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THE EFFECTIVENESS OF EMPLOYING ARTIFICIAL INTELLIGENCE (AI) APPLICATIONS IN THE LEARNING MOTIVATION OF SECOND-YEAR INTERMEDIATE STUDENTS IN THE SUBJECT OF THE HOLY QURAN AND ISLAMIC EDUCATION

A EFICÁCIA DO USO DE APLICATIVOS DE INTELIGÊNCIA ARTIFICIAL (IA) NA MOTIVAÇÃO PARA A APRENDIZAGEM DE ALUNOS DO SEGUNDO ANO DO ENSINO MÉDIO NA DISCIPLINA DE ALCORÃO SAGRADO E EDUCAÇÃO ISLÂMICA

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Abstract
A quasi-experimental design with two groups, experimental and control, was adopted. The research population was randomly selected, while the sample was purposively selected, totaling (64) female students, with (32) students in each group. The material to be studied during the experiment was determined, as well as the applications to be employed. (108) behavioral objectives and (28) daily lesson plans were formulated for the two groups. The post-test of the motivation scale for learning the Holy Quran and Islamic Education, consisting of (36) items, was administered again. After using appropriate statistical methods, the research results concluded that the students in the experimental group outperformed the students in the control group on the post-test of motivation for learning the material.

Keywords: Artificial Intelligence Applications. Motivation for Learning. Second Intermediate Grade. Holy Quran and Islamic Education.

Resumo
Foi adotado um desenho quase-experimental com dois grupos: experimental e controle. A população da pesquisa foi selecionada aleatoriamente, enquanto a amostra foi selecionada por conveniência, totalizando (64) alunas, com (32) alunas em cada grupo. Foi determinado o material a ser estudado durante o experimento, bem como as aplicações a serem empregadas. Foram formulados (108) objetivos comportamentais e (28) planos de aula diários para os dois grupos. O pós-teste da escala de motivação para o aprendizado do Alcorão Sagrado e da Educação Islâmica, composto por (36) itens, foi aplicado novamente. Após a utilização de métodos estatísticos apropriados, os resultados da pesquisa concluíram que as alunas do grupo experimental apresentaram desempenho superior ao das alunas do grupo controle no pós-teste de motivação para o aprendizado do material.

Palavras-chave: *Aplicações de Inteligência Artificial. Motivação para o Aprendizado. Segundo ano do ensino fundamental. Alcorão Sagrado e Educação Islâmica.*

1 CHAPTER ONE / INTRODUCTION TO THE RESEARCH

1.1 First: the research problem

The significant developments and challenges in education that the world is witnessing today, most notably educational technology and digital learning, have compelled teachers to keep pace with these rapid advancements. However, most schools today still rely solely on traditional teaching methods, which depend on rote learning and memorization. This has reduced learners to mere recipients of knowledge and information, without any focus on their active participation in the lesson or the guidance of intellectual activities and questions that require reflection and critical thinking. Consequently, this hinders the improvement of students' academic achievement. (Mustafa, 2011: 14)

The study by (Aboud, 2021) To diagnose that there is a weakness in the levelyThe motivation to learn the Holy Quran and Islamic education among second-year middle school students is due to reliance on traditional methods and a failure to keep pace with developments in these fields. (Aboud, 2021: 560)

Local conferences and seminars also served to diagnose the current situation and emphasize the importance of improving the outcomes of the teaching and learning process, especially in light of the challenges of the digital revolution and artificial intelligence in education, including:

The Third Educational Conference in Erbil (Interactive Digital Learning and Artificial Intelligence in Education) was held on August 24, 2025, to discuss the most prominent developments in the educational field, both locally and globally. The Iraqi Minister of Education recommended at the conference the necessity of employing modern digital technologies to support the educational process and using them optimally to create a space for student innovation and creativity. He also mentioned the opening of the Artificial Intelligence Department in Baghdad, which will serve as a launching pad and a turning point, transforming the classroom into a space for student interaction and scientific activity, and equipping them with new professional skills, moving away from rote learning methods. The conference also witnessed the launch of the Zana digital educational platform, which employs artificial intelligence applications in the curricula

for all grade levels to enhance interactive learning and keep pace with global developments.[1]

The International Scientific Conference (Artificial Intelligence and the Future of Arab Education in the Digital Age), held at the University of Sulaimani on September 3-4, 2025, aimed to establish interaction and communication between different cultures. Among its most prominent recommendations was addressing shared cultural problems in light of the challenges posed by the digital revolution and artificial intelligence in education..[2]

Based on the above and the researchers' desire to define the research problem more scientifically and precisely, a questionnaire was prepared for a group of male and female teachers of the Holy Quran and Islamic Education for the intermediate stage in the Baghdad/Karkh Third Education Directorate, in order to assess their knowledge and use of educational technology and artificial intelligence applications, and the extent to which the teaching methods they use contribute to raising the level of their students' motivation towards learning the subject. Through the results of the questionnaire, it was found that (98%) of them do not use educational technology and artificial intelligence applications, and (36%) believe that the teaching methods they use contribute to raising the motivation to learn among their students. Hence, the problem of the current research emerged by answering the following question: What is the effectiveness of employing artificial intelligence applications in the motivation to learn by second intermediate grade female students in the Holy Quran and Islamic Education subject?

