

# Generative Artificial Intelligence in Interactive Smart Learning Applied on Educational Health

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## Abstract

Generative AI uses machine learning algorithms to identify patterns from existing data and generate content. In the context of education, generative AI develops new content that follows curriculum features and customizes smart learning experiences.

This research is to identify how the quality of smart classroom management processes can affect students' participation in the educational process. The Framework that was used in the research is one of the Frameworks used in teaching, in the College of Medicine and in monitoring its teaching system as a whole.

This study fills this knowledge gap by emphasizing the success of smart education and the use of smart technology as critical indicators to ensure the success of the educational process. For its intended objectives, the study was applied to a group of 426 students and 16 teachers.

The research approach used in the study is a qualitative approach, which was done Using teacher and student questionnaires, to study the relationship between teachers' beliefs, the

characteristics of the educational process, and students' participation in smart learning. Research data were collected, for a period of 3 months, from observation and interviews in the first stage, then a digital questionnaire in the second stage, to study both the effect of using smart learning in accessing the educational process for its desired goals.

The results of the correlation analysis showed that students' shared perceptions of connectedness and technology use were unexpectedly linked to students' participation in smart learning systems, and it was an alternative to total reliance on traditional methods of teaching. Which was associated with the quality of smart learning

The results of this research have implications for ... Learners and teachers to design comprehensive solutions to improve quality educational activities and academic performance

**Keywords:** artificial intelligence, interactive systems, smart education, higher education

## 1-Introduction

Developing smart learning technologies and how teachers can integrate and use them in managing their virtual classrooms has become a necessary

matter, and it is imperative for us to learn about methods of teaching in virtual classrooms. This research aims to study how to use smart learning in health education in medical colleges, which is characterized by a special nature in the various stages of teaching. As smart learning allows development in both the teaching and learning processes.

Modern technologies have affected education, especially in practical colleges such as the College of Medicine.

Therefore, it was necessary for practical colleges to try to combine traditional and smart teaching methods [1] in a way that ensures the provision of appropriate information to students. Lectures have been distinguished from therapeutic and clinical exercises to ensure that students are trained in them using smart methods in education. Many scientific departments and departments also needed good training on dealing with patients, visiting the required medical teams in hospitals, and observing students' methods of examination, diagnosis, and treatment of patients with various diseases.

## **2-The research objectives**

The main objective of the research was to build its framework, and to explore and identify facts related to smart interactive learning technologies. Generative Artificial Intelligence technology blends computing technology in this research.

The Objectives of this research are given below:

1. Building the Generative Artificial Intelligence in universities and colleges is linked in developing the quality of higher education in universities and

colleges.

2. To improve high efficiency has a significant impact on the Higher education Platform.

3. The Generative Artificial Intelligence technology needs to be reasonably evaluated better to consider the participants and assess system construction's essential functions and processes.

In this paper, the Generative Artificial Intelligence has been proposed to improve student interaction and improve student academic performance in the interactive smart learning in the health educational environment

## **3- Research Questions of the Study**

To address these objectives of the study, following research questions are set.

1) In what ways can Generative Artificial Intelligence system contribute to smart interactive learning environment in higher Education?

2) In what ways can Generative Artificial Intelligence ensure more engaged and better interactive learning experience in higher Education?

3) How can Generative Artificial Intelligence supports students to construct knowledge in higher Education?

4) What are major opportunities and challenges of Generative Artificial Intelligence in using smart virtual learning in higher Education?

## **4-Theoretical background and literature review**

### **4.1. Definition of smart learning**

What is smart learning? Smart learning reflects how advanced technologies [2] based on artificial intelligence can enable learners to absorb knowledge and skills more effectively, efficiently

and easily.

## 4.2. Generative artificial intelligence

It could be delved deeper into generative artificial intelligence [3] and its applications in teaching and learning to understand its impact on education. This research explores the multifaceted applications of generative AI in both formal and informal learning environments, highlighting the ethical considerations and tremendous opportunities that arise from its implementation.

## 4.3. What is generative artificial intelligence (AI)?

Generative AI is a subpart of artificial intelligence [4] that uses machine learning models to create new and original content, such as images, text, or music, based on patterns and structures leveraging existing data. One type of model used by generative AI is the large language model (LLM). large language model (LLM).

