

**Difficulties of using AI in Teaching among
Teachers of University of Sulaimani
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الملخص

هدفت الدراسة الحالية الى تحديد مستوى الصعوبات التي تواجه استخدام الذكاء الاصطناعي في التدريس لدى أساتذة جامعة السليمانية. للعام الدراسي 2023-2024 ، يشمل مجتمع البحث أساتذة جامعة السليمانية. وتكونت عينة البحث من (100) استاذًا واستاذة، توزعت ضمن (7) كليات في التخصصات العلمية والإنسانية، وتم اختيارهم بالطريقة العشوائية البسيطة وفقا لطبيعة البحث. بالنسبة لمنهجية البحث فقد اعتمد الباحث المنهج الوصفي الارتباطي. وفيما يخص ادوات البحث أعد الباحث استبيانًا للتعرف على الصعوبات التي تواجه استخدام الذكاء الاصطناعي من قبل اساتذة الجامعة، والذي تضمن (13) فقرة. وقام الباحث بتحديد الخصائص السايكومترية لاداة البحث من خلال استخراج صدق وثبات الاداة.

بعد التأكد من الشروط العلمية لاداة البحث تم تطبيقه على عينة البحث البالغ عددهم (100) استاذًا واستاذة ، وللوصول الى نتائج البحث وتفسيرها اعتمد الباحث الحقيبة الاحصائية للعلوم الاجتماعية SPSS ، وبعد تحليل بيانات البحث تم التوصل الى النتائج الآتية:

1. أن معدل استخدام الذكاء الاصطناعي لدى أساتذة الجامعة في مستوى منخفض.
2. الصعوبات التي تواجه استخدام الذكاء الاصطناعي بين أساتذة الجامعة على مستوى عال.
3. لا يوجد فرق ذو دلالة إحصائية في مستوى الصعوبات التي تحول دون استخدام الذكاء الاصطناعي من قبل أساتذة الجامعة وفق متغير الجنس (ذكور، إناث).
4. لا يوجد فرق إحصائي في مستوى الصعوبات التي تواجه استخدام الذكاء الاصطناعي لدى أساتذة الجامعة وفق متغير سنوات الخدمة. وبعد تحليل نتائج البحث قدم الباحث عددا من التوصيات و المقترحات اهمها:

التوصيات:

1. إبداء المزيد من الاهتمام بوسائل الذكاء الاصطناعي في مجال التعليم والتدريب.
2. فتح دورات تدريبية للأساتذة ليصبحوا متمكنين في استخدام هذه بالوسائل الجديدة والتعامل معها.
3. تزويد اساتذة الجامعة بالوسائل الالكترونية اللازمة لتطوير مهاراتهم واتجاهاتهم نحو التدريس.

المقترحات:

1. إجراء بحوث مشابهة للبحث الحالية لدى اساتذة المعاهد الفنية والالكترونية في السليمانية.
 2. إجراء دراسة عن تأثير استخدام الذكاء الاصطناعي على اتجاهات طلبة الجامعة نحو تطوير البحوث العلمية.
 3. إجراء دراسة عن تأثير استخدام الذكاء الاصطناعي على دافعية التعلم لدى طلبة الجامعة.
- الكلمات المفتاحية: الصعوبات ، الذكاء الاصطناعي ، التدريس ، اساتذة الجامعة.

Abstract:

The purpose of the study is to identify and determine the level of challenges to the use of artificial intelligence in teaching among the teachers of Sulaimani University. For the academic year 2023-2024, the research population consists of all teachers of Sulaimani University. The research sample consists of 100 (male and female teachers selected by simple random sampling from seven colleges of science and the humanities. The researcher used the method of descriptive communication according to the nature of the research, in addition to benefiting from his research. The researcher prepared a questionnaire to identify the challenges of using artificial intelligence, consisting of (13) items. To ensure the accuracy and appropriateness of the tool, it was reviewed by experts in teaching methods, education, and psychology. The test-retest method was utilized to evaluate its reliability, revealing an expert agreement rate of 90% and a reliability coefficient of 0.86. Subsequently, the questionnaire was administered to the original study sample, and the researcher analyzed the responses using the SPSS

software for social sciences. The study's findings were summarized along with several conclusions, recommendations, and suggestions.

Key findings of the study include:

1. The use of AI among university faculty members is relatively low.
2. The challenges faced by teachers in adopting AI are considerable.
3. No statistically significant differences in the barriers to AI adoption were found based on gender.
4. No statistically significant differences in AI-related challenges were found based on years of service.

Recommendations:

1. Increased focus on AI tools in education and training.
2. Establishment of training programs to enhance teachers' proficiency in using and managing AI tools.
3. Provision of necessary resources for teachers to integrate AI into their teaching practices.

