

Original Research

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An Educational Program Based on Artificial Intelligence Tools for Improving History Achievement Among Fourth-Grade Literary Stream Female Students

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ABSTRACT: The subject of history faces challenges requiring student-centered strategies to develop essential skills. Current teaching methods remain traditional and need development through modern approaches fostering creative thinking. There is a notable absence of artificial intelligence tools in lesson design and educational activities. Integrating AI offers significant potential to make the learning experience more interactive and engaging. This research addresses students' weak academic achievement in history by leveraging AI tools to optimize instruction.

INTRODUCTION

First: Research Problem

The subject of history faces numerous problems and challenges that require devising teaching strategies that place the female students at the center of the teaching–learning process, given the role this subject plays in shaping the younger generation and equipping them with various essential skills that help them deal with such problems and challenges (Al-Zubaidi, 2014: 184). Al-Hasnawi (2019) indicates that the prevailing process of teaching history in our country currently requires development and improvement, as its present reality remains traditional when compared with contemporary developments and trends represented by modern plans, methods, and classroom activities aimed at developing female students' creative-thinking skills (Al-Hasnawi, 2019: 13). The researcher observed an almost complete absence of the employment of artificial intelligence tools in designing lessons and educational activities, despite their considerable potential for enriching the educational situation and making learning more engaging and interactive — which is what the researcher seeks to address through this research by tackling the weak achievement in the subject of history.

Based on the foregoing, the problem of the present research may be summarized in the following question:

An educational program based on artificial intelligence tools in the subject of history.

Second: Significance of the Research

Technology and artificial intelligence play a pivotal role in reshaping the structure of the educational process in terms of its philosophy, mechanisms, and outcomes. The school is no longer confined within its four walls, nor is the teacher the sole source of knowledge; rather, the educational system has become an open space for intelligent interaction among learners, content, and teacher through advanced digital media. Technology provides learners with access to multiple sources of information, while artificial intelligence adds an interactive dimension, turning the educational process into a continuously reshaped, variable path in accordance with the needs and pace of progress of the female students, thereby granting the learner an individualized educational experience resembling their own psychological and cognitive fingerprint (Ghali, 2025: 41).

Third: Research Objective

The present research aims to develop an educational program based on artificial intelligence tools in the subject of history.

Fourth: Limits of the Research

The present research is delimited by Chapters Five, Six, Seven, and Eight of the seventh edition (2024) of the history textbook for the fourth-grade literary stream, taught during the 2025–2026 academic year.

Fifth: Definition of Terms

The Educational Program defined by:

(Obeidat et al., 2015): “A continuous, organized process aimed at providing an organization's human resources with knowledge, skills, and positive attitudes; that is, it seeks to improve the performance of the human workforce so that performance becomes effective” (Obeidat et al., 2015: 170).

Operational Definition: A set of planned and organized educational activities prepared according to artificial intelligence tools, comprising objectives, content, activities, and assessments aimed at measuring the achievement of fourth-grade literary stream female students in the subject of history, with its effectiveness measured by comparing the students' results on the pre- and post-tests.

3. Artificial Intelligence Tools:

(Al-Abri and Salem, 2024): “Systems possessing intellectual capabilities similar to those of humans, such as thinking, discovering meaning, generalization, and learning from prior experience, whereby the computer — or the robot it controls — is able to perform tasks ordinarily associated with living beings” (Al-Abri and Salem, 2024: 51).

Operational Definition: A set of digital tools and programs employed in this research to design and implement the educational activities relating to the subject of history for fourth-grade literary stream students.

c) (Ministry of Education, 2024): “The academic subject concerned with tracking the movement of human societies and analyzing their civilizational achievements throughout history, with the aim of equipping students with critical-thinking tools and the ability to connect historical roots to contemporary reality, thereby reinforcing the values of citizenship and belonging in the learner” (Iraqi Ministry of Education, 2024).

Operational Definition: The set of topics, concepts, events, and historical figures contained in the history subject for the fourth-grade literary stream, which the educational program aims to develop the female students' understanding of and improve their achievement in.

