

The Effect of Blended Learning in developing Critical Thinking Skills among 8th grade Students in History Subject

Fatimah Akram Othman^{1*}, Moh'd Mahmoud AL-Hileh¹

¹Faculty of Educational Sciences Middle East University, Amman, Jordan

*corresponding author

fatima_akram92@yahoo.com

Abstract

The study aimed to investigate the effect of blended learning in developing critical thinking skills among eighth-grade students in history subject. To achieve the study's objectives, a semi- experimental approach was adopted, where California Critical Thinking Skills Test (2000) was used after examining its validity and reliability. A purposive sample was selected from eighth-grade students who were enrolled at Al-Madar International School, first semester of the year (2020/2021). The sample consisted of (60) students in two sections with (30) students in each. One of the sections represents the experimental group, who have learned by blended learning technology, and the other represents the control group learned using traditional teaching methods. Results showed significant and statistical differences ($\alpha=0.05$) in critical thinking in favor of the experimental group who have learned by blended learning and. On the other hand, there was no statistically differences in critical thinking skills among the experimental group between Post-test and postponed exam's results, According to the effect size weight, deductive skill skills came in the first place, followed by analyzing skill, analyzing skill, and evaluating skill, respectively.

Keywords: Blended learning, critical thinking skills, Eighth grade, History Subject.

Introduction

Scientists specialized in education have emphasized that the emergence of the Internet is one of the most significant technological achievements (Al-Samydai, M., et al 2019). As the individual can communicate with the world whenever it so deems appropriate, through a small screen, it has become easy to access and obtain information, keeping abreast of the latest developments and updates in education in a faster and easier than in the past (Mahmood, et al 2020).

Therefore, researchers in the field of information technology, on the one hand, and the field of educational technology, on the other hand, noted that there is an integration that has occurred between the two areas, which has led to the emergence of new broad horizons for education, which were clearly represented in the different concepts of the Spatio-temporal dimension of the learning process, This integration has also led to the emergence of many technological innovations that are directly related to the

learning process to face various global challenges (Al-Titi & Hamayel, 2017).

Including e-learning, a term that combines learning through the Internet (through the web, and teaching using technology). It includes synchronous and asynchronous e-learning, which share a spatial separation between the teacher and the learner on the one hand, and between the learners on the other, to enable them to keep up with developments and update With all skill and mastery. (Kafi, 2017).

Integrated education has emerged as a result of the integration of ordinary and e-education, trying to avoid the technical negatives, directing it in the right direction that increases its effectiveness, and integrating it effectively and in balance with ordinary education; to increase efficiency improvement of its output. Integrated education is limited to using electronic technology, but rather is a re-design of all corners of the educational process and restructuring the roles of the learner and the teacher and the educational situation as a whole. Therefore, Integrated education has created

many modern technological means, which aim to deliver information faster than before. However important e-education may be, it cannot replace ordinary education, which has the first footprint and the most significant impact, no matter how diverse and different modern learning methods may be.

Integrated education is based on maximizing the positives of ordinary education and e-learning, trying to avoid the negatives of each. So Integrated education strategy is the new form of training and learning programs that appropriately mix classroom and e-learning according to the requirements of the educational situation, intending to improve and achieve academic goals at the lowest possible cost (Al-Dershaw, 2019).

At present, especially in light of the Corona pandemic, Integrated education is witnessing a vast demand for its capabilities that help teachers employ teaching skills effectively (Al-Dirshaw, 2019). The results of Stefan's study (Stefan, 2019) also showed that Integrated education means all kinds of education that contain parts and topics for face-to-face learning, and other details and issues for online learning, known as Integrated education.

Integrated education is an essential part of the continuous integration between two environments of regular education and e-learning. As a result, several studies have emphasized the importance of using modern technology in education. The need for government and private institutions to pay attention to adopting the concept of Integrated education. This could be done by urging workers in the educational field to build computerized educational programs in a format commensurate with their specializations, to facilitate the delivery of information. as well as to educate parents about the importance of this type of education and its positive impact on the educational process, which will reflect students' thinking skills and abilities (Al-Subaie, 2020).

At the same time, modern studies witnessed the process of employing modern technology in developing students' thinking skills. Studies of thinking have witnessed great interest in education and psychology, from the point of view that it represents a process inherent to man since his creation on this world and continuing with him to his mortality. The human being is

constantly thinking about the issues around him that touch on the various areas of his daily life, from making decisions and facing difficulties to highlighting evidence and arguments while discussing scientific and practical issues, all to reach appropriate solutions to existing problems (Al Nabhani, 2016).

Modern education focuses on the development of thinking, particularly developing critical thinking skills to be part of the competencies that support the so-called "urgent international concern." And it must be They must be integrated into the education system and be able to do so by supporting the education system's lifelong learning, problem-solving, self-management, and teamwork. Making students able to carry out analysis and evaluation of existing knowledge and create new helpful knowledge. critical thinking skills is an essential part of the educational process to support student achievement (Hidayah et al., 2020).

Integrated education

The comprehensive concept of integrated education that the combination of distance education and face-to-face education can be described as integrated education. For more than a decade, the controversy revolved around that integrated education could take multiple means and methods, and some argued that the issue or viewpoint that integrated education means that there are different people in terms of mental abilities, while others have found it problematic, as there is ambiguity in how to define integrated education. Today, the prevailing trend towards integrated education has become more famous than before, and it seems that it has become a general trend, prevalent and widely used, describing "modern education" as the one that aims to take the advantages of the technologies used at a distance. For example, integrated education is used to describe "learning management systems", as a complement to on-campus education, and for the use of digital technology in classrooms from kindergarten to twelfth grade. If integrated education is conceptualized in a clear, broad and key way, then we can expect most educational institutions and bodies to deal with integrated education or will do so in the future (Stefan, 2019).

