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THE USE OF EDMODO: ITS IMPACT ON LEARNING AND STUDENTS' ATTITUDES TOWARD IT

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ABSTRACT

Aim/Purpose	Edmodo is a free and secure social learning network for teachers, students, and parents. This research aims to investigate the impact of using the Edmodo network among the students at Imam Abdulrahman bin Faisal University and students' attitudes toward it.
Background	The creators of e-learning systems have recently taken remarkable strides, including the development of a full range of techniques and means of communication. Social networks encourage collaborative work and thus have huge potential to increase information sharing among users, which makes these networks especially useful in academic and higher-education systems. Edmodo network is one of the main choices to be adopted in education process.
Methodology	This research has an experimental design based on a set of online tests. It also includes the development of a scale to determine students' attitudes toward Edmodo
Contribution	There is a lack of studies on the adoption of Edmodo within higher education. This research is an investigation of the impact that using Edmodo had on students at Imam Abdulrahman bin Faisal University.
Findings	The findings of this research show that using Edmodo leads to a statistically significant improvement in learning skills among higher-education students. The results also illustrate that students have positive attitudes toward the use of Edmodo in their courses.
Recommendations for Practitioners	Adopting Edmodo within their teaching model.
Recommendations for Researchers	More investigation on this topic with a larger number of participants is recommended
Impact on Society	This investigation provides society with better understanding of adopting Edmodo within higher education.

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Future Research Further work should include investigations of this topic that include a larger number of participants with more diverse backgrounds. The challenges of using Edmodo also need to be investigated in further studies.

Keywords Edmodo, academic social media, blended learning, e-learning networks

INTRODUCTION

The current revolution of communication technologies and social networks has opened new opportunities for developing the education system. The wide access to knowledge nowadays requires new ways of teaching, which can allow students to learn by themselves and use online resources (Clark & Berge, 2006). Using technology in education could help students and teachers address learning challenges posed by specific times and locations. Students can access their class from different places and at any time (Terry & Doolittle, 2006). Information technology has become an integrated component of any education system (Tarun, 2019). The Edmodo network is one of the main choices for adoption in the education process. It is an academic communication network that allows teachers to provide their courses online and links teachers with students and their parents (Cheong, 2010).

In Saudi Arabia, there is an increasing interest in the adoption of e-learning applications such as Edmodo. The effects of using Edmodo within Saudi higher education are not clear, as there is a lack of studies on this topic. One of the main goals of the Ministry of Education in Saudi Arabia is to adopt technologies within the education process that create a need to investigate the current technologies to address the current gaps in knowledge in this area. Only a few researchers have investigated the use of Edmodo in Saudi Arabia, including Al-Essa (2018), who investigated the impact of using Edmodo for secondary students and reported slow digital implementation in the Saudi educational system. Moreover, there is a need to investigate students' attitudes toward such tools.

Edmodo has been selected by this study to be investigating for several reasons. First, it is a free social network. Second, it was created from scratch for academic purposes. Edmodo is also easy to access and easy to use for teachers and students. Moreover, it comes with several tools that help teachers with their education design, such as the Library, Messages, Progress, Notifications, and To-Do options.

The rest of this study is organized as follows. The literature review section summarizes the previous studies in this area. Then, the third section explains this study's aim and provides the research questions. After that, the research methodology section addresses the methodologies used in this study, including the data-collection and -analysis procedures. Next, the results section illustrates the results of this investigation and provides an in-depth discussion. Finally, the conclusion section presents the conclusion and lists proposals for future work.

LITERATURE REVIEW

The Internet has become a pervasive and fundamental aspect of several fields. Communication systems, computers, and smartphones are now available everywhere, which has allowed for new approaches to learning and education. Learners often prefer to take online courses because they can be accessed at any time and thus require less time and effort than in-person classes. Social networking sites are popular as are cutting-edge communication products; such sites have dramatically changed the ways in which people and communities interact and exchange information. Social networking has spread across the world and has eliminated borders, thus allowing all people to both express their own views and access other people's ideas at any time and without conditions (Clark & Berge, 2006; Yunkul & Cankaya, 2017).

Teachers and learners can now remain connected regardless of time and place, including outside the classroom, via online systems. Several tools are available for easily accessing and interacting with aca-

demic material. Because social media is used so frequently, such sites can be combined with a blackboard to provide both learners and teachers with exciting applications through which to connect, interact, collaborate, and share content in a safe, enjoyable, and secure manner (Terry & Doolittle, 2006).

