

USING WHATSAPP IN COORDINATION WITH ZOOM AND MICROSOFT TEAMS TO ENHANCE ONLINE LEARNING DURING COVID -19 LOCKDOWN

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Abstract

This study explores the effect of using WhatsApp to enhance the teaching and learning process during the lockdown of COVID-19 and determine students' opinions regarding its usage. The study is a mixed method, quantitative and qualitative study in which content analysis techniques were employed to analyze the data which were collected by a form and an online survey. The analysis showed that students have positive opinions towards the use of WhatsApp in their online courses in coordination with other e-tools. WhatsApp is effective in increasing the success of the teaching and learning processes. Students demanded the continuation of using WhatsApp in other courses as well. They reported that WhatsApp was influential as it acted as a forum for questions, a platform for collecting links holding discussions and asking questions on the material they did not attend at real time or did not fully understand, and a space for collaborative work. However, a few students have expressed adverse opinions about the timing of some posts and the redundant posts within the WhatsApp groups. Finally, it is suggested that the use of WhatsApp should be encouraged as it is a supportive technology tool.

Keywords: WhatsApp, instant message, social network, mobile social learning, Zoom, Microsoft teams, university students, social networking sites, students' performance, COVID-19 lockdown.

Introduction

Social networking sites play a definite role in our lives. They are used extensively among students to network and exchange information. On daily basis the number of people joining and using social networking sites is increasing. This made many educators decide to use social networking sites like Facebook, Twitter, BBM, Line and WhatsApp to support their teaching, enhance communication and increase rapport. In addition, all these applications are used on mobile phones that students carry everywhere.

In recent years, researchers began to research the impact of using mobile applications on language learning. Researchers were often concerned with internet access and digital equality. Most of these researchers have found that the use of mobile in the ESL classroom may lead to innovation in

language learning across different environments (Seaman et al, 2013; Shanmugapriya et al. 2016). Demouy, V., & Kukulka-Hulme, A. (2010) demonstrated that mobile phone applications give students in developing countries increased access to educational materials. Mobile Learning also enhance the four skills (Ta'amneh, 2017; Rambe, P., & Bere, A. 2013; Rambe, P., & Chipunza, C. 2013). Using mobile technologies especially communication applications support instruction and empower students to participate actively and collaboratively (Seaman, J., & Tinti-Kane, H. 2013; Shanmugapriya, S. & Veerakumar, K. 2016).

Arab youth especially Egyptians and Saudi Arabians use social media/networking, especially "WhatsApp" throughout the day. The application is embraced throughout the world as it is easy to use, allow chat and voice notes and can be used while working on other relevant activities like giving or attending an online lecture. WhatsApp has been used by many students and teachers to support the online classes given during COVID-19 lockdown. In this research, the application has been used in coordination with zoom and Microsoft teams to

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support the teaching and learning process. As many students embrace social media the research is interested in examining the positive outcome of using WhatsApp application in coordination with other online tools in higher education especially during COVID-19 lockdown.

Purpose and Significance of the study

1. To assess the usefulness of WhatsApp application in supporting teaching and learning process
2. To find out the extent to which students prefer the use of WhatsApp in teaching and learning in coordination with other online tools during COVID -19 lockdown
3. To find out the challenges faced by students during the utilization of WhatsApp in coordination with Zoom and Microsoft teams during COVID- 19 lockdown.

The study will enable Faculty members both in Egypt and Saudi Arabia to identify the relevance of using social media specifically WhatsApp in supporting the educational process in online learning. It will enable the Faculty and the University administration to be acquainted with the extent of using WhatsApp application by lecturers and students in supporting the teaching and learning process during COVID-19 lockdown. It will also examine the challenges and setbacks related to the use of WhatsApp in coordination with other online tools. The study will also be an eye-opener for school authorities/administrators, policy makers and implementers on the need to integrate social media applications especially WhatsApp as both students and teachers are familiar with the application and because it enhances the teaching and learning process. The study results are in line with Barhoumi (2015) research findings which shows that "WhatsApp" plays an essential role in higher education. This research enforces its relevance in enhancing the teaching and learning process during COVID-19 lockdown.