1.2 Second: the importance of the research

The Holy Quran is the cure for all human problems in all areas of life, mental, physical, social, spiritual, and economic, because it contains the foundations of Islamic law. God Almighty says: {Alif, Lam, Ra. [This is] a Book which We have revealed to you, [O Muhammad], that you might bring mankind out of darkness into light by permission of their Lord - to the path of the Exalted in Might, the Praiseworthy.} (Surat

[1](https://epedu.gov.iq/?article=314
[2](https://baytalhikma.iq/News_Details.php?ID=2473

Ibrahim, verse 1). From the chapters and verses of the Holy Quran, Muslims derive their upright faith, correct worship, and noble morals. In its pages, the history of humanity and the lives of the prophets, full of admonitions, are revealed.(Muhyiddin, 1996): 17)

Islamic education derives its foundations from the Holy Quran as the divine law that guides Muslims in all aspects of their lives. The educational approach is completed by the purified Prophetic Sunnah, which explains and interprets what is stated in the Holy Quran. These two sources together form the main pillar upon which the true Islamic religion is based, and thus Islamic education is founded upon them throughout time. The Holy Quran was and still is the first and supreme source in formulating the concepts and values that constitute the essence of Islamic education. (Jad, 2005: 137-138)

Accordingly, the subject of the Holy Quran and Islamic Education is considered one of the most important subjects in the curriculum, because it aims to deepen students' connection with the Holy Quran and its content, through recitation, understanding, and memorization, and to develop their awareness of the concept of Islamic creed and its pillars, and knowledge of the rulings of Islam in the relationship of the Muslim individual with God Almighty and his relationship with people, as well as strengthening students' connection with the noble Prophetic Hadith, and following the noble Prophetic biography. The ultimate goal of teaching the subject is for the individual to become a worshipper, that is, to develop and form the righteous worshipper. (Al-Hashemi, 2010: 19)

In addition to its importance in determining its relationship with other sciences, clarifying the principles and concepts upon which it is based, and working to prepare Muslim teachers who raise the young generation on Islamic teachings, principles and goals, and finding ways to renew knowledge, and providing the necessary means for that, in addition to the advantages of Islamic education in terms of it being divine in source and goal, and a comprehensive education for the individual, his heart and mind, his character, his behavior, his soul, his body, and preparing him for the two worlds, this world and the hereafter. (Al-Abdali, 2008: 15)

Based on this great importanceFor the materialThe teacher should be highly competent, as the effectiveness of teaching the Holy Quran and Islamic education depends on achieving its objectives and transforming them into educational and technical skills and principles. A successful teaching method can address many shortcomings encountered in the curriculum or among students, as well as resolve educational problems

and obstacles. When the teacher finds interaction and stimulates students' motivation to learn the material, this is evidence of the success of the teaching method used. (Al-Qarsh, 2015: 5)

Today, the role of the teacher has become an extension of the role of the instructional designer, alongside teaching. Teachers are now required to design educational programs in an effective and well-thought-out manner, within the allotted lesson time and subject matter, because the era we live in is witnessing significant technological advancements, with computers permeating all aspects of life to keep pace with the rapid generation and dissemination of information. (Al-Saifi, 2009: 248)

Among the most prominent of these developments are artificial intelligence applications, which are characterized by their intelligent decisions and ease of use. Their benefit lies in teaching, through the educational features they offer that help the teacher convey scientific concepts and knowledge in an easy and enjoyable way, thanks to the development of image and sound systems in computers. They can now interact with humans and conduct conversations with them on various topics through "chatbots," in addition to preparing scientific research in various disciplines and producing results, and the ability to explain cognitive concepts, extract their objectives, ask questions, and evaluate the answers. (Ahtoub, 2023: 531)

Most of these countries have taken the initiative to enter the field of artificial intelligence, competed for its technologies, addressed its challenges, developed successful solutions, and moved towards investing in its benefits by using the technologies of the Fourth Industrial Revolution. (Mohammed & Mohammed, 2020: 17)

From here, the Iraqi state’s strategic directions began to introduce the artificial intelligence system in all disciplines. The Iraqi Ministry of Education was the first to pay attention to this aspect and call for it, as it announced through its official spokesperson on Sunday, September 28, 2024, the introduction of artificial intelligence into the school curricula in the coming year, indicating the addition of new sections for vocational education in this field, as the procedures include introducing some new terms such as artificial intelligence technology and others. This came within the government’s direction

towards the world of digitization and the integration of modern technology into education.[3]

In confirmation of the Ministry of Education's directions, the recommendations of the Iraqi Prime Minister, Mohammed Shia Al-Sudani, on Sunday (November 3, 2024), included the introduction of computer science and artificial intelligence into the Ministry of Education's curricula in the coming academic years. His Excellency stressed the need for every school to have a smart screen and an internet connection to establish a special artificial intelligence lab, and emphasized the need to strengthen Iraq's position to be at the forefront of the region's countries in the technological field, given its diverse capabilities and potential in this area.[4]

The two researchers believe that these trends of the Iraqi state and the accompanying integration of digital learning and artificial intelligence in education have the main goal of developing the educational environment and making it more effective, to improve the quality of its outputs, and increase their motivation to learn the subjects. Therefore, they set out to study the effectiveness of employing artificial intelligence applications in motivation to learn.

Because it is one of the emotional aspects for learners that educational institutions should address.interestIn itThis highlights the importance of motivation.AConsidering it as an educational goal in the learning process, stimulating students' motivation and guiding them in the right direction makes them more willing to engage in cognitive activities andEmotional and kineticOutside of academic work, and in their future lives,ThereforeMotivation is one of the essential educational goals that any educational system seeks.(Nashwati, 2003: 206))

The intermediate stage, specifically the second intermediate grade, was chosen because it is considered one of the important stages in the life of every student, due to the intellectual, physical and psychological fluctuations and changes that occur during it.

In addition to the differences in abilities and skills, it is a stage for guidance and counseling, where students are directed to learning appropriate to their abilities, preparing

[3](https://moedu.gov.iq/?article=3575
[4](https://pmo.iq/?article=2672

them for the preparatory stage, or choosing vocational or technical branches, in accordance with their abilities, inclinations and aptitudes. (Mansour *et al*., 2014: 213)

1.3 Third: research objective

The current research aims to identify the effectiveness of employing artificial intelligence applications in motivating second-grade intermediate school students to learn the Holy Quran and Islamic education.

1.4 Fourth: research hypothesis

There is no statistically significant difference at the significance level of (0.05) between the average scores of the experimental group students who study the Holy Quran and Islamic Education according to artificial intelligence applications and the average scores of the control group students who study the same subject according to the traditional method in the post-test of motivation to learn the Holy Quran and Islamic Education.

1.5 Fifth: scope of the research

Spatial boundaries: One of the government morning intermediate schools for girls affiliated with the Baghdad/Karkh Education Directorate (3).