Social networks are a trending technology built on the idea of encouraging users to share and collaborate (Capuano et al., 2018). Such networks link users through public or semi-public profiles within a specific environment (Boyd & Ellison, 2007). Many people use these networks, which include Facebook and Twitter, for general purposes. On the other hand, specific teaching networks such as Ning, redAlumnos, and Edmodo link participants within the education system. Edmodo, for instance, is a social educational network that establishes links between students and teachers in a private environment. Edmodo is a free site that provides microblogging for education-specific uses (Porcel, Ching-López, Lefranc, Loia, & Herrera-Viedma, 2018). Edmodo is the fastest-growing social educational network; it grew from 1 million users in 2011 to more than 50 million users in 2015 (Carlson & Raphael, 2015).

Edmodo is an application for academic communication; it works via effective content-management systems and integrated learning (Cheong, 2010). Edmodo is free and secure, and it offers services for teachers, students, and parents. It provides a safe and easy way for users to connect, collaborate, exchange ideas, and share educational content. Teachers can use their online accounts to provide lessons to learners. The Edmodo network offers three types of accounts (for teachers, learners, and parents), and each relevant stakeholder group uses the network to meet its needs within its areas of interest (Evans, 2008; Fryer, 2016). This network allows for the use of the so-called flipped classroom – an instructional model that is meant to make the best use of cutting-edge technology such as the Internet. Using this model, teachers plan lessons for students that include video and audio files, as well as other resources. In flipped learning, students learn the materials at home (or anywhere else) via computer, smartphone, or tablet; they then attend the course, during which time they engage in discussions, projects, and training rather than lectures (Fernandez, Simo, & Sallan, 2009). Figure 1 shows a screen shot from the Edmodo website.

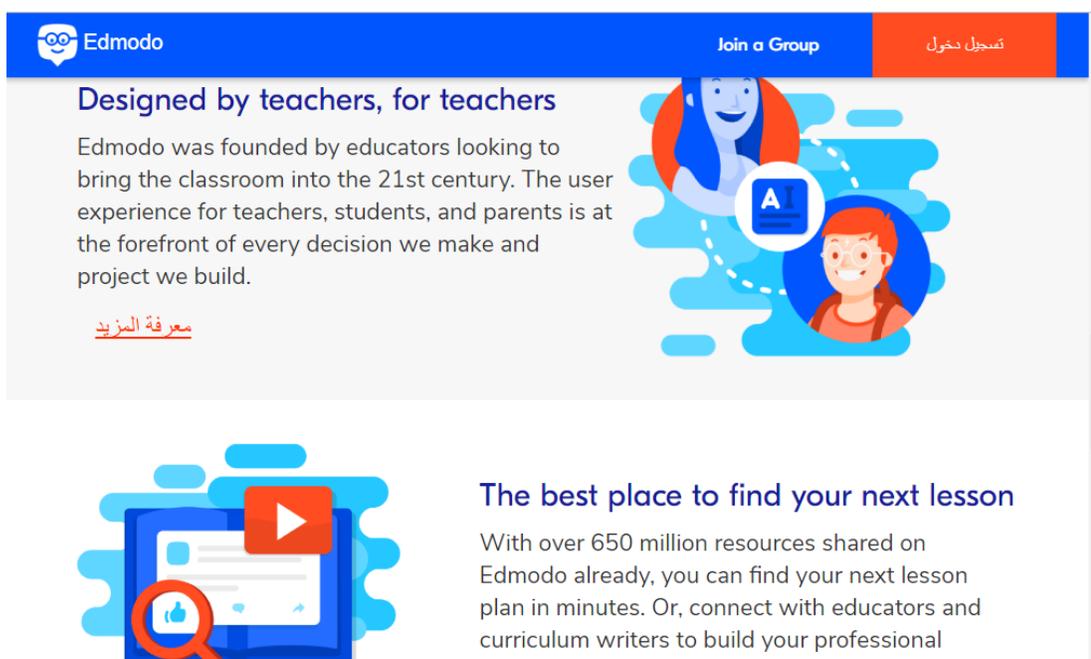


Figure 1. Screen shot from Edmodo website

The Edmodo network has more than 100 million active users from about 400,000 schools in 140 countries; in all, around 90 million teachers have shared over 700 million resources (Edmodo, 2019). Tomassini (2013) described Edmodo as a free website that is easy to use. Edmodo has helped learners and educators perform functions such as creating assignments, reviewing papers, and assigning readings. Edmodo allows students to overcome limitations caused by distance and time, as they can participate in the learning process from various places. Edmodo also helps to close the gaps between students with regard to their access to education, thus improving learning outcomes (Mokhtar, 2018).

