

# The Effect of Using Edmodo in Teaching the Course of Producing and Using Teaching aids on Developing the Trend Towards 21<sup>st</sup> Century Skills among Students of The College of Arts, Imam Abdurrahman Bin Faisal University, Saudi Arabia

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Employing E-Learning and virtual learning as a tool for empowering and motivating innovative learning and teaching processes is becoming a vital part of a twenty-first-century education. Edmodo is one of the E-Learning sites that is currently being utilised by teachers and students in many higher education institutions worldwide. This study focuses on the effectiveness of the use of Edmodo in teaching the course of production and use of teaching aids in developing the trend towards twenty-first-century skills among students of the College of Arts, Imam Abdurrahman bin Faisal University, Saudi Arabia. Data were collected using a quantitative data collection method. Altogether 30 students responded to a measure intended to measure students' trend towards twenty-first-century skills. Overall, the findings indicated that the size effect of teaching the course using Edmodo on developing the trend towards the twenty-first-century skills ranged between 0.87% - 0.95%; this confirmed that teaching the course of production and use of teaching aids using Edmodo has a significant impact in developing the trend towards the twenty-first-century skills among students of the eighth level at the Department of Libraries at the College of Arts in Dammam.

**Key words:** *Educational Platform, Twenty-First-Century Skills, E-learning, and Teaching.*

## 1. Introduction

The internet became a very important resource for learning and research for both students and teachers to acquire and share information (Arkorful & Abaidoo, 2015). Technology-based e-learning involves using the internet and other technologies in learning, teaching learners, and regulating courses in an organisation (Rodrigues, Almeida, Figueiredo, & Lopes, 2019). E-learning as a concept includes a range of learning methods, processes, and applications. Therefore, it is hard to find a commonly agreed e-learning definition; also, according to Dublin in Patil, (2018) there is no common definition for the term of learning (Rodrigues et al., 2019).

E-learning refers to using communication and information technologies to access to online teaching and learning resources (Al-araibi, Naz'ri bin Mahrin, Yusoff, & Chuprat, 2019). E-learning is the use of communication technologies and information in various educational processes to enhance and support learning in higher education institutions and it comprises the use of communication and information technology as a complement to traditional learning or as a mixture of the two modes (Arkorful & Abaidoo, 2015).

In his study on e-learning, (Alqahtani, 2016) found that the features of the e-learning process are chiefly centered on the internet; learning resources and global sharing, knowledge flow and information broadcasts using online courses, and finally learning flexibility as computer-generated atmosphere for learning is formed to overcome time and distance issues (Arkorful & Abaidoo, 2015).

Additionally, utilising information systems within educational institutions offers an opportunity for organisations to reorganise their current paper and time-consuming processes to improve their efficiency. From a student's viewpoint, the economy of knowledge generates a great demand for continuous skills upgrading and training. E-learning enables this lifelong learning to be part of the student's daily life, eliminating the need to travel to another country to study and being restricted to a specific class schedule (Koç, Turan, & Okursoy, 2016; Viberg & Grönlund, 2017).

The E-learning platform is an interactive learning environment that employs the technology of the internet and combines the advantages of electronic content management systems and social networks, so that teachers can publish lessons, assign duties, distribute roles and divide students into working groups and help to exchange views and ideas between teachers and students, share content, apply educational activities, and contact teachers through multiple technologies. It also enables teachers to conduct electronic exams, and allows parents to communicate with teachers and see the results of their children, which helps to achieve high-quality educational outputs (Arkorful & Abaidoo, 2015; El-Bahsh & Daoud, 2016; Kumar Basak, Wotto, & Belanger, 2018).

To maintain the market share and remain competitive, the traditional institutions of higher education have included e-learning courses to compete with the increasing number of virtual institutions of higher education (Netanda, Mamabolo, & Themane, 2019; Ülker & Yılmaz, 2016). Thereby, they can utilise their brand names to increase their target market worldwide to take advantage of excess demand in other countries' educational systems.

Different expressions are used for describing educational computer applications, such as Virtual Learning Environment (VLE), Learning Management Systems (LMS), e-learning Systems, or Course Management System (CMS) in which students can access contents of the courses in different formats (sound, image, text), and also interact with colleagues and teachers, via videoconference, message boards, chats, forums, or other communication tools (Rashida, 2018; Zaharias & Pappas, 2016).

The E-learning platforms offer a group of configurable features, to create online pages of subjects, courses, learning communities, and workgroups. These systems have features for registering, evaluating, and monitoring activities of teachers and students, allowing the management of the contents through the Internet (Prasanna Kumar Muduli, Asjola, Chaudhary, & Shashikumara, 2019). Other researchers (Nurhayati & Bandung, 2019) defined the e-learning platforms as systems, which offer integrated support for six activities: creation, delivery, organisation, communication, assessment, and collaboration. From a technical viewpoint, different types of LMS are available, some of them are commercial (such as WebCT/ Blackboard) and others are open source (such as Moodle, Edmodo).

Through the E-learning platforms, students demonstrated more receptivity and were willing to solve more complex homework. An e-learning platform is also a suitable solution that aids in the management of the class and avoids potential errors (Long, 2017; Nurhayati & Bandung, 2019).

Platforms have a similar core but each one has some specific features to attract users. Some of them are accessible only for authorised teachers and students (Kovaleva & Anchugova, 2016). They are closed platforms with a strict plan of course and without the possibility of change. Partly opened platforms have the opportunity of uploading necessary additional materials. Both these platforms are paid but provide participants with courses, materials, and support (Kovaleva & Anchugova, 2016; Ouadoud, Chkouri, & Nejjari, 2018; Ouadoud, Chkouri, Nejjari, & El Kadiri, 2016).

Opened platforms are free and any concerned user can create the course. These platforms are suitable for teachers with much educational material and wish to collect them on one contemporary resource for fast access and updating (Kovaleva & Anchugova, 2016; Ouadoud et al., 2018). Most

platforms require different skills and computer knowledge for manipulating a smooth uninterrupted educational process and achieving the aims (Kovaleva & Anchugova, 2016).

