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E-Learning Strategies in Higher Education and Academic Performance Based on Artificial intelligence: Comparing the Synchronous and Asynchronous Online Learning

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Abstract:

This research aims at identifying the Therefore, the main objective of the study is to measure the impact of e-learning on the academic performance of students at Onaizah collages in Saudi Arabia. Specifically, the study aims to achieve the following objectives. Getting acquainted with the reality of e-learning, identifying the reality of academic performance of student, measuring the impact of lecturer quality on the academic performance of students, measuring the impact of the quality of information content on the academic performance, measuring the impact of the quality of the e-learning system on the academic performance of students at Onaizah collages University in Saudi Arabia.

Keywords: Management Development, Strategic Partnership.

Introduction

Students are the most important asset of any educational institution, colleges and universities are worthless without them, so it can be said that the social and economic development of any country is directly related to the performance of students in it. In other words, students' performance (academic achievement) plays an important role in producing the best graduates who will become a great leader and manpower for the country, and thus be responsible for the country's economic and social development (Maganga, 2016). It is worth noting that academic performance is the educational goal that a student, teacher, or institution achieves during a certain period. This is measured either with exams or ongoing assessments and the goal may vary from one individual or institution to another. Academic performance is a term used in universities when a student is doing well in academic aspects. They do well in university and do well in their studies. Students' academic performance is highly dependent on the interaction between them and their teacher in their academic activities to achieve a higher quality level of academic success. In an academic environment, performance can be referred to as "academic performance" (Tesfay, 2017).

In this context, the measurement of students' academic performance has

received much attention in previous research, as it is challenging aspects of the academic literature, and student performance is generally influenced by social, psychological, economic, environmental and personal factors. These factors strongly affect the student's performance, but these factors differ from person to person and from country to country.

Academic performance can be affected by other factors such as efficiency of achievement spirit, proactive competence, and professional competence. The concept of academic achievement is a change in behavioral skills, or abilities that can increase over time and result not from a developmental process, but due to a learning state (Abdeldayem, Aldulaimi, & Alazzawi, 2021). It can be concluded that academic performance is the end result that a person achieves as success during education in an educational institution (Mandasari, 2020). E-learning is distinguished from traditional education in many aspects, including the classroom, as it takes the form of virtual classes, educational seminars, and video conferences (Elhadary, Elhaty, Mohamed, & Alawna, 2020). E-learning is an electronic learning model over the Internet, intranet, and multimedia such as CDs, DVDs, etc. E-learning is the application of networks to facilitate learning, including the production, delivery and acquisition of educational content, the management of learning experiences, and the exchange of information between learning communities (Levina, et al., 2017). The adoption of electronic media such as computers and networks in delivering information to its recipients allows students to interact with education content, teachers and their friends (Ramdani, Mohamed, & Syam, 2021).

Therefore, the current study aimed to measure the impact of e-learning in its three dimensions (quality of lecturers, quality of information content, and quality of electronic system) on the academic performance of students at The main objective of the study is to measure the impact of e-learning on the academic performance of students at Onaizah collages University in Saudi Arabia. Specifically, the study aims to achieve the following objectives. Getting acquainted with the reality of e-learning, identifying the reality of academic performance of student, measuring the impact of lecturer quality on the academic performance of students, measuring the impact of the quality of information content on the academic performance, measuring the impact of the quality of the e-learning system on the academic performance of students at Onaizah collages University in Saudi Arabia.

This study raises a question, which is: What is the impact of e-learning on the academic performance of students and from this main question,

The main objective of the study is to measure the impact of e-learning on the academic performance of students at Onaizah collages University in Saudi Arabia. Specifically, the study aims to achieve the following objectives. Getting

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acquainted with the reality of e-learning, identifying the reality of academic performance of student, measuring the impact of lecturer quality on the academic performance of students, measuring the impact of the quality of information content on the academic performance, measuring the impact of the quality of the e-learning system on the academic performance of students at Onaizah collages University in Saudi Arabia.

Literature Review

E-learning is defined as an information system that can accommodate a variety of educational materials through virtual lectures, discussions, class activities, tests, and chat sessions. and e-learning is defined as education through a virtual learning environment that relies on a set of dynamic techniques that include many technological components and devices that help the flow of information and communication between teacher and student (Marlina, Tjahjadi, & Ningsih, 2021).

In another definition, e-learning refers to Internet-based education, meaning web-based education, it is basically a web-based education system that provides information or knowledge to users or learners. Hence, e-learning is defined procedurally as education through the Internet, which allows the provision of educational content, including lectures, discussions, class work and exams in a virtual environment for the learner.

Lecturer quality is defined as the degree to which learners perceive the teacher's attitude related to his timely responses to learners, teaching style, and to help learners through the e-learning system. Lecturer quality is also defined as the level at which instruction is appropriately provided to students, meeting students' learning needs, learning styles, students' interests, and expectations in good accordance with standards (Sogunro, 2017). Delivering the educational content to students with a satisfactory level of quality and to meet their needs and expectations under the e-learning system.