Human boundaries: A sample of second-year middle school students in a government morning middle school.

Time limits: First semester of the academic year (2025-2026).

Objective boundaries:

- Scientific material: Units (one and two) from the Holy Quran and Islamic Education book for the second intermediate grade, which is prescribed to be taught by the Iraqi Ministry of Education for second intermediate grade students for the academic year (2025-2026), edition (9).

Artificial intelligence applications: represented by applications (tarteel AI, Gamma, Kahoot, Notebooklm)

1.6 Sixth: defining the terms

Effectiveness the efficiency: "It is the ability to achieve the intended result according to predetermined criteria, or it is the ability to accomplish the goals and reach the desired results to the fullest extent possible." (Ali, 2011: 39)

Operational definition: It is the change caused by the independent variable (artificial intelligence applications) AI) in the dependent variable (motivation to learn) among the female students in the research sample when they studied the topics of the research material, measured by the scores they obtained on the post-motivation to learn scale.

Artificial intelligence applications (Artificial Intelligence Application): The ability to perform tasks that usually require human intelligence, such as understanding natural language, extracting knowledge from experience, and interacting with the environment, by integrating these capabilities, enables artificial intelligence to build adaptive learning environments characterized by features such as student focus and personalized learning, thus supporting the learning process in new and innovative ways. (Al-Mandalawi and Al-Mahna, 2025: 14)

AI: It is an abbreviation for the term artificial intelligence.Artificial Intelligence, as stated in the Cambridge Dictionary, was officially adopted according to the definition of the term on its website belonging to the publishing house Cambridge University Press in the United Kingdom, and the symbol became more famous than the term itself in all related fields (Cambridge Advanced Learner's Dictionary, CALD: 2013).

Operational definition: These are computer systems composed of advanced algorithms designed to perform specific tasks similar to those a teacher can perform using a computer. These tasks relate to presenting the material's content, assessing its understanding and comprehension, and providing immediate feedback. The researcher employed Tan application (Tarteel AI, Gamma, Kahoot!, notebooklm) in teaching the experimental group students (research sample) the topics of the research material, to determine its effectiveness in their achievement and motivation to learn the Holy Quran and Islamic education**:**"Something that stimulates, guides, and reinforces behavior."

Learning motivation: It motivates learners, directs them towards a specific direction, and keeps them engaged in learning."(Ormrod, 2011: 363)

Operational definition: It is the result of the response of the second intermediate grade female students (the research sample) to the items of the motivation scale for learning the Holy Quran and Islamic education, which was prepared for the purposes of the research.

Second Intermediate Grade

Definition (Ministry of Education, 1984): "It is the second year of intermediate school in Iraq, consisting of three grades, and comes directly after primary school. The curriculum includes humanities and science subjects." (Ministry of Education, 1984: 88)).

Qur'an and Islamic Education (The Holy Qur'an and Islamic Education)

Operational Definition: This refers to the material studied in the Holy Quran and Islamic Education textbook approved by the Ministry of Education for second-year intermediate students. It includes the rules of recitation and five units, each unit covering topics from the Holy Quran, Prophetic Hadiths, the Prophet's biography, creed, and acts of worship. It also addresses topics that regulate behavior in accordance with Islamic beliefs and achieve the educational objectives set by the Ministry of Education/General Directorate of Curricula for the academic year 2020.5-2026)Ninth edition of the year(2025).

2 A CHAPTER TWO: THEORETICAL BACKGROUND AND PREVIOUS STUDIES

2.1 Section one / theoretical background

2.1.1 First: the concept of artificial intelligence

Artificial intelligence is a comprehensive concept, and it is difficult to define it precisely due to the diversity of its fields, capabilities, and the rapid development of its abilities. However, it can be said that artificial intelligence is a compound term consisting of two words: intelligence, which is "the ability to accomplish activities characterized by difficulty, abstraction, complexity, speed in correct performance, adaptation to the goal and social value, innovation, focus of energy (attention), resistance to emotional forces, and the necessity of cognitive balance in cognitive activity." (Abu Ghazal, 2015: 155)

Artificial means “that which is made, i.e., made by a maker, and is not natural. It is said artificial roses, i.e., that which is made and imitates natural ones.” (Omar, 2008: 132)

In its compound sense, it refers to "one of the computer sciences that emerged after the Fourth Industrial Revolution, and it is concerned with studying and understanding the nature of human (natural) intelligence, and simulating it to create a new generation of intelligent computers, which can be programmed to accomplish many tasks that require a high ability of perception, deduction and inference, and these are qualities that humans possess, and are among the list of intelligent behaviors that a machine could not have acquired before."(Mahmoud *et al*., 2021: 746))

The fundamental difference between artificial intelligence and human intelligence lies in the innate human capacity for emotional and social learning, and the ability to adapt to complex and constantly changing environments. Artificial intelligence lacks this capacity and cannot surpass humans in it, as it relies on software and algorithms and operates within specific data ranges. Although it excels over humans in some computational and analytical tasks, it remains limited when it comes to emotions, creativity, and ethical decisions. (Makhzoum, 2025: 7)

2.1.2 Second: applications of artificial intelligence in education

The integration of artificial intelligence (AI) applications into education is not a recent phenomenon. Its use began gradually in the 1970s, initially to enhance the learning experience and educational efficiency, and to address challenges facing the education system through innovative AI solutions. In the 1990s, intelligent systems emerged that utilized data analysis and machine learning applications to analyze student behavior, manage their progress, and deliver interactive lessons. This led to the integration of traditional and e-learning. In the new millennium, AI became even more capable and intelligent in tailoring educational content to individual student needs. After 2010, augmented reality was combined with virtual reality to provide learning environments that allow students to interact with educational content in a realistic way. Researchers anticipate that intelligent assistants will be integrated into classrooms more broadly and in greater depth in the future. (Makhzoum, 2025: 10-11)