Suggestions:

1. Conducting similar research in computer science institutes within Sulaimani.
2. Expanding the study to other universities for comparative analysis.
3. Investigating the impact of AI usage on students' learning motivation at the university level.

Keywords: difficulties, AI, teaching, teachers.

Definition by Research

Introduction

the International Artificial Intelligence in Education Society (AIED) is a multidisciplinary group that focuses on computer science, education, and

psychology. Established in 1997, AIED hosts conferences and the International Journal of AI in Education, bringing together researchers in four broad categories: personalization, adaptive systems, assessment and evaluation, profiling and prediction, and intelligent tutoring systems [1]

AI is transforming educational resources and institutions, with teachers playing a crucial role in the education system. Furthermore, AI uses machine learning, deep learning, and sophisticated analytics to track a person's pace, improving productivity, personalization, and administrative activities. Teachers can now work with robots to help students reach their full potential. The 2018 Horizon report predicts a 43% increase in AI usage in education between 2018 and 2022. Research on AI in education has been conducted over the last 30 years, with the global market for AI education valued at \$1.1 billion in 2019 and projected to grow to nearly \$25.7 billion by 2030 [2].

Hence, artificial Intelligence (AI) has become a significant tool in educational practices, facilitating new paradigms for instructional design, technological development, and education research.

Since the debut of AI in Education nearly three decades ago, it has provided new opportunities, potentials, and challenges for educational innovations, such as personalized learning, instructor role challenges, and the development of complex educational systems[3].

Various AIED techniques, such as natural language processing, artificial neural networks, machine learning, deep learning, and genetic algorithms, have been implemented to create intelligent learning environments for behavior detection, prediction model building, and learning recommendation.

However, good educational outcomes typically do not occur solely through advanced AI computing technologies [4].

The use of distinct classes of educational technologies often implies different philosophical and pedagogical perspectives, which can significantly influence the quality of learning and instruction.

Despite the extensive review of AIED categorizations, approaches, research issues, challenges, and future visions, few studies explicitly examine the different roles of AI in education, its connection to existing educational and learning theories, and the extent to which AI technologies influence learning and instruction[5].

The Problem of the Study

The integration of artificial intelligence (AI) into education is revolutionizing the way we approach teaching and learning. AI offers numerous advantages, such as data-driven insights into student performance, automated administrative activities, and individualized learning experiences. However, there are several challenges to overcome before AI can reach its full potential. These include problems with data security and privacy, bias persistence, expensive implementation, and the deficiency of emotional intelligence in AI systems [6].

Educators' aversion to change, excessive reliance on technology, and the validity and dependability of AI-driven tests are also concerns. To successfully integrate AI into education while guaranteeing fair access and maintaining the quality of the learning experience, educators, legislators, and developers must have a thorough understanding of these challenges. By addressing these concerns, we can better negotiate the difficulties of

AI in teaching and build more inclusive and productive learning environments [7].

One of the main issues with AI in education is the persistence of biases in the data used to train these systems. This can result in biased educational outcomes that disfavor particular student groups. Large-scale student data gathering is also required for the integration of AI, raising serious privacy and security issues.

The financial burden of integrating AI technology is a significant obstacle, especially for educational institutions with limited resources. The exorbitant cost of AI infrastructure, software, and training for educators further widens the education gap between well-funded and impoverished schools.

Despite AI's efficiency and accuracy, it lacks the emotional intelligence and sophisticated understanding human educators can offer. Resistance to change among educators and institutions further complicates the adoption of AI.

By resolving these problems, we can ensure fair, safe, and effective schooling while fully utilizing AI and providing human-centered learning opportunities. The importance of the Study

The present study is expected to be useful because it plays an important role in discovering new solutions, we can show its importance in the following points:

1. It is crucial for students to pay more attention to AI education at all academic levels.
2. It is crucial that educators focus more on the AI that supports them in

their fields and enables them to give students engaging lectures.

3. It is crucial that those working in the fields of education and planning for the nation's educational system give artificial intelligence (AI) greater consideration, start teaching pupils from the beginning, and offer seminars and courses for educators to acquaint them with the newest innovations in technology.

The Aims of the Study

Mainly, the aims of this study are to know:

1. Knowledge of the level of use of artificial intelligence by the teachers of the University of Sulaimani.
2. The level of obstacles to the use of artificial intelligence by teachers at the University of Sulaimani.
 - I. The level of difficulties to the use of Artificial Intelligence by teachers at the University of Sulaimani by gender variable.
 - II. The level of difficulties to the use of Artificial Intelligence among teachers at the University of Sulaimani by the variable years of service.
3. Identify the extent to which there are difficulties to the use of artificial intelligence by University of Sulaimani teachers based on the analysis of the sections.