There are many available types of e-learning platforms for building and learning programs, courses, and certification. The main types of e-learning platforms are (Whittemore):

- Traditional Commercial Learning Management Systems
- Learning Destination Sites
- Open Source Learning Management Systems
- Custom Built Platforms
- Modern Learning Management Solutions
- Learning Management Ecosystems

The Edmodo platform is a revolutionary application developed for serving academic purposes by Jeff O'Hara and Nicolas Borg in 2008. It has features that enable communication between teachers, students, and parents (A.-R. Ahmed & Fathiya, 2019).

The major Edmodo benefits are its mobile support and stable functionalities; also the following are some advantages of Edmodo (A.-R. Ahmed & Fathiya, 2019; Bayburtsyan, 2016; Fauzi, 2017; Sari, Surtikanti, & Nurlaili, 2019):

- Edmodo is free, it is a secure web address: parents, students, administrators and teachers in a school or district can be connected.
- Edmodo makes collaboration easier: schools and classrooms work with a community of educators from all over the world.
- The unified database of Edmodo is a great feature that helps teachers to measure the progress of their students by tracking a student's grades, participation, and how students react to the discussions and activities in the classrooms. This data helps teachers to find the parts that students find exciting or hard.
- Edmodo connects teachers with a network of tools and resources, as well as with publishers, students, administrators, and parents.

Due to its manifest scope, innovative features, and practical application, Edmodo attracted educators worldwide. Also, Edmodo offers an enhanced learning and teaching experience, fascinating a more engaging and dynamic classroom atmosphere than traditional means (Alka, 2020; Fauzi, 2017). Also, it improves the learning environment quality, which is reflected positively in the improved participation of students in the learning setting and externally (Almoether, 2020; Bicen, 2015; Gay & Sofyan, 2017; Lam, Hew, & Chiu, 2018).



Education has a vital role to play in developing skills, knowledge, values, and attitudes that help people to benefit from and contribute to a sustainable and inclusive future (Silber Varod, Eshet Alkalai, & Geri, 2019). Learning to form purposeful and clear goals, find new opportunities, work with others with diverse perspectives, and find several solutions to big problems will be important in the coming years. Education must have a goal to do more than make young people prepared for the work world; it must prepare students with the skills that are essential for becoming engaged, responsible, and active citizens.

Over the past few years, we have observed the unprecedented worldwide integration of digital technologies for collaborative knowledge construction, communication, reading, and multimedia learning in education systems. Recently, UNESCO emphasised how skills and demands have advanced over time, claiming that increasing gaps in the competencies and knowledge of different economies, countries, and populations caused a growing use of technology in society (Ludger, 2015).

The National Research Council (NRC) which is a Committee that focuses on twenty-first-century skills and Defining Deeper Learning (National Research Council, 2012) presented a comprehensive and complete model of the twenty-first-century to advance research related to the learning and teaching of these skills (NationalResearchCouncil, 2012; Silber Varod et al., 2019). The model describes twenty-first-century skills like the knowledge that can be transferred or applied to new settings. This involves both transferable domain content knowledge and procedural knowledge (skills) of when, why, and how knowledge content can be properly applied. The model classified twenty-first-century competencies and skills into three main clusters: cognitive competencies (creativity, knowledge, and cognitive strategies and processes), intrapersonal competencies (positive core self-evaluation, work ethic/conscientiousness, and intellectual openness) and interpersonal competencies (leadership, teamwork and collaboration) (NationalResearchCouncil, 2012).

Nowadays, there is an increasing demand for global cooperation, and as time passes the current students join the workforce which will grow exponentially. Therefore, present classrooms need to be changed to global classrooms (Silber Varod et al., 2019; White, 2018).

The main argument regarding the student acquisition of twenty-first-century skills is the educator's responsibility to make students ready for the society in which they will live and work (Lecorchick & Peterson, 2019; Young & Mumby, 2018). "To successfully face rigorous higher education coursework, career challenges, and a globally competitive workforce, U.S. schools must align classroom environments with real-world environments" (Learning, 2015). It will take creativity,

leadership skills, innovation, social responsibility, and other twenty-first-century skills to be able to ultimately generate a prosperous and growing economy, and solve complex societal problems, and take care of the planet in doing so. To deliver students a twenty-first-century education, support structures are necessary (Humburg & Van der Velden, 2017; Reimers & Chung, 2019).

52 skills, work activities, and types of knowledge were categorised into five domains of important competencies (Jang, 2016): problem-solving skills, social communication skills, system skills, technology and engineering skills, and resource, time, and knowledge management skills. The role of education on subsequent career advancement has been addressed in the international setting (OECD, 2017).

The P21 Framework for twenty-first-century learning was developed by education experts, educators, and business leaders to illustrate and define the knowledge, skills, support systems, and expertise that students need to be successful in work, citizenship, and life (Kids, 2019). The Framework is used by many schools and educators abroad and in the U.S. and to put twenty-first-century skills at the midpoint of learning. All the Framework elements are important for ensuring twenty-first-century readiness for all students (Kids, 2019). Figure 1 shows the Framework for twenty-first-century Learning.