The term e-learning and its current philosophy did not appear suddenly, but it appeared and

developed since the beginning of the nineties of the last century (Perry and Pilati, 2011), where it was referring to the computerization of the educational process in order to transform the classroom from the usual method to the modern method through the use of the Internet (Al-Majali , 2019). In the mid-1990s, learning management systems (LMS) began to emerge, which are designed to monitor, manage and evaluate education, It constituted a strategic solution for planning, training and managing all aspects of learning in the educational facility; to reach an integrated education in all educational subjects. Which helped the emergence of many programs that serve the educational process such as the webct system, the Moodle system, the Claroline system, the blackboard system, the Jones e-learning system and e-College AU (Lewis et al., 2005), where the intention of e-learning was to use all kinds of technology to deliver information to the learner in the shortest time, least effort and greatest benefit, as he can provide the option of lifelong learning. Then the term "distance education" appeared as a model of e-learning, which helps the individual to obtain It provides the learner with opportunities to transfer information and share it with his colleagues, and develops their skills when they use modern methods of education. Therefore, we have another concept derived from e-learning, so the so-called integrated education appeared to us at the end of the nineties of the last century, which seeks to exploit the positives of both regular education and e-learning (Al-Malakh, (2010), by blending the ordinary education tools with integrated education

Integrated Education Models and Methods

Stefan (2019) reviews four models of integrated education across the education sector, from kindergarten to grade 12 (across K-12 sector), and these models are:

1. The rotation mode: Where students rotate between several educational forms, one of which is distance learning, and the other forms include teaching in the classroom, or group projects, learning and supervision, and individual teaching.
2. The flex model: Content is delivered and obtained remotely, and Students apply according to an updated schedule based on

demand. The teacher and other students provide face-to-face support, as needed, through activities such as small group education, group projects, and individual training.

3. The self-blend model: Where students take one or more distance learning curricula, to supplement and supplement the usual curricula.

4. The enriched-virtual model: Where students divide their time between attendance at the university campus and distance learning, within certain limits and an environment equipped for distance learning.

Dimensions of Integrated Education

- Integrated education has a set of dimensions described by Al-Subaie and Al-Qubati (2020) towards the following: Integrating direct online education and non-network education: It means the teaching that takes place in a networked form through the Internet, As for non-network education, it is what takes place in the classroom, and this type of education requires the presence of online resources to be available to everyone, such as conducting sessions closer to reality through the use of educational platforms and under the supervision of the teacher.

- The integration between self-learning and collaborative education: It refers to the individual's learning by himself, who manages his time at his speed; as for the collaborative education that occurs through students communicating with each other to exchange knowledge and benefit from each other, for example, reviewing the important information they receive during their interaction with their teachers through the Internet.

- Integrating of online education content with regular (ready) content: It means ready content that does not take into account the nature of the educational institution, although this type of content costs much less than the customized content that is self-prepared, as the customized content can be prepared and integrated by the teacher through his experiences in teaching and employing it in the classroom or through the Internet.

- Integrating formal and non-formal education: It means that the forms of education refer to the existence of structured learning and traditional learning that is present in the

academic content arranged in an organized manner in the form of classes and that non-formal education takes place through educational sites and platforms.

Thus, it can be said that the learner receives information in the classroom partly via the Internet and controls his learning, learning time, place, path, and speed of progress more than the usual educational programs, so virtual classes become an integral part of the normal classes.

Integrated Education Levels

Al-Subaie, Al-Qubati (2020), Al-Fiqi (2011), and Abu Al-Rish (2013) indicated that the levels of integrated education are categorized as follows:

- **Integration level:** This level refers to integrating web-based elements that can be combined into three basic components: web-based information, web-based discussion forums, and an online evaluation process.
- **Composite level:** This type of level refers to the link between information and the content of education; an example of this is a binary model that is done through the use of e-learning resources, and then the teaching that takes place in the classroom using the method of lecture and discussion on the issues raised by the teacher. There is another model called the Triple Model, in which the level of students is recognized through feedback, after which correction of students' education occurs through the use of the usual methods of teaching, and then the use of the modern approach in order to enrich and enhance students' information.
- **Participatory (collaborative) level:** This level refers to the clarification of the teacher's role in it, in which it is formed through cooperative groups via the Internet or usual, clarified through the method of teaching with students in the classroom, so the role of the teacher becomes integrated between the normal role and the electronic role towards students to achieve the educational goals that were planned.
- **Extension and spread level:** This type of level refers to merging the usual method in classrooms with electronic information sources such as electronic documents, e-mail, and multimedia on computers or through a mobile phone.

Critical Thinking

Critical thinking is one of the main topics in modern education in terms of the tremendous information that the individual receives in all areas of life, so learning critical thinking has become a basic and necessary requirement to serve the educational process because the individual who possesses critical thinking skills can solve problems and suggest alternatives (Al-Hallaq, 2007). Therefore, we need a teacher who has the quality of a thinker who asks questions to students that help them analyze, conclude and search for information. Therefore, it has become necessary to adopt educational curricula that contain critical thinking skills that do not focus on memorizing and retrieving information because of students' huge amount of information. Still, we need a classroom environment that encourages dialogue and discussion by providing an appropriate study climate (Nawfal and Al-Suaifan, 2011).