The use of artificial intelligence in education can significantly enhance student engagement and motivation. This is achieved by providing dynamic and adaptive learning environments, such as tests, competitions, feedback, virtual teachers, presentation of visual and audio content, personalized and adaptive learning, augmented and virtual reality, accurate reading, and the creation of course content outlines, making the learning process more enjoyable and engaging. (Al-Mandalawi, 2024: 22), (Al-Ghamdi, 2024: 42)

This does not mean that artificial intelligence applications will eliminate the role of the teacher. On the contrary, his role will always exist, but it will differ in terms of its practical and educational value, and it will become more comprehensive, so that it is characterized more by the social, guidance and directional dimension, which the machine will never be able to replace. The origin of perseverance and motivation in school for many learners is human interaction and human communication. Moreover, artificial intelligence applications will provide tools that enable teachers to perform their mission more effectively and with less effort because it will provide all the information that the teacher will need to evaluate his performance and the performance of his learners, and improve them more quickly and effectively. Educational technology constitutes a distinctive tool for teachers and learners, because it allows them to carry out the educational process more effectively, due to the data and information it provides about the academic performance of learners and the extent of their success and failure.(Bakari, 2022: 293)

2.1.3 Third: employing artificial intelligence applications in teaching the holy quran and islamic education.

Islamic law came as a valid law for all times and places, working in a way that achieves the interests of people and is consistent with its general objectives. Accordingly, scholars have ruled that there is no legal impediment to using devices or machines that mimic human intelligence, and that it is possible to benefit from them in a way that does not conflict with Islamic law. This falls under the category of unrestricted interests, for which there is no evidence from Islamic law to consider or cancel them. Rather, what Islamic law includes in terms of caring for people’s interests and being kind to them

indicates the permissibility of exploiting this technology to achieve the highest benefit from it without harming others or the environment.(Al-Ghazali, 2007, p. 174)

However, the spiritual, moral, and religious dimensions of this subject should be preserved when using technology and artificial intelligence applications in its teaching. Applications that are compatible with the principles and objectives of Islamic teachings should be chosen to support the integration of technology and religious values in educational practices. This does not mean limiting the use of artificial intelligence to its teaching. After digital education technologies entered the cornerstones of the educational process, it became necessary for teachers of the subject to keep pace with this technological development by employing technological means that are compatible with and keep up with the digital revolution, with the aim of raising the effectiveness and efficiency of teaching the subject, developing their teaching methods, facilitating repetitive routine tasks, identifying the strengths and weaknesses in the performance of teachers and learners, proposing solutions to address and enhance them, taking into account the individual differences between students, meeting their needs, and helping learners interact with the curriculum content.(Ajouri, 2024: 99-100).

The researchers believe that the level of use of artificial intelligence applications in teaching the Holy Quran and Islamic education is still limited in terms of quantity and quality, compared to the dominance of applications with administrative functions or applications designed to teach languages and some scientific subjects such as mathematics and chemistry. We only find some smart applications that were specifically designed to study, understand and memorize the Holy Quran and Islamic sciences. However, other applications can be adapted to serve the subject and enhance its educational role. Below are the applications that the researchers will employ in teaching the Holy Quran and Islamic education:

App Description	**The application name, its interface, and the barcode for accessing it.**
application games Educational by intelligence artificial, Founded general(2013)existing on education By playing(Game based on learning,on road construction Tests Interactive on road directing teacher For application, And it is possible For students Answer About her Using devices computers or Phones In a way single or Groups inside the line Academic, It stands out role The app in transformation practical Calendar to games competitive	

Entertaining, He changing For methods teaching traditional To suit with Changes Time present.Alruheil, 2024, 2)And she explains results Studies foreign Among them study (wang$Tahir, 2020)and(Rahmadani *et al*, 2024) that For application Kahooteffectiveness large in education, Given to stir Positivity in Motivation and trends about Materials academic, Please on reduction anxiety Tests I have Students, And they agreed on that The app It is from strongest And the most famous platforms education By playing, And it reached number Its users tens millions from Students and teachers in the world.	**1-Kahoot**  
he application Islamic Founded general(2018), His job Management Abilities intelligence artificial in recitation Save The Quran The generous one, so He does With interaction waves audio with Texts To detect on Mistakes automatically Presentation Nutrition Returning Adaptive Evaluation Level And the statistics per user like number Mistakes And its type and time absorbed in Recitation, Which Affects level concentration learner And on accuracy Recitation And preservation, because to merge use stimulants verbal visual in that one He increases level Understanding, Therefore more period retention memory With information.(Khan *et al*., 2021:2), Recent studies indicate that deep learning techniques for artificial intelligence models rely on deep neural networks (DNN) for voice analysis and error assessment has achieved an accuracy exceeding (95%) in recognizing rules or commands, which has opened the door to the development of smart educational applications, including the (Tarteel AI) application, which has achieved this percentage in recognizing errors in memorization and recitation. Thus, it addresses the problem of teacher shortages and time constraints, as it has become possible to rely on modern technologies in automated assessment and providing feedback to learners. (Shaiakhmetov *et al*., 2025: 20-3)	2-Tarteel AI  
It is a design application, founded in 2022, whose function is to facilitate the creation of presentations and documents. Once a topic title or idea is entered, the application gathers information from reliable sources and transforms it into a visually appealing design. It analyzes the information and enhances it with multimedia, mind maps, and cognitive diagrams in the form of interactive slides with a single click. The application is ideal for students, teachers, and anyone who needs to prepare presentations quickly, professionally, and with high accuracy. It is similar to a teacher's assistant in the lesson design process. Recent studies have indicated that the application helps teachers design visually appealing educational presentations in a very short time, resulting in more attractive and organized content. It is capable of natural language processing to automatically generate presentation content.Balakrishnan, 2024: 12)	3-Gamma  
he application Educational Founded general(2023)He works As a teacher digital Interactive, He depends The app on technique retrieval Booster By birth, any generation Outputs building on Sources that Attach it The teacher, He is	4-Notebooklm