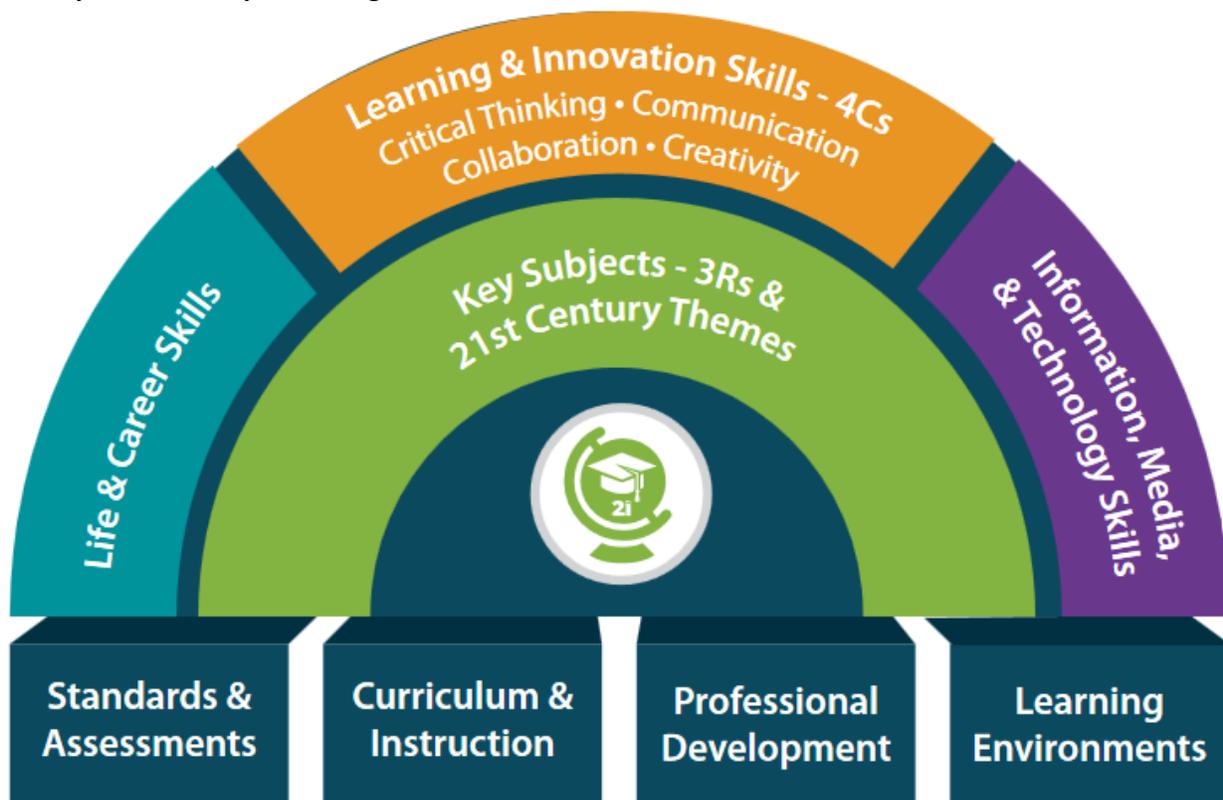


Figure 1: Framework for twenty-first-century Learning (Kids, 2019).

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According to figure 1, the skills of the twenty-first-century are divided into:

1. Learning and innovation skills, which are divided into:
  - Creativity and innovation (thinking creatively using brainstorming, creative work with others, and implementing innovations).
  - Critical thinking and problem-solving (thinking effectively, using systemic thinking, issuing judgments and decisions, and solving problems)
  - Cooperation and communication (communicating clearly, and cooperation with others)
  
2. Information, media, and technology skills, divided into:
  - Information culture (access to and evaluation of information and use of information management).
  - Media culture (analysing the media - creating media products).
  - Culture of knowledge communication and technology (effectively applying technology).
  
3. Life and work skills, divided into:
  - Flexibility and adaptation (adaptation to change and flexibility).
  - Initiative and self-direction (time management, working independently, and self-learning).
  - Social and non-cultural skills (interacting efficiently with others, working in a wide variety of teams).
  - Productivity and accountability (project management and reaching results).
  - Leadership and responsibility (directing and leading others and responsibility for others).

Twenty-first-century skills, particularly the learning and innovation skills are what distinguish students who are ready for work environments and an increasingly complex life. Based on the reported effectiveness of Edmodo in teaching and the importance of twenty-first-century skills, the current study investigates the effectiveness of the use of Edmodo in teaching the course of production and the use of teaching aids in developing the trend towards twenty-first-century skills among students of the College of Arts, Imam Abdurrahman bin Faisal University.

## **2. Research problem**

The development of the skills of the twenty-first century is a requirement for work and life for students' success and development, but despite this, the researchers noticed during teaching the eighth level students in the department of libraries, college of arts, Dammam, the weakness of

students in the twenty-first century skills and their attitude towards them, such as critical thinking, problem-solving, leadership and responsibility, and other skills; this weakness was also indicated by many researchers such as Aleid, (2019) who indicated that the degree of acquisition of the twenty-first-century-skills among students was 61% as a total and only 40% for the innovation and creativity skills. Also, the study of Taha, (2018) that was applied to 30 students in the Department of Geography, Alexandria University indicated that the students scored 34.5% in the innovation skills and the student were weak in terms of cooperation and communication skills and other twenty-first century skills.

### **3. Research Objective**

The study will attempt to achieve the following objectives:

- Design an educational platform for the course of production and use of educational aids.
- Study the effect of the use of Edmodo in teaching the course of production and the use of teaching aids in developing the trend towards twenty-first-century skills among students of the College of Arts, Imam Abdurrahman bin Faisal University.
- Recommend recommendations based on the results of the study, as well as proposals for conducting further studies.

### **4. Research Questions**

This research seeks to answer the main research question:

- What is the Effect of Using Edmodo in Teaching the Course of Producing and Using Teaching aids on developing the Trend Towards 21<sup>st</sup> Century Skills among Students of The College of Arts, Imam Abdurrahman Bin Faisal University?

### **5. Research Significance**

The importance of this research is as follows:

1. This study may contribute to highlighting the importance of using E-learning to teach university courses to improve students' skills.
2. This study may contribute to the inclusion of Edmodo as an educational tool to help in providing students with the skills and competencies required for the twenty-first century.
3. It may encourage decision-makers in university colleges to make decisions to incorporate educational platforms into teaching courses in various disciplines.

4. It may encourage decision-makers in universities to make decisions to train lecturers on the use of educational platforms to maximise the benefit from them.