LLM, like ChatGPT, is a type of generative AI system that can produce natural language texts based on certain inputs, such as prompts, keywords, or queries.

## 4.4. General steps could be taken when thinking about how to employ generative AI in [5] a virtual classroom

1. Determine what additional information is needed to feel empowered to make decisions about what to incorporate into the course?
2. Experience with creative AI platforms relevant to the discipline to be taught, such as ChatGPT, Bard, or DALL-E 2.
3. Choose the appropriate tool, then complete the task or tasks required of the students.

4. Evaluate the results? Review the task or tasks required of students.,

5. Determining the extent of students' response to the educational method based on generative artificial intelligence.

6. Identify potential areas of concern related to academic integrity,

7. Identify opportunities for student learning through generative artificial intelligence?

8. Predict how students might use this technology in the course?

9. Modifying the assignments required of students by integrating generative artificial intelligence into the educational course

10. Identify areas where students can adopt new technology

11. Provide opportunities to encourage deeper, more meaningful thinking for students through generative artificial intelligence.

12. Follow up on the development of this technology, which takes place on an ongoing basis.

13. Continuing to study the impact that generative artificial intelligence is having on education.

## 4.5. Generative artificial intelligence (AI) application

Generative AI is a specific form or process of AI that generates new information, content, or output. This generative AI differs from the traditional AI methods at a fundamental level [6]. Defined rules and clear instructions drove traditional AI methods. It has been highlighted that debate and discussion is commonplace when innovative technology emerges which disrupts traditional educational practice, as it requires educators to review and adapt their teaching. Despite calls for further

integration and the adoption of generative artificial intelligence into curricular, academic debate in this regard is still at the early stages.

educators are still yet to maximize [7] the potential of artificial intelligence in teaching and learning environments. This has led to questions as to how educators can train and prepare students for future jobs, by being knowledgeable and able to apply the latest technology. Whilst it is an important emerging tool for and offers opportunities in the classroom, it has been highlighted as having implications for teaching and assessing students. Concerns have been raised as to how original work developed by students and artificially generated work can be distinguished, due to a lack of plagiarism detected. This has led to questions [8] as to how educators can train and prepare students for future jobs, by being knowledgeable and able to apply the latest technology

Through advances in deep learning (DL), the generative AI create artificial relics using existing digital content [9] such as but not limited to video, images/graphics, text, audio, video by examining training examples; learning their patterns and distribution

Additionally, there has been a shift towards more self-directed and asynchronous learning, where students are given more autonomy in their learning and are able to complete coursework at their own pace. This approach allows students to work at a time that is convenient for them, and it can be beneficial for students who may have other responsibilities or who may have difficulty attending live classes. However, the shift to online learning has also highlighted the digital divide,

where students in low-income or rural areas may not have access to the technology or internet connectivity needed to fully participate in remote learning. And it also brought challenges such as lack of interaction, lack of motivation and lack of accountability.

#### **4.6. Interactive smart learning at higher education platform**

Infrastructure for smart, interactive learning within higher education institutions [6]. Where it comes into play is important and necessary in the academic environment. Some students have cognitive skills and can learn and understand educational concepts at faster rates than others. But there are some students who may face some problems in interacting with the smart learning environment.

#### **4.7. Smart health learning**

##### **4.7.1. Learning in virtual smart classrooms**

Through the interactive smart learning system, it is possible to enable the integration process [7] between the formal and informal educational environment. And the development of these basic or digital skills in a form or in a professional context. This role encourages educational institutions in the process of providing educational services with capabilities that were not available before.

##### **4.7.2. The ethical considerations and tremendous opportunities [8] that arise from implementing generative AI in teaching**

###### **4.7.2.1 The environment**

Artificial intelligence has significant environmental costs, prompting educators to carefully consider the appropriate ways to use it as part of their

teaching work in higher education.

As content generators such as ChatGPT (text) and DALL-E (images) are integrated into classrooms, limits are placed on student use of them, limits are placed on private use of emerging tools (such as assessing student writing), and environmental impacts are considered in Introduction to the effects of ethical technology.