That He treats problem Information misleading, The matter that He gives it Reliability higher from rest robots The conversation Ordinary, Please on Being makes student He thinks And explore And it reacts, Because no gives Answers directly but rather He directs Hints Ask him Guidance The steps gradual To be able learner from Access to Answer Correct himself(3:Tufino, 2025) andHe presents The app tools Multiple To support The process Educational and access to Patterns Learning different For students on road Among these tools(conversation Smart, qATa'a video, section My voice In style discussion between Two people, maps mentality, Reports Diverse, cards Educational photo Infographic, Questions Interactive.(Google, 2024)	 

2.1.4 Fourth: motivation to learn the holy quran and islamic education

2.1.4.1 Motivation to learn

Motivation for learning has occupied a great deal of attention in psychological studies, as they have investigated the factors and conditions that stimulate it in learners and the extent to which they retain it, because it is considered one of the thorny topics in terms of the multiplicity and diversity of parties connected to it, whether in terms of its requirements in the classroom situation, or what it requires in terms of appropriate teaching methods that include educational learning experiences that stimulate learners to engage in the educational learning situation on the one hand, and the various psychological approaches that have addressed it in light of their intellectual vision on the other hand, whether through the cognitive approach, the behavioral approach, the humanistic approach, or the school approach. (Sarhan, 2015: 11)

Psychologist Goleman believes that motivation to learn exists in individuals who do not succumb to anxiety, self-defeating tendencies, depression, or various challenges. In other words, it requires individuals to have a goal they strive to achieve, and to possess the enthusiasm, perseverance, and sustained effort to reach that goal. He emphasizes that individuals with high levels of optimism and hope are less prone to depression than others because they struggle throughout life to achieve their goals and alleviate feelings of anxiety and stress. (Goleman, 1998: 32)

2.1.4.2 Theoretical approaches to interpreting motivation

Theoretical approaches to explaining the concept of motivation have varied, given the complexity of this concept and its connection to several cognitive, psychological, and social factors that influence learner behavior, including:

A- Bandura's self-efficacy theory: This theory refers to an individual's belief in their ability to successfully complete assigned tasks. This belief influences the learner's motivation, perseverance, and effort. A learner with high self-efficacy tends to set more difficult and challenging goals, requiring greater effort to achieve them. Conversely, a learner with low self-efficacy tends to avoid challenges and set easily achievable goals for fear of failure. This latter type often attributes their failures to their own lack of self-efficacy.(Bandura, 1993: 117)

B- Value Expectancy Theory: This theory explains cognitive motivation according to the expectations associated with it. This necessitates understanding the individual's true competence, in addition to setting medium- or long-term personal goals. The individual or learner should pay attention to the task they are about to accomplish; that is, it explains the learner's expectation of success in a task and the extent to which they value this success. Motivation here = (Expectation of Success * Value of Success). (Khalawi, 2022: 324)

C- Self-Determination Theory: This theory provides a comprehensive framework for motivation because it encompasses basic psychological needs (autonomy, competence, and belonging). It emphasizes the individual's innate desire for stimulation and learning from birth. This desire is either supported or weakened, and the degree to which this natural or intrinsic drive is fulfilled depends on the extent to which the individual's psychological needs are satisfied. This means that satisfying these needs is a necessary condition for intrinsic motivation. This theory identifies three psychological needs that influence intrinsic motivation: the need for attachment, the need for independence, and the need for competence. Social contexts either weaken or strengthen intrinsic motivation at all stages of development, based on the satisfaction of these needs. Psychologists and theorists have been able to distinguish specific types of motivation based on the interaction of these needs and the environment.

1- Intrinsic motivation: These are the motives for carrying out a specific activity and pursuing it for the sake of enjoyment and satisfying needs, which leads to a feeling of pleasure.

2- Extrinsic motivation: These are the motives for carrying out a specific activity and pursuing it outside of a feeling of obligation or considering it as a means to an end.

3- Lack of motivation: This is the absence of intention or motivation to carry out and follow up on an activity. It results from the individual's failure to balance or stabilize sudden situations and to reconcile their behavior and activity.(Deci & Ryan, 1985:8)

D- Goal Orientation Theory: Goal-oriented or achievement-oriented theory is one of the motivational theories that arose and developed as a result of the socio-cognitive approach to explaining motives. It was initially addressed as the achievement motive and then developed to include the learning-oriented or learning-oriented approach, to explain how individuals perform tasks and interact with them. (Al-Zahrani, 2022: 223)

This theory is concerned with developing an individual's competence by improving their level of abilities and mastery of new skills. Learning here is for the sake of knowledge, and the goal is for the individual to try to obtain positive judgments about their competence in performing a task, or to avoid negative judgments about it. (Eliut, 1998: 87)

This theory is based on two types of goals: mastery-based orientation, in which the individual focuses on increasing their skills and competence, and performance-based orientation, in which the individual focuses on proving their abilities to others. (Al-Atoum *et al*., 2011: 6)

The scholar (Ormrod, 2011) termed these theories "competency theories" because they share this aspect when explaining motivation, and she relied on them as fundamental axes in forming the six components of learning motivation, which the two researchers relied on in preparing the motivation scale for learning the Holy Quran and Islamic education, which are:

The first component: (Directing behavior towards specific goals) "Students set goals for themselves and direct their efforts and behavior towards achieving them, therefore motivation affects the tests that students face."

The second component: (Making an increased effort to achieve the goals) "Motivation increases the efforts and energy made to achieve the goals. It determines

whether the student pursues a specific task with enthusiasm and perseveres in performing a certain behavior until he accomplishes it, or whether he will do the work with a kind of boredom."

The third component: (Initiative in accomplishing specific events and activities) "Motivation increases initiative in events and activities, as it determines whether students will take the initiative to do them. They are more inclined to start a specific task when they want to do it, and if they like it, they tend to continue performing it."

The fourth component: (Perseverance to face unexpected obstacles and frustrations) "Perseverance is the time that the learner wants to spend learning. The more time he spends learning without paying attention to the distractions around him, the more persistent he will be, because it lies in the activities that he wants and loves, and when an obstacle comes between him and them, he becomes frustrated when doing them."