Literature Review

WhatsApp application was used in some educational settings to enhance the teaching and learning process. It was used to support students' engagement and reflection via choosing interesting topics that motivate thinking and discussion. Flack et al. (2020) explains that giving assignments create learning opportunities as students think about topics, discuss events, and question about specific content in the curriculum (33). The discussions on WhatsApp enhance collaboration and exchange of ideas. Such positive aspects of using the application lead students to participate more in the flow of

discussion, make them understand the ethics of participating in the flow of discussion and the idea of using supporting evidence.

Rambe and Bere (2013) study on the use of WhatsApp in education enforces the positive effect of its use on learner participation. Vorderer, Krömer & Schneider (2016) affirmed the positive effect of the incorporation of WhatsApp in both face-to-face and online classes. The researchers even recommended the compulsory incorporation of WhatsApp application in university courses.

Studies assessing the impact of social networking applications on the educational process are increasing as they support both synchronous and asynchronous communication it supports the findings in (Norman et al, 2015). Studies on the effects of instant messaging applications on teaching and learning processes are very limited (Cetinkaya & Sütçü, 2016; Harrison & Gilmore, 2012; Lenhart, Purcell, Smith, and Zickuhr, 2010).

The positive aspects of integrating social networks in education was enforced by Aishareef (2018) as it enhances collaboration, interaction and reflection. Tarighat, S., & Khodabakhsh, S. (2016) affirmed the positive influence of integrating WhatsApp on students' academic performance. Amry (2014), Barhoumi (2015), Gachago et al. (2015), and Gasaymeh et.al (2013) emphasized that the integrating of WhatsApp in educational courses boosted communication, collaborative work, time management, motivation and engagement.

As all teaching became fully online due to COVID-19 lockdown teachers were obliged to use online tools the most common of which were Google classroom, Zoom and Microsoft teams to continue their curriculum and support students. Many teachers and students used WhatsApp to facilitate their online classes and support the educational process. WhatsApp have enabled educators to send instructional and communicative messages that enhanced the teaching and learning process. Three university college educators, one situated in Egypt and two in Kingdom of Saudi Arabia used WhatsApp in coordination with Microsoft Teams (Egypt) and Zoom (Kingdom of Saudi Arabia). WhatsApp enhanced communication through voice notes as well as text. Links for videos and articles were sent. WhatsApp was a second resort to learners when the internet was not working well to ask about the lecture content. The use of WhatsApp in coordination with Microsoft Teams and Zoom supported students' ownership of learning, and lead to better learning experiences.

There has been little investigation of the uses of WhatsApp in coordination with other online

applications. Teachers and students' views concerning such coordination are also not well known. In this study, the researchers focused on how students in two undergraduate programs and one post-graduate course perceived the use of WhatsApp in coordination with other online/mobile application. The researchers specifically tried to document the students and teacher's personal experiences and reflect on how such co-ordination engaged students and enhanced the teaching and learning processes during COVID-19 lockdown.

Though the social networking tools differ in construction and use to some extent (Boyd & Ellison, 2007; Taylor, Lewin, & Strutton, 2011), they began to be used in education as teachers wanted to engage their students and reach them everywhere. The usability and effects of using social networking sites in education started to be examined by the researchers. Studies show that social networks have both constructive and undesirable effects depending on different variables (communication, engagement, students' interaction, and academic results, etc.) depending on the design of their integration in education. Each social networking tool has different aspects that can support learning objectives, enhance cooperation, interaction, interest, and motivation. The integration of social networking application in the syllabus enhance students' sense of belonging, student-student and student-teacher interaction, provide peer support and feedback. As for the setbacks of using social networking applications in education these include confidentiality, safety, distraction and use of incorrect language.

Incorporating social network applications in education is a new trend. Nonetheless, social network applications are gaining relevance on the educational level specifically in higher education. WhatsApp is the most widely used mobile based application for its ease and familiarity (Statista, 2016). Church and de Oliveira (2013) enforce this idea in their study for its ability to send real-time messages, security and safety. Learners exchange ideas and syllabus material via WhatsApp groups they create and teachers are asked to start WhatsApp class groups. Many staff members are trying to acquire the consent of the administration.