#### **4.7.2.2 Employment**

Despite the efficiency gains in the workplace achieved from the technology made possible by artificial intelligence, the impact of this on labor is evident on the knowledge itself that it produces, and this ensures the prevailing exploitation of workers across different sectors in the stages of industrialization. Ethical matters related to work, such as those related to the environment, related to the manufacture, production, training and use of artificial intelligence.

#### **4.7.2.3. Data privacy**

Although intellectual property is protected by copyright, data available on the open Internet is often considered to be available to anyone for any use, an idea that dates back to the early days of the Internet. There are huge data sets full of people's personal photos, all to improve algorithms that perform functions like facial recognition, language prediction, and object detection.

#### **4.7.2.4 Digital partitioning**

Generative AI adds a new part to the digital divide, which is about equality in terms of who has access to digital technologies and the skills needed to use them. He revealed what was related to the ongoing digital divide in higher education, as students lost access to computer labs and high-speed internet

available within university laboratories, which some were unable to access at home.

#### **4.7.3. Smart learning to support learning, teaching and training**

Smart learning is considered one of the means or one of the general and flexible systems that can be used in the learning process, especially in the case of distance learning or hybrid learning. Therefore, most universities have become able to adopt smart learning to carry out the education process in the smart learning system, and there are different types of facilities that can be provided to students. Depending on your learning needs these recordings include:

- Course contents
- Facilities for conversations
- Notes between students and teachers

Trying to identify how to achieve sufficiency from the educational material provided

Determine the extent of students' satisfaction with what was provided and what their needs are for re-education or training for specific parts of the educational material.

Students' interests in solutions related to smart learning that provide a smart learning environment

#### **4.7.4. Promoting smart education**

When applying smart learning in universities, especially in our cases [9], in the case of medical learning in the College of Medicine, it is important to focus on the course content, course design, and how to improve the quality of the electronic or smart educational process, in addition to how to achieve student satisfaction with the educational process, in addition to that, the educational efficiency and returns. The education obtained through this system

and the students' achievements can ultimately determine how satisfaction can be achieved with the educational process.

Another thing is that it is necessary to determine the factors that can be predicted in the learning process when working remotely. Smart learning requires designing courses with multiple sources and resources based on multimedia files, which can be provided through this system to increase interest in the educational process, which can provide a comfortable means. For students to learn educational content

The other part is the conversations between students and between professors, as these conversations are considered a tremendous mediator that can be provided through smart learning to provide a means of communication, knowledge sharing, and information sharing. It is also possible to interact well between students and teachers or their mentors, to increase the process of understanding educational topics and increase student interest. In the educational process

In addition, a productive educational environment can be built by further developing problem-solving methods and critical thinking skills in a smart distance learning environment.

In our cases, students who obtained a high level of interaction with lecturers, trainers, and teachers were able to achieve reasonable educational returns and greater satisfaction. Through this study, it was shown that smart learning provides a comfortable educational environment through which students can be trained in the process of innovation and based on the modern technology provided. They can benefit from it in the process of

diagnosing diseases and determining the treatment that can be applied. Therefore, the purpose of this study was essentially to explore and analyze the effect of using intelligent learning based on generative artificial intelligence on the quality of content of the course, the quality of course design, and the availability of conversations and debates between students and lecturers. The possibility of providing conversations between students and each other

#### **4.8. Definition of what is interactive learning?**

Interactive learning is an approach that aims to actively engage students in the learning process, often through the use of technology. This is in contrast to traditional educational techniques.

##### **4.8.1. Interactive learning application in health education**

The need to develop the skills of analyzing a situation and solving complex problems. [10] There is a moral need to emphasize the need to develop the skills required to solve problems practically. In the case of medical learning, there is importance of developing problem-solving skills in the complex field in the hospital environment or the therapeutic environment in solving problems. This is not a new concept, but There is difficulty in facing how these problems can be solved. The changing nature of the therapeutic environment requires us to pay increased attention to it and how to develop problem-solving skills. Here, the solution to problems does not lie only in diagnosing the disease and then determining the appropriate treatment for it. There are other problems, such as how to study the surrounding therapeutic environment