The fifth component: an increase in the cognitive processes of the subject of interest (attention, thinking, interpretation, clarification): "It affects how and how much the student processes information. A highly motivated student is more attentive to the teacher and seeks help from the teacher or other sources when needed. They have a better understanding of information and are more focused on meaningful learning, and are not concerned with simply memorizing information."

The sixth component: Expecting rewarding results or discouraging consequences: "Students who are fully motivated to achieve academic success feel pride and elation whenever they obtain high grades, and feel pain and distress if they obtain low grades or less than they aspired to obtain. A student's focus is on being accepted and respected in their group, so it gives greater meaning and frustration if they are ridiculed and disgusted by the group."Ormrod, 2011: 364

2.2 Section two: previous studies

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Al-Otaibi	**Sa'ayda**	**Sawalma**	**Researcher's name**
2025	**2023**	**2022**	**Year of study**
Effectiveness of integrating artificial intelligence applicationsAI	**The impact of artificial intelligence applications on digital design skills, academic**	**The effectiveness of an AI-based application in developing logical thinking**	**Study objective**

Teaching English affects the students' achievement and motivation towards learning it.	**achievement, and motivation to learn the subject among students of the Faculty of Arts and Design at the University of Jordan.**	**skills and motivation towards learning computer science among eighth-grade students.**	
Quilbot, Duolingo, Quizlet	**(Midjourny), (chat bot)**	**Scratch**	**Type of applications**
80	**38**	**45**	**Sample size**
females	**mixed**	**mixed**	**Sample gender**
Sixth grade	**University**	**Intermediate**	**Academic stage**
English language	**Design fundamentals**	**computer**	**Study material**
Kingdom of Saudi Arabia	**Jordan**	**Jordan**	**Place where the study is conducted**
Post-test achievement and motivation scale for learning the subject	**Digital design skills test cards, achievement test, motivation scale for learning the subject.**	**A test of logical reasoning skills, a scale of motivation to learn.**	**Search tool**
Two-samples t-test, Cronbach's alpha reliability coefficient, Pearson correlation coefficient, eta-squared is used to measure the size of the effect. Two-way ANOVA, multi-way ANOVA, descriptive statistics.	**Two-way ANOVA, multi-way ANOVA, eta-squared, Cronbach's alpha and Curd Richardson-20 reliability coefficients,**	**Pearson correlation coefficient, Cronbach's alpha reliability coefficient, analysis of covariance.**	**Statistical methods**
The experimental group outperformed the control group in both dependent variables.	**The experimental group outperformed the control group in all dependent research variables.**	**The experimental group outperformed the control group in both dependent variables.**	**Search results**

3 CHAPTER THREE / RESEARCH METHODOLOGY AND PROCEDURES

3.1 First - research methodology

The researchers followed the experimental method with partial control for the experimental and control groups, as it is suitable for the nature of the current research.

3.2 Second - experimental design

In the current research, the two researchers adopted a quasi-experimental design with two equivalent groups. The first group (experimental group) studies according to the use of artificial intelligence applications, and the second group (control group) studies according to the traditional method, as it is suitable for the two objectives of their research, as shown in the following experimental design table for the research sample:

The tool	dependent variable	independent variable	The group
Post-learning motivation scale	Motivation to learn the subject	Artificial intelligence applications (AI)	empiricism
		_____	The officer

3.3 Third - the research community

It includes all female students of the second intermediate grade in the government morning intermediate and secondary schools for girls, affiliated with the General Directorate of Education of Baghdad Governorate / Al-Karkh Third for the academic year (2024-2025).

3.4 Fourth - research sample

The research sample (Al-Khansaa Intermediate School for Girls) was chosen intentionally.

3.5 Fifth - equivalence of the two research groups

Before starting to apply the experiment, the two researchers statistically matched the two groups of the research sample in a number of variables that are believed to affect the results of the experiment. The matching included the variables (chronological age calculated in months, Raven's Intelligence Test, previous year's grades, parents' educational attainment).

3.6 Sixth – controlling extraneous variables

The researchers tried to control the extraneous variables, with the aim of making the two groups of the research sample equal in all the conditions of the experiment and avoiding their influence on the course of the experiment and the accuracy of its results. These variables are (the subject matter, the distribution of the lessons, the classroom environment (physical conditions), the duration of the experiment, the confidentiality of the research, the extinction of the experiment, the incidents accompanying the conditions of the experiment, maturity).

3.7 Seventh - research procedures or requirements

1- Determining the scientific material: It included the first and second units of the Holy Quran and Islamic Education book prescribed to be taught to the two research groups (second intermediate grade students) by the Iraqi Ministry of Education, edition (9) for the year (2025).

2- Formulating Behavioral Objectives: After reviewing the general objectives for teaching the Holy Quran and Islamic Education for the intermediate level in Iraq, and the topics of the Holy Quran and Islamic Education textbook scheduled to be taught during the experiment period, and the number of lessons for each unit of the textbook scheduled for the subject, the researchers formulated the behavioral objectives specific to the topics included in the experiment. The objectives were distributed across the first three levels of Bloom's Taxonomy (remembering, understanding, and applying), and the total number of behavioral objectives reached (108) objectives. They were then presented to a group of specialists in the field of educational and psychological sciences, to express their opinions on the accuracy of the formulation of the objectives and the extent to which they covered the educational content of the subject. The researchers obtained an agreement rate of (89%) or more, calculated by measuring the percentage of agreement of the specialists according to the chi-square test at a significance level of (0.05).

3- Preparing the teaching plans: The two researchers prepared (28) teaching plans for the two groups (experimental and control) with (14) plans for the experimental group and (14) plans for the control group, in relation to the topics specified for the experiment.

Three models of each were presented to a group of specialists in educational and psychological sciences, with the aim of verifying their suitability to the study topics, the accuracy of their formulation, and their compatibility with the behavioral objectives of the subject. Then some minor modifications were made based on their observations, to become in their final form.