Joko and Septia (2018) investigated the development of a learning-management system using Edmodo. Their results indicate that adopting Edmodo has a positive impact on the students learning skills, as it allows students to easily share media and up-to-date materials. Edmodo makes learning more interesting; it is current, uses easy-to-understand components, and is easily accessible. Thus, students are more interested in learning when using Edmodo than when in a traditional environment. Joko and Septia reported that students rated their learning experiences with Edmodo very highly. Edmodo's philosophy is to help students independently learn and use technology. The Edmodo environment, compared to a traditional environment, is more creative, more disciplined, more effective, more responsive, and more helpful for practice (Joko & Septia, 2018).

Maazi and Janfeshan (2018) studied Edmodo's effect on Iranian learners' writing skills and attitudes, reporting that Edmodo significantly improved learning skills related to English as a foreign language. They also reported that students have positive attitudes regarding the use of Edmodo in the classroom.

RESEARCH AIM AND QUESTIONS

A literature review reveals a lack of studies on the adoption of Edmodo within the Saudi higher-education system. There is thus a need to study blended learning networks such as Edmodo so that the instructional technology community can understand the impacts of such networks. Furthermore, as there is growing interest in e-learning systems within Saudi Arabia, there is a need for investigative research that addresses the current gap in knowledge regarding these technological advancements' impacts. Moreover, no scale exists for the measurement of students' attitudes toward such tools. Thus, this research is focused on how Edmodo affects skill development and educational attainment among students at Imam Abdulrahman bin Faisal University (IAFU). This study is meant to address two main research questions:

RQ1. What impact does the Edmodo educational network have on IAFU students' learning skills and knowledge?

RQ2. What attitudes do IAFU students have toward Edmodo?

The next section addresses the research methods and the data-collection process.

RESEARCH METHODOLOGY

The research study involved two groups of students: an experimental group and control group. The teachers of the control group used traditional teaching methods, and the teachers of the experimental group used Edmodo.

This study's experimental approach is applicable for measuring the influence of specified phenomena, as it allows for conclusions to be drawn about cause and effect (Bell, 2014). The experimental approach can be used to investigate a phenomenon across several disciplines (Kothari, 2004). This experimental study measures the impact of using the Edmodo network within the IAFU students.

EXPERIMENT DESIGN

The study sample includes 70 students of both sexes from various departments of IAFU. The participants range in age from 21 to 23. About 45% of the sample is female. The students were divided randomly into two groups: 35 in the control group and 35 in the experimental group. The control group experienced a traditional learning approach based on face-to-face lectures. The experimental group experienced a blended learning approach in which the Edmodo network (as an e-learning tool) supplemented traditional learning during the course.

This study's participants comprise undergraduate students in an Educational Technology course. All have good computer skills. The first lecture for the experimental group included the necessary training for using the Edmodo software in order to ensure that the participants had the required skills for this investigation. Participants in the study have been enrolled in the Educational Technology class, which is a general class the university offers. The duration of the experiment is about four months, which is the length of a whole semester. The course is two credit hours each week.

THE IMPACT OF USING EDMODO

This section explains the research processes that address RQ1. Figure 2 reports summaries of these procedures. First, the study participants were divided randomly into the two groups (a, b). Both groups completed a pretest exam before beginning the course (c). Then, each group completed the course using its assigned learning approach (d, f). Finally, both groups completed a posttest exam (g) so that the groups' results could be investigated and compared (h).