METHODOLOGY AND PROCEDURES

The research follows the developmental descriptive/analytical approach for constructing the educational program, relying on the ADDIE instructional-design model:

The ADDIE Model



Analysis phase: Analysis of the content of the four chapters of the history textbook (Five, Six, Seven, Eight) to identify the historical concepts requiring digital support, and analysis of the behavioral objectives (130 objectives according to the revised Bloom's taxonomy).

Design phase: This is the process of organizing academic content — the method followed in assembling and structuring the parts of the educational content according to a specific pattern, and clarifying the internal relationships linking its components and the external relationships linking it with other subjects, in a manner that achieves the educational objectives for which it was designed in the shortest possible time and effort and at the lowest economic cost (Habib Sadiq and Sadiq, 2018: 129). The division of the history subject prepared by the Ministry of Education for fourth-grade literary stream female students for the 2025–2026 academic year, seventh edition, designated for the second semester, was adopted as set out in the textbook.

Development phase: Artificial intelligence tools were employed by the researcher to create the interactive activities:

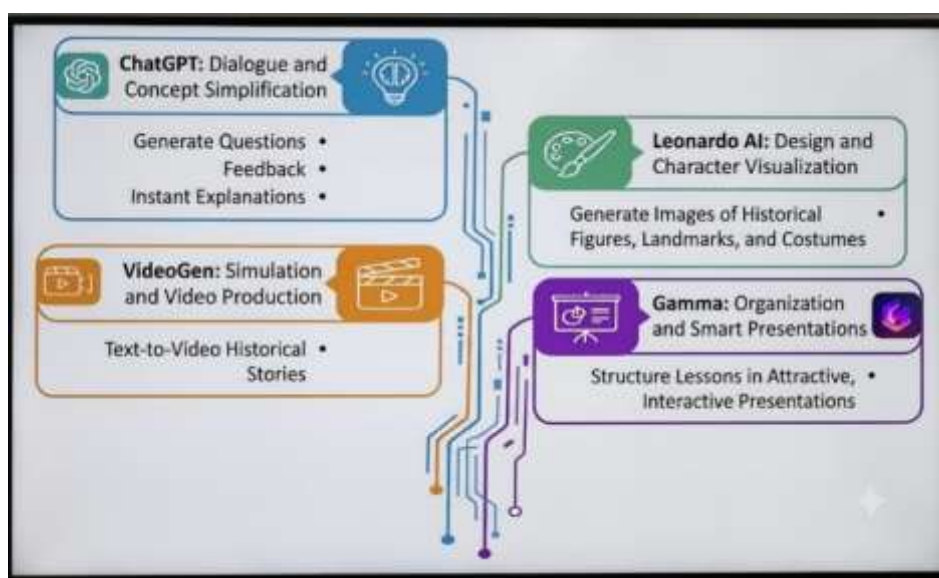
1) Dialogic Simulation (ChatGPT): The researcher used the tool to role-play a historical figure or eyewitness from the Islamic eras and to engage it in dialogue in order to extract information about the economic system and intellectual life, thereby developing the skill of historical inference.

2) Visual Generation of Cities (Leonardo AI): Converting written descriptions of cities (Baghdad, Samarra, Wasit) into artistic paintings and accurate visual representations simulating historical reality, which helps develop the female students' historical imagination.

3) Documentary Production (VideoGen): Converting lesson texts (such as the channels through which civilization was transmitted to Europe) into short educational video clips in a documentary style, to deepen understanding of sequential historical events.

4) Smart Presentation (Gamma): Building comprehensive presentations at the push of a button on “the decline of Arab-Islamic civilization,” with analysis and classification of its causes, developing the female students' presentation and analytical skills.

5) Historical Critique of Digital Outputs: Analyzing and verifying the information and images produced by artificial intelligence tools and comparing them with original historical sources, to strengthen the female students' scientific-critique skills.



Functions of Artificial Intelligence Tools in the Educational Program

The proposed educational program was presented to a panel of arbitrators and experts in curricula and educational technology (16 experts). The rate of agreement among the arbitrators (85% or higher) confirmed the validity of the program and its activities and their suitability for preparatory-stage female students.