#### 4. Research Hypothesis

There is a statistically significant difference between the means of the experimental group scores in the pre- and post-application in the measure of the trend towards the skills of the twenty-first century as a whole and its sub-dimensions among students at the eighth level in the Department of Libraries at the College of Arts in Dammam in favour of the post-application.

#### 5. The Scope of the Study

The study was limited to the following borders:

- **The objective Scope:** The study was limited to studying the effect of using Edmodo in teaching the course of producing and using teaching aids on developing the trend towards 21st century skills among students of the college of arts, Imam Abdurrahman Bin Faisal University
- **Human Scope:** The study included 30 Students of the eighth level in the Department of Libraries, College of Arts, Dammam who are learning the course of the production and use of teaching aids.
- **Spatial Scope:** The study was applied to students from the eighth level in the department of libraries, college of arts, Dammam, Saudi Arabia.
- **Time Scope:** The study was applied during the first semester of the academic year 2019/2020.

#### 6. Research Methods and Materials

##### 6.1 Research Method

The one-group experimental design was used, because it suits the nature and objectives of this research.

- **Research Population**

The research population involves students from the eighth level in the Department of Libraries, College of Arts, Dammam, Saudi Arabia who are learning the course of the production and use of teaching aids, out of them, 30 students formed the research sample (experimental group).

## 6.2 Research Materials

The materials of the study involve the course of production and the use of teaching aids that were taught using the educational platform Edmodo.

- **The stages of preparing and uploading the course on the Edmodo platform**

To prepare the course, the literature on educational research was reviewed, which dealt with both: the objectives of teaching the production and use of educational aids, the skills of the twenty-first century, and after reviewing the previous literature the elements of the course were identified as follows:

- **Course Objectives:**

The objectives of the course were defined in two levels:

a) The general objectives of the course.

Developing the trend towards the skills of the twenty-first century among students of the eighth level at the Department of Libraries, College of Arts, Dammam.

b) Procedural objectives of the course

These are the objectives specific to each module of the course, and these objectives have been formulated to cover the general objectives of the course.

- **Course Content**

**Course modules:** The list of modules was formulated as listed in Table (1).

Table 1: the modules of the course of production and use of educational aids.

#	Modules	Time consumed
1	Non-electronic visual materials - teaching and learning boards	4 hours
2	Models and samples	4 hours
3	Models, pictures and stereographs	4 hours
4	Educational toys and dolls	4 hours

A scenario has been prepared for the modules of the production and use of educational aids course considering the steps of using the Edmodo educational platform, and what it includes from the

start to the end, illustrating pictures, media, audio materials and visual effects. Also, a manual has been prepared to help the students to learn the course using Edmodo and to make the best use of the uploaded material and Edmodo's features. Thus, the following has been taken into consideration when creating the educational platform:

- Designing an introductory page for the steps and stages of using the Edmodo platform.
- Ease of use of the platform, and the ability to easily navigate it.
- Clarity of the general objectives of the electronic course on the main page, and clarity of the objectives for each module.
- Providing the student with the ability to learn at a time and place that is appropriate to her circumstances, allowing the self-learning and interacting with the educational platform, and to share with the students through the Edmodo platform, Facebook, Twitter, Instagram, and e-mail.
- Using a range of features in educational content such as text, colors, sounds, images, videos, animation, and hypermedia.

In order to sign up on the website: <https://www.edmodo.com/>, (figure 2 shows the main page of Edmodo), the lecturer created an account on Edmodo with the name of production and use of educational aids course, and then the modules of the course were uploaded by creating a class for every module; figure 3 shows the home page of Edmodo which contains the “+ Create class” feature. Figure 4 shows the created classes in “My Classes page”.

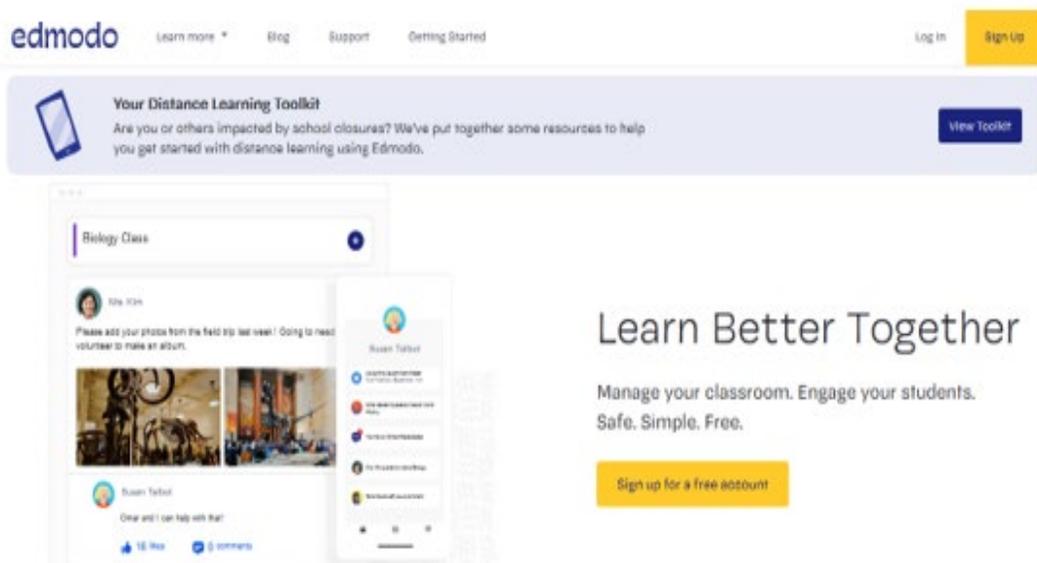


Figure 2: Edmodo main page.