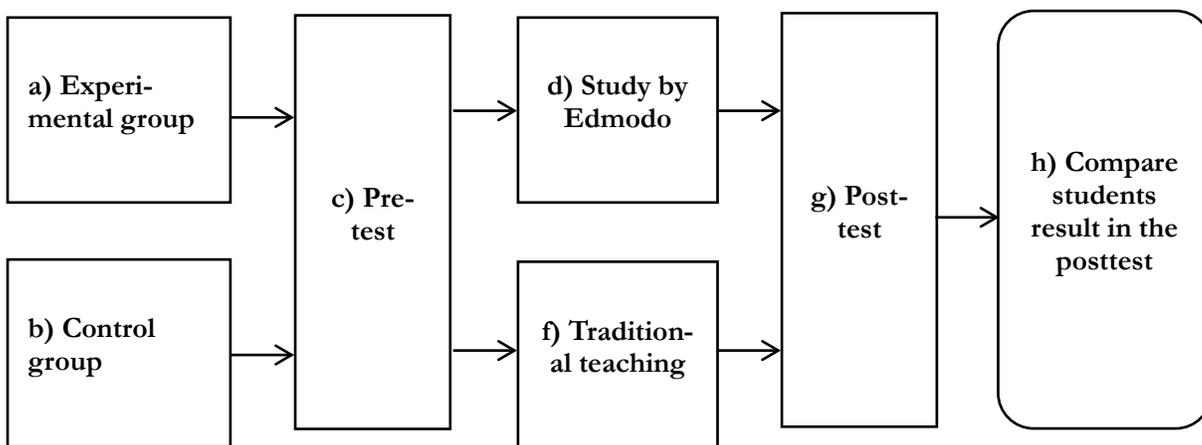


Figure 2. The process of identifying the impact of using Edmodo

The online pretest and posttest were designed to assess the students' knowledge related to the Educational Technology course, before and after the experiment, respectively. Staff members from the Instructional Technology department validated the tests. To ensure that there were no initial differences between the groups, a t test was used to examine the mean differences in the groups' pretest scores, as shown within Table 1.

Table 1. T-test results for the mean difference between the experimental and control groups in the pretest

Scale	No.	Mean (M)	Standard Deviation (SD)	T Value	Significance (P)
Experimental	35	16.21	0.8	0.85	0.69
Control	35	15.88	1.3		Not Significant

Table 1 illustrates the t-test results, which reveal that there were no significant initial differences between the two groups. Thus, the students are distributed normally across the two groups, and the results of this study are valid. Table 2 addresses the results of the t-test between the experimental and control groups in the posttest.

In addition, Blake’s (1966) modified gain ratio was used to provide more information about Edmodo’s effectiveness. This is a statistical formula used to measure the effectiveness of a program or educational course by comparing the differences between pre-tests and post-tests. The result of Blake’s modified gain ratio needs to be greater than 1.2 to be considered effective regarding impact (Blake, 1966; Bell, 2014).

ATTITUDES TOWARD EDMODO

To investigate RQ2, a scale was designed to investigate the students’ attitudes toward Edmodo. Several attitude scales from the literature were considered such as Al-Hathifi (2003) and Abdumahdy (2011). The designed scale consists of 10 statements; a Likert scale was chosen because it is a common and easy-to-use method for measuring attitudes. After the validity of the designed scale was verified, it was finalized and applied to this study’s sample. The scale was then presented to peer reviewers (specialists in curricula and psychology), who examined the items to ensure that they are appropriate for measuring the target themes. Moreover, the scale’s reliability was calculated using Cronbach’s alpha (α); this coefficient of reliability was 0.82, which is indicative of a good level of reliability. Thus, this scale can be used to scientifically measure attitudes and will produce reliable results. Figure 3 reports the process of adopt this scale to address RQ2.