The limit of the Study

This study is limited to the following:

- **Population:** Teachers at Sulaimani University.
- **Timeframe:** The academic years 2023-2024.
- **Geographical Scope:** Sulaimani City.

- **Subject Focus:** Challenges related to AI use, teaching, and teachers

Define terms:

First: Difficulties:

According to Webster, a difficult task is one that demands expertise and perseverance to master, solve, or accomplish. It is anything that is laborious or confusing [8].

According to Litter, it is any barrier that stands in the way of accomplishing a task and makes it more difficult and thought-provoking [9].

Definition of Difficulties Theory

it as "a challenging situation that requires research and study of a problem or difficulty that needs to be solved."

Definition of Difficulties Practice

The value that the difficulties obtains through the tool used to collect information from the responses of the members of the study sample.

Second: AI

Artificial intelligence is a system that can react intelligently, meaning it can understand its environment and perform actions that increase its likelihood of success in achieving its goals [10].

Artificial intelligence is the ability of machines to mimic human intelligence – such as thinking, learning, problem-solving, and language understanding [11].

Definition of AI Theory

Artificial intelligence is the creation of computer systems that can perform complex tasks that would normally require human intelligence.

Practical Definition of AI

The value that the AI gains through the tool used to collect information as a result of the responses of the members of the research sample.

Third: Teaching

Teaching is the management of teaching attitudes, which includes early preparation to decide on the planning, preparation, and subject of study for the conditions of teaching and evaluation, as well as direct interaction between teachers and students [12].

Hence, teaching is described as a series of organized, planned, appropriate, and complementary procedures and actions that a teacher carries out while instructing a particular subject with the goal of obtaining the desired learning in the student [13].

Definition of Teaching Theory

Teaching is a set of activities that teachers carry out in the teaching environment to help students achieve certain educational goals.

Definition of Practical Teaching

It is the score that Teaching receives as a result of students' responses to the survey criteria.

Theoretical Background

The concept of Teaching: One of the most significant or practical facets of teaching is thought to be instruction. Without a prior plan that is not organized in a methodical or sequential manner, teaching is ineffective.

Therefore, coordinated activity meant to encourage and support learning tasks. And a series of acts make up teaching conduct. The teacher abstains from these judgments and serves as a mediator in the deliberate contemplation of the pedagogical-educational attitude [14].

Methods of Teaching

Teaching techniques are a collection of organized exercises that educators carry out in the classroom with the intention of changing students' knowledge, perspectives, and conduct in all facets. Since the term "method" refers to something narrower than "style," teachers frequently do not discriminate between the two. Instead, they give lessons in a variety of styles.

Some educators employ the same instructional dialogue strategy but deliver it differently, such as utilizing their hands and shoulders, striking up a lively discussion, cracking jokes, or conversing with the class. A different instructor uses a different presentation style, such as sitting on a chair, bowing to the class, and condensing the lecture [14].

There are several varieties of teaching strategies, and each has advantages and disadvantages of its own. An effective teacher selects the most effective manner to convey the material to the class and the right teaching strategy for the subject and stage. While unique teaching techniques are appropriate for certain specialties but not other specialists, general teaching methods are essential for educators in their respective fields of competence [15].

The concept of AI:

The term artificial intelligence (AI) describes the capacity of digital technologies, including computers, mobile phones, and robots, to carry out activities associated with intelligent objects. Artificial Intelligence (AI) includes human cognitive functions like reasoning, finding significance, and experience-based learning. Web search engines, chess, medical diagnoses, mathematical proofs, and handwriting or voice recognition are a few examples of AI-related tasks.

The study of artificial intelligence (AI) started in the communication school in 1940 AD, but its origins can be traced back to the Greek classical philosophers. At a Dartmouth College symposium in 1956, Alan Turing and Hodgkin Huxley made contributions to the concept of artificial intelligence. Due to slowness and large storage capacity, AI research was placed on hold. However, it was picked back up in the 1980s following the introduction of fifth-generation computer technology [16].

The impact of AI on learning

AI has an influence on formal schooling that is both beneficial and detrimental. It would appear that AI should be used in as many educational contexts as feasible because it is high on the policy agenda. This enthusiasm may be subdued when people see that artificial intelligence would not only improve the effectiveness of current education systems but also alter the social environment of learning. Technology specialists have limited knowledge that might dominate and take precedence over other forms of knowledge during the technology push stage. This may be problematic in the field of education and training since technologists tend to include their personal learning experiences and ideologies in their designs [17].