There are many definitions of critical thinking, including:

The definition of Al-Hallaq (2007: 35) is a higher mental, cognitive and emotional process builds and based on the outcome of other psychological processes such as perception, sensation, and imagination, as well as mental processes such as generalization, distinction, and inference, and the more we move from the sensible to the abstract, the more complex the critical thinking. Whereas (Marei, Nofal 2007) defines it as a set of multiple considerations that direct the learner to consider the views of others and direct him to search for alternative viewpoints to form his own viewpoint. As for Bayer (2003) defines it as including a set of operations that are used individually, in combination, or in any other organization, but it is more complex than the basic thinking skills. Critical thinking, from his point of view, begins with a claim or a specific result where he asks about its validity, merit, importance, or accuracy, and also includes ways of thinking that support his judgment, and Bayer confirmed that critical thinking is not synonymous with making decisions or solving problems.

Abogado and Nofal (2007) indicate that "Fisher" defined critical thinking as a set of mental processes, strategies, and representations employed by learners to solve problems, work on decision-making and learn new concepts.

Swartz (2009), referred to in Novell and Seifan (2011), defines him as judging the merit of an idea by belief or action based on the reasons and evidence available. As for Jarwan (2020: 25), he defines critical thinking "as one of the complex educational concepts that have connections to an unlimited number of behaviors in an unlimited number of situations and is intertwined with other concepts such as logic, problem-solving, and education. It is seen once as parallel to Piaget's abstract thinking or to Bloom's level of evaluation and again as analogous to problem-solving strategy.

As for Lank and Fung (Liang & Fung, 2021), they indicate that critical thinking has increasingly emerged as a learning method in the twenty-first century, as research has shown that it can facilitate the process of acquiring students' learning skills and enhance their general competence moreover, as it enriches the learner's thinking by expanding the learner's horizons to something broader than memorization, by engaging learners in the critical analysis of the educational material.

It can be said that critical thinking is concerned with the learner's gaining the ability to reach acceptable and closer explanations to the truth about the topics raised. Thus, it significantly reduces the errors resulting from misunderstanding the educational content, and critical thinking is not only useful in improving the level of learners and helping to change their situation for the better, but rather teaching critical thinking has a positive impact on society by building a conscious generation capable of making the right decisions.

Characteristics of Critical Thinking

There are many characteristics that distinguish critical thinking towards the following: (Al-Hallaq, 2007) and (Al-Qahtani, 2018):

- Critical thinking consists of mental processes that depend mainly on clear information, many skills and proven facts during the discussion of the topic around which the dialogue revolves.
- Critical thinking emphasizes accepting and adopting the views of others in order to obtain satisfactory results.

- Providing an argumentative method during the dialogue in order to reach a specific conclusion or standard in a statement or proposal supported by evidence.

- Critical thinking refers to a specific problem in front of the learner, so it is the duty of the learner to take the problem in its entirety, and not neglect one aspect at the expense of the other in order to give results with the same amount of attention in order to understand the problem more clearly.

- Taking a set of information that has been accessed by the learner in order to determine the procedures that will be applied according to a specific standard, the most important of which is how to ask the question that makes the learner reach the judgment according to the criteria that have been specified.

Critical Thinking Skills:

Critical thinking is a type of thinking that aims to encourage the learner to analyze information objectively, which helps learners to acquire skills in solving problems in a flexible manner, and to make a logical judgment that includes an evaluation of phenomena, facts, research results and data that can be obtained and observed, then draw conclusions after distinguishing between useful and less useful details for solving problems and making decisions independently away from emotions. To achieve these goals, skills must be acquired as follows:

1. Analysis skill: It refers to the teacher's ability to divide the scientific material into its secondary and sub-elements by realizing the relationships or links, through which the intended significance of the questions and concepts received, which is measured by the degree we obtain, through the questionnaire and the observation card, is determined, according to the scales used (Very large; large; medium; few; very few) (Ibrahim, 2006).
2. Inference skill: It refers to the learner's ability to infer the result of distinguishing between degrees of probability of right or wrong, and he has the ability to perceive the validity of a result in the light of certain facts

by identifying the elements necessary to derive logical conclusions of the intended inferential relationships from among the statements, attributes, questions, or any other form of expression (Arar and Ramzi, 2017) (Marei, Nofal 2007).

3. **Induction skill:** This skill refers to reaching generalizations from which facts are extracted, to prove the experiences obtained by the learner, through particles to mechanisms, to reach results through multiple observations, through the statistics we obtain from scientific experiments, as for induction, it contains the judgment that is issued by the individual after returning to the situation (Suleiman, 2012) (Marei, Nofal 2007).

4. **Inference skill:** It is the mental skill or ability in which the knowledge store of acquired information is used, from previous situations and experiences, in order to be able to reach a conclusion by performing a set of operations based on creating arguments, searching for evidence and reaching conclusions, in order to identify the correlations and causal relationships (Ibrahim, 2006) (Marei, Nofal (2007).

5. **Evaluation skill:** This skill refers to the individual's ability to make a judgment on the quality of the proposed idea, by identifying what is major or secondary in the source, especially the available ones, where the evaluation skill includes two skills: claims and evaluation of arguments (Al-Surour, 2005).

Importance of Critical Thinking:

Critical thinking is a necessity of education, To create an appropriate learning environment for students in light of the huge amount of information that students receive, so it is necessary to employ critical thinking in the various curricula by providing an appropriate school climate, and through a classroom environment that encourages students to develop higher mental skills that will help develop the educational process as follows (Imam and Ismail, 2010):

- Critical thinking helps raise the educational level of students in most subjects.

- Critical thinking encourages the exchange and discussion of ideas, which reflect positively on the communication between students and the teacher.

- Critical thinking provides an appropriate learning environment to develop students' critical skills by raising different issues or problems.

- Critical thinking helps talented students who possess creativity and innovation skills, in addition to finding a solution to the problems they may face through the data they obtain.