The quality of informational content is defined as the quality of the outputs produced by the e-learning system, which can be in the form of reports or screen sharing between the teacher and students via the Internet (Popoola, Chinomona, & Chinomona, 2014). The quality of informational content is also defined as the ability to meet needs The declared and implicit learning of the learner (Alshikhi & Abdullah, 2018).Then, the quality of the educational content is defined procedurally as the level of achievement of the scientific content presented to the students for its educational goals and in a way that meets their needs for a complete understanding of the content and its ease of use.

Quality of the electronic system

The quality of the electronic system is defined as the system that the educational institution uses to manage the quality of its services to its students,

including the quality of processing the information system itself, which includes software and data, and it is a measure of the technical integrity of the system, as well as the quality of the system. Electronic terms include consistency of user interface, ease of use, error-free electronic system, quality of documentation, and maintainability of the system. Hence, the quality of the electronic system is defined procedurally as the extent to which the electronic system contains the desired characteristics of the information system. For example ease of use, flexibility of the system, reliability of the system, ease of learning, and response time for the needs of learners or students.

Academic performance

Academic performance is defined as the achievement in the tests that the student passes and the classwork submitted by the student. through the use of teachers' evaluations of them, and academic performance is defined as the student's level of achievement of the tests and his acquisition of the knowledge and skills specified within the outputs The course learned, which is referred to as the grades obtained from the teacher's evaluation of it (Tesfay, 2017). and then academic performance is defined procedurally as the assessment of students' achievement of the knowledge and skills specified in advance within the learning outcomes included in the course description.

In light of the Covid-19 pandemic, the use of online education tools in educational institutions in general and universities in particular has become inevitable, as these institutions have turned to using technology to replace lectures in classrooms with virtual ones via the Internet, and have resorted to education experiences to maintain the continuity of education Despite the impact of the pandemic on the educational process. In this context, most countries of the world used a variety of resources to assist students in their studies, online platforms were the most popular and educational information was available through online education tools. These enabled students to participate in the virtual learning ecosystem led by their professors in the courses via virtual meeting platforms (Teräs, Suoranta, Teräs, & Curcher, 2020). Based on this, the emergence of online education platforms has changed the educational process in the era of globalization and rapid technological developments (Adeyeye, et al., 2022), and everyone is invited to be part of this transition and transformation towards It is worth noting that online education is based on providing meaningful learning experiences to students, without making them the burden of completing all the curriculum achievements in the presence of some options for students

E-learning also refers to the situation in which the interaction between students and the lecturer takes place through an online system. E-learning is also described as a framework based on technology, regulation, and governance that enables students to learn via the web and teach easily.

The importance of e-learning is due to the fact that it provides a method of implementing specially designed educational activities through various means that link lecturers and students in cases where the implementation of classroom teaching is not possible due to the limitations of traditional teaching and learning methods, and the concept of distance education has evolved towards e-learning and education Default. E-learning includes learning activities conducted synchronously or asynchronously using course materials (Basal, Gurol, & Sevindik, 2012). E-learning is also known as computer-assisted, internet-based, web-based, web-based, and virtual education. In e-learning, unlike traditional classrooms, students are provided with instruction at their own pace with unlimited revisions of course offerings, regardless of time and place (Çevik & Bakioğlu, 2022).

That online education (e-learning) is an educational model based on information and communication technology, and the carrying capacity of this program is ICT facilities in the form of an online education management system, monitoring program, standard annexes and multimedia. According to (Satrio, 2011), e-learning is structured education with the aim of using an electronic or computer system so that it is able to support the learning process. Some of the benefits of e-learning are: (1) Flexible. E-learning provides flexibility in choosing the time and place of access to excursions, (ii) independent education. E-learning provides opportunities for learners to independently control the success of learning, (3) Cost-effectiveness. E-learning provides cost efficiency for administrators, efficiency in providing physical facilities for education and cost efficiency for learners is the cost of transportation and accommodation (Mandasari, 2020)

The importance of e-learning is also due to the fact that it reduces the problem of classroom time, increases the availability of electronic materials, and improves educational processes. Therefore, e-learning has been adopted for multiple activities to download course requirements of materials, assignments, guidelines, assessment results, etc. All these facilities have increased significantly with the past few years

Dimensions of E-Learning

According to the optimal model, this model included three dimensions of e-learning, namely the quality of lecturers, the quality of educational content, and the quality of the electronic system. Lecturer quality is defined as the lecturer's attitude towards e-learners, and it is also defined as the extent to which teachers care, help and understand students. The importance of lecturer quality, including matters related to lecturers' behaviour and teaching style, is due to its impact on learners' enthusiasm, participation and attitude towards e-learning (Ozkan & Koseler, 2009). When learners feel timely and kind comments from lecturers via

the e-learning system, it may lead to greater acceptance by the learners, i.e. higher lecture quality may enable learners to continue using the e-learning system by enhancing their satisfaction with the system, if they can Lecturer Dealing with and nurturing online learners' learning and responding in a timely manner to learners' needs via the e-learning system, the system will be considered useful among learners. Then, learners' perception of the quality of service provided by the e-learning system can positively influence their assertion of the system's success; Because lecturer quality can be considered as one of the dimensions of service quality in the context of e-learning (Ozkan & Koseler, 2009). In addition, when lecturers can display interactive teaching methods and facilitate interactions between learners and lecturers via the e-learning system, lecturers may make learners enthusiastically immerse themselves in such interactions and the flow of experiences in the e-learning process.