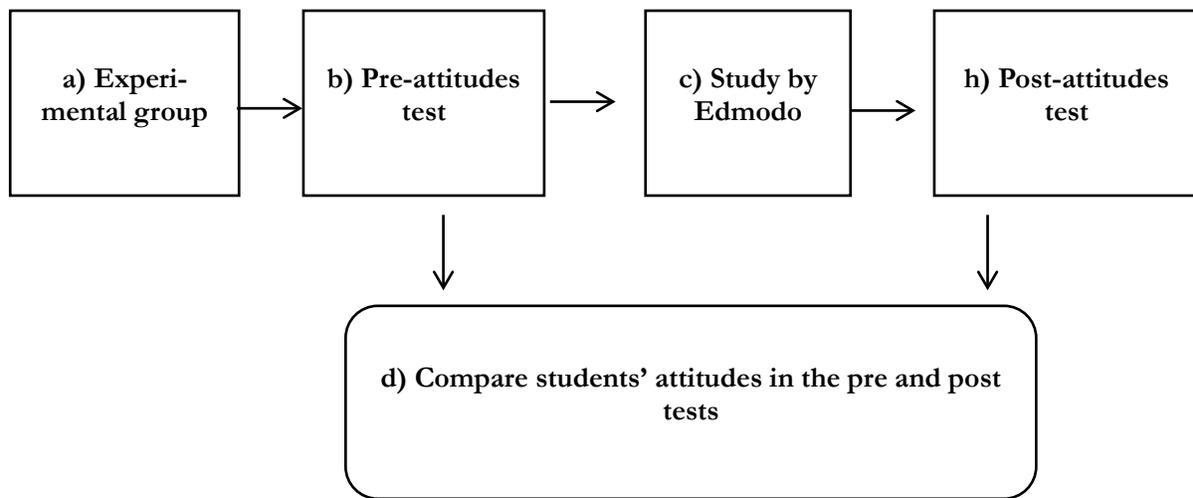


Figure 3. The process of identifying students’ attitudes to Edmodo

This attitude scale was applied to the students in the experimental group (a) twice: before (b) and after (h) study using Edmodo (c). This procedure provides information about how the students’ attitudes toward Edmodo changed after using it. A t test was used to examine the mean differences in these attitudes (d). The following section addresses the results of the procedures described within Table 3 and Table 4.

RESULTS AND DISCUSSION

This section presents the results of this investigation and provides discussion how these results compare to those of previous studies.

EDMODO'S EFFECT ON LEARNING SKILLS

With regard to RQ1, a t-test was used to examine the mean differences between the experimental and control groups in the posttest, as shown in Table 2.

Table 2. T-test results for the mean differences between the experimental and control groups in the posttest

Scale	No.	Mean (M)	Standard Deviation (SD)	T Value	Significance (P)
Experimental	35	41.71	2.14	4.130	0.00
Control	35	20.41	4.3		Significant

Table 2 illustrates the t-test results. The t test indicates that the posttest scores are significantly higher for the experimental group (M = 41.71, SD = 2.14) than for the control group (M = 20.41, SD = 4.3), $t = 4.130$, $p < .001$. In other words, there are significant differences in the means of the posttest results for the experimental group and the control group. Thus, Edmodo can have a positive impact on students' academic achievement in higher education.

Furthermore, Blake's (1966) modified gain ratio was applied to calculate Edmodo's effectiveness. This ratio, when applied to the means of the experimental and control groups, is 2.62, which is greater than the reference value (1.2). This shows that Edmodo effectively increased the students' learning skills and knowledge.

This result can be explained by the fact that Edmodo increased the use of collaborative e-learning in the experimental group, thus keeping those students informed. The results for the test questions that measure the level of collaborative e-learning in the research sample indicate that Edmodo delivered information in a collaborative manner, thus ensuring the learners' involvement in interactions related to the content and making students' achievement, learning, and revision easier and more streamlined.

This result is consistent with those of Labib (2007), AlKhalidi (2007), Hassan (2009), Roberts (2005), Wang (2010), and Yagci (2015), all of whom have emphasized the importance of collaborative e-learning in learners' overall performance and skill development, in the sense that e-learning has many advantages. For instance, e-learning allows students to acquire knowledge collaboratively and provides them with more freedom and flexibility in the learning process than they would have in formal learning environments. E-learning also encourages exchanges of experience and knowledge among learners. Along these lines, Maazi and Janfeshan (2018) reported significant improvements in students' learning outcomes as a result of using Edmodo.

In empirical studies from the field of higher education, Evans (2008), Lazzari (2009), Walls et al. (2010), Femendez et al. (2009), Lan and Sie (2010), and Trust (2017) have all produced results that are in agreement with those of this study, with those authors also finding that adopting Edmodo improves universities' educational practices by bridging the gap between theory and practice.

STUDENTS' ATTITUDES TOWARD EDMODO

To answer RQ2, a scale was developed to determine students' attitudes toward Edmodo. The results for this scale are shown in Table 3.

Table 3. Means and standard deviations for items in the attitude scale

Item	X	SD	Correlation (r)
I like using Edmodo	4.24	.692	.445
Using Edmodo helps me to share information	4.20	.664	.507
I can collaborate on-line with my friends by Edmodo	3.92	.834	.354
The Edmodo network supports collaboration and the sharing of information	3.81	.785	.413
I practice more during my course when using Edmodo	4.00	.855	.528
I enjoy a course using Edmodo	3.96	.816	.505
Edmodo is a friendly learning environment	4.04	.771	.552
Edmodo is an easy-access website	4.08	.601	.542
Teachers can provide us with their feedback faster via Edmodo	3.94	.689	.656
I can communicate easily with my teachers via Edmodo	4.09	.609	.520
Total	4.02	.731	

The results of the attitude measure show that the IAFU students have positive attitudes toward the Edmodo network. As shown in Table 3, the mean of the attitude scale is 4.02, and the standard deviation is .731, which indicates a high degree of agreement. The students rated most of the scale's items very positively and with high agreement.