3.8 Eighth - research tool / motivation scale for learning the holy quran and islamic education

To meet the requirements of the current research, the two researchers prepared a tool to measure the motivation to learn the Holy Quran and Islamic education among second-year intermediate school students, after reviewing a group of previous literature and studies, as follows:

3.8.1 Formulating the scale items

The two researchers formulated (36) items, with (30) items having a positive direction towards the motivation to learn the subject, and (6) items having a negative direction, and each item has three alternatives (strongly agree, agree, disagree), based on the three-tiered scale for answering the items, and they took into account in their formulation that their language should be sound and understandable, and each item should contain a specific and clear idea, and be directly related to the motivation towards learning the subject of the Holy Qur'an and Islamic education, and then they were presented to a group of expert judges in educational and psychological sciences, see Appendix (1) to verify the soundness of their formulation, and the extent of their suitability for application, and using the chi-square test, the items that obtained an agreement rate of (89%) or more at a significance level of (0.05) were considered valid.

3.8.2 Instructions for the scale items

The researcher placedTanThe instructions for the scale were clear and appropriate for the research sample level, explaining the concept of the scale and how to answer it,

and included(Read the paragraph carefully before answering.ة،Place a checkmark (√) next to the answer that best reflects your personal opinion.Y,Do not leave any paragraph unanswered., andGive one answer for each question.,Example solution).

3.8.3 Correcting the scale items

The answer alternatives (strongly agree, agree, disagree) were given scores of (1, 2, 3) for positive items, and the opposite for negative items (3, 2, 1). Therefore, the highest score a student can get on the scale is (108) points, and the lowest score a student can get is (36) points.

3.8.4- The exploratory application of the scale items

The scale was applied to (40) female students who were not part of the original sample for the experiment at Al-Muhammara Intermediate School for Girls in order to identify the clarity of its items and instructions and to calculate the time taken to answer it. The average time was (25.84) minutes.

3.8.5- Statistical analysis of the scale items

For the purpose of conducting the statistical analysis of the scale items, which consist of (36) items, it was applied to a sample of (300) female students in the schools (Fadak Intermediate School for Girls, and Al-Janain Al-Muallaqa Intermediate School for Girls). The total scores were calculated for each individual in the sample and for each item of the scale to represent the raw score of the student. The statistical analysis of the items was conducted as follows:

3.8.6 Validity of the scale

Two validity indicators were extracted for the current scale: face validity and construct validity. The following explains how to verify each indicator:

A- Face validity: The face validity of the Motivation Scale for Learning the Holy Quran and Islamic Education was verified by defining the definition, identifying the domains, and constructing the items according to these domains. It was achieved when it was presented to a group of experts in the field of psychological and educational sciences to verify the soundness of its formulation, the validity of its items, and its suitability to the cognitive and affective components. The experts agreed on the validity of the scale items at a rate of (89%) or more at a significance level of (0.05) after applying the chi-square test.

B- The truth of the construction The validity of the construct was verified through four indicators: (discrimination by finding differences between the two extreme groups, the relationship of the item score to the total score, the relationship of the item score to the domain to which it belongs, internal correlation matrices).

3.8.7 Reliability of the scale items: used the following methodsin calculating stability

a) The method of retesting: For the purpose of extracting reliability in this way, the scale was reapplied to the reliability sample consisting of (40) female students, with a time interval of (14) days from the first application. Then, Pearson's correlation coefficient was calculated between the scores of the first and second applications, and the correlation coefficient reached (0.92) for the scale. This value is a good indicator of the stability of individuals' responses to the scale over time.

b) Cronbach's Alpha Equation: Reliability was extracted in this way from the scores of the basic sample forms of (300) female students, and using Cronbach's equation, the alpha coefficient reached (0.89), which is a good reliability coefficient, as the literature indicates that the reliability coefficient is considered acceptable if it equals (0.75) or more.

3.8.8 Statistical indicators for the motivation to learn scale

Standard general statistical indicators were calculated that provide sufficient information about the uniformity of the distribution shape, standard deviations, variances, arithmetic means, and the skewness and kurtosis coefficients of the students' scores on

the scale in order to identify how close or far the scores are from the normal distribution. The following table illustrates this:

range	highest grade	lowest grade	scatter	twist	Contrast	standard deviation	The loom	The mediator	arithmetic mean	Statistical indicators
56	103	47	-0.851	0.065	157,22	12.53	70	74	74.61	Motivation to learnm

3.8.9 The final application of the scale

The motivation scale for learning the Holy Quran and Islamic education was applied to the students of the research sample (experimental and control) in cooperation with the subject teachers at Al-Khansaa Intermediate School for Girls, and nothing negative occurred that affected its progress and correction.

4 CHAPTER FOUR / PRESENTATION AND INTERPRETATION OF RESULTS

4.1 First: displaying the results

To verify the null hypothesis after applying the post-test motivation to learning scale to the two research groups and correcting the students' answers in the two research groups, the scores were placed in a special table as shown in Appendix (1). In order to apply the t-test for two independent samples to find the difference between the means of the two groups, the statistical conditions of the test were verified, and it is clear that the distribution of scores tends towards normality. This was verified by calculating the skewness coefficients for the experimental and control groups, and this is evident from the following table:

Skewness coefficients for the experimental and control groups in the post-learning motivation variable

twist	standard deviation	The mediator	average	The group
0.302-	5,708	97.00	96,156	empiricism
0,710	6,338	83.00	84,375	The officer

From the previous table, it is clear that the frequency distribution of the scores of the two research groups is close to normality, as the skewness coefficient for both groups was (-0.302) and (0.710), values close to a normal distribution, where skewness ranges from (-3 to +3) on the skewness scale, and the closer the skewness is to zero, the closer the frequency distribution is to normality. It is also required to apply the t-test that the size of the two research samples be similar, as this has an effect on the level of significance, because the degrees of freedom depend on the number of individuals in the sample, and this is available in this research, as the size of the two research samples is (64) students, with (32) students for each experimental and control group, which indicates that the size of the two research samples is similar.