- Critical thinking helps improve students' skills and abilities for self-education in searching for information and finding solutions to it.

- Critical thinking encourages the creation of new ideas and the selection of the best ones.

Previous Studies:

Theoretical literature and previous studies were consulted on the subject that deals with integrated education and its impact on critical thinking. The following are the studies directly related to the subject of the study arranged from oldest to newest:

Al-Qahtani (2018) conducted a study aimed at knowing the effect of teaching mathematics using integrated education on the achievement and development of critical thinking skills among first-grade intermediate students. The quasi-experimental approach was used, where the study was applied to a sample of (50) students who were randomly selected, they were divided into two groups: an experimental group consisting of (25) students who studied using integrated education, and a control group consisting of (25) students who studied using the usual method. The study found a clear impact of integrated education on achievement and in developing critical thinking skills.

Wahyuni & Jatmiko (2019) conducted a study to analyze the critical thinking skills of middle school students on Edmodo platform. The experimental method, which consisted of studying the sample before and after applying the test, and the study sample consisted of (35) eighth-grade students in an Indonesian school. Among the research tools that were adopted in the research are the activity note sheet for both teacher and students, a means of evaluating scientific critical thinking skills, and a means of evaluating students' motivation. It was applied before and after the educational activity. Data were collected by the descriptive MI method. The results were as follows: (1) that students are motivated by the usual method of teaching by 78.13% by means of motivational criteria. The highest value when using the Edmodo platform was 88.47% and the lowest percentage was estimated at 70.93% (2) There was an increase in the percentage of practical critical thinking skills by 0.32 according to the n-gain average, which according to the criteria is considered average, as The highest percentage was 0.55, which is related to the analysis of facts, and the lowest percentage was 0.19, which is related to the argumentative case. Based on the foregoing, it was concluded that teaching using the Edmodo platform in integrated education has an impact in terms of stimulating and supporting scientific analytical thinking for middle school students.

Deechai; Sovajassatakul & Petsangsri, 2019) conducted a study aimed at assessing the need for developing integrated education as a means of developing students' critical thinking. A multi-stage sample was used and randomly, which included (450) individuals (376 professional students and (69) professional teachers. In this study, the best method for developing analytical thinking was evaluated. The consistency index (IOC) was between 0, 56-1.00), while the total reliability was 0.94. This study was conducted and data was collected during the period between August 2018 to September 2018. 445 evaluation forms were completed, and an amount of 98.88% of the forms that had been distributed to the sample returned to the researcher - an amount of 1.12% From distributed models no longer. Frequently, as a percentage, and using the Priority Needs Index (PNI) data were analyzed. The results indicated that both students and teachers were in agreement to make improvements in analytical thinking skills. These developments must

include analytical thinking skills, educational achievement, and educational management. One of the results of the study was that development occurs when there is a commitment by the educational institution, and when there are facilitative changes and additions to support modern educational methods. Test methods must be modern and appropriate to the subjects studied by the students. In addition to the above, the educational method must be in line with everything that is new, taking into account the needs of students and their real life in which they live.

The study of Hadi, Widi, & Endang (2019) aimed to test a hypothesis stating that the inquiry evidence for integrated education can be influenced by biology students in terms of critical thinking. The quasi-experimental method was used before and after, and the unequal control group was used. This study was applied to students of the Faculty of Biology at the State University of Malang in Indonesia. The sample included (35) students from the test class who are taught by the inquiry guide for integrated education, (29) students from the controlled control class who were taught by the structured inquiry method for integrated education, and (25) students from the second class the controlled control that was Teach it in a structured inquiry style for integrated education. The students' data were analyzed using the t-test to test the effectiveness of this study's strategy. The significance level was ($\alpha = 0.05$) in order to explore the difference between the critical thinking of students after teaching them in three different ways. The Cohen-d method was used to measure the effect of each method. The results showed that the inquiry guide for integrated education and the structured inquiry approach for integrated education have a significant impact on students' analytical thinking, but the inquiry guide for integrated education has a greater impact on developing students' ability to distinguish assumptions, evaluate arguments and justify them. This study provides an empirical result for applying the inquiry guide to integrated education as a means of developing analytical thinking for biology students.

As for Al-Hajri, (2020), he conducted a study aimed at identifying the effectiveness of using integrated education in developing creative thinking skills in Islamic education for ninth

grade students in Witt. The quasi-experimental approach was used, where the study was applied to a sample of (60) female students, and they were selected based on the design of the two groups (experimental and control). After the end of the application period and the post-test, the study concluded that there are statistically significant differences between the arithmetic averages of the control and experimental groups in favor of the experimental group in employing integrated education. In light of the results of this study, the researcher recommended the necessity of using integrated education to develop creative thinking skills.

Al Mohaya conducted (2020) a study aimed at developing critical thinking skills using the framework of the survey community (Col) in a course taught in integrated education e-learning. The semi-experimental approach was used, where the study was applied to a sample of (64) students, who were divided into Three groups: (two experimental and control). Where the two experimental groups were trained on the framework of the investigation community of Garrison, Anderson and Ark Col, the number of the first group was (24) students, while the other group consisted of (20) students who were distributed into small learning teams. The control group consisted of (20) students, and it was found that there were statistically significant differences in the three dimensions of the survey community framework: social presence, teaching presence, and cognitive presence in favor of the second experimental group, and the second experimental group achieved higher skills in critical thinking with statistically significant differences.