for patients themselves. Such as the surrounding climate or the resources and therapeutic facilities available within the hospital, and my own matters related to health care in general, there are moral challenges to ensure the continuity of providing the therapeutic service in a good manner, and related to solving problems related to treatment, as it is considered something necessary for the need to develop it over time. It also includes the emergence of constantly renewed internal structures for these systems, which Problems related to it are identified. The structure of the educational system is built based on the relationships between the problem and the causes of the disease, then determining the effect of the disease and how it can be treated, which is found in the characteristics representing the disease or the symptoms of the disease, which can be identified by training students on that. Therefore, there is difficulty in applying this system in The field of medical education, due to the diversity of structures of different therapeutic systems according to different medical specialties and different treatments, all of which must be trained by a medical student before he graduates, most experts find difficulties in understanding the complex dynamic system, methods of communication, and how to understand the requirements for these. These difficulties appear from the restrictions and limitations in The field of mental and cognitive capabilities and capabilities that must be understood for this or these complex systems and structures in the required skills. The advent and development of generative artificial intelligence also offer transformative potential [11]

In the field of education, by taking advantage of the educational opportunities available through generative artificial intelligence, the progress of generative artificial intelligence must be balanced with the challenges and implications of the innovation that this technology represents.

In the recent years, the Higher Education Platform deepens the smart technology [12] and the progress is reached in detail through the development of smart education. Therefore, the discovery of learning curricula based on smart learning in higher education, consistent with the educational experience in universities and colleges, increases the educational impact of these curricula, which is considered something that should be given special attention.

#### **4.9. Role of Generative artificial intelligence in Educational Health**

The role of artificial intelligence in interactive smart learning in the health educational environment is constantly increasing. AI tools for education are transformative, reshaping traditional educational models. For example, in teaching, AI acts as a supporting tool, automating administrative tasks such as grading when assessing students, allowing teachers to focus on interactive and personalized learning. AI-based teaching systems also provide personalized feedback and the ability to adapt to individual student needs, enhancing the smart learning experience. Furthermore, AI facilitates the creation of dynamic and engaging educational content, catering to diverse learning styles. The role of generative AI in the classroom is to support communication between students and teachers [17]. It delves into the examination of the

multifaceted dimensions of AI, with a particular focus on Open AI's Chat GPT and its profound impact on supporting medical education.

In health education, artificial intelligence provides personalized paths that adapt to the nature and preferences of each student. Intelligent content delivery systems use data analytics to identify areas of strength and weakness, allowing for a targeted approach to skill development. Virtual reality and AI-powered simulations also provide life-like learning environments, making complex topics more accessible and practical. While artificial intelligence works to simplify educational processes, challenges include ethical concerns, especially with regard to health education, on which the health and lives of people depend, potential biases in algorithms, and the need to use artificial intelligence responsibly. The evolving role of teachers includes collaborating with artificial intelligence tools, with an emphasis on the human touch in promoting critical thinking and creativity. Overall, AI in teaching and learning holds the promise of a more adaptive, personalized and inclusive learning experience, preparing students to face the complexities of the modern world.

#### 4.10 Barriers and challenges to smart learning

The main challenge in interactive smart learning in a healthy educational environment is that smart learning conflicts with the rigorous nature of traditional education. Therefore, today's institutions focus more on the educational environment as a whole, which includes managing employees and educational program coordinators [18], Buildings and finance rather than a learning management task. The academic community and the public in

general should embrace intelligent learning as an alternative solution to many problems. For this alternative to become effective, we must change the way we look at learning, and accept the fact that traditional education simply cannot keep up with the rapid changes in the outside world. We need to change the way the entire higher education system works and make it more beneficial for the modern learner.

### 5-Research framework

Research framework could be summarized in the following diagram:

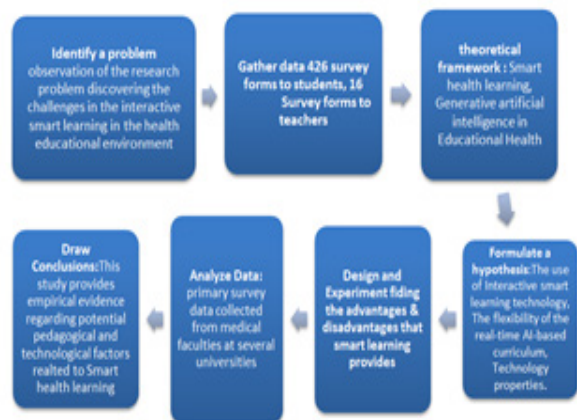


figure (1) the Research framework

### 5.1 Research Participants and procedures

Participants were teachers and their students in smart learning classes. The study included holding several personal interviews with those responsible for teaching at the Faculty of Medicine at Ain Shams University, Faculty of medicine, Zagazig University and Misr University for Science and Technology, where they invented a new method of education through which educational services could be provided remotely while ensuring that students were trained in various practical and applied skills.