Item Sequence	Agreeing	Opposing	Chi-square Value	Tabulated Value	Percentage
1-2-4-6-11-12-13-15-16	16	0	16	3.84	100%
3-10-14	15	1	12.25	3.84	94%
7-9	14	2	9.00	3.84	87%
5-8	13	3	6.25	3.84	81%

Face validity of the educational program's objectives.

Theoretical Foundations for Constructing the Educational Program: The philosophy underlying the research is that the learner constructs their own knowledge independently through interaction with the surrounding environment.

SYSTEMS THEORY:

This theory views the educational process as a system composed of sub-systems, each sub-system consisting of a set of smaller systems that are interconnected and interact reciprocally, each affecting and being affected by the others, functioning together as an integrated whole to accomplish the planned educational objectives. It is followed to ensure the shift of the educational process from a stage of randomness and improvisation to a stage of systematic methodology. For example, the implementation of activities or the use of instructional media must take into account the other elements of the educational situation, such as students' characteristics and requirements, the educational objectives, the teaching method, and the type of educational content. Among its most prominent pioneers are Bertalanffy, Norbert Wiener, and James Miller (Yousef, 2021: 68).

Constructivist Theory: Constructivist theory is among the most prominent modern learning theories, with Jean Piaget and Lev Vygotsky as its most prominent pioneers. It holds that learning is constructed by the individual through interaction with the environment and experience, rather than being a matter of passively receiving information. Constructivist theory maintains that knowledge is not transferred ready-made from teacher to learner, but is constructed internally by the learner through linking new information to prior experience. The teacher's role in this theory is that of guide, mentor, and facilitator, not transmitter of information, and it is the teacher's responsibility to prepare a learning environment rich in activities and to provide opportunities for learning and exploration. The learner's role, in turn, involves active participation in learning, such that the learner investigates, reflects, and explores (Zeitoun, 2004: 15).

The Importance of Instructional Design

1. Investment of time and effort: it is a process of studying, changing, and modifying all teaching methods before beginning implementation, in order to eliminate ineffective teaching methods and focus on effective ones that lead to achieving the desired objectives.
2. It facilitates channels of interaction and communication among those involved in building educational programs and fosters among them a spirit of teamwork.
3. It breaks the monotony of humanities subjects (such as history) and transforms teaching from rote instruction into visual and auditory interaction.
4. It increases the likelihood of the teacher's success in delivering and teaching the subject matter effectively, thereby reducing errors and embarrassing or unexpected situations that expose the teacher's weaknesses in front of students.
5. It reduces teacher stress as a result of following sound and effective teaching methods, and enables the teacher to be more productive and to manage the classroom effectively (Al-Adwan and Al-Hawamdeh, 2011: 20).

Artificial Intelligence Tools in Education

Artificial intelligence tools represent one of the most important modern technologies supporting the development of education, contributing to improved teaching methods and an enhanced learning process through their capacity to understand language, analyze data, and interact with the educational environment. These capabilities enable the construction of flexible, student-centered learning environments that provide personalized learning, support the acquisition of new skills, and enhance the quality of the educational experience. Artificial intelligence helps teachers analyze students' needs more precisely, provide immediate

feedback, and make data-driven instructional decisions, thereby raising achievement levels and developing twenty-first-century skills such as critical thinking and collaboration. Its interactive tools, such as intelligent educational systems and digital whiteboards, likewise provide new opportunities for exploration and deep conceptual understanding (Al-Mandalawi and Ali, 2025: 14).

- ✓ Immediate assessment of students and tracking of their grades, enabling them to plan the development of their academic performance.
- ✓ Provision of immediate and continuous feedback to students.
- ✓ Provision of virtual agents to assist learners and supply them with correct answers.
- ✓ Assistance in improving the quality of learning by reducing the difficulties learners face through exercises and tests, which directs teachers to explain specific parts of the curriculum in greater depth.
- ✓ Provision of adaptive learning to help the learner achieve the required progress through individualized instruction, providing the teacher with a report on the learner's status and learning outcomes (Shehata, 2022: 208).

The following is a brief presentation of the most prominent artificial intelligence tools and their role in supporting the learning of history:

1. Leonardo AI: A powerful platform combining artificial intelligence and art, allowing users to create high-quality images in a variety of styles. It is used in image design, gaming, and artistic elements, and relies on pre-trained models to produce images within seconds, operating by accepting a textual description from which the required image is automatically generated (Shaker, 2024: 51).