While Hidayah & Ramli (2020) showed that critical thinking skills are the skills that have been agreed upon as one of the main and high-level skills, which are required in education in the twenty-first century. To be part of the Faaat that supports the so-called 'International Urgent Concern'. It must be integrated into the education system of the twenty-first century. It will be able to do this by supporting the educational system "lifelong learning, problem solving, self-management and teamwork. It exists as one of the skills required for individuals to obtain accurate and accurate information, including students, especially skills that will encourage students to live effectively in society, and to make better personal, business or

leadership judgments and decisions. To enable students to carry out the analysis and evaluation of existing knowledge, and even to create new knowledge that in turn, critical thinking skills are an important part of the educational process to support student achievement.

Study problem and questions

Enhancing and developing thinking skills in line with the strategic plan of the Jordanian Ministry of Education (the Jordanian Ministry of Education, 2018) regarding the formation of the creative personality of students, and making it easier for them to interpret knowledge and experience accurately in this digital age.

Therefore, many research studies used meditation and vigilance strategies, learning to read and write, problem-solving learning models, and the survey method recommended intervention to enhance critical thinking among students, and to measure and develop their skills, and since integrated education is one of the teaching strategies that integrate distance learning and face-to-face learning, Students learned how to arrive at knowledge based on facts that can be ascertained through the development of different thinking skills, including critical thinking.

Hence, the problem of the study is embodied in seeking to provide the eighth grade students with the skills of integrating technology into education history, through the use of integrated education in developing critical thinking skills among students in light of the multiple challenges facing the educational process.

Thus, the study aimed to investigate the effect of using the integrated education strategy on developing critical thinking skills for eighth-grade students of history?

The study questions were as follows.

First Question: Are there statistically significant differences ($\alpha = 0.05$) in critical thinking skills among the students of the (experimental) group due to the integrated education?

Second Question: Are there statistically significant differences ($\alpha = 0.05$) in critical

thinking skills between the students of the two study groups (experimental, control) due to the teaching method (integrated, usual)?

Third Question: Are there statistically significant differences ($\alpha = 0.05$) in critical thinking skills between the results of the (experimental) group students in the post-test and the postponed test?

Fourth Question: Are there statistically significant differences ($\alpha = 0.05$) in critical thinking skills among students of the (experimental) group according to the effective weight of critical thinking skills?

Study Methodology:

Based on the nature of the study, the researcher used the experimental method of semi-experimental design with a pre and post test for two experimental and control groups, for its suitability for the purposes of the study.

Where the independent variable (integrated education) was subjected to the experiment and measured its effect on the dependent variable (critical thinking) among the students of the experimental group, and that this design was appropriate to answer the study questions in an appropriate and accurate manner by obtaining complete data.

Study Population:

The study population consisted of all eighth grade students who study in private schools in Wadi Al-Seer District, during the first semester of the academic year (2020/2021), which numbered (813) students, according to the statistics of the Ministry of Education / Directorate of Private Education for the year (2020/2021).

Study Sample

The study sample was chosen from Al-Madar International Schools, by the intentional method, and it consisted of (60) students who were randomly selected into two divisions, one of them is the experimental group and is taught using integrated education, and the number of its students is (30), and the second is the control

group, which is taught in the ordinary way, and its number is (30) students.

Study Tools

First: California Critical Thinking Skills Test (CCTST), (2000):

Moray and Novell (2007) indicated that the California Critical Thinking Test was built based on the definition reached in the consensus of experts at the American Psychological Association (APA) conference.

This test includes five critical thinking skills:

1. Analysis skills consisting of (6) paragraphs,
2. The induction consists of (6) paragraphs,
3. The reasoning consists of (12) paragraphs,
4. The conclusion consists of (4) paragraphs,
5. The evaluation consists of (6) paragraphs.

Accordingly, the procedures for Arabization and application of the California Critical Thinking Test were reviewed, as mentioned in the study of: Maree and Nofal (2007), Suleiman (2012), and Nabhani (2017), as follows:

Indications of the validity and stability of the Jordanian image of the California Critical Thinking Test:

Apparent Validity

The validity of the content was confirmed by Dr. Tawfiq Maree and Muhammad Nofal (Maree, Nofal 2007) when it was Arabized and the appropriateness of its (34) paragraphs was measured for critical thinking skills, namely analysis, induction, inference, conclusion and evaluation.

Stability of the test in its modified form:

Stability was verified by calculating Cronbach's stability coefficient alpha, Couder-Richardson's stability coefficient-20, and replay stability coefficient. **Table 1** shows the results of the analysis:

Table 1: Evaluate the reliability coefficients to test critical thinking and its skills

Study tool	Skills	Calculated stability coefficient			
		Kronbach Alpha	Coder-Richardson-2000	Return constancy	Half-division corrected by the Spearman-Brown equation
critical thinking test	Analysis	0.773	0.830	0.851	0.775
	induction	0.816	0.842	0.864	0.905
	inference	0.851	0.881	0.834	0.89
	Conclousion	0.745	0.801	0.849	0.771
	Evaluation	0.848	0.889	0.85	0.908
	Post Lee Performance	0.954	0.971	0.881	0.972

It is noted from Table No. (1) that all the values of the stability coefficients were high, and this enhances the accuracy of the tool and its suitability for application to achieve the purposes of the study.

Test correction

The California test in its final form consisted of (34) multiple-choice items, and each item had four alternatives, and some items had five alternatives. One mark for each correct answer, and zero for the incorrect answer. Thus, the mark for the test ranged from (zero -34) degrees, and skills included: Analysis, extrapolation, and evaluation for each skill, including (6) degrees, and for the skill of inference (4) degrees, and for the skill of inference (12) degrees.

Second: the educational material

The researcher chose the unity of the Arab nations in the north of the Arabian Peninsula, which includes the Kingdom of Manathira, the Kingdom of Ghassanid, and the Kingdom of Kinda, for the following reasons:

- The scientific and logical sequence of the lessons of the Arab nations.
- The unit contains critical thinking skills and is highly dependent on them.