In studies on the use of different instant messaging platforms in education, results showed that these applications have potential to increase interaction and support learning (Smit, 2012), engage learners' (Cifuentes & Lents, 2010), and enhance communication between students (Cifuentes & Lents, 2010; Smit, 2012). Studies

conducted on WhatsApp (Bouhnik & Deshen, 2014; Church & de Oliveira, 2013; Nguyen & Fussell, 2016), supported these ideas and noted that integrating the application in educational courses makes learning possible anytime and anywhere, and sustain collaborative learning. There is a gap in the research concerning the use of WhatsApp during the lockdown of COVID-19. The aim of this study is to explore the effects of using WhatsApp in coordination with other online tools and determine the opinions of students towards such use.

Tools Used in Teaching during COVID-19 Lockout Microsoft Teams

Microsoft teams is a new learning management system that was designed by Microsoft 365 in 2016. It is characterized by being secure, free and efficient. Teachers can create infinite number of classes under the domain and email given to the educational institute. Parents, supervisors, administration can be added to the groups. What is inspiring about Microsoft teams is that it can work with other applications the teacher is familiar with like WhatsApp, Blackboard, Zoom, Wikis, Blogs, and can also stand alone. This makes it a brilliant teaching platform. Microsoft teams empowers teachers and students and allows them to connect in and outside the classroom. Teachers can use it to post materials, video links, forms, polls and quizzes. Teachers can meet students in real time and chat any time using voice and camera. Teachers can also assign assignments and administer tests and quizzes. The setback of Microsoft teams is that the platform sometimes goes down and it needs training on both the part of the teacher and students.

Zoom

Zoom became a free online tool during the outbreak of coronavirus and this made it extensively used during COVID-19 lockdown. Teachers liked its easiness and convenience. Zoom supported interaction and collaboration among students and teachers. It works like a learning management system that organizes discussions, group work and pair work. The video sessions can be recorded and sent to a google drive. Eventually, the link can be sent to the WhatsApp class group for those who did not attend the online meetings or those who want to revise. The only concern about Zoom is online security as the accounts of many users were hacked but the company worked on the malfunctioned sectors and enhanced the tools security.

WhatsApp

WhatsApp is a social networking application that is used by 400 million people around the world. It is used by some teachers to communicate with students, post notes and remind students of upcoming due dates. WhatsApp usage is evaded by many teachers though it is convenient and loved by students as they think it is unprofessional. Teachers can send video links, forms, quizzes and polls to the WhatsApp class group. What is inconvenient about the application is that you have to resend the data to be seen by new members recently added to the group.

Research Questions

1. To what extent WhatsApp application will help in the teaching and learning process?
2. To what extent do students think WhatsApp support in teaching and learning during COVID - 19 lockdown?
3. What are the challenges and setbacks for using WhatsApp in coordination with other online tools?
4. What are students' perceptions of using WhatsApp in co-ordination with other online/mobile applications namely Zoom and Microsoft teams?
5. How do students use WhatsApp in coordination with other mobile applications to connect, communicate, and collaborate with other students as they create personalized mobile learning experiences?

Methodology

This research examined the relevance of using WhatsApp in coordination with Microsoft teams and Zoom to enhance the teaching and learning process during COVID-19 lockdown. The researchers adopted a mixed methods research design for the study to enhance the data collection and analysis based on the variables. This is appropriate for this study as it is based on the collection of quantitative and qualitative data from a varied number of respondents via administering a questionnaire. (Tarus, Gichoya, and Muumbo, 2015). The main reason of using descriptive research is to describe a certain state of affairs (Creswell, 2018).

The study focused on students of the Higher Technology Institute, Egypt and students in King Saud University. The population comprised 167 students and three professors two females and one male. The instrument used for data collection was 35 item online questionnaire constructed by the researchers. The questionnaire was face-validated

by three experts. Two of the experts were drawn from the field of Educational Psychology, Guidance and Counseling, and Measurement and Evaluation of the King Saud University. While the third expert was drawn from Department of Curriculum and Instructional Technology, Faculty of Education, King Saud University. The research questionnaire was administered to 167 students. The information gotten was summarized and reported along the results. The data obtained were gathered and analyzed, and statistical percentile was used to answer the research questions raised for the study.