## 5.2 Research methodology

In order to gain a good understanding and explore the contents and nature of smart learning in the Faculty of Medicine, a qualitative method was used to investigate research aims. The researchers used two methods to collect data including interview and observation to discover participants' perceptions and opinions on teaching and learning activities. Since this study follows a qualitative approach.

In addition, interviews with teaching assistants and a focus group of students were conducted. Each interview was then recorded, identifying the key concepts required. Extracting and classifying them.

The qualitative analytical method was used in which the research topic was studied, and then it was supported by collecting the appropriate amount of data and information about the research. Next, the relationship between the research variables was clarified in the form of questions or hypotheses. After that, statistical analysis tools that suited the nature of the research data were used. After that, the results were developed, and then finally the appropriate solutions to the research problem were formulated.

## 5.3 Research limitations

- **Place limitations**

Faculty of Medicine, Ain Shams University and Misr University for Science and Technology

- **Time limitations**

A survey was conducted from March 2023 to August 2023

- **Research society**

The study population includes a group of students at Faculty of medicine in Egyptian universities

Faculty of medicine, Ain Shams University (ASU).

Faculty of medicine, Zagazig University .

Faculty of medicine, Misr University for Science & Technology (MUST)

The Use of Moodle, Smart Learning & MS Team

Moodle is the Learning Management System (LMS) used at Faculty of medicine, (ASU) or (MUST).

It allows teachers and administrators to track attendance, time on task, and student progress. It also allows students to access the course syllabus and lessons, submit homework and track grades.

## 5.4 Dependent & independent variables

This research relied on the use of three independent variables

Observed data were collected using survey methodology. The target group is students and teachers. The sample size was 426 students and 16 teachers

Indicators of each variable were measured using a 5-point Likert scale and the following scale :

1 = Strongly disagree

2 = Disagree

3 = We neither agree nor disagree

4 = OK

5 = Strongly agree

Each variable has its own indicators, as shown in Table No.

## 5.5 Design/methodology/approach

Data were collected from 426 participants from various medical faculties in Egyptian universities. By activating the outcome of the literature review and the theoretical background

## 5.6 Digital questionnaire development: Student

A questionnaire was developed to measure the

characteristics of the educational process and student participation, and a teacher questionnaire was also developed

It was developed to measure teachers' attitudes.

The research was designed on the basis of distributing a survey form to identify the feasibility of smart education and the facts related to them, as well as studying students' preferences and the extent of their satisfaction with the educational service using smart learning methods, as well as smart educational experiences through the use of smart education in a way that ensures students are trained in various skills to deal with patients and their treatment.

The survey was distributed before circulating its distribution to students and published electronically to a number of twelve experts for review before approving it for distribution to students. Based on their suggestions, it was modified to include following up with students, ensuring their understanding of the course contents, and studying the reference impact of teaching the scientific content of the courses.

The survey was divided into the following parts:

- 1) Demographic details
- 2) Questions to identify the feasibility of studying through smart learning and to ensure their understanding of scientific topics.
- 3) Questions to determine the extent to which students follow lessons through smart systems and ensure their understanding and application of medical and clinical topics.
- 4) Methods for identifying students' reaction to learning through smart learning, the extent to which they benefit from it, students' preferences for

lessons through smart learning systems, and the extent to which they gain therapeutic experiences through teaching using smart systems.

5) Open questions to find out the disadvantages and advantages of smart learning,

The survey was then distributed to the 16 teachers and filled out manually.

## 5.7 Data collection

-To test the research model a cross-sectional study was conducted using primary survey data collected from medical faculties at several universities

-The responses of 426 students were collected and the digital survey was randomly distributed to them

- With the help of teachers, the survey was reported in various means of communication with students

-The questionnaires were presented with a cover letter at the beginning explaining their main purpose

The research has been completed, and directions are given to complete the questionnaire. The main principle followed in the research is the confidentiality of the data collected from the respondent.