- Difficulty learning the unit based on the complaints of teachers and students.

The researcher made an analysis of the content of the article (the unity of the Kingdom of North Arabia, which includes the Kingdom of Manathira, the Kingdom of Ghassanid and the Kingdom of Kinda) and wrote its objectives according to the list of specifications and included the following:

- The critical thinking test was selected based on the educational objectives.
- The critical thinking test was chosen from the research of Dr. Tawfiq Marei and Muhammad Nofal (Maree, Nofal 2007), and it may consist of (34) multiple-choice paragraphs for a group of skills: analysis, induction, inference, inference, and evaluation/ for the eighth grade for the year 2020/2021.

Steps to build the educational material according to integrated education

The educational material (the unity of the Arab kingdoms in the north of the Arabian Peninsula) consisted of lessons: The Kingdom of Manathira, the Kingdom of Ghassanid and the Kingdom of Kinda, Which depends mainly on displaying a group of monuments located in the Arab kingdoms, and displaying illustrative pictures of the most important achievements that

took place in the Mamluks in terms of economic, literary, architecture and arts, therefore, in its application of the lessons, the researcher relied on the use of the integrated education method, in which education is face-to-face and remotely, but during the current circumstances the world is witnessing, which is Corona pandemic, the researcher considered that face-to-face education through the use of one of the Internet applications, which is the (Zoom) program, which depends on providing educational material, is the best solution for meeting students to present the scientific material, The Power Point program was used, which clarifies the educational content in an easier and easier way for students. As for remotely, students were provided with a video link that talks in a simple way about the Arab nations; So that the material

becomes clear in detail, which increases the enthusiasm and suspense of the students.

Study results and discussion

The following is a presentation of the results that were reached, which aimed to know the effect of integrated education on developing critical thinking skills for eighth grade students in the subject of history.

In order to verify the equivalence of the two groups, a t-test for two independent samples was used. **Table 2** shows the results of the analysis related to the (pre-test) of critical thinking skills in the form of me before the start of teaching.

Table 2: Arithmetic means, standard deviations, and t-test for pre-performance

study tool	skills	group	number	Arithmetic average	standard deviation	standard error	F value	degree of freedom	Statistical significance
thinking skills	Lee performance	control	30	9.37	2.89	2.89	0.511	58	0.578
		Experimental	30	8.93	3.10	3.10			

the results of Table no. (4) shows that there is no There was no statistically significant difference at the significance level ($\alpha = 0.05$) in the performance of the experimental and control groups in the critical thinking skills test (pre), where all (t) values were not significant at the statistical significance level ($\alpha = 0.05$). This indicates that the two groups were equal before the experiment was applied.

The following is a presentation to answer the study questions. Results related to the answer to the first question.

First: the results related to the answer to the first question, which states: "Are there statistically significant differences ($\alpha = 0.05$) in critical thinking skills among the students of the (experimental) group due to integrated education?"

The arithmetic means and standard deviations were calculated for the dimensional application. **Table 3** shows the results of the analysis on the test as a whole:

Table 3: Post-Performance on Critical Thinking Skills Test (N=30)

the results of Table 3 shows that There are apparent differences in the post-performance (critical thinking skills test) between the two groups for the eighth-grade students on the critical thinking skills test between the two study groups, and in favor of the students who learned

using integrated education, where the arithmetic average of the experimental group was (21.10) with a standard deviation of (6.07). While the control group that studied in the usual way ((11.90 standard deviation (2.81). The effect size was large ((0.492) and this indicates that the use

of integrated education affected 49.2%) of the variance between the two groups due to the effect of the experimental group. Which proves that the use of integrated education has an impact on developing critical thinking skills for eighth-grade students in teaching history, as shown in Table (5).

The researcher attributes this result to the employment of integrated education in the teaching of history, where the unit was taught in a new way using the Zoom platform to display educational content using power point and educational videos, and distinct from the usual

style, which helped students to deal with and understand facts and gain information, and also helped to develop critical thinking skills, conclusion and analysis, inference, evaluation and induction, respectively, and this result is consistent with what was found in the study of Rodriguez (2009).

In order to know the significance of the differences, the associated analysis of variance (ANCOVA) was used, and for each of the critical thinking skills separately, as follows:

Table 4: Analysis of variance (ancova) - the analysis of skills in the post-test

	Skill	F value	Indication level	Eta square - scientific significance	Effect size	R Squared	Adjusted R Squared
1	Analysis	29.341	0.000	0.340	Large	0.365	0.342
2	Induction	33.292	0.000	0.369	Large	0.373	0.366
3	Inference	22.441	0.000	0.282	Large	0.300	0.280
4	Deduction	36.063	0.000	0.388	Large	0.240	0.231
5	Evaluation	18.067	0.000	0.241	Large	0.551	0.490

First: Analysis skill

The result of **Table 4** shows that there are differences in the skill of analysis between the control and experimental group in the pre critical thinking test, where (F) value were (52,443) at the level of significance (0.000) and this value is statistically significant at the level of significance ($\alpha = 0.05$), and the arithmetic average of their performance was higher compared to the arithmetic average of the performance of the control group. The practical significance value was (0.340) and this indicates that the percentage (34.0%) of the variance between the two groups in the skill of analysis is due to the effect of the experimental group, and the effect size was large, and it was determined based on the criteria for determining the effect set by Cohen in 1988 where the effect size was divided into small (0.01), medium (0.06), and large (0.14), and these criteria were developed to compare these uncontrolled groups (Lakens, 2013).