Sample of the study

The participants of the study were four classes, two consisted of undergraduate students studying General English in the Higher Technology Institute (64 participants), aged between 18-19 and two classes in King Saud University (103 students). One of classes in Saudi Arabia was studying Mathematics in College of Science and the other was a post-graduate class in the College of Education pursuing a TESOL program. Students in Higher Technology Institute and King Saud University used to take face-to-face courses that were supplemented by the use of WhatsApp. During the COVID-19 lockdown these fully online classes shifted to fully online course mode on Microsoft teams in the case of Higher Technology Institute and Zoom in the case of King Saud University. The online courses were supported via WhatsApp. Information messages were created and sent via WhatsApp application by the three university instructors to support teaching online, share links, pinpoint material, and draw students' attention to the content or assignments.

Data Collection

Qualitative data were collected by using an open-ended question form one week after the start of the course. The open-ended question form was explained to the students and they were asked to answer the research question; "Write your opinion on using WhatsApp application in coordination with our course and your suggestions, if any." The question was given in the classroom environment under the supervision of the researchers to enable research to understand the impact of integrating the use of WhatsApp in their courses. After the shift to fully online mode a questionnaire was sent asking about the relevance of continuing using WhatsApp application and to evaluate such usage. The online questionnaire consisted of both open-ended and liker scale items. It was constructed on Microsoft forms. The [link to the form](#) was sent to

the students three week after the start of the fully online courses administered during lockdown.

Analysis of the Data

For the analysis of the written data obtained by the open-ended question form and the questionnaires categorical analysis which is one of the content analyses types and frequency analysis were used. In categorical analysis; data coding, category forming, category organization and description of findings and interpretation phases were followed (Corbin & Strauss, 2007). Frequency analysis showed the quantitative frequency of the data. As such, this determined the density and the relevance of a specific factor. The qualitative data were digitalized leading into reliability increase and bias decrease and comparison of the data was facilitated (Yıldırım & Şimşek, 2008).

Findings

Using WhatsApp in coordination with face-to-face classes and with fully online classes during COVID-19 lockdown in coordination with other e-tools enhanced the teaching and learning processes. WhatsApp is an effective, supportive technology tool that is easy to use, handy and favored by students.

1. Validity and Reliability of the Statements Questionnaire

In general terms, validity is based on the assumption that an instrument is valid if it measures what it is intended to measure. That is to

say, validity pertains to the accuracy and precision of a measure. However, a measure or test might look reliable yet might not look valid. It is sometimes assumed that validity is more essential than reliability, because there is no point in measuring something reliable unless one is aware

of what is measuring.

Given the importance of validation procedures in this study, three types of validity (i.e. face, content and construct) will be described. The face validity is concerned with how a measure looks. In other words, it relates to its design, reasonableness, and workability. Given these predictions, the pilot study's referees confirmed the overall accuracy of the questionnaire. In terms of the content validity, the jury members of the pilot study also maintained that the questionnaire has covered all the aspects of the research questions and hypotheses in a systematically relevant fashion. As for the construct validity, the jury members also reported that there is a consistency between the theoretical notions and the intended measuring device. In fact, their arguments seem to be view that the construct is the initial concept, notion, question or hypothesis that indicates which data are to be collected and how they are to be collected.

Statistically speaking, it has been argued that according to classical test theory, the maximum validity for a test is the square of the reliability accordingly the subjective validity value of the questionnaire statements is:

Table 1. Validity and Reliability value of the questionnaire statement

No	Parts of Questionnaire	Number of Statements	alpha-Cronbach coefficient	Validity
1	Section1	5	0.760	0.578
2	Section2	21	0.937	0.878
3	For all questionnaire	26	0.946	0.894

Source: prepared by researcher from data (2019)

Cronbach's alpha coefficient normally ranges between 0 and 1. Cronbach alpha coefficient equal 0 that mean there no consistency of the items in the scale. But the closer Cronbach alpha coefficient equal 1.0, that is mean the greater internal consistency of the items in the scale.

Table (1) shows that the stability (alpha-cronbach coefficient) for the first questionnaire section was (0.760), or (76.0%), while the second questionnaire section it reached (0.937) or (93.7%), while the all questionnaire was (0.946), or (94.6%), which means that the scale gives the same results if used more than once under similar circumstances. And the coefficient of validity of the first

questionnaire section is (0.578) or (57.8%), the validity of the second questionnaire section is (0.878) or (87.8%), while the validity of all questionnaire was (0.894), or (89.4%), and this means the validity of the questionnaire for measurement.