In addition, the differences in the experimental-group students' scores on the attitude pretest and posttest were investigated. A t test was used to examine the mean differences in these students' attitudes toward Edmodo before and after the experiment, as shown in Table 4.

Table 4. T-test results for the mean differences in the pretest and in the posttest

Scale	No.	Mean (M)	Standard Deviation (SD)	"T" Value	Significance (P)
Pre- Test	35	13.71	0.94	3.45	0.00
Post -Test	35	25.85	0.56		Significant

Table 4 shows that the experimental group's scores are significantly higher on the posttest ($M = 25.85$, $SD = 0.56$) than on the pretest ($M = 13.71$, $SD = 0.94$), $t = 3.45$, $p < .001$. Thus, for the students in the experimental group, there are significant differences in attitudes between the pretest and the posttest. This means that using Edmodo caused the students to have more positive attitudes toward Edmodo.

Furthermore, Blake's (1966) modified gain ratio was applied to calculate the improvement in the students' attitudes after using Edmodo. This ratio, when applied to the means of the experimental and control groups, is 2.19, which is greater than the reference value (1.2). This is classified as a high impact.

These results show that using Edmodo in higher education could improve learners' attitudes with regard to Edmodo; thus, this research confirms that the positive aspects of learning via Edmodo improve the students' attitudes.

This result is consistent with the results of Al-Omri (2004), Ursavaş and Reisoglu (2017), and Maazi and Janfeshan (2018), who all have found that learners strongly approved of using Edmodo and appreciated the experience of learning with Edmodo. The students reported positive attitudes for Edmodo features such as taking exams, submitting work, receiving instructor feedback, and reviewing modules. Other researchers have also reported that students have positive attitudes toward the adoption of social networks in the classroom (Piriyasilpa, 2012).

Nasrullah, Marlina, and Dwiyantri (2018) also investigated use of the Edmodo network by comparing two groups of students (an experimental group that used Edmodo and a control group that did not). Their results show that the students who used Edmodo had better outcomes in terms of learning approach. The students who adopted Edmodo, as compared to the other students, also had greater motivation and more positive attitudes. The students who used Edmodo reported several advantages, such as its simplicity, the ability to use it on the computer or the phone, the savings in time and effort due to having several channels through which to share and exchange information, and the improved learning effectiveness.

This study's results are in agreement with those of Yunkul and Cankaya (2017), who reported that students have positive attitudes toward Edmodo. This study's results are also in line with what Janpho, Chaeturat, and Multa (2015) found regarding the effectiveness of using social educational networking when teaching English.

As the end of this section, Table 5 summarizes the results of this study.

Table 5. Summarization of this study's results

No.	Result	Reference
1	Using Edmodo has a significant impact on IAFU students' learning skills and knowledge. There is a significant difference between the mean values from the post-test results for the experimental group and the control group.	Table2
2	Using Edmodo effectively increased the students' learning skills and knowledge.	Result of Blake's modified gain ratio
3	IAFU students have positive attitudes toward the Edmodo network.	Table 3
4	A scale was developed to determine students' attitudes toward Edmodo.	Table 3
5	Using Edmodo has a significant impact on IAFU students' attitudes toward Edmodo. There are significant differences in attitudes between the pre-test and post-test results of the experimental group.	Table 4
6	Using Edmodo effectively increased the students' attitudes toward Edmodo.	Result of Blake's modified gain ratio

CONCLUSIONS

This investigation shared the important experience of using Edmodo with a higher education course with students of IAFU. The experiment this research focuses on measures the impact of using Edmodo as a learning platform on students' learning skills and knowledge. One of this study's goals is to raise awareness of using Edmodo within the Saudi higher education system. It also establishes a baseline for further studies about merging technology with education. Moreover, this study aims to address the gap in this area and provide the instructional technology community with a better understanding of the impact using Edmodo can have. The study also provides support for future decisions addressing the Saudi Ministry of Education's vision by transforming e-learning applications.

The results of this study illustrate that using the Edmodo network leads to statistically significant improvements in IAFU students' learning skills. Teaching via Edmodo can increase students' attention and give them more positive attitudes toward online learning. The results also show that IAFU students have positive attitudes toward Edmodo.

The limitations of this study include the limited number of study participants and their backgrounds. This experiment is also limited by the Educational Technology course, which was the course that all participants were enrolled in.

Further work should include investigations of this topic that include a larger number of participants with more diverse backgrounds. The challenges of using Edmodo also need to be investigated in future studies. Other suggestions for future research include investigating the impact of other e-learning platforms and comparing them to the findings of this study.

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BIOGRAPHY



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