This result may be attributed to the fact that this skill is concerned with dismantling and

installing texts and using words according to the issue, situation or problem, which improves the language and presentation skills of the learners, and the integrated education method using the Zoom platform may have an impact on teaching students, as it had an impact in achieving satisfactory results through the presentation that took place between the teacher and the students.

Second: induction skill

The results of **Table 4** that there are differences in the induction skill between the control group and the experimental group in the pre critical thinking test, where (F) value was (33.929) at the level of significance (0.000), and this value is statistically significant at the level of significance ($\alpha = 0.05$), the arithmetic average of their performance was higher compared to the arithmetic average of the performance of the control group. The practical significance value was (0.369), This indicates that the percentage (36.9%) of the variance between the two groups in the induction skill is attributed to the use of integrated education in the experimental group,

and the effect size was large (Lakens, 2013). This result may be attributed to the use of the Zoom platform. The nature of the skill itself may have an impact on this result, which focuses on the fact that the validity of the results is connected to the validity of the intros such as scientific evidence and experiments, and this skill also includes the indications and judgments that a person issues after referring to a previous situation or events. Organizing educational content according to the integrated education technology may have an impact on increasing the students' motivation level through their awareness of the importance of the subject they are studying.

Third: inference skill

The results of **Table 4** that there are differences in the inference skill between control group and experimental group in the pre critical thinking test, where (F) value was (22.441) with a significance level (0.000) and this value is statistically significant at the significance level ($\alpha = 0.05$), the arithmetic average of their performance was higher compared to the arithmetic average of the performance of the control group. The practical significance value was (0.282) this indicates that integrated education which affected with the percentage (28.2%) of the variance between the two groups in the inference skill due to the use of integrated education in the experimental group, and the effect size was large (Lakens, 2013). This result can be attributed to the use of the Zoom platform, organizing and enriching educational content with many thought-provoking situations. The nature of the skill itself may have an impact on this result, and students' practice of a group of operations that depend on generating arguments and assumptions and making them feel their thinking processes, searching for evidence and reaching results, its impact on identifying correlations and causal relationships, which is reflected positively on mastering the skill of inference.

Fourth: deduction skill

The results of **Table 4** that there are differences in the deduction skill between the control and experimental group in the pre critical thinking test, where (F) value was (36.063) with a

significance level of (0.000) This value is statistically significant at the significance level ($\alpha = 0.05$), the arithmetic average of their performance was higher compared to the arithmetic average of the performance of the control group. The practical significance value was (0.388) This indicates that the percentage (38.8%) of the variance between the two groups in the skill of deduction is due to the effect of the experimental group, and the effect size was large (Lakens, 2013). This result may be attributed to the structured educational content and its provision of the necessary elements to draw logical conclusions from the intended inductive relations. The integrated education strategy may improve students' ability to learn the educational material and motivate them to use different thinking processes. The use of Zoom platform as a new technology may have its effect on occupying the first place among critical thinking skills.

Fifth: Evaluation skill

The results of **Table 4** that there are differences in evaluation skill between control and experimental group in the pre critical thinking test, where (F) value was (18,067) with significance level of (0.000) and this value is statistically significant at the significance level ($\alpha = 0.05$), the arithmetic average of their performance was higher compared to the arithmetic mean of the performance of the control group. The practical significance value was (0.241) and this indicates that the percentage (24.1%) of the of the variance between the two groups in evaluation skill is due to the use of integrated education in the experimental group, and the effect size was large (Lakens, 2013). This result may be attributed to the fact that teaching critical thinking has become a requirement and a major goal in the education process, and it may have to organize educational content in line with the teaching strategy, and the use of Zoom platform may have an impact on this result.

Second: results related to the answer of the second question, “Are there statistically significant differences ($\alpha = 0.05$) in critical thinking between the students of two groups of the study (experimental, control) attributed to the teaching method (integrated, ordinary)?

The above mentioned Table 3 shows that there are apparent differences in the post-performance (critical thinking test) between the two groups. In order to find out the significance of the

differences, the associated analysis of variance (ANCOVA) was used for critical thinking on post lee performance, **Table 5** shows that:

Table 5: Analysis of Variance (ANCOVA) - Critical Thinking for Post Lee Performance

Variance source	sum squares	of freedom degrees	Average squares	F value	Indication level	Eta square - scientific significance	effect size
Pre-performance	2.053	1	2.053	0.090			
Group	1255.313	1	1255.313	55.238	0.000	0.492	Large
Error	1295.347	57	22.725				
Lee	2567.000	59					

Table 5 shows that there are differences in Lee performance between the control and experimental group in pre critical thinking test, where (F) value was (55.238) at the level of significance (0.000), and this value is statistically significant at the level of significance ($\alpha = 0.05$), Where the arithmetic average of their performance was higher compared to the arithmetic mean of the performance of the control group. The value of the practical significance was (0.492), and this indicates that the percentage of (49.2%) of the variance between the two groups in critical thinking is due to the effect of the experimental group.

The researcher attributes this result to the employment of integrated education in the teaching of history, where the unit was taught in anew way using Zoom platform and by employing power point program to prepare graphics related to the curriculum, as well as presenting educational materials in a distinct way away from the usual pattern, which helped students to deal with and understand facts and gain information, and also helped to develop critical thinking skills, this is done by presenting information in a purposeful and more motivated manner, developing skills and mastery, developing curiosity, innovation and teamwork, as well as organizing and supporting content using educational videos.