Large-scale learning analytics in online contexts is one of AI's big promises. Test scores may not always be a reliable measure of learning, though. Neural AI systems that are in use today are well suited to learning models that see learning as the internalisation of information by students. Though the idea of learning style is perhaps best described as an urban myth, AI may provide exciting new prospects for tailoring learning content based on students' unique features and learning styles [18].

The Impact of AI on Teaching

We can simply automate tasks that were once crucial if we consider how AI may be employed in the present educational setting. Therefore, rather than focussing on the effects of AI on the educational systems and formats of today, it is crucial to comprehend their implications for learning and education in the future. As a result, research on the future of learning that is future-focused will be intrinsically related to analyses of the effects of AI on teaching. Nevertheless, AI can affect some educational activities. There are many sorts of evaluations, and one such duty is to

One of the main components of conventional intelligent tutoring systems is a student model, which keeps track of the learner's current state and is used to infer potential barriers to the student's comprehension of the subject matter being studied [19].

Benefits of AI in Education

Artificial intelligence (AI) in education has several advantages that improve student learning and the efficacy of instruction. Here are a few main advantages, along with sources:

1. Customised Education

AI systems have the ability to modify course material to meet the needs of specific students, taking into account their learning preferences and speed to provide more successful learning results.

2. Computerised Assessment and Grading

particularly for objective tests like multiple-choice questions. As a result, teachers have less work to do and can provide feedback more quickly [20].

3. Increased Involvement of Students

AI-driven resources, including chatbots and virtual tutors, may interact with students outside of the classroom by responding to enquiries and offering assistance.

4. Data-Driven Understanding

AI can evaluate enormous volumes of data to offer insights into student performance, assisting teachers in identifying underachievers and launching early interventions [21].

5. Assistance with Differentiated Education

AI can help teachers differentiate their education by providing various tools, assessments, and content to meet the requirements of students with varying learning styles.

6. Interpretation of Languages and Availability

AI technologies can translate text in real-time and assist students with impairments, increasing educational accessibility [22].

7. Condensed Administrative Duties

AI can handle repetitive duties like communication, attendance, and scheduling, giving teachers more time to concentrate on instruction.

8. Constant Feedback

AI can give students ongoing, formative input, which will improve their learning and allow teachers to modify their lesson plans accordingly [23].

Prevised study

1. Derya Uygun (2024), Teachers' perspectives on artificial intelligence in education

Notwithstanding worries about ethical and privacy problems, a survey of 74 instructors revealed a largely positive attitude toward AI in the classroom. This emphasizes the necessity of a well-rounded strategy that optimizes AI's advantages while defending the rights and interests of all parties involved, as AI has the enormous potential to completely transform teaching and learning.

2. Tomorrow's Teachers and Artificial Intelligence: Exploring Attitudes and Perceptions of Turkish Prospective Social Studies Teachers

Okan YETİŞENSOY (2023)

This study examines the attitudes of prospective social studies teachers toward AI. Results showed that individuals with greater knowledge of AI, as well as male teachers, exhibited more positive attitudes. No significant differences were found based on grade level or internet usage. However, many participants demonstrated limited knowledge about AI, with some expressing concern over its potential future risks. The study highlights the need for better AI education in teacher training.

1. Perceptions of Computer and Information Technology Teachers about Artificial Intelligence Applications in Education

Prof. Mohammad Ateah Alharth & Ms. Mona Suliman Alhenaki (2022)

The research investigated the usage of artificial intelligence applications in education by surveying secondary school computer and information technology instructors. For suspense, challenge, creativity, and

competitiveness, most people utilized clever educational games; the least common usage was turning printed images or handwritten words into text files. The notion that AI involves more work, a lack of technological assistance, students' poor problem-solving skills, and the expensive cost of classroom supplies were among the obstacles.

1. The Promises and Challenges of Artificial Intelligence for Teachers

Ismail Celik, Muhterem Dindar, Hanni Muukkonen, & Sanna Järvelä (2022)

The study investigates the usage of machine learning techniques and AI apps by educators for data analysis. It draws attention to how AI may enhance lesson design, execution, and evaluation. In the development of AI technology, teachers have a variety of responsibilities to perform, including testing the correctness of assessments and training algorithms.

5. The Impact of Artificial Intelligence on Learning, Teaching, and Education

Tuomi, Ilkka (2018)

The present status of artificial intelligence (AI) and its possible effects on education, teaching, and learning are examined in this essay. In addressing possibilities and difficulties, it provides conceptual underpinnings for work focused on policies, research, and forward-looking endeavors. The paper is intended for scholars examining AI's effects on the economy, society, and the future of education and learning, as well as policymakers and developers of AI technologies.

Methodology and Research Design

This section outlines the researcher's methodology, provides a description of the study sample's characteristics, and explains the careful development of research instruments. It also addresses the reliability of

the instruments and details the process of conducting field research, as well as the statistical methods used to analyze the data.