2. Descriptive Statistics Methods for Demography variables:

Analysis of Demography Variables depends on measuring frequencies and finding percentages for them, because percentages are more meaningful than absolute numbers, and we will use tables and graphs for more clarification with commentary to

clarify these indications, and the goal of analyzing personal data is to be able to know the specific characteristics of a community study to confirm the inclusion of various qualitative characteristics of society.

We will also display the frequencies and percentages of the expressions that were mentioned in the questionnaire list that carry the characteristic of the basic data, and the aim of analyzing the basic data is to be able to know the extent of the study population's perception of the

phrases received, and we will provide a descriptive census of the basic data for the members of the study population in tables and figures showing the values of each variable.

1. An analysis of the Demography Variables of the members of the sampling according to their different characteristics:

Table of demographics and baseline characteristics including age, gender, nationality, number of years of education, and job title will be summarized using descriptive statistics:

Table 2. demographics of study sample

No	Variable	Values	Frequency	Percent
1.	University	King Saud university	103	61.7%
		Higher Technology institute	64	38.3%
2.	Gender	Female	39	23.4%
		Male	128	76.6%
3.	Nationality	Saudi	102	61.1%
		Egyptian	65	38.9%
4.	Did you use WhatsApp in your previous courses?	Yes	149	89.2%
		No	8	4.8%
		Maybe	10	6%
5.	If yes, how was your experience?	Excellent	58	34.7%
		Very good	68	40.7%
		Exceptional	23	13.8%
		Poor	10	6%
		Fair	8	4.8%
6.	Would you like to use WhatsApp in coordination with the other online tools we teach our course through?	Yes	136	81.4%
		No	31	18.6%
7.	Do you think WhatsApp will support the teaching and learning experience?	Yes	132	79%
		No	35	21%
8.	Major	English Bachelor	64	38.3%
		English Master	21	12.6%
		Mathematics Bachelor	82	49.1%
		Total	167	100%

Through the results of the previous descriptive analysis, it is clear that the demographic characteristics of the statistical community in which the study was conducted are:

1. (61.7%) of the respondents in this survey are students in King Saud University.
2. (76.6%) of the respondents in this survey are males.
3. (61.1%) of the respondents in this survey the

nationality is Saudi.

4. (89.2%) of the respondents in this survey used WhatsApp in previous courses.
5. (75.4%) of the respondents in this survey had excellent experience in using WhatsApp from previous courses.
6. (81.4%) of the respondents in this survey liked to use WhatsApp in coordination with the other online tools we teach our course through.

7. (79%) of the respondents in this survey think WhatsApp will support the teaching and learning experience.
8. (50.9%) of the respondents in this survey are in the Academic specialization English Bachelor and English Master.

3. Weighted Arithmetic mean and Standard

Deviation:

Calculated the Weighted Arithmetic mean and Standard Deviation of hypotheses statements, and determining responses opinion trend for the hypothesis's statements.

1. First hypotheses: To what extent WhatsApp application will help in the teaching and learning process?

Table 3. Weighted Arithmetic mean and Standard Deviation for (To what extent WhatsApp application will help in the teaching and learning process?) statements

Statements	Weighted mean	Arithmetic Standard Deviation	Opinion trend to Acceptances	Ranking
1. How useful was WhatsApp for supporting pre-class reading assignments.	3.92	0.969	High	3
2. I love to read from WhatsApp rather than the book.	3.45	1.216	High	5
3. I would rather do my assignments from WhatsApp rather than the book.	3.65	1.156	High	4
4. Reading my friends' comments helps to support my understanding.	4.29	0.815	Very High	2
5. WhatsApp was useful for supporting active learning (discussions and peer interactions).	4.31	0.842	Very High	1
To what extent WhatsApp application will help in the teaching and learning process?	3.92	0.723	High	3

Source: prepared by researcher from data (20)

1. The Weighted Arithmetic mean of the individuals for the study sample for the fifth statement (WhatsApp was useful for supporting active learning (discussions and peer interactions)) was (4.31) with a standard deviation (0.842) and this value indicates that most of the individuals in the sample strongly agree with the fifth statement. Researchers noticed that most of the after-class discussion takes place within the WhatsApp application. Students discuss points in the lesson to make sure that they fully understand. They also negotiate other aspects that were of disagreement. Therefore, discussion takes place any time after class whether in written form or recorded.
2. The Weighted Arithmetic mean of the individuals for the study sample for the second statement (I love to read from WhatsApp rather than the book) was (3.45) with a standard deviation (1.216) and this value is the lowest. This indicated that most of the students do not like to read from WhatsApp and they prefer reading from e-books

or their laptops.