2. Gamma: An online platform combining artificial intelligence technology with intuitive design tools that help create professional presentations without requiring extensive design expertise. The platform is free and easy to use, supports the Arabic language, and offers more than one method for creating presentations (Hassan et al., 2024: 4).

3. ChatGPT: A chatbot recently developed by OpenAI that can make it easier for teachers to apply artificial intelligence in teaching and learning, using natural-language processing to generate human-like responses (Al-Mashrafiya, 2024: 22).

4. VideoGen: A very simple means of converting text into video clips, with images automatically selected each time, converting as few as five to as many as fifteen words into imagery that can readily be turned into video (Matthias Garten, 2025: 162).

Previous Studies

Arab (Regional) Studies

Researcher, Country & Year	Thesis Title	Sample Size & Type	Educational Stage	Subject	Curriculum Type	Independent Variable	Study Tool	Statistical Methods	Results
(Al-Bawi, 2025, Egypt)	The effectiveness of an educational program in history based on international e-learning standards in developing historical comprehension	60 students	Preparatory	History	Experimental curriculum	Educational program based on international e-learning standards	Historical comprehension skills test	Split-half reliability, construct validity, internal consistency, ease/difficulty coefficient	Superiority of the experimental group over the control group

	n skills among preparatory-stage female students in Iraqi schools								
(Diab, 2025, Egypt)	The effectiveness of artificial intelligence applications in teaching history	33 students	Secondary	History	Quasi-experimental curriculum	Artificial intelligence applications	Probing thinking skills test	Internal consistency coefficient and Cronbach's alpha	Effectiveness of artificial intelligence applications in teaching history
(Mahmoud, 2025, Egypt)	The effectiveness of a proposed program based on artificial intelligence tools in teaching history for developing certain generative thinking skills among history-department students in the College of Education	24 students	University	History	Experimental curriculum	Program based on artificial intelligence tools	Test of inference, elaboration, fallacy detection, and flexible fluency	Split-half and internal consistency reliability, Lilliefors–McGuigan equation, and eta-square	Effectiveness of artificial intelligence tools in developing generative thinking

Foreign Studies

No.	Researcher, Country & Year	Thesis Title	Sample Size & Type	Stage	Subject	Curriculum Type	Independent Variable	Study Tool	Statistical Methods	Results
1	Syarifuddin et al., Indonesia, 2025	Developing interactive educational content in history using artificial intelligence to improve students' understanding	216 students	Secondary	History	Research & Development (R&D)	AI-based Learning Management System (LMS)	ADDIE model for content development + TAM model for evaluating technology acceptance	Means, standard deviation, Technology Acceptance Model (TAM) analysis	Development of interactive historical educational content using AI; improved student understanding and engagement; support for implementing

		g and engagement								the independent curriculum
2										
3										

CONCLUSIONS

The following points reflect the conclusions reached by the researcher following the implementation of her experiment:

- 1) There is a positive effect of the educational program based on artificial intelligence tools among the experimental group, with an increase in academic achievement among fourth-grade literary stream female students in the subject of history compared with the conventional method.
- 2) Artificial intelligence tools provide an interactive learning environment that supports self-directed learning, allowing each female student to progress through the subject matter according to her own pace and absorptive capacity.

RECOMMENDATIONS

Based on the results, the research recommends the following:

- 1) Holding specialized training courses for male and female history teachers on how to employ artificial intelligence tools in preparing lessons and assessing female students.
- 2) Encouraging school administrations to adopt artificial intelligence platforms as instructional aids supplementing the textbook in humanities subjects, particularly history.
- 3) Preparing a guidance manual for history teachers detailing how to use smart applications in explaining course chapters in a manner consistent with the behavioral objectives.

Suggested Research

To complete this line of research, the study proposes conducting the following studies:

- 1) The effectiveness of using artificial intelligence tools in modifying attitudes toward the subject of history among slow-learning students.
- 2) A comparative study of the effectiveness of different artificial intelligence tools in history achievement.
- 3) A study of the obstacles faced by history teachers in using artificial intelligence technologies, from the perspective of educational supervisors.

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