One of the conditions for applying the t-test is the homogeneity of the two samples, and it is calculated using the F-ratio between the larger and smaller variances and determining the significance level of this ratio, as shown in the following table:

The F-ratio between the variance of the experimental and control groups in motivation to learn

Level of statistical significance	Value of "F"		degrees of freedom	Contrast	Groups
	The schedule	Calculated			
Not statistically significant	1.84	1,233	31	32,581	empiricism
			31	40,170	The officer

From the previous table, it is clear that the calculated F-value is not statistically significant and that there is homogeneity between the two groups. In this case, a t-test for the differences in means of two homogeneous samples can be used at a significance level of (0.05). By applying the t-test for two independent homogeneous samples, the results showed that the calculated value equals (7.813), which is greater than the critical value of (2.00). That is, there are statistically significant differences between the students of the two groups in motivation for post-learning at a significance level of (0.05) with a degree of freedom of (62). The difference was in favor of the mean scores of the students of the experimental group, as shown in the following table:

The arithmetic mean, variance, calculated t-value, and tabulated values for the experimental and control groups in the variable of motivation to learn the Holy Quran and Islamic education.

Statistical significance At a level of (0.05)	T value		Contrast	average Calculation	Number of individuals in the sample	The group
	The schedule	Calculated				
Function	2.00	7,813	32,581	96,156	32	empiricism
			40,170	84,375	32	The officer

4.2 Second: interpretation of the results

The superiority of the experimental group students who studied the Holy Quran and Islamic Education using artificial intelligence applications, compared to the control group students who studied the same subject using the traditional method, in the post-test of motivation to learn the Holy Quran and Islamic Education, indicates the positive impact of using these applications from an affective perspective. This result may be attributed to several reasons, including:

1- Keeping up with the teaching methods to meet the requirements of the digital age, especially since learners in this era are more interested in technological matters than anything else, and they are attracted to everything related to it. Therefore, teaching in a digital environment by employing the latest technological advancements, especially (artificial intelligence), which is the focus of people's conversations today, has made the students eager to learn the material with more enthusiasm.

This can be explained in light of the theory of self-determination, as providing a supportive learning environment contributed to the students' sense of competence and independence, which led to raising their level of motivation to learn the material. The students' feeling of their ability to succeed then enhanced their self-confidence, and this is consistent with Bandura's theory of self-efficacy.

2- The students' awareness of the importance of the subject and its relevance to the times is evident in the fact that the Holy Quran and Islamic rulings, revealed by God

Almighty to His Prophet approximately 1400 years ago, can be studied using the latest technological advancements. This demonstrates the flexibility of Islamic rulings, adapting them to all times and places. This positively impacts the strengthening of the students' Islamic identity. Furthermore, the students' understanding of the subject's importance, coupled with their expectation of success, has led to a higher level of motivation to learn it, a phenomenon attributed to expectancy-value theory. This shifts the students' study goals from simply achieving passing grades to focusing on understanding and mastering the material, aligning with goal-oriented theory.

The result of this research was consistent with a number of previous studies that concluded that there was a positive effect of the artificial intelligence applications variable on the motivation to learn variable, such as the studies of (Swalmeh, 2022), (Al-Sa'aydeh, 2023) and (Al-Otaibi, 2025), which proved the existence of statistically significant differences in favor of the groups that studied according to the use of artificial intelligence applications.

5 CHAPTER FIVE / CONCLUSIONS, RECOMMENDATIONS, AND PROPOSALS

5.1 First: conclusions

Employing artificial intelligence applications is one of the teaching practices that aligns with the trends of modern theories, as stimulating thinking, increasing interaction, and enhancing student participation positively impacts their level of achievement and motivation to learn the subject.

1- The use of artificial intelligence applications has made the educational process enjoyable and exciting, and has encouraged students to prepare in advance for the material in order to participate in the lesson, which in turn has enhanced their motivation to learn and their enthusiastic approach to the lesson.

2- Employing artificial intelligence applications in teaching is one of the requirements for achieving quality education and keeping pace with technological and technical development in it, to make the lesson more attractive and clear and to deepen the understanding of the curriculum content.

3- The use of artificial intelligence applications has changed the role of both the teacher and the students. The teacher's role has become managing the classroom and designing the educational process, making the students its focus, by motivating them to learn and interact continuously during the lesson.

5.2 Second: recommendations

In light of the research findings, the researcher recommendsTanAs follows:

1- NecessityemploymentArtificial intelligence applications In teaching the Holy Quran and Islamic Education to the second intermediate grade, due to its positive impact on raising the level of motivation to learn the subject.As supporting educational toolsIt is not a replacement for the teacher, as the goal of using these applications is to help the teacher and produce more effective results with less effort.

2- Encouraging school administrations to pay attention to providing the necessary technological infrastructure for implementing these technologies in classrooms. Academic.

3- Reconsidering the methods of teaching the Holy Quran and Islamic education, and enhancing traditional methods with modern technologies that make learning clearer, more active, and more interactive.

5.3 Third: proposals

The researchers suggest further studies to complement and develop this research, including:

1- Applying the current research variables to other study phases to verify the consistency of the results, such as: (the effectiveness of employing artificial intelligence applications) In the achievement and motivation of fourth-grade preparatory students in the subject of the Holy Quran and Islamic StudiesIslamic)

2- Effectiveness of using the application Magic School AI AI-based approach to assessing achievement and motivation for learning among second-year middle school students in the subject of the Holy Quran and Islamic Studies.Islamic.

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APPENDICES

Appendix (1) GradesMotivation scale for learning the Holy Quran and Islamic educationThe postFor the experimental and control groups

The officer						empiricism					
Degree	T	Degree	T	Degree	T	Degree	T	Degree	T	Degree	T
83	23	95	12	88	1	98	23	94	12	97	1
84	24	101	13	83	2	97	24	89	13	94	2
82	25	83	14	84	3	105	25	99	14	89	3
80	26	84	15	82	4	100	26	101	15	102	4
78	27	78	16	80	5	93	27	102	16	95	5
92	28	83	17	91	6	104	28	99	17	93	6
83	29	95	18	92	7	86	29	94	18	103	7
85	30	101	19	83	8	105	30	97	19	90	8
83	31	83	20	81	9	98	31	103	20	86	9
84	32	84	21	80	10	97	32	99	21	85	10
		78	22	83	11			93	22	99	11