-Most of the participants were from the first and second years of university in medical schools

The results showed that this significantly and positively affects attitudes towards it

## 5.8 Implementing interactive smart learning

### Data analysis

Two steps were performed to analyze the data.

#### The first step

In the research, 426 survey forms were distributed to students at the College of Medicine, and the data

were analyzed using a simple linear regression method to determine:

- 1) Smart student preferences
- 2) The extent of students' satisfaction with the smart education service
- 3) The educational experiences gained by students through smart learning

#### The second step

16 Survey forms were distributed to teachers at the College of Medicine

### 5.9 Statistical analysis

- The students were divided into groups according to the smart learning application used
- Using correlation analysis method

#### Research Hypotheses:

**Hypothesis 1:** The use of Interactive smart learning technology has a significant impact on student fulfillment.

**Hypothesis 2:** The flexibility of the real-time AI-based curriculum has a significant impact on student fulfillment

**Hypothesis 3:** Technology properties have a significant impact on student fulfillment

**Hypothesis 1:** The use of Interactive smart learning technology has a significant impact on student fulfillment.

the first alternative hypothesis There is a significant relationship between student fulfillment and the use of technology or the use of technology has a significant impact on student fulfillment.

Correlation is significant at the 0.01 level (2 - tailed)

the relationship between student fulfillment and the use of technology using <Pearson product-moment

<coefficient correlation to test the Hypothesis 1 and depicts that there is a positive relationship between students' academic engagement and academic achievement at 0.01 significance level,  $r=0.945$ ,  $N=426$ ,  $p =0.000$  ( $p <0.01$ ) showed high positive correlation. Thus, the first alternative hypothesis that there exists a relationship between student fulfillment and the use of technology is, therefore, accepted.

**Hypothesis 2:** real-time AI based course syllabus flexibility has a significant impact on the student fulfillment.

Correlation is significant at the 0.01 level (2 - tailed ) the relationship between student fulfillment and real-time AI based course syllabus flexibility using <Pearson product-moment <

coefficient correlation to test the Hypothesis 2 and depicts that there is a positive relationship between students' student fulfillment and real-time AI based course syllabus flexibility at 0.01 significance level ,

$r=0.932$ ,  $N=426$ ,  $p =0.000$  ( $p <0.01$ ) showed high positive correlation. Thus, the first alternative hypothesis that there exists a relationship between student fulfillment and real-time AI based course syllabus flexibility is, therefore, accepted .

**Hypothesis 3:** Technology properties has a significant impact on student fulfillment

Correlation is significant at the 0.01 level (2 - tailed ) the relationship between student fulfillment and Technology properties using <Pearson product-moment

correlation coefficient to test the Hypothesis 3 and depicts that there is a positive relationship

between students' student fulfillment and Technology properties at 0.01 significance level ,  $r=0.932$ ,  $N=426$ ,  $\rho =0.000$ (  $\rho <0.01$ ) showed high positive correlation. Thus, the first alternative hypothesis that there exists a relationship between student fulfillment and Technology properties is, therefore, accepted.

### 5.10 Sample selection

The research sample was chosen randomly among students of the Faculty of Medicine at the two universities

Statistical analyzes and results

Data collection and sample context

A questionnaire-based survey was used to collect data from student participants in medical colleges

. The questionnaire contains:

And the. The questionnaire uses a five-point Likert type

The scale ranges from 1 (strongly disagree) to 5 (strongly agree) for all constructs.

Random sampling is used to test hypotheses.

Lecturers with great experience in

The personal interviews result

It was shown through the field study that was conducted, and the personal interviews that were conducted with lecturers in the research sample, which includes a sample of medical colleges in Egyptian universities, that the advantages and disadvantages of the system were as follows:

As revealed through the field study and collecting answers to open questions in the survey form, the following:

A table showing the advantages that e-learning provides to the educational institution and the frequency of the answer in open question No. (1) in the survey form