2. Second hypotheses: To what extent do students think WhatsApp support in teaching and learning during COVID-19 lockdown?

1. The Weighted Arithmetic mean of the individuals for the study sample for the statement number 21 (WhatsApp is really a helpful tool that supports online learning) was (4.26) with a standard deviation (0.963) and this value is the highest, it indicates that most of the individuals in the sample strongly agree with this statement.
2. The Weighted Arithmetic mean of the individuals for the study sample for the fourth statement (I like to read through what we have written on WhatsApp when the class ends) was (3.65) with a standard deviation (1.059) and this value is the lowest, it indicates that most of the individuals in the sample do not like to read from WhatsApp. This supports the previous statement in table number 3.

3. Third hypotheses: What are students' perceptions of using WhatsApp in co-ordination with other online/ mobile applications namely Zoom and Microsoft teams?

Table 4. Weighted Arithmetic mean and Standard Deviation for to what extent do students think WhatsApp support in teaching and learning during COVID -19 lockdown statements

Statements	Weighted Arithmetic mean	Standard Deviation	Opinion trend to Acceptances	Ranking
1. I like to discuss my point of view with my friends on WhatsApp.	4.19	0.889	High	3
2. I like to discuss the posted pictures in a written form rather than an oral form.	3.9	0.955	High	14
3. My friends' comments elaborate my vision of the topic.	3.94	0.998	High	10
4. I like to discuss what we take in the online class with my classmates via WhatsApp.	3.94	1.079	High	11
5. I enjoy debating opinions with my classmates via commenting.	3.86	1.037	High	17
6. Writing my opinions through commenting helps me to think carefully of how to express my ideas clearly.	3.84	0.946	High	18
7. Discussion via commenting helps me gain new perspectives about the topic.	4.01	0.878	High	7
8. Discussions about the topics shared on WhatsApp helped to clear up any misunderstanding that I may have had.	4.02	0.874	High	6
9. How useful was WhatsApp for supporting reflection on online class experiences.	3.87	1.015	High	16
10. After the online class has ended, I used to think about my written comments.	3.49	1.124	High	23
11. I like to read through what we have written on WhatsApp when the class ends.	3.65	1.059	High	22
12. After the class, WhatsApp comments helped me think about the discussion held in the online class.	3.9	0.965	High	15
13. After the class, WhatsApp posts helped me to reconsider and develop my ideas and thoughts.	3.8	0.985	High	20
14. Using WhatsApp in coordination with the online class helped me to think outside the box.	3.75	0.992	High	21
15. I like using WhatsApp in learning because it allows me to access learning materials any time during the day.	4.07	0.964	High	5
16. I like using the emojis while commenting and sometimes I use them instead of writing.	3.84	1.058	High	19
17. WhatsApp is easy to use and makes the online class enjoyable and flexible.	3.95	1.014	High	9
18. I prefer WhatsApp than any other application like blackboard.	3.96	1.119	High	8
19. WhatsApp assists us to discuss the material before and after the lecture.	4.16	0.873	High	4
20. WhatsApp is helpful in supporting us during the presentations and whenever we have technical problems with Zoom and Microsoft teams.	4.22	0.914	Very High	2
21. WhatsApp is really a helpful tool that supports online learning.	4.26	0.963	Very High	1
What extent do students think WhatsApp support in teaching and learning during COVID -19 lockdown	3.93	0.659	High	

Source: prepared by researcher from data (20)

Table 5. Weighted Arithmetic mean and Standard Deviation for What are students' perceptions of using WhatsApp in co-ordination with other online/ mobile applications namely Zoom and Microsoft teams.