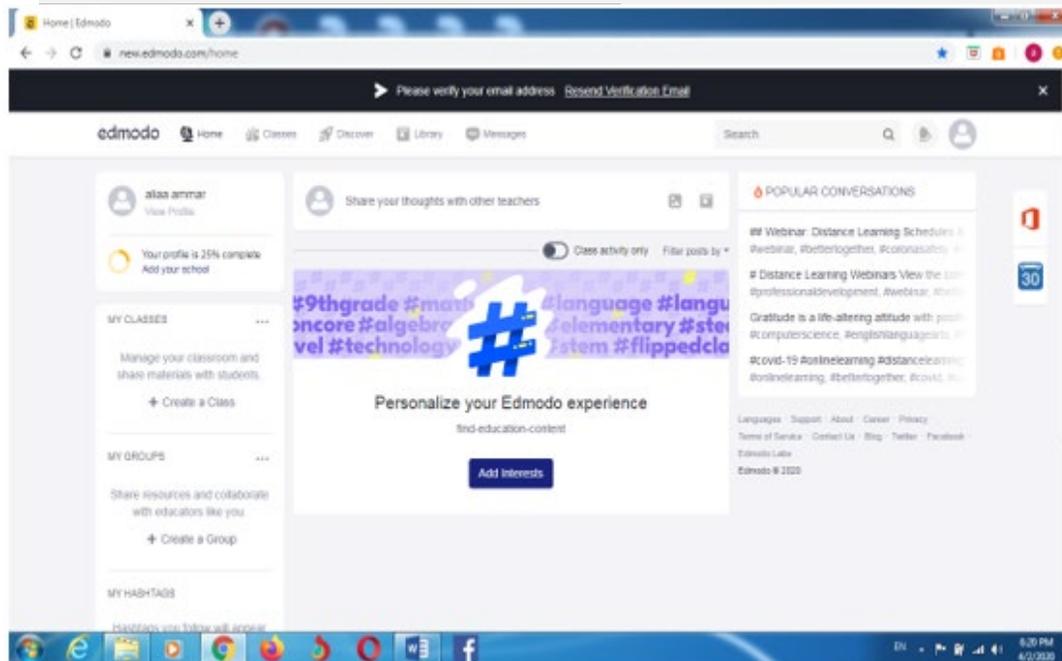


Figure 3: Edmodo home page.

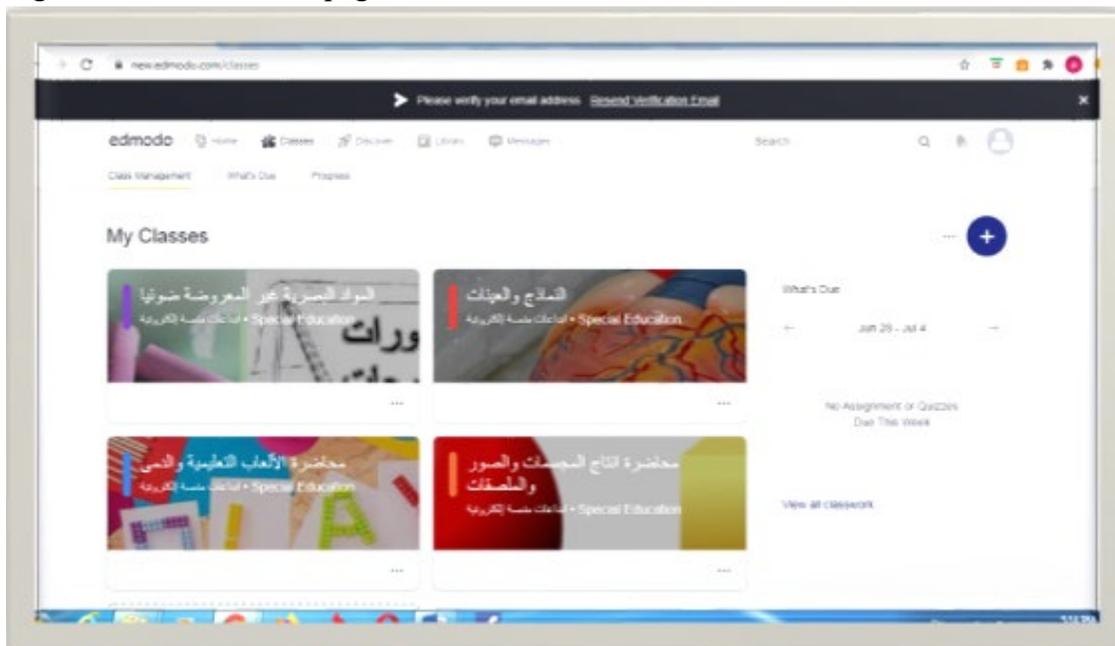


Figure 4: My classes' page.

Students who registered were required to study the manual of Edmodo that was prepared and uploaded on the Edmodo platform, where they were expected to manage their learning sessions. Edmodo classes contain three sessions i.e. assignments, quizzes, and lectures. The students were required to follow up PowerPoint slides of the lectures and to cooperate on given assignments. The

students were also stimulated to interact with the teacher and the other students to share ideas and catch up with quizzes and tasks. Mainly, students worked both individually and in groups.

## **7. The Stage of Experimentation and Implementation**

### **7.1 Edmodo Platform Validation**

After preparing the platform in its initial form, it was presented to a group of arbitrators and specialists in curricula and educational technology to know their views on:

- The extent to which the platform-based course has achieved the goals for which it was intended.
- The suitability of the teaching the course via the Edmodo platform for the educational stage for which it was developed.
- The suitability of the scientific sub-division used in educational modules.
- The ease of displaying the scientific content of the course's educational modules.
- The suitability of the materials and its presentation with the material and the platform.

The arbitrators agreed on the accuracy of the scientific material included in the course and on the appropriateness of the scientific content of the course; they also made some comments as follows:

- Modifying some activities to suit students.
- Modifying the background of some titles to be clear.

The comments of the arbitrators were taken into consideration then the course was ready for implementation.