Lecturers are important people in shaping learners' behavior in courses that use e-learning, and therefore their attitude may influence learners' behavior Teacher quality measures include lecturer response timing, teaching style, and explanation/help towards learners through the e-learning system

In this context, previous studies have found that the lecturer's attitude towards e-learners has an important positive relationship with the perceived benefit of an e-learning system. The attitude of the main person can also affect the user's behavior, as the quality of the lecturer dominates the attitudes of the learners towards e-learning, and this phenomenon reveals that the lecturer is the main important person for the learners' behavior in the e-learning process. Hence, the lecturer's attitude towards e-learning can be considered as a measure that reflects the lecturer's quality in the e-learning process, and this measure must be taken into account when assessing learners' acceptance of e-learning. Obviously, if the lecturer can handle the learning of the online learners through the e-learning system and respond to the learners' needs in a timely manner, the system will be considered satisfactory and beneficial among the learners. The most common role that lecturers play in the classroom is to distribute relevant knowledge to students by following the syllabus. Lecturers use different methods such as lectures, small group activities, and hands-on learning activities to distribute knowledge to students. In addition, they serve many other roles in the classroom. Lecturers set the tone for their classrooms, build a warm environment, direct and educate students, become role models, listen and look for any indications of problems holding their students back. Teaching requires a variety of methods that include time, effort, and commitment. The lecturers prepare students for the job market. They must demonstrate good qualities and meet the academic, social and emotional needs of their students. The passion they have is reflected in their effectiveness. While in the classroom, they adapt to different learning styles and

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classroom dynamics using superior classroom management techniques to create a healthy, safe, and productive classroom environment

Quality of educational content

According to (O'Brien & Marakas, 2011), an information system is "groups organized by humans, hardware, software, communication networks, and data to collect, change and disseminate information within an organization (Salim, Alfansi, Anggarawati, Saputra, & Afandy, 2021). The quality of educational content is also defined as the appropriateness of the use of the information (Rammutloa & Blaauw, 2017). In another definition, the quality of educational content refers to the desirable characteristics of the outputs of the system; ie management reports and web pages. For example, relevance, comprehension, accuracy, brevity, completeness, timeliness, ease of use. The quality of educational content is that an electronic information system has become necessary in universities to support the educational process, such as the academic portal (Salim, Alfansi, Anggarawati, Saputra, & Afandy, 2021). The quality of the educational content is also due to the fact that it relates to issues related to the characteristics of information systems outputs, as it was measured by examining the outputs of the information system in terms of timeliness, accuracy, reliability and trustworthiness (Ojo, 2017)

Information quality is the output of the information system used. The quality performance dimension of educational content is a desirable function of the output of the information system, in other words, the quality of information is the "quality of production in the type of information provided by the user device". Knowledge is not about data Data is information that has been processed in a manner that is convenient for the user and useful in making current or future decisions.Research indicates that the quality of information is "a system that can influence user satisfaction." The most frequently measured indicator The quality of educational content used in the literature is five measures: complete availability of information, ease of understanding, presentation of information, suitability of needs, and accuracy of information (Salim, Alfansi, Anggarawati, Saputra, & Afandy, 2021)

The quality of educational content is demonstrated by the quality that the organization provides for the use of learners to improve their knowledge and learning, achieve education goals, and provide high-quality reports. Understanding, accuracy, compatibility, and connectivity are characteristics of high quality information. But the focus is mostly on accuracy, information accuracy, completeness, coherence, and connectivity

Quality of the electronic system

Literature state that system quality is "a characteristic of the preferred quality of the system, defined as the desirable characteristics of the system in the sense

of the system itself (Petter, DeLone, & McLean, 2008). Perhaps the most consistent definition among researchers is that system quality refers to "desirable characteristics of an information system. For example, ease of use, system flexibility, system reliability, ease of learning, as well as system features of sophistication, resilience, and response times"

System quality usually focuses on the performance characteristics of the system. System quality is used to calculate the quality of the information system itself, whether software or hardware. System performance indicates how well the capabilities of the hardware, software, arrangements, and methods of the data framework are at giving data on customer needs. System quality is subjectively measured by users, so what is used is the perceived quality of the system. The indicators used to judge the quality of the system were five measurement metrics: ease of use, flexibility, reliability, accessibility (response time), and security of the system (Salim, Alfansi, Anggarawati, Saputra, & Afandy, 2021). Other studies measure system quality using characteristics such as perceived ease of use, system features, response time, and flexibility (Ojo, 2017)

The measure of system quality plays an important role in internal efficiency and has strategic benefits in the organization. Most information system researchers have measured system quality according to system accessibility, data accuracy, ease of use, response time, reliability, database contents, response time, and system reliability. The quality of systems can also be measured according to the extent to which users discover: that the system is reliable, easy to teach and use, and easy to understand the interface of the system, so it can be said that system quality is concerned with the overall performance of the system (Rammutloa & Blaauw, 2017). This concept mainly deals with the processing system itself or the performance of the system. There have been many studies dealing with different measures of system quality where some researchers have focused on other technical issues such as computer system reliability, response time and usability, while others have also suggested measuring system characteristics, such as database content, response time, and system accuracy, and then adding Flexibility of the system and ease of use among others as part of a "formative assessment" scheme that can assess the quality of the system

It also highlights the importance of system quality in that it reflects the individual's perception of the performance of the system. For e-learning, system quality is measured by hardware and software designed to allow the user access. A high-quality e-learning system has the following characteristics: accessibility, ease of use, awareness of user expectation, ease of education, and short response time. Studies on the relationship between system quality and its use confirm a direct relationship between system quality, decision-making quality, work effectiveness and work quality.