Table (1) the advantages that smart learning provides

serial	The advantages	Repetition
1	A system based on artificial intelligence techniques has been provided to help train students in following up with patients	7
2	The expertise available among some medical specialists and consultants is utilized to continue the medical educational process.	6
3	The educational system was built based on the previous experiences of teachers in the medical field and based on expert systems.	6
4	Only emergency medicine suggested creating an additional feature, which is a reminder to the doctor when one of the signs that indicate the development of the patient's health condition occurs, and training students on each sign.	5
5	Students can be allowed through the system to choose what they feel is important to focus more on when doing the educational process.	4
6	The technical team attempted to reduce some of the causes of errors as a result of distance learning.	4
7	The system enables all students to be asked to perform the examination of a group of patients.	4
8	Providing an alternating treatment method through the system can be used for all students to practice the treatment process for patients.	3
9	After examining the disease condition on the part of the students, the students' expectations regarding the disease are analyzed because the expectations they made may indicate more than one type of disease.	2

10	Through the system, it is possible to teach how to create an educational console service in the therapeutic environment.	1
11	Through the system, it is possible to teach how to create an educational console service in the therapeutic environment.	1
12	Many medical practices are included within the Smart Teacher curriculum.	1
13	The system can allow students to watch and follow the teaching process next to the bed on which the patient is lying.	1
14	The educational process includes three stages, as follows: The first is the complete preparation and preparation of the students, the second is observation and follow-up of the patient to train in the process of diagnosing the disease, and the third is extracting information to arrive at the disease.	1

It was also shown through the field study and through a list of open questions that the disadvantages of the interactive smart learning are the following:

A table showing the disadvantages in the proposed system and the frequency of answers in open question No. (2) in the survey form

Table (2) the disadvantages that smart learning provides

serial	The advantages	Repetition
1	It is difficult to provide educational material for the curricula of resident teachers in hospitals.	5
2	There is a great difficulty for the applications used for groups of students dealing with chronic progressive diseases.	4
3	Any type of simulation of reality aimed at enhancing the teaching process or unified educational encounter does not include applications that reflect the real world	4

4	The application, which was designed, was a complementary application that could be used alongside traditional teaching methods.	4
5	There is a need to unify the applications used for all categories and groups of students.	3
6	There is a need to be aware of urgent news and developments, especially in late cases of illness	1
7	There needs to be some changes in the way students are trained to follow up patients to ensure the accuracy of examination and treatment results for patients.	1
8	There are many differences in the way students are taught under the system based on artificial intelligence from traditional methods	1
9	Teaching methodologies are difficult to follow as teachers.	1
10	There is a difficulty in how to measure educational results under the smart learning system.	1

It was also shown through the field study and through the open questions that the faculty must follow the following On an interactive smart learning environment:

Table (3) Suggestions for overcoming the proposed system disadvantages:

serial	Suggestions	Repetition
1	To provide the necessary capabilities to provide the educational service in an appropriate manner using smart, interactive learning.	4
2	the system must allow diversity and difference in educational services provided through electronic channels.	4

3	It must be taken into account that the educational services provided to students are appropriate to their needs.	4
4	To maximize the benefit of generative artificial intelligence technology using interactive intelligent learning.	3
5	To identify ways to improve the level of smart educational service through generative artificial intelligence technology.	3
6	Specific measurements should be used to evaluate the performance of the smart educational service.	2
7	To identify the operational processes that affect the smart, electronically interactive educational service and follow up on their development.	1
8	To facilitate the monitoring of students' performance and their acquisition of educational materials easily.	1

### 5.11 Research results

Predicting students' shared perceptions about the success of the educational process

Results of descriptive statistics and correlations of variables at the student and semester levels were reviewed

The number of students who filled out the forms completely and correctly was 356 students, and ZOOM MEETING was the most used method of interacting with each other, and only 24% of them interacted with teachers, and more than 50% of the students demanded replacing smart learning methods with traditional methods that were Already used, while the remaining 26% were neutral, they believe that each teaching method has its advantages and disadvantages, and combining the two methods may contribute to reducing or eliminating these disadvantages.

Observations and interviews revealed that although smart learning facilitates the educational process, the system failed to fully document educational processes and implement the routine classroom mechanism.

### 5.12 Discussion Results:

The current study examined the relationships between the following:

- Smart learning and student achievement.
- Based curriculum in interactive learning environment and student achievement
- Characteristics of technology used in smart learning and student achievement and benefit from the technology used.