### **7.2 Experimenting the Educational Platform with an Exploratory Sample**

An exploratory experiment was conducted on the educational platform by presenting it to a sample of 20 students from the eighth level at the Department of Libraries at the College of Arts in Dammam, Saudi Arabia to get their views on the course teaching using the educational platform and the extent of the response to using the educational platform; the students expressed their admiration for the use of the educational platform, the ease of navigation, the praise for the modern methods of teaching, the communication and interaction among students on the platform. They also expressed the wish to study all courses using the educational platform Edmodo.

### 7.3 Edmodo educational platform finalisation

After taking all the amendments, the course page and classes on the Edmodo educational platform have been finalised and ready to be used.

## 8. Research tools

### 8.1 The Measure of The Trend Towards 21st Century Skills

This measure aims to reveal the students' attitudes towards the twenty-first-century skills, based on the use of the Edmodo educational platform. The data collection process used a quantitative data collection method. In developing the measure, the dimensions of the measure have been determined by examining the literature and previous studies, such as the studies in (Abouelmagd, 2002, 2017; Abouelmagd & Ali, 2011; Abouelmagd & Mahmoud, 2012; N. Ahmed, 2008; Mahmoud, 2011).

- **Three dimensions have been identified for this measure:**

#### 1. *Appreciation of the value and importance of the skills of the twenty-first century:*

Represented in the knowledge and awareness of students of the importance of the skills of the twenty-first century in life, and how important they are to their personal life. The number of statements measuring this dimension was nine.

#### 2. *Acceptance of the skills of the twenty-first century:*

Represented the students' feelings towards the skills of the twenty-first century by feeling either happiness or distress and desire or lack of adaptation with them, their trends towards them, and the extent of acceptance of them. The number of statements measuring this dimension was eleven.

#### 3. *Confidence in the skills of the twenty-first century:*

This is represented in the confidence of students in the skills of the twenty-first century and the results that they will obtain after learning these skills, in addition to the confidence in its role in meeting their needs. The number of statements measuring this dimension was nine.

The statement's wording varied between positive and negative, as the number of negative-wording statements was eleven and their numbers were 2, 4, 7, 9, 11, 15, 17, 18, 20, 25, 26. Table 2 shows the distribution of the measure items on dimensions.

Table 2: The distribution of the measure items on dimensions.

dimensions	Appreciation of the value and importance of the skills of the twenty-first century	Acceptance of the twenty-first-century skills	Confidence in the twenty-first-century skills	Total
Items	1, 10, 11, 12, 14, 22, 25, 28, 29	2, 3, 4, 7, 9, 15, 17, 18, 19, 26, 27	5, 6, 8, 13, 16, 20, 21, 23, 24	29
Number of items	9	11	9	

The response on the items of the measure was quantitatively graded according to the five-point Likert scale (strongly agree - agree - undecided - disagree - strongly disagree). Thus, the measure, in its initial form, was ready to be presented to the arbitrators.

## 8.2 Study Tool Validity

The validity of the study tool has been confirmed by

- **Face Validity**

The measure was presented in its initial form to several arbitrators and experts to express their views on the measure in terms of the clarity of its instructions, the extent to which the dimensions fit the measure of the trend towards the twenty-first-century skills, the suitability of each item for its dimension, the degree of clarity and accuracy in the formulation of each item, and the adequacy of items for each dimension. According to the views of the experts, some statements were removed from the measure, some statements were rearranged, and some statements were added.

- **Internal Consistency**

The internal consistency of the current measure was confirmed by calculating the correlation coefficient between the score of each item in the dimension and the total score for its dimension, where the measure was applied to a sample consisting of 20 female students from the eighth level students at the Department of Libraries in the College of Arts in Dammam, and table 3 shows the correlation coefficient for the measure's items.

Table 3: The internal consistency of the measure's items.

Appreciation of the value and importance of the skills of the twenty-first century				Acceptance of the twenty-first-century skills				Confidence in the twenty-first-century skills			
Item #	Correlation coefficient	Item #	Correlation coefficient	Item #	Correlation coefficient	Item #	Correlation coefficient	Item #	Correlation coefficient	Item #	Correlation coefficient
1	0.53 **	25	0.82 **	2	0.58 **	17	0.67 **	5	0.67 **	21	0.76 **
10	0.80 **	28	0.73 **	3	0.44 *	18	0.64 **	6	0.48 *	23	0.65 **
11	0.75 **	29	0.71 **	4	0.65 **	19	0.74 **	8	0.75 **	24	0.59 **
12	0.68 **			7	0.68 **	26	0.48 *	13	0.59 **		
14	0.58 **			9	0.81 **	27	0.76 **	16	0.83 **		
22	0.67 **			15	0.41 *			20	0.68 **		

It is clear from the previous table that the correlation coefficient for the measure's items ranged between 41.0 and 83.0, which indicates that it is statistically significant at the 0.05 level. And accordingly, the study tool in its final form consists of 29 items.

### 8.3 Study Tool Reliability

The study tool reliability was confirmed using

- **Internal Consistency**

The internal consistency of the measure was calculated by finding the correlation coefficient between each dimension of the measure and the overall of the measure; table 4 shows the internal consistency of the measure's dimensions.

Table 4: The internal consistency of the measure's dimensions.

Dimension	Appreciation of the value and importance of the skills of the twenty-first century	Acceptance of the twenty-first-century skills	Confidence in the twenty-first-century skills
Correlation coefficient	0.74 **	0.79 **	0.77 **

From the previous table, the correlation coefficient of the measure dimensions is significant at .01 level.

- **Alpha Cronbach coefficient**

The reliability of the measure was confirmed by calculating the Alpha Cronbach coefficient for the measure items, and the value of the alpha coefficient was 0.74; it is an appropriate value for this type of reliability, and thus the measure has a high degree of validity and reliability and appropriate to be applied to the research sample.