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Academic performance

Academic performance is among the most important indicators for evaluating educational institutions that have been extensively studied over the past years. This construct is usually defined as the level of knowledge demonstrated by the student in a particular area or subject in relation to the standard of age and academic level. However, performance can also include qualitative information based on subjective assessments. Academic performance is therefore seen as a multidimensional construct defined by cognitive, motivational, social, environmental and pedagogical elements. According to (Narad & Abdullah, 2016), academic performance is the knowledge gained which is assessed through marks by the lecturer and/or the educational goals that students and lecturers have set to achieve within a specified period of time. Again, (Martha, 2009) asserts that students' academic performance is determined by a student's performance in exams and tests and in course work. Similarly, academic performance as the measurable and observable behavior of a student over a specified period. He added that it consists of the grades obtained by the student in the assessment, such as the semester exercise, the semester test, the mid-term exam and the end-of-semester exam (Abaidoo, 2018). Academic performance is also defined as the level or extent to which learners achieve educational or curriculum objectives (Chikendu, 2022)

The relationship between e-learning and academic performance

The impact of e-learning is assessed by ascertaining whether students are able to understand what has been presented or taught to them. (Rosenberg, 2006) noted that e-learning reduces students' ability to understand what is being taught or presented. These authors emphasized that there are marked differences between traditional face-to-face education and e-learning. In a similar some researchers noted that online teaching strategies have a negative impact on academic performance. In contrast, literature emphasized that the effectiveness of interactive distance education is highlighted by the use of video conferencing and communication for academic achievement, so that e-learning and the traditional face-to-face approach cannot be compared. The arguments in favor of e-learning over traditional or face-to-face education are those made by many researchers in which e-learning has Positive effect on students' performance and it increases enrollment in the academic program. In addition, argued that online learners achieve the same level of performance and satisfaction as face-to-face preparation provided that the quality of learning materials is similar.

Literature noted that e-learning has a beneficial effect on students' academic achievement, while concluded that the use of e-learning significantly enhanced students' mood, enthusiasm, and academic achievement while they were studying at an e-learning center.

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Many researchers believe that technology is a tool used to remove geographic barriers and facilitate education anytime and anywhere that may further enhance education. Researchers argue that e-learning has many advantages that include flexibility of access from different locations, and ease of access to other materials from other sources including non-educational sources In addition, (Oye, Iahad, Madar, & Ab. Rahim, 2014) that e-learning has a positive impact on students' academic achievements in terms of reducing costs, saving time, increasing access to education as well as improving academic performance

The study model that was adopted below shows the relationships and effects of e-learning in its three dimensions, which are addressed by the research, which are the quality of the lecturers, the quality of educational content, and the quality of the electronic system, and this is what is shown in Figure (1).

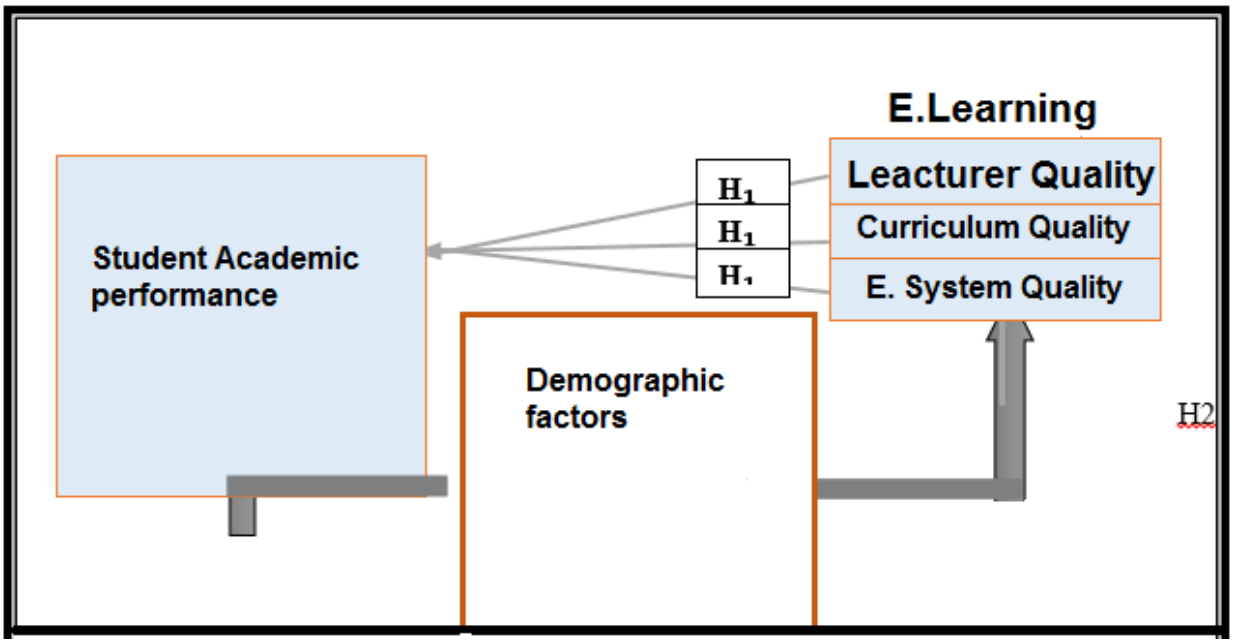

Figure (1): The conceptual framework of the study

The relationship between the quality of educational content and academic performance