### 5.13 The results

This study contributes to the existing literature by considering the influence of attitudes towards application of smart learning in universities. Most previous studies have been like this focuses on evaluating the implementation of smart learning using technology integration theories ignoring the influence of situations.

Main effect analysis and results from SPSS program was used for testing Hypotheses proposed in the theoretical framework

The results of this study showed:

1. Teachers were well prepared to deal with the contents of smart learning and the educational activities accompanying it.
2. There are significant and strong relationships between the level of activation Student engagement and shared student perceptions of interconnectedness and use of technology.
3. These results contribute In order to better

understand how to develop smart learning in a better and attractive way, suggestions for future research are presented.

4. The study showed that students are keen to obtain educational services through smart learning and to overcome all obstacles that hinder the process of smart distance learning.

### 5.14 Limitations and future directions

The first limitation is that although the sample of this study met the basic requirements for analysis, the results only emerged due to the special characteristics of the classrooms that volunteered permission to participate in the research.

Future research should specifically focus on:

- (1) Identify the effectiveness of smart learning through support and apply developed technology to identify and deal with unexpected behavior and enhance learning performance.
- (2) Identifying practical situations to support and remove obstacles in teaching processes in smart learning, which must also be examined

### 5.15 Research Contributions

1. Smart technology in education contributes to pushing students to explain their ideas.
2. Students can discuss with each other how to conduct and complete educational activities using smart technology in education.
3. Students can design their own ways to investigate problems Smart technology in education
4. Smart technology in education helps students think deeply about how they learn

## 6- Generative Artificial Intelligence in interactive smart Learning

Generative Artificial Intelligence in interactive smart Learning framework could be summarized

in the following diagram:



figure (2) the Generative Artificial Intelligence in interactive smart Learning framework

A Generative Artificial Intelligence in interactive smart Learning framework was developed. An Essential/transfoming technology (First layer). These technologies are essential for smart education and they transform traditional education into smart education combined with new or improved teaching methods.

These technologies are learning management systems, smart intelligent classrooms, and virtual classrooms. The other set of technologies including virtual reality, educational robots, and serious games mainly enrich smart classrooms. Actually, the technologies are influenced by other technologies, the technologies in the supportive layer are the technologies enriching the smart education experience.

Incorporating some or all of these technologies into smart education increases the teaching and learning experience. Depending on the education and training goals, we may employ various

technologies in combination and use suitable ones. Supporting technologies are used for many other purposes in addition to education.

We may simply call these general-purpose technologies. Therefore, these technologies supporting implementation of smart education. The smart education framework does not necessarily show the hierarchy of technology dependence. This smart education framework is generic. New technologies are developed every day.

The layers in smart education are conceptual layers based on their supporting role in the implementation of smart education. The smart education framework does not necessarily show the hierarchy of technology dependence. Using the smart education design steps and the framework, we may develop smart education implementations for teaching various subjects

## 7 Conclusion:

Although smart technology-enhanced learning environments are common in education, understanding how they enhance them for students is important.

Participation is still evolving. This study provides empirical evidence regarding potential pedagogical and technological factors

The study impacts student engagement and provides insights into which dimensions of classroom process quality deserve greater attention.

Student participation should be enhanced as it has been explored Cross-level mediating relationships between teachers' beliefs, smart classroom process quality, and student engagement.

Through the study, it was found that most students tended to traditional methods of learning. There were up to six lectures a day, and each lecture closed after 40 minutes due to... To use the free version of Zoom Meeting

There is a need to update the information infrastructure at the College of Medicine to accommodate the need to rely on smart learning during the Corona pandemic. This also includes determining the method of learning and how to give background

Educators can embrace the transformative power of AI in education by taking collective action to shape a future-ready learning environment. Educators, policymakers, parents, and stakeholders can unite in fostering responsible AI integration: Prioritize ongoing professional development for educators to harness AI's potential. Advocate for equitable access to AI-driven resources, ensuring that all students benefit from this technological evolution. Industry leaders can invest in collaborative initiatives to develop innovative AI tools aligned with educational goals. Together, educators and stakeholders can unlock the full potential of AI, creating personalized, inclusive, and impactful learning experiences. A collaborative commitment will shape an education landscape where AI empowers learners, nurtures creativity, and prepares students for the challenges of an evolving world.

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