## 9. Research Experiment Application

- The pilot study of research tools was implemented on Wednesday 28/8/2019.
- Pre-application of the research tools: The measure of the trend towards 21st-century skills was applied on Sunday 5/9/2019.
- The experiment started on Wednesday, 11/9/2019, and ended on Wednesday 30/10/2019, according to the teaching plan of the course.
- Post-application of research tools: The measure of the trend towards 21st-century skills was applied on Wednesday 6/11/2019.
- The measure of attitudes toward the skills of the twenty-first century has been corrected and graded in preparation for statistical treatment and obtaining, analysing, and interpreting results.

## 10. Research Results and Analysis

The results were statistically processed using the statistical program (SPSS), and the following statistical methods were applied:

1. The t-test is used to compare the paired groups with pre- and post-application scores
2. Eta Squared ( $\eta^2$ ) was used to quantify the effect of the measure on the research variables.

By statistically analysing the responses of the study sample, the T value was calculated to determine if there is a significant difference between the means of the two experimental groups between the post- and pre-application in the measure of the trend towards the twenty-first-century skills, and in terms of its dimensions (Appreciation of the value and importance of the skills of the twenty-first century, Acceptance of the twenty-first-century skills, and Confidence in the twenty-first-century skills). To determine the effect of the Measure, the effect size ( $\eta^2$ ) of the course was calculated, and the results were as shown in the following table:

Table 5: The Means of the post and pre-application for the measure of the trend towards the skills of the twenty-first century and the size effect of the measure as a whole and its dimensions.

<i>Dimension</i>	<i>Application</i>	<i>Mean</i>	<i>SD</i>	<i>Degree of freedom</i>	<i>T Value</i>	<i>Level of significance</i>	<i>Eta squared (<math>\eta^2</math>)</i>	<i>Effect size indication</i>
Appreciation of the value and importance of the skills of the twenty-first century	Post-application	42.10	2.10	29	14.32	0.001	0.92	large
	Pre-application	32.03	3.24					
	Post-application	48.70	4.33	29	19.52	0.001	0.91	large

<i>Dimension</i>	<i>Application</i>	<i>Mean</i>	<i>SD</i>	<i>Degree of freedom</i>	<i>T Value</i>	<i>Level of significance</i>	<i>Eta squared (<math>\eta^2</math>)</i>	<i>Effect size indication</i>
Acceptance of the twenty-first-century skills	Pre-application	33.33	2.84					
Confidence in the twenty-first-century skills	Post-application	40.70	2.84	29	17.99	0.001	0.87	large
	Pre-application	31.40	1.42					
<b>Total</b>	Post-application	131.5	7.55	29	23.66	0.001	0.95	large
	Pre-application	96.77	4.88					

From the previous table, the T value of the dimensions of estimating the value and importance of twenty-first-century skills - accepting twenty-first-century skills - confidence in twenty-first-century skills, and a total score, respectively are 14.32, 19.52, 17.99, 23.66, while The T value at a degree of freedom 29 and level of significance 0.001 was 39.3. When comparing the calculated T value with the tabular T value, we find that it is greater, and thus the superiority of the experimental group in post-application is evident. This means that the means of the experimental group in the post-application is greater than the pre-application, and since the direction of the difference always is in favour of the larger average, the direction of the difference is in favour of the post-application measurement as shown in figure 5. Also, the size effect of teaching the course using Edmodo on developing the trend towards the twenty-first-century skills ranged between 0.87% - 0.95% and then Edmodo's use has a great influence in developing the trend towards twenty-first-century skills.

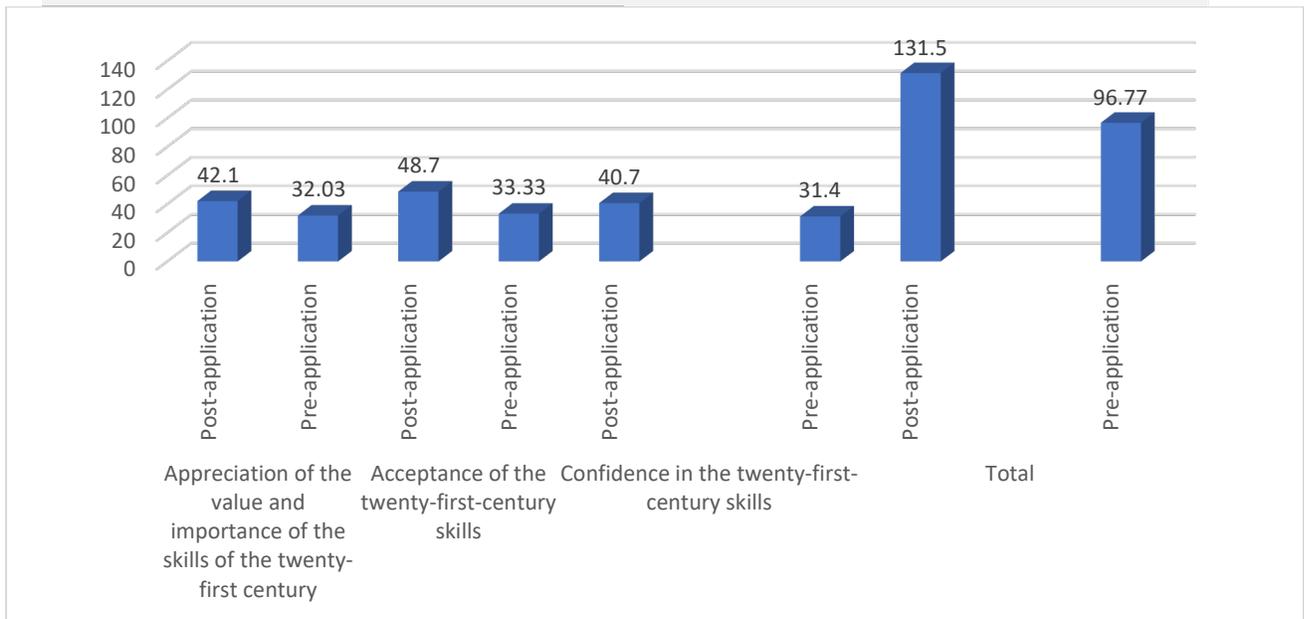


Figure 5: The difference between the mean scores of the experimental group in the post-application and pre-application in the measure of the trend towards twenty-first-century skills.