Statements	Weighted Arithmetic mean	Standard Deviation	Opinion trend to Acceptances	Ranking
WhatsApp is easy to use and makes the online class enjoyable and flexible	3.95	1.014	High	4
I prefer WhatsApp more than any other application like blackboard	3.96	1.119	High	3
WhatsApp assists us to discuss the material before and after the lecture.	4.16	0.873	High	2
WhatsApp is helpful in supporting us during the presentations and whenever we have technical problems with Zoom and Microsoft teams.	4.22	0.914	Very High	1
What are students' perceptions of using WhatsApp in co-ordination with other online/ mobile applications namely Zoom and Microsoft teams?	3.93	0.659	High	5

Source: prepared by researcher from data (20)

1. The Weighted Arithmetic mean of the individuals for the study sample for the fourth statement (WhatsApp is helpful in supporting us during the presentations and whenever we have technical problems with Zoom and Microsoft teams) was (4.22) with a standard deviation (0.914) this value is the highest and it indicates that most of the individuals in the sample agree with the fourth statement. Due to the fact that some students may face internet connection problems during class presentation in which Zoom cannot be working, then the only way to get in touch and to inform instructor and other students in the group is by using WhatsApp application.

4. Methods of inferential data analysis:

We will only use the One Sample T-Test (since the sample is greater than 30 we do not need a data normalization test for normal distribution) to determine the extent to which the differences between respondents' answers about the extent to which using WhatsApp in coordination with Zoom and Microsoft Teams enhanced online learning during COVID -19 lockdown. The value examines used (3.00 the mean of the statistical population). Any weighted arithmetic mean for hypotheses is greater than (3.00) there is statistically significant relationship between the answers of the respondents and the answers of the statistical population for the study.

The Traditional Method formula to testing One Sample T-Test the formula is:

$$t_{\alpha} = \frac{\bar{X} - \mu}{s / \sqrt{n}}$$

Where:

\bar{X} : the sample mean, μ : Population mean, s : stander deviation, n : sample size

1. First hypotheses: To what extent WhatsApp application will help in the teaching and learning process

H0: There is no statistically significant relationship between to what extent WhatsApp application will help in the teaching and learning process by the answers of the respondents and the answers of the statistical population for the study.

H1: There is no statistically significant relationship between to what extent WhatsApp application will help in the teaching and learning process by the answers of the respondents and the answers of the statistical population for the study.

$$t_{\alpha} = \frac{3.92 - 3}{0.723 / \sqrt{5}} = 2.85$$

The result One Sample T-Test for examine statistically significant relationship between to

what extent WhatsApp application will help in the teaching and learning process by the answers of the respondents and the answers of the statistical population for the study. It is noted T calculate is (2.85) this value is greater than T table (2.132) with degree of freedom (4) and the significance level is (0.05). Reject null hypotheses. Then there is statistically significant relationship between to what extent WhatsApp application will help in the teaching and learning process by the answers of the respondents and the answers of the statistical population for the study.

2. Second hypotheses: what extent do students think WhatsApp support in teaching and learning during COVID-19 lockdown?

H0: There is no statistically significant relationship between to what extent do students think WhatsApp support in teaching and learning during COVID -19 lockdown by the answers of the respondents and the answers of the statistical population for the study.

H1: There is no statistically significant relationship between to what extent do students think WhatsApp support in teaching and learning during COVID -19 lockdown by the answers of the respondents and the answers of the statistical population for the study.

$$t_{\alpha} = \frac{3.93 - 3}{0.659 / \sqrt{21}} = 6.467$$

The result One Sample T-Test for examine statistically significant relationship between to what extent do students think WhatsApp support in teaching and learning during COVID-19 lockdown by the answers of the respondents and the answers of the statistical population for the study. It is noted T calculate is (6.467) this value is greater than T table (2.086) with degree of freedom (20) and the significance level is (0.05). Reject null hypotheses. Then there is statistically significant relationship between to what extent WhatsApp application will help in the teaching and learning process by the answers of the respondents and the answers of the statistical population for the study.

3. Third hypotheses: What are students' perceptions of using WhatsApp in co-ordination with other online/mobile applications namely Zoom and Microsoft Teams?

H0: There is no statistically significant relationship between to what are students' perceptions of using WhatsApp in co-ordination with other online/ mobile applications namely Zoom and Microsoft teams by the answers of the

respondents and the answers of the statistical population for the study.