The Method

The relational descriptive method is used to investigate various phenomena, identify referential aspects, and determine the relationship between the constituent elements of the phenomenon and other related phenomena to accomplish the research goal.

The Population and Sample

One of the most crucial aspects of research is identifying the research community, which should exist in the provinces the researcher is studying.

The research community is made up of faculty members from the University of Sulaimani, who are purposefully selected from six colleges of science and humanities.

The sample of the study consisted of 100 teachers who were (52) male and (48) female.

Table (1): The research samples

id	college	gender		total
		male	female	
1	Administration and Economic	6	6	12
2	Basic Education	12	5	17
3	Education	1	9	10
4	Engineering	7	8	15

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5	Language	7	8	15
6	Law	13	3	16
7	Science	6	9	15
total		52	48	100

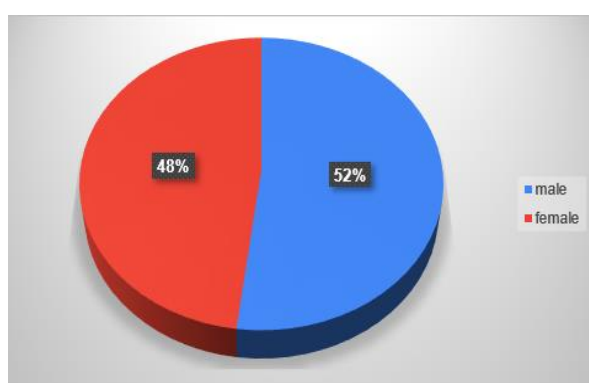
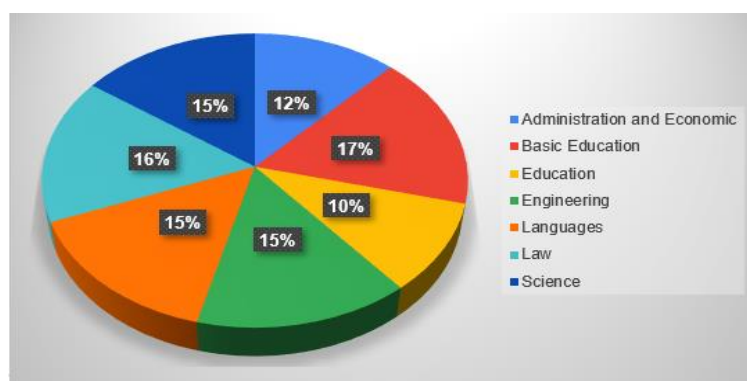


Figure 1: sample(college & gender)

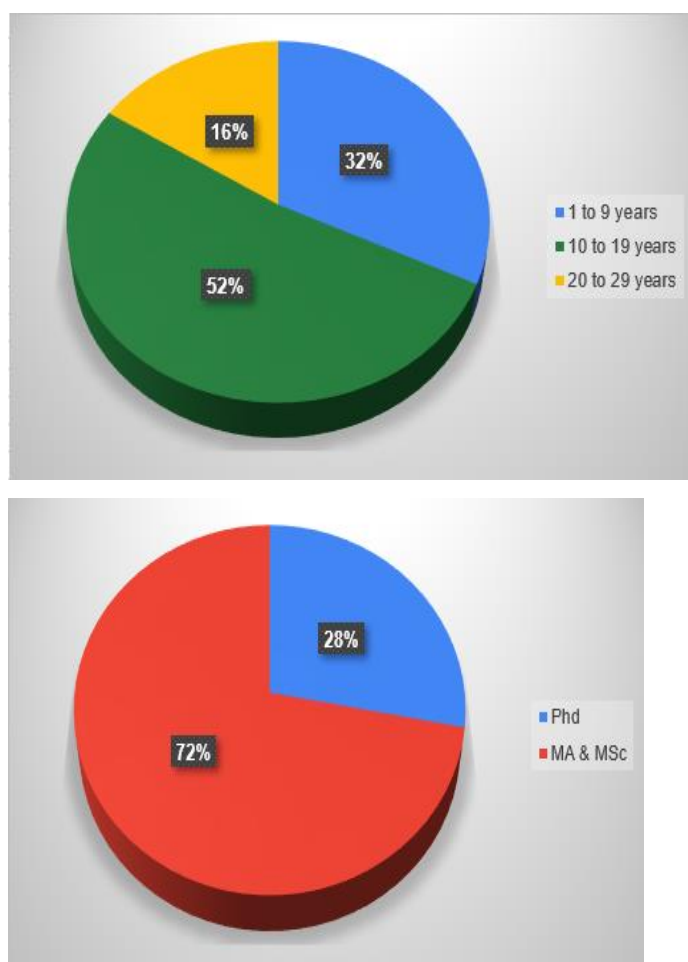


Figure2: sample(year service & degree)

The Tools Used in the Study

Achieving the research objective relies on developing a scientific measurement scale tailored for this purpose. To meet the goals of the current study, the researchers utilised a scale they created, consisting of 13 items, which was deemed suitable for the research sample. The validity and relevance of the scale were also confirmed.