Quality of educational content refers to the quality of the contents of the educational material and the form generated by the information system; its measurement includes dimensions such as accuracy, completeness, efficiency, relevance, scope and appropriate timeliness of information If the information provided by the e-learning system is updated frequently, comprehensively and sufficiently , the educational content will meet the expectations of the learners, the educational content will be clear to them and therefore they will feel comfortable with the e-learning system. In addition, this high-quality information may motivate learners to continue using the e-learning system through Enhance

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their satisfaction with the system. When learners feel that the e-learning system can provide them with rich and regularly updated course contents, and that the course contents have been tailored to meet their individual needs, they will realize that the system can be a useful medium for teaching, as it meets their expectations resulting in a positive impact on their academic achievement and performance. If the educationalists in the e-learning system have their expectations, this will confirm their expectations towards the system (Roca, Chiu, & Martínez, 2006). In addition, if the learners consider that the course contents provided by the e-learning system are useful to suit their needs, this will lead to the control of positive emotions on them and thus increase their desire to use the system.

In the same context, (Rizun & Strzelecki, 2020) used an extension of the technology acceptance model whose findings found that e-learning acceptance was associated with learners' sense of pleasure and self-efficacy. According to the use of an electronic system reflects the degree to which an individual uses The capabilities of a particular information system in terms of frequency, nature and duration of use, which reflects its direct relationship to user satisfaction and online performance. Through the application of the DeLone and McLean model of information systems success, where concluded that there is a positive, statistically significant effect of the quality of educational content on The use of the electronic system and subsequently on learners' satisfaction, which in turn affected their academic achievement and performance

"According to academic performance, is the extent to which students achieve results in their educational work. Given the level of academic performance of students, the quality of educational content is one of the important resources that must be at the disposal of the educational institution to ensure the achievement of the desired academic performance. As the educational content being an important resource, its quality will result in efficient use for learners, if it can provide accurate and important information and use complete information that benefits learners in their learning process (Nwagwu & Osiname, 2009) Therefore, the quality of educational content must comply with the needs of Certainly, this is evidenced by the fact that the availability of high-quality educational materials is vital to achieving superior academic skills in higher education institutions, and thus providing high-quality educational content leads to higher academic performance for students (Mohammed & Oyedum, 2018). Based on the above, it has been assumed:

H: 1.2 there is a positive, statistically significant effect of the quality of educational content on the academic performance

Methodology

The study applied the quantitative analytical descriptive approach through a survey form distributed to male and female students, and the reason for choosing

this approach is because it is considered the most research method capable of describing human phenomena with great accuracy, as it is the most appropriate to reveal the characteristics of the study variables and test its hypotheses. And to answer the questions it included and to achieve its goal, which is to measure the impact of e-learning on the academic performance. This approach was also chosen because it is the appropriate method to identify the reality of these variables, and to reveal the relationships that exist between them, through data collection and analysis to reach Findings, and making recommendations and proposals that will serve the employees of the Kingdom University, and serve other researchers.

The study population is represented in all the students, who number about 2500 male and female students, according to what was stated by those in charge of the admission and registration department at the university. The study applied the simple random sampling method, where the link for filling out the survey form was sent through a number of students. Within the University Student Council, which in turn distributed them to 60 male and female students through Google Docs, and it was possible to retrieve 53 survey forms with complete responses and valid for analysis, a response rate of 88.3%.

Measures of the main variables in the study

The current research adopted scale for measuring e-learning, which includes three dimensions: (the quality of the lecturers, the quality of educational content, and the quality of the electronic system), which included 21 phrases, and it is the most common measure for measuring e-learning in the literature. Which was applied by the study in order to measure the nature and size of the impact of e-learning on the academic performance of students, while the reference standards adopted in constructing statements of the dependent variable (academic performance) which included 11 statements to measure Academic performance. The following table summarizes the general structure of the scale of the main variables adopted in the study.

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Table (1-3) variable structure

Source	Num. of sentences	Secondary variables	Main variables
literature	12	Instructor quality	Electronic education
	8	Quality of contents	
	8	Quality of electronic systems	
	10		Students performance

The first axis is the personal data, which are represented in the demographic variables that describe the study sample members, which are five variables. (gender, level of e-learning knowledge, number of years using e-learning, academic specialization),

It included measuring the independent variable for research, which is e-learning in its three dimensions (the quality of the lecturers, the quality of the educational content, the quality of the electronic system), while the third axis included the measurement of the research dependent variable, which is the academic performance of the students.