## 11. Discussion

This research aimed to prepare the course of the production and use of teaching aids and teach them using the Edmodo educational course then measuring the effect of this course on developing the trend towards twenty-first-century skills among students at the eighth level at the Department of Libraries at the College of Arts in Dammam; the measure in this research included the following dimensions: Appreciation of the value and importance of the skills of the twenty-first century, Acceptance of the twenty-first-century skills, and Confidence in the twenty-first-century skills. (Importance, Acceptance, Confidence).

It has been evident from the study results that teaching the course using Edmodo has a significant impact in developing the trend towards the skills of the 21<sup>st</sup> century among students of the eighth level at the Department of Libraries at the College of Arts in Dammam; also that the change that occurred in the trend students towards twenty-first-century skills is largely due to the influence of the independent variable with teaching the course of the production and use of teaching aids using Edmodo.

The researchers believe that the previous result can be traced back to:

- The educational platform provided by Edmodo provided an educational atmosphere in which the student is given the confidence, acceptance of ideas, and the opportunity to present ideas and experiment them without criticism or boredom.
- Teaching the course using Edmodo was interactive which provided the student with good training, where the student can view the information more than once which helped to create the students' positive trends.
- The arrangement of information in the Edmodo educational platform is easy, clear, understandable and with the availability of suspense elements; all of these helped to form a positive trend towards twenty-first-century skills.
- The student plays the primary role in the learning process, so he/she feels a kind of challenge that helped in creating a positive trend.
- Easiness of use of the Edmodo educational platform and the formation of an interactive group to study the course, which led to the formation of the students' positive trend.
- The nature of teaching using the Edmodo educational platform where the content is divided into consecutive and interrelated learning activities that students interact within an active and stimulating online environment.
- The content of the course is consistent with the interests and trends of students in using the internet, which is usually used for recreational purposes. This compatibility in the use of the internet for entertainment and learning has raised the students' motivation and interests for self-learning purposes of the course topics.
- Flexibility, by providing students with the opportunity to access information sources in a suitable time.

This result is consistent with many studies that emphasised the effectiveness of educational platforms in developing trends towards educational courses, such as the study of Sharif and Doulat (in Sharif & Doulat, 2019) which indicated the effectiveness of using Edmodo in teaching the alternative biological concepts in the biology course for students of ninth grade. Also, the study of Sugito et al., (in Sugito, Susilowati, Hartono, & Supartono, 2019) indicated that using Edmodo in teaching the science courses improved students' science achievement.

Also, the study of Trisniawati et al., (in Muanifah, Widodo, & Ardiyaningrum, 2019) indicated that Edmodo usage improved learning interests in mathematics, as all these studies have resulted in positive perceptions and trends towards courses or educational courses based on educational platforms and some other variables and developed a trend towards them.

Moreover; the use of e-learning and the use of educational platforms have contributed significantly to the development of the trend towards 21st-century skills, as in the study of Alobaid & Alshaye, (2017) which provides a detailed review of the most important applications and experiences of using Edmodo in teaching and learning and indicated that many studies have proven the effectiveness of using Edmodo to support many skills among students, especially the skills of the twenty-first century.

It was evident from the above that teaching the course of production and use of teaching aids using Edmodo has a significant impact on developing the trend towards the twenty-first-century skills among students of the eighth level at the Department of Libraries at the College of Arts in Dammam.

Also, it is clear from the value of the size effect that teaching the course of production and use of teaching aids using Edmodo had an effect in all dimensions; this effect varied, where the eta squared of the first dimension was 0.92 which is higher than the eta squared of the second and third dimensions that were 0.91 and 0.87 respectively.

The increase in the effect size of the first dimension (0.92) is due to the students' appreciation of the value and importance of the skills of the twenty-first century, based on the current education system and the requirements of daily life.

## **12. Conclusion**

The study results indicated that integrating Edmodo in the learning process affects the attitude of students towards the skills of the twenty-first century. The influence of integrating Edmodo in teaching the course of production and the use of teaching aids is 0.95. In other words, integrating Edmodo in teaching also changed the teaching outcomes offering the students innovative opportunities for improving their skills and competencies, and made students ready for work environments and an increasingly complex life.

## **13. Recommendations and proposals**

Considering the research results, the following recommendations can be presented:

- Directing the attention of specialists in the field of curricula, teaching methods, and educational technology to benefit from the applications of educational platforms in the teaching and learning process.

- Seeking to modify the role of both the teacher and the learner in the educational process, so that the role of the teacher becomes a guide instead of being an instructor of information and the role of the learner becomes an exploration of knowledge rather than a receiver for it.
- Paying attention from colleges of education to pre-service teacher training on using platforms in teaching.
- Working to provide an interactive environment, as this environment has an effective role in making the learner positive in the learning process.
- Preparing students so that they can deal with e-learning environments.
- Activating the role of e-courses and e-learning environments during the stage of university education and taking advantage of the services provided by the internet.

### **Suggested Research and Studies**

- 1) Carrying out similar studies to the current study in the various scientific disciplines in the Faculties of Education.
- 2) Conducting studies to measure the attitudes of faculty members towards the use of educational platforms.
- 3) Carrying out similar studies to the current study in pre-university education.
- 4) Building a course in family education based on educational platforms and measuring its impact in developing the following variables among students of the College of Education (innovative thinking, critical thinking, future thinking, innovative performance, mental capacity, social skills, academic achievement, 21st century skills).
- 5) Building a course in family education for deaf and blind school children and studying its impact on developing the skills of the twenty-first century and the trend towards the course.

### **Acknowledgment**

The authors are thankful to K. Bakheet, (professor of Curricula and Method of Teaching Home-Economics), for reviewing the work. Thanks are due to the anonymous reviewers in improving the quality of this work.

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