Validity and Reliability of the Test

Several factors need to be taken into account in order to create a test that is relevant and well-designed for the test-takers. The teacher should intend to create a test that is dependable and legitimate before creating any form of test. These factors are seen to be beneficial traits or essential components of a precise evaluation.

Face Validity

In order to determine the honesty of the researcher's appearance, the researcher resorted to the opinions of experts. For this purpose, the criteria were made available to (7) experts (teaching methods, psychology and computer science) and they were asked to express their opinions about the appropriateness of the clauses and options and any changes they thought were appropriate to suggest. After collecting the forms, according to the experts' opinions, only those items remained, with a consensus rate of 90%. Thus, all the 13 items remained the same, the average honesty The scale has reached 95%.

Reliability

The point of consistency of any measure is that if a measure is applied to a set of individuals and the scores of each individual are monitored in it, and the measure is repeated over the same individuals in that group under the same conditions and the same result is obtained, then the measure appears to be completely Reliability.

The researcher used several methods to determine the stability of the measurement such as:

Test – Retest Method

For the first time on 5/7/2024, the measurement was applied to 10 teachers who were part of a research community consisting of males and females, and after 15 days on 20/7/2024, the measurement was applied again on the same sample. Then the relationship between the first and second results was found through the Pearson correlation cohort, and as a result, it was found that the value of the relationship between the first and second results is (0.752*) which is a strong correlation and indicates that the Reliability of the measure is high.

sample	Exam	Mean	Std. Deviation	Pearson Correlation
10	First time	34.4	2.27	0.752*
10	Second time	32.8	1.55	

Cronbach's Alpha

The researcher found the stability of the measurement using Cronbach's alpha method, which is one of the ways to determine internal consistency, and after applying the measurement to (10) primary sample students, the stability ratio of the measure is (0.71) which is a high Reliability.

The properties of Measuring Artificial Intelligence

After determining the validity and Reliability of the artificial intelligence measurement, the scale remained in the form of 13 items, in general, the items were clear to the university teachers and the time required for the response was (4) minutes, and the response options in the content of the items were designed in the category of three options, i.e. there are (3) options against the items, which are (It's a big difficult, It's a moderate difficult, It's a small difficult) the value of the options is (3,2,1) in the same order against the negative items. The scores are reversed, and the

negative items are (1,2,3) i.e. the highest score. The scale is 39 marks and the lowest score is 13 marks.

Statistical Tools:

The SPSS Social Sciences Statistical Questionnaire Version 25 was used to use the following statistical tools (Pearson correlation cohort, Cronbach's alpha, Independent Sample T-Test, One Sample T-Test, and ANOVA (

1. One Sample T-Test:

$$T.test = \frac{X - M}{\frac{A}{\sqrt{N}}}$$

2. Independent Sample T-Test:

$$T.test = \frac{X_1 + X_2}{\sqrt{\frac{(n_1 - 1)A_1^2}{n_1 + n_2 - 2} + \frac{(n_2 - 1)A_2^2}{n_1 + n_2 - 2} * \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

3. One way ANOVA:

$$SS = \sum (X - \bar{X})^2 = \sum X^2 - \frac{(\sum X)^2}{N}$$

4. Person Correlation Coefficient

$$r = \frac{\sum XY - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\left[\sum X^2 - \frac{(\sum X)^2}{n}\right] * \left[\sum Y^2 - \frac{(\sum Y)^2}{n}\right]}}$$

Result and Discussion

Presenting and Analyzing the Results

This part focuses on explaining and displaying the outcomes we were able to attain using all the data found in the list of study objectives. The most evident ones that can be gleaned from the findings are given in the

results and in the confirmative of the suggestions and recommendations. Researchers frequently depend on the results to compare the results within the framework of the theory of the changes in the research.

1. The aim is to highlight Knowledge of the level of use of artificial intelligence by the teachers of the University of Sulaimani.

Following data collection and analysis to determine the percentage, the researcher came to the following conclusion about the study sample's use of AI: 36% of instructors utilize AI to aid in their instruction. And 64% of educators do not include artificial intelligence in their lesson plans. an explain in the figure(3).