With regard to statistical treatments, the study used the following statistical methods through the Statistical Package for Social Sciences (SPSS) version 23:

1. Descriptive statistics: by calculating the arithmetic means and the standard deviation to find out the reality of the study variables.
2. Extracting the Pearson Correlation Coefficient to verify the level of correlation between the dimensions of the independent variable and the dependent variable.
3. Multiple regression analysis to verify whether or not the dimensions of the independent variable have an effect on the dependent variable.
4. Calculation of the T-degree: t-test to verify the significance of the differences between the mean scores of the independent groups of demographic variables related to the gender variable only on the two research variables.
5. One-way analysis of variance: ANOVA Analysis of Variance to verify the significance of the differences between the average scores of the groups for the rest of the demographic variables other than gender and academic specialization on the two research variables.

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"Results and discussion"

1.4 Analysis of demographic variables for the study sample

It was possible to retrieve 53 survey forms from the target research sample, the majority of the sample was males with a percentage of (73.6%) with (39) students, and females represented the least percentage of the sample (26.4%) with (14) students, and it was found that the level of knowledge of e-learning Of the sample (67.9%) it was good with (36) responses, with regard to the number of years of using e-learning, the vast majority were from (two years or less) with a percentage of (88.7%) and 47 responses, while the majority of the sample was from the humanities major (92.5%) with 49 forms.

2.4 "Descriptive Statistics of Survey List Statements"

The descriptive analysis of the survey list statements was carried out by using some statistical methods in descriptive statistics. The arithmetic averages and standard deviations were calculated and the paragraphs of the main and sub-variables of the survey list were arranged according to importance to find out the most influential expressions for each variable, as well as extracting the general average for each of the variables survey list.

1.2.4 "Descriptive Statistics of E-Learning Phrases"

A descriptive analysis was carried out for the terms of the e-learning variable and for each dimension of the e-learning variable scale, which are: (the quality of the lecturers, the quality of information content, the quality of the electronic system), which constitute this variable.

2.4.1.1 Descriptive statistics for lecturer quality axis phrases

It is evident from the results of Table (4-2) that the general average of the lecturer's quality phrases was (3.20) and with a standard deviation of (1.10), which is an average value that lies between (2.65-3.49) based on the analysis scale adopted in the research. Which indicates that there is an average level of the quality of the lecturer according to the point of view of the research sample members.

Statement No. (4) obtained the highest arithmetic average of (3.38), which states: "The lecturers have sufficient experience to teach the course content," which may explain that the lecturers at the Kingdom University have previous experience in teaching these courses.

While statement No. (10) had the lowest arithmetic average of (2.98), which states: "The lecturers respond very efficiently to the students individually," which may explain that a large number of students lack interaction with the lecturer individually, this is illustrated by Figure

Table (1-4)

Description of the study sample according to demographic variables

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percentage	Repetition	demographic variables	
73.6 %	39	Male	**sex**
26.4 %	14	Female	
3.8 %	2	weak	**Knowledge level of e-learning**
17 %	9	medium	
69.8 %	37	good	
9.4 %	5	Very good	
88.7 %	47	(two years or less)	**years of using e-learning**
11.3 %	6	(3-4 years)	
92.5 %	49	Human sciences	**Academic specialization**
7.5 %	4	engineering	

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2.4 "Descriptive Statistics of Survey List Statements"

The descriptive analysis of the survey list statements was carried out by using some statistical methods in descriptive statistics. The arithmetic averages and standard deviations were calculated and the paragraphs of the main and sub-variables of the survey list were arranged according to importance to find out the most influential expressions for each variable, as well as extracting the general average for each of the variables survey list.

1.2.4 "Descriptive Statistics of E-Learning Phrases"

A descriptive analysis was carried out for the terms of the e-learning variable and for each dimension of the e-learning variable scale, which are: (the quality of the lecturers, the quality of information content, the quality of the electronic system), which constitute this variable.

2.4.1.1 Descriptive statistics for lecturer quality axis phrases

It is evident from the results of Table (4-2) that the general average of the lecturer's quality phrases was (3.20) and with a standard deviation of (1.10),

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which is an average value that lies between (2.65-3.49) based on the analysis scale adopted in the research. Which indicates that there is an average level of the quality of the lecturer according to the point of view of the research sample members.

Statement No. (4) obtained the highest arithmetic average of (3.38), which states: "The lecturers have sufficient experience to teach the course content," which may explain that the lecturers at the Kingdom University have previous experience in teaching these courses.

While statement No. (10) had the lowest arithmetic average of (2.98), which states: "The lecturers respond very efficiently to the students individually," which may explain that a large number of students lack interaction with the lecturer individually, This is illustrated by Figure (1-4).

