Training faculty members and students to use and employ padlet interactively during the teaching process.

The necessity of educating faculty members in using padlet in educational lectures.

Conducting research with similar interactive applications to maintain the continuity of students' learning motivation.

Conducting more descriptive and quasi-experimental studies on the use of interactive electronic applications such as padlet application and its impact on students' motivation and achievement towards learning.

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