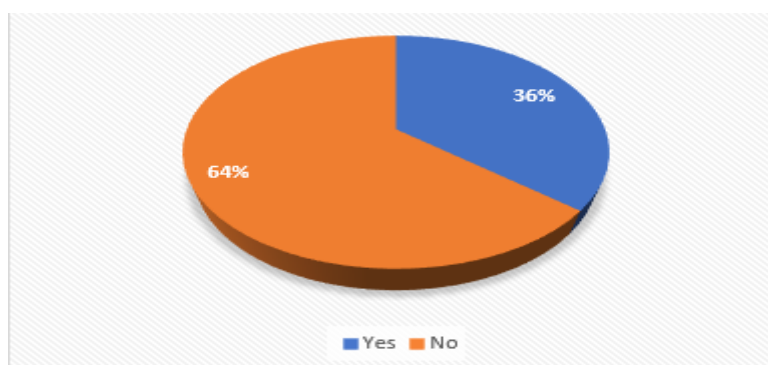


Figure 3: level of use of artificial intelligence by the teachers

The researcher claims that because most instructors lack the necessary abilities to utilize AI services and because educational institutions do not supply them with varied tools, the low rate of AI use by teachers may be attributed to these factors.

2. The aim is to highlight the level of difficulty in the use of artificial intelligence by teachers at the University of Sulaimani.

After treating data from the research community in general, the center of grades on the scale of the Difficulties of using AI was (31.34) removing the value scale (3.86), and after comparing this centre with the default center for the scale (26) Using the t-test, the sample shows that the calculated sectarian value reached (13.83) and that is larger than the value of the

table reached (1.96), which has statistical evidence of the level of (0.05) as explained in the table (1):

Table (1): The results of the sectarian testing on the scale of the fear of the nation

N	Mean	Std. Deviation	Default center	T value		Level of evidence 0,05
				T.test	Z.test	
100	31.34	3.86	26	13.83	1.96	evidence

This result indicates that there is a statistically significant difference in the difficulty levels of using AI between the sample group's average scores and the national average score on the AI difficulty scale.

i. The Level of Difficulty in Using Artificial Intelligence by University of Sulaimani Teachers Based on Gender

A two-sample test was carried out to analyze the data. The results indicated that the average score for male participants was 31.27, while for female participants it was 31.41, with a standard deviation of 3.5. The overall mean score was 4.65. After comparing the critical value from the table (1.96) at a 0.05 significance level, the calculated value of 0.190 showed no statistically significant difference. This implies that male and female teachers experience no significant difference in the difficulty of using AI.

Table (2) the results of the two-sample test for the AI difficulty scale based on gender differences.

gender	N	mean	Std. Deviation	df	T value		Level of evidence 0,05
					T.test	Z.test	
male	52	31.27	3.5	98	0.190	1.96	No evidence
female	48	31.41	4.26				

This result also highlights that there is no difference between males and females in the level of difficulty experienced when using AI, suggesting a shared anxiety towards AI across both genders. This signifies that the fear or anxiety about AI is unified across the nation regardless of gender.

i. The Level of the difficulty to the Use of Artificial Intelligence among Teachers at the University of Sulaimani by the Variable Years of Service.

After analyzing the data using statistical tools one-way ANOVA the results showed that the value (f) is (0.526) and the score of freedom between groups (2) within groups (97) at the level of evidence (0.593), explained this means that there is no statistically significant difference among teachers according to different of Years of Service to the difficulty to the use of Artificial Intelligence.

Table (3) the results of the sectorian testing in the scale of difficulty of using AI of the nation by the Variable Years of Service.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.863	2	7.932	.526	.593
Within Groups	1462.577	97	15.078		
Total	1478.440	99			

1. Identify the extent to which there are Difficulties to the use of artificial intelligence by University of Sulaimani teachers based on the analysis of the sections.

The researcher concluded that the degree of Difficulties to the use of artificial intelligence among university teachers was based on the percentage of the items' Difficulties, as shown in Figure (7), after gathering the data and analyzing it by determining the appropriate center and the percentage. Each item is shown in the proper order and center proportion.

Table (5) Identify the extent to which there are Difficulties to the use of artificial intelligence by University of Sulaimani teachers based on the analysis of the sections..