Table (2-4)

Descriptive statistics of lecturer quality statements (n= 53)

No.	phrases	SMA	standard deviation	arrangement	approval level
1	I can count on the instructors to understand the course contents.	3.29	1.00	4	medium
2	Lecturers set class work, assignments, and due dates at the time they promise to do so.	3.35	1.15	3	medium
3	Communication on the part of the lecturers is very clear	3.23	1.29	5	medium
4	The lecturers are knowledgeable in their fields.	3.35	1.17	2	medium
5	Lecturers have sufficient experience to teach course content.	3.38	1.14	1	medium
6	Lecturers are fair and unbiased towards students	3.21	1.11	6	medium
7	The lecturers really care about their students	3.19	1.01	7	medium
8	Lecturers understand the individual needs of their students.	3.06	1.00	11	medium
9	Lecturers encourage and motivate students to do their best.	3.17	0.94	8	medium
10	Lecturers respond very efficiently to individual students.	2.98	1.18	12	medium
11	Lecturers welcome students' questions and comments.	3.13	1.10	9	medium
12	Lecturers use all possible methods to help students.	3.06	1.13	10	medium
total		**3.20**	**1.10**	-	medium

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2.2.4 Descriptive statistics for academic performance variable expressions

It appears from the results of Table (4-5) that the general average of the expressions of the academic performance variable has reached (3.02) with a standard deviation of (1.00), which is an average value that lies between (2.65-3.49) based on the analysis scale adopted in the research. Which indicates There is an average level of quality of the electronic system according to the point of view of the research sample. Phrase No. (4) obtained the highest arithmetic mean of (3.79), which states: "It is worth recommending e-learning to other learners," which may reflect a level of student satisfaction with the e-learning system. While phrase No. (2) obtained the lowest arithmetic average, which amounted to (1.98), which states: "The e-learning model achieves efficiency in cooperation between faculty members and students," which may explain that many students do not allow them to learn. Electronic cooperation is the amount of cooperation provided by traditional education, and this is illustrated by Figure No. (4-4).

Table (5-4) Descriptive statistics for academic performance variable expressions

No.	phrases	SMA	standard deviation	arrangement	approval level
1	I got better grades in the courses I took online compared to my grades in the previous courses that were based on traditional learning.	3.73	0.98	2	high
2	The e-learning model achieves efficient cooperation between faculty members and students.	1.98	0.92	10	Low
3	Faculty members trust the e-learning model to improve learning outcomes	2.03	0.96	9	Low
4	It is worth recommending eLearning to other learners	3.79	0.99	1	high
5	I am interested in using e-learning in the future	3.50	1.00	6	high
6	I learned a lot through the e-learning model.	3.21	0.99	7	medium
7	I intend to use e-learning for various purposes such as self-development.	3.54	0.99	5	high
8	I intend to use e-learning frequently even after graduation.	3.61	1.02	4	high
9	I had enough opportunity to interact with other students using the e-learning model	2.98	1.20	8	medium
10	The e-learning model is a very interesting experience for me	3.72	0.96	3	high
total		3.03	1.00	-	medium

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3.4 Results of verifying the hypotheses of the study

"This part of the research deals with the results of the statistical analysis to verify the hypotheses of the study, which include the first main hypothesis H1 and its branches, and the second main hypothesis H2."

1.3.4. Results of the verification of the first main hypothesis

The first main hypothesis states:

The first hypothesis:

H1: There is a positive and statistically significant effect of e-learning on the academic performance o

H: 1.1 There is a positive and statistically significant effect of lecturer quality on the academic performance

H: 1.2 There is a positive, statistically significant effect of the quality of information content on the academic performance of students

H: 1.3 There is a positive and statistically significant effect of the quality of the educational system on the academic performance of students

To verify the validity of these hypotheses, the level of correlation between the dimensions of the independent variable represented by e-learning and the dependent variable represented by academic performance was tested using the Pearson correlation equation, as shown in Table (4-6):

Table (6-4)
Pearson Correlation Coefficient between e-learning and the academic performance (n = 53)

Variants		Lecturer quality	Quality of informational content	Electronic system quality	Total marks
Academic performance	correlation coefficient	.769	.760	.739	.657
	Significance value	0.00	0.00	0.00	0.00
	Statistical significance	significant	significant	significant	significant
	Arrangement	1	2	3	

It is clear from the Pearson correlation matrix that there is a positive and statistically significant correlation between the dimensions of e-learning and the academic performance, where the value of the total correlation coefficient was (0.657), which is a medium and statistically significant correlation coefficient at the level of statistical significance (0.01). This means that e-learning contributes in one way or another to enhancing the academic performance of Kingdom University students.In other words, the higher the degree of e-learning dimensions, the higher the academic performance and vice versa. With the results

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of the studies he conducted (Zolochevskaya et al., 2021; Yeboah & Smith, 2016.(

The correlation matrix also shows that the axis of teacher quality is the most positively correlated dimension of e-learning with academic performance, followed by the axis of information content quality, and finally the quality of the electronic system.

To verify the impact of e-learning in its three dimensions on the academic performance, a multiple regression analysis was performed, which is illustrated in Table (4-7):

Table No. (4-7)
Results of the analysis of variance for multiple linear regression to test the effect of e-learning on the academic performance

source of contrast	sum of squares	degrees of freedom	mean of squares	R	R^2	Adj R^2	F-test	Sig. F
Regression	62.086	4	15.522	.842	.710	.705	165.689	.000
Residual	25.387	271	.094					
Total	87.473	275						

Dimensions	*β*	T- value	Sig.	Significance
Constant		6.299		
Lecturer quality	.493	5.441	.000**	yes
Quality of informational content	.349	6.058	.000**	yes
Electronic system quality	.303	5.178	.000**	yes

dimensions of e-learning	males 39		females 14		t-test	Significance value	Significance
	M	S.D.	M	S.D.			
Lecturer quality	3.36	.62	.70	3.62	-1.096	.354	no
Quality of informational content	3.58	.40	.74	3.45	.555	.112	no