H1: There is no statistically significant relationship between to what are students' perceptions of using WhatsApp in co-ordination with other online/ mobile applications namely Zoom and Microsoft teams by the answers of the respondents and the answers of the statistical population for the study.

$$t_{\alpha} = \frac{3.93 - 3}{0.659 / \sqrt{5}} = 3.163$$

The result One Sample T-Test for examine statistically significant relationship between to What are students' perceptions of using WhatsApp in co-ordination with other online/mobile applications namely Zoom and Microsoft teams by the answers of the respondents and the answers of the statistical population for the study. It is noted T calculate is (3.163) this value is greater than T table (2.132) with degree of freedom (4) and the significance level is (0.05). Reject null hypotheses. Then there is statistically significant relationship between to what are students' perceptions of using WhatsApp in co-ordination with other online/mobile applications namely Zoom and Microsoft teams by the answers of the respondents and the answers of the statistical population for the study.

Results and Conclusion

In this research, which was conducted in two educational settings students asserted the positive impact of using WhatsApp in coordination with face-to-face and fully online courses after the transition to fully online classes during the COVID-19 lockdown. The application enhanced the teaching and learning process according to students' opinions. This mixed methods study results are discussed within the literature and the recommendations are given under headings.

To determine the contribution of WhatsApp to the teaching and learning processes as a supportive technology in coordination with Zoom and Microsoft teams and judge whether it enhanced online learning during COVID -19 lockdown.

The researches made on social networks and the integration of instant messaging have shown that the features such as: encouraging collaborative learning which contributes to learning process, active participation, learning anytime and anywhere, and informal communication, are common in all platforms (Arteaga Sánchez, Cortijo, & Javed, 2014). Although there are not any experimental studies met on the use of WhatsApp, which is one of the instant messaging applications,

towards its impact on academic success in educational environments, there are findings that show its support to collaboration and sharing of the content, provide an unstructured learning environment (Arteaga Sánchez et al., 2014; Bouhnik & Deshen, 2014; Church & De Oliveira, 2013; Nguyen & Fussell, 2016; Rambe & Bere, 2013; Rambe & Chipunza, 2013). The results of the study show that the application has potential to increase the success.

In the online questionnaire most students expressed positive opinions regarding the use of WhatsApp in coordination with other online applications during the lockdown due to COVID-19. The results are equivalent to the study conducted by Plana et al., (2013) that enforced that using WhatsApp increases students' involvement, engagement and immersion. The results are also in line with Smit (2012) which pinpoints to the idea that WhatsApp increases active learning. In the study, students' statement concerning interaction, collaboration and involvement are remarkable. Leonardi (2014) study also assured the communication role in enhancing education.

As for the negative aspects concerning the use of WhatsApp, students enforced the idea of timing as their classmates sent questions, concerns, and ideas any time without sticking to a definite time, an aspect that was inconvenient and disturbing. In addition, some students repeated the same questions and were given nearly the same answers. Students also disliked the excessive flow of messaging. Nonetheless, the overall, experience was positive. In Bouhnik and Deshen (2014) study on the use of WhatsApp, the researchers stated equivalent problems. In research on the use of social network applications and mobile devices in education, studies pointed that students send untimely and redundant messages that lead to distraction (Kusnekoff, Munz, & Titsworth, 2015; McCoy, 2013, 2016). A solution to such problem is sending a WhatsApp usage etiquette note before starting the group.

Conclusion

Using WhatsApp in coordination with Microsoft teams and Zoom have enhanced the teaching and learning process during COVID-19 lockdown. The effect of using WhatsApp on the process of education in other courses should also be researched. Rules for using the application should be set to minimize the negative points stated by the students. More experimental and quantitative studies should be conducted to verify the result reached in this study. Educators' opinions on the

use of WhatsApp and similar applications in the educational process before the advent of COVID-19 and during the lockdown should be studied and compared.

Recommendations

Practice showed that WhatsApp mobile application technology has been beneficial in supporting fully online classes, facilitating the teaching and learning process during COVID-19 lockdown. As such this platform can be recommended for academic use in coordination with other online tools. Trainings for both Faculty members and students should be provided to help them use the application in coordination with other online/ mobile applications in a way that enhances the teaching and learning process. Administration should accept and encourage the use of WhatsApp in education.

Acknowledgment:

Researchs Supported Project number (RSP-2020/251), King Saud University, Riyadh, Saudi Arabia.

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