Difficulties of using AI in Teaching among Teachers of University of Sulaimani

id	Rank	question	Mean	percentag
1	13	The belief that using artificial intelligence applications in education requires more effort than teaching in the traditional way.	2.16	72%
2	6	Lack of necessary technical support as required.	2.44	81%
3	2	Lack of awareness of the importance of using artificial intelligence applications in education	2.52	84%
4	9	Weak ability of learners to solve the problems they face while using artificial intelligence applications in education	2.38	79%
5	1	The number of learners in the classroom does not allow controlling the use of artificial intelligence applications in education	2.64	88%
6	3	Weak learners' response to the new style of learning and their interaction with it	2.5	83%
7	8	Weak incentives provided to teachers who use modern educational technologies	2.4	80%
8	5	The large burden placed on teachers, which prevents them from using artificial intelligence applications in education	2.441	81%
9	11	The high financial cost associated with processing Classrooms to use applications artificial intelligence	2.32	77%
10	4	Lack of adequate training programs To use artificial intelligence applications.	2.46	82%
11	10	Lack of sufficient time to learn and practice using artificial intelligence applications in education	2.36	79%
12	12	Lack of sufficient time to use artificial intelligence applications during class	2.3	77%
13	7	There is a lack of motivation for some teachers to adapt to artificial intelligence applications in the teaching process.	2.42	81%

Conclusions, Recommendations and Suggestions

Conclusions

The current study has come up with some significant conclusions, such as:

1. After analyzing the data, it appears that using computer has a positive impact on learning.
2. There is no difference between male and female gender to learn by computer.
3. There is no difference according to students's stage to learn by computer.
4. Using computer creates a motivation for learning by the student.

Recommendations

Based on the conclusions, the current study recommends the following:

1. Pay more attention to artificial intelligence tools in the field of education and training.
2. Open training courses for teachers to become proficient in the use and handling of these new tools.
3. Provide teachers with the necessary tools to pay more attention in the field of teaching.

Suggestions

The following are suggestions for researches to be conducted in the future:

1. conducting the same research at computer science institutes in Sulaimani.
2. Conducting similar and extensive research at other universities.

3. Conducting a study on the effect of using artificial intelligence in learning motivation among university students.

Reference

- [1]Tuomi, I. (2018). *The Impact of Artificial Intelligence on Learning, Teaching, and Education*. European Commission. This publication examines the economic implications of adopting AI technologies in educational settings.
- [2] Jagadeesh Kengam (2020): ARTIFICIAL INTELLIGENCE IN EDUCATION, <https://www.researchgate.net/publication/347448363>, Bournemouth University.
- [3](Holmes et al., 2019; Hwang et al., 2020).
- [4] (Baker et al., 2019; Holmes et al., 2018;Star_ci_c, 2019).
- [5](Castañeda & Selwyn,2018; Du Boulay, 2000; Selwyn, 2016).
- [6] Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Center for Curriculum Redesign. This book discusses how AI can perpetuate biases and inequalities in education.
- [7] Benjamin, R. (2019). *Race After Technology: Abolitionist Tools for the New Jim Code*. Polity Press. This book explores how AI technologies can reinforce existing social biases, particularly affecting marginalized communities.
- [8]Abbas, Zainab(2012): Difficulties in Using Methods of Alternative Assessment In Teaching from Iraqi Instructors Points of View, University of Diyala,College of Education-Diyala.
- [9]Litter, Emille. (1964) Dictionaries dear language. Francaice paris: Gall imard Hachette.
- [10] Good, carter (1973): Dictionary of Education.
- [11] Russell, S. and Norvig, P., 2020. Artificial intelligence: a modern approach. 4th ed. Hoboken: Pearson

- [12] Ertel, W., 2017. Introduction to artificial intelligence. 2nd ed. Cham: Springer.
- [13]qatawi,Muhammed Ibrahim(2007):Methods of Teaching Social Studies,amman,Dar Al-Fikr publishers and Distributors.
- [14] Kareem, Ahmed Aziz (2014): The General Principles of Teaching Methods, First Edition.
- [15]Mohammed, Kawa Ali (2019): The Art of Teaching and Classroom Management, First Edition.
- [16] Hwang, G. J., & Tu, Y. F. (2021). "Roles and Research Trends of Artificial Intelligence in Mathematics Education: A Scientometric Review and Cross-Bibliographic Mapping Analysis." Mathematics.
- [17] Tuomi, Ilkka.2013. "Open Educational Resources and the Transformation of Education."
- European Journal of Education 48 (1): 58–78.
- [18] Mislevy, Robert J. 2018. Sociocognitive Foundations of Educational Measurement. New York.
- [19] Williamson, B. (2020). "Policy networks, performance metrics and platform markets: Charting the expanding data infrastructure of higher education." *British Journal of Educational Technology.
- [20] Baker, R. S. J. d., & Siemens, G. (2014). "Educational Data Mining and Learning Analytics." Cambridge Handbook of the Learning Sciences.
- [21]Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). "Intelligence Unleashed.
- [22]Hwang, G. J., & Tu, Y. F. (2021). "Roles and Research Trends of Artificial Intelligence in Mathematics Education: A Scientometric Review and Cross-Bibliographic Mapping Analysis." Mathematics.
- [23]McKendrick, J. H. (2020). "How Artificial Intelligence Is Shaping Accessibility in Education.