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Electronic system quality	3.30	1.03	.98	3.20	.321	.893	no
total	3.40	.66	.64	3.44	-.162	.487	no
Academic performance	3.06	.80	.76	3.05	.022	.810	no

The level of knowledge of e-learning	number	Descriptive statistics	dimensions of e-learning				Academic performance
			Lecturer quality	Quality of informational content	Electronic system quality	TOTAL	
weak	2	SMA	3.33	3.33	3.00	3.04	2.35
		Standard deviation	.47	.47	.47	1.00	1.16
Medium	9	SMA	2.93	2.93	3.20	3.06	2.90
		Standard deviation	1.26	1.26	.50	.71	.87
good	37	SMA	3.37	3.37	3.76	3.63	3.18
		Standard deviation	.80	.80	.67	.48	.68
Very good	5	SMA	3.44	3.44	4.22	3.94	3.20
		Standard deviation	.96	.96	.84	.10	.22
Analysis of variance results		F	.811	1.229	4.639	4.617	1.133
		Significance value	.494	.309	.006	.006	.345
		significance level	no	no	yeyess		no

differences between the two groups (2-3). years) and (3-4 years) as shown in the following table:

Table (11-4)
Means, Standard Deviations, and the Statistical Significance Test for Differences "t-test" among Kingdom University students (years of using e-learning) about e-learning and academic performance (n = 53)

dimensions of e-learning	2- 3 years Number 47		3-4 years Number 6		t-test	Significance value	significance
	M	S.D.	M	S.D.			
Lecturer quality	3.36	.62	.70	3.62	-1.096	.354	No
Quality of informational	3.58	.40	.74	3.45	.555	.112	No

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content							
Electronic system quality	3.30	1.03	.98	3.20	.321	.893	No
total	3.40	.66	.64	3.44	-.162	.487	No
Academic performance	3.06	.80	.76	3.05	.022	.810	No

p< 0.05 *

4.4. Discussing the results

The results showed a positive, statistically significant correlation between e-learning and the academic performance, and thus they agreed with the results of studies

The results also revealed a positive, statistically significant impact of e-learning in the three dimensions of (quality of lecturers, quality of educational content, and quality of electronic system) on the academic performance (Adeyeye, et al., 2022); (Ramdani, Mohamed, & Syam, 2021); (Clark, Nong, Zhu, & Zhu, 2021); (Mandasari, 2020)

Conclusions and Recommendations

In light of the responses of the current study sample, and the possible analyses of relationships and influences between the variables of the study, the conclusions reached by the study can be reviewed as follows:

1) With regard to the quality of the lecturers, it ranked first in terms of the impact of e-learning on academic performance, which may be due to the fact that the lecturers at Kingdom University have sufficient experience to teach the course content, which concludes that the heads of scientific departments at Kingdom University are keen to assign the teaching of courses To the faculty members according to the specialization of the field of knowledge to which the course belongs to ensure the achievement of the course objectives, while on the other hand, it was found that a large number of the research sample see that the lecturers do not respond with great efficiency to the students individually, which concludes that these students lack Interaction based on individual differences in their mental abilities, especially since the virtual environment of e-learning does not allow the faculty member the level of interaction that traditional education allows in light of the face-to-face contact between the faculty member and the student, which presents a challenge for students on how to adapt to the education model that It limits face-to-face interaction.
2) With regard to the quality of the electronic system, it ranked third in terms of the impact of e-learning on the academic performance of the students under study, which is due to the fact that the learning management system allows easy sharing of data and information, which concludes that the learning

management system, including the contents of the database, is It enhances the exchange of information between the system and students, which reflects the ease of use, and the system meets the expectations of users in terms of the data they are looking for. While on the other hand, some students see that the learning management system may not work smoothly during peak loads, which concludes that the system It is characterized by a medium level of reliability, which may represent an obstacle for students to achieve the required response in a timely manner due to the presence of a load on the system resulting from the entry of a large number of users to the system at the same time. It is worth recommending e-learning to other learners, which concludes that students are aware of the advantages included in e-learning in terms of shortening the time and providing the information included in the educational materials For learners located in diverse geographical areas, as well as the possibility of retrieval of this information easily.

Recommendations"

1) "With regard to the quality of the lecturers, it is recommended to direct the faculty members at Kingdom University to focus on creating a greater level of interaction between them and their students through managing the virtual class on the basis of discussion between the lecturer and students and not on the basis of considering that the student is a recipient only of the educational content, This may create a learning community, from which students learn from both the lecturer and their peers in the virtual classroom.
2) "With regard to the quality of the information content, it is recommended to direct those in charge of the learning management system at the university that the system should include providing feedback to students on all their class work and mid-semester exams, which in turn will represent early indicators of students' academic performance in order to provide remedial opportunities For those who have not performed well in exams or in class activities, this is a continuous assessment of students that can be used to improve their academic achievement".
3) "With regard to the quality of the electronic system, it is recommended to direct the officials of the Technical Support Department at the university, specifically those responsible for the learning management system, to analyze the overall performance of the system and measure its response level in the event of increased loads on it as a result of the increasing number of users and work to improve its performance and find the necessary treatment to avoid the slow response of the system Consequently, the system crashes, which reflects its reliability level.

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