The results of this study agree with many studies that emphasized the importance of integrated education in developing critical thinking skills with the results of several studies, including:

Rodriguez (2009) study, which refers to the use of integrated education for the purposes of critical thinking facilities for first-year students in occupational therapy. and Muhya (2020) study, which indicates the development of critical thinking using the framework of community inquiry (CoI) in a course taught with integrated e-learning. And Aslan study, Muhammad (2015), which examined the effectiveness of employing integrated education to develop the concepts of genetics and critical thinking skills in the life sciences of tenth grade students.in addition to Al-Maraghi, Al-Anwar and Jad (2014) study which indicated to identify the effectiveness of a program in biological sciences based on integrated education in developing achievement, some life skills and critical thinking among secondary school students. Jo and Lin & Wu (2016) study, which examined the impact of the integrated education environment on critical thinking and cognitive transformation of students, and Copp (2016) study, which indicated that critical thinking for gifted students in integrated education environment, And Al-Qahtani (2018) study investigated the effect of teaching mathematics using integrated education on achievement and

developing critical thinking skills among first-grade intermediate students. Phakakat and Sovajassatakul (2020), which indicated a comparison of academic achievements and critical thinking skills between groups working in the service of integrated and ordinary education. Goode.; Lamoreaux.; Atchison.; Jeffress.; Lynch, & Sheehan, Atchison, Jeffress, Lamoreaux, & Sheehan (2018) study Which indicated the importance of quantitative skills, critical thinking and writing mechanism in integrated education with the direct method (face to face) for statistical research methods, and Hadi, Di and Andang Hadi; Widi, & Endang (2019) study which examined hypothesis testing, which recommended the use of integrated education to develop critical thinking skills.

Third: Results related to answering the third question, which states: “Are there statistically significant differences ($\alpha = 0.05$) in critical thinking skills between the results of the (experimental) group students in the post-test and the postponed test?”

The values of the arithmetic average and standard deviations of the dimensional and deferred application were calculated for the students of the experimental group, as well as the (Paired Sample t-test) for two Paired samples. **Table 6** shows the results:

Table 6: Results of (T) test of two paired samples in the post-performance in the postponed test for students of the experimental group (N=30)

Skills	Test	test	arithmet ic average	standar d deviatio n	standar d error	T valu e	degree s of freedo m	Indicatio n level
Analysis	Experiment al	post	4.10	1.42	0.26	1.00	29	0.326
		postpon ed	4.17	1.23	0.23			
induction	Experiment al	post	3.47	1.31	0.24	1.27 8	29	0.211
		postpon ed	3.33	1.06	0.19			
inference	Experiment al	postpon ed	7.17	2.41	0.44	1.43 9	29	0.161
		postpon ed	7.03	2.16	0.39			
deductio n	Experiment al	post	2.87	1.22	0.22	1.44 0	29	0.160
		postpon ed	2.93	1.17	0.21			
Evaluati on	Experiment al	post	3.50	1.50	0.27	1.75 6	29	0.090
		postpon ed	3.73	1.23	0.22			
tool in total	Experiment al	post	21.10	6.07	1.11	0.32 0	29	0.751
		postpon ed	21.20	5.05	0.92			

Table 6 shows that there is no statistically significant difference in the post-performance of the critical thinking skills test and the postponed test. This may be attributed to the effectiveness of the integrated education strategy in maintaining critical thinking skills and in providing students with information, facts and ideas, its role in maintaining and organizing them within the cognitive structure in a sequential manner, and the method of its installation, which is consistent with the components of the human mind that make education meaningful. The focus on meaning has led to the realization of the importance of

learning critical thinking skills and developing students' abilities.

Fourth: Results related to the answer to the fourth question, which states: "Are there statistically significant differences ($\alpha = 0.05$) in critical thinking skills among students of the (experimental) group according to the effective weight of critical thinking skills?"

The mean values and standard deviations were calculated for the dimensional application. Table 7 shows the results of the analysis:

Table 7: Classification skills according to the impact weight of critical thinking skills

skills	group	Post arithmetic average	arithmetic average postponed	relative weight	Classification by effective weight
Analysis	Experimental	4.10	4.17	68.33%	2
induction	Experimental	3.47	3.33	57.83%	5
inference	Experimental	7.17	7.03	59.75%	3
deduction	Experimental	2.87	2.93	71.75%	1
Evaluation	Experimental	3.50	3.73	58.33%	4

The results of **Table 7** show the arrangement of skills according to the effective weight of critical thinking skills, where the first place was occupied by the deduction skill, the analysis skill came in the second place, and the inference skill in the third place, while in the fourth place came the evaluation skill, followed by the induction skill.

critical thinking skills are integrated, interactive and complementary to each other, in order to that It is expected that researchers and practitioners pay careful attention to how to integrate the various activities that must be provided to students in order to develop students' critical thinking skills in a deliberate manner. The strengths and weaknesses of different activities can be analyzed and investigated and their impact on learning those skills. Therefore, the discrepancy in this study in the arrangement of critical thinking skills centers can be attributed to the nature of the activities assigned to students, in addition to the additional readings and/or to the nature of the educational material (history) and its

organization, and/or the teacher's ability to motivate students towards learning by creating an interactive environment, and/or the teaching strategy (for integrated education) has its impact on this result, which has become more famous than before. It appears that it has become a general trend, and he describes "modern learning" as one that aims to take advantage of the technologies used from a distance, and/or the lack of face-to-face education due to the Corona pandemic and reliance on the Zoom platform, and/or for individual differences between students and their special abilities, and the last expectation may be the closest to reality (within the limits) of the researcher's knowledge and expectations.

Study Recommendations

In light of the results of this study, the researcher recommends the following:

1. Employing integrated education in education in general and using it in teaching history in particular.
2. Organizing educational content in proportion to integrated education, which helps in developing students' critical thinking skills.
3. Holding training courses for critical thinking skills for school teachers to help them develop the educational contents they teach to students so that those lessons include critical thinking skills.
4. Investigate the levels of critical thinking skills among Jordanian university students.

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