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THE IMPACT OF THE ZAHOURIK MODEL ON THE DEVELOPMENT OF CONTEMPLATIVE THINKING AMONG STUDENTS OF THE COLLEGE OF PHYSICAL EDUCATION AND SPORTS SCIENCE

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A B S T R A C T

The research aims to:
- Identify the impact of the Zahourik model on the development of contemplative thinking among third-year students in the College of Physical Education and Sports Science.
- Identify the differences between the results of the two post-tests for the experimental and control groups in the development of contemplative thinking among third-year students in the College of Physical Education and Sports Science.

The researchers assumed the following:
- There are statistically significant differences between the students' scores in the pre-test and post-test for the experimental group in favor of the post-test in developing contemplative thinking.
- There are no statistically significant differences between the students' scores in the pre-test and post-test for the control group in developing contemplative thinking.
- There are statistically significant differences between the students' scores in the post-test for the experimental group and the control group in favor of the experimental group in developing contemplative thinking.

The researchers used the appropriate experimental method for the nature and problem of the research. The research population consisted of third-year students in the College of Physical Education and Sports Science, Tikrit University, for the academic year (2022-2023), totaling 128 students distributed across three sections. The experimental group was randomly selected from Section (D), consisting of 42 students, and Section (C) was the control group, consisting of 43 students. Section (B) with 43 students was excluded, and absent students were also excluded, resulting in each research group consisting of 25 students.

K E Y W O R D S

model, teaching methods, reflective thinking, development, Cognitive attainment

The researchers used the statistical software package SPSS and the following statistical methods: mean, standard deviation, percentage, independent and paired samples t-test, Spearman's equation. The researchers concluded the following: - The study showed that using the Zahourik model helped students think, express opinions, and engage in discussions during the lecture. - The Zahourik model provided students with a space to participate in the lesson positively and effectively, rather than just being passive recipients. - The Zahourik model had an impact on the development of contemplative thinking among third-year students in the College of Physical Education and Sports Science, as evidenced by the pre-test and post-test scores for both groups and the comparison between the post-test scores of the experimental group taught according to the model and the post-test scores of the control group taught using the conventional method. - Teaching models can contribute to the development of students' higher mental abilities, including contemplative thinking because the steps of the model require students to understand and comprehend the concept. The researchers recommended the following based on their conclusions: - Emphasize the use of strategies that encourage the learner's role in the educational process and actively involve them in it.	

Introduction

1- Definition of the research:

1-1 Introduction and the importance of the research:

The era we live in, known as the age of science and technology, is witnessing vast expansion in various aspects of life due to tremendous progress that impacts the lives of individuals in society. People are now utilizing scientific applications in all aspects of life. This, in turn, has led to rapid changes in educational systems to serve the community and uplift it to the highest levels[(1)].

This development has wide educational implications and a clear impact on the entire educational process. It is reflected through the new modern knowledge and teaching techniques. Previously, external factors such as the teacher's personality, voice, and enthusiasm within the classroom were emphasized as influential factors in learning. However, now the role of the teacher has become that of a facilitator and guide in the process of education, knowledge acquisition, construction, and processing, making it a significant element of cognitive personality.

The change was not limited to the role of the teacher and the student in the educational process but also extended to the curriculum, teaching methods, and strategies. The emergence of theories based on the construction of knowledge among learners, such as constructivist theory, has provided various teaching strategies that can be used in classroom education. These strategies focus on building students' self-knowledge, emphasizing the learner's active role and effective participation during the

1- Ahmed Al-Najdi and others; Modern Trends in Science Education in Light of Global Standards and the Development of Thinking and Constructivist Theory, 1st edition: (Cairo, Arab Thought Publishing House, 2005), p. 111.

learning process through active roles and engaging activities that aim to construct their concepts and scientific knowledge.[2] .

Due to the tremendous cognitive advancement and the individual's inability to store all information in their memory, contemporary education seeks to teach the individual how to learn and how to think. This is one of its top priorities to keep up with cognitive and social changes, including contemplative thinking. It emphasizes the use of the Zahorik model to develop thinking skills in learners and improve their cognitive and social abilities for active participation in the educational process.[3] .

It is a constructive process based on a constructivist model that primarily recognizes knowledge not as a set of facts and concepts, but as a creation that is built by the learner. This is an attempt to assist the learner in making sense of their experiences.

1-2 Research Problem:

The subject of teaching methods requires diverse knowledge and cognitive processes that future physical education teachers should rely on to enhance their thinking abilities. Based on the researchers' review of books, sources, and previous studies, they found it necessary to increase and develop contemplative thinking through the Zahorik model for students. Contemplative thinking is an important characteristic that students should possess as it plays a crucial role in developing their mental capacity and being an active and positive element in the classroom. The research problem revolves around answering the following question:

What is the impact of the Zahorik model on the development of contemplative thinking among students of the College of Physical Education and Sports Sciences?

1-3 Research Objectives:

- To identify the impact of the Zahorik model on the development of contemplative thinking among third-year students in the College of Physical Education and Sports Sciences.

-To examine the differences between the results of the two post-tests for the experimental and control groups in terms of the development of contemplative thinking among third-year students in the College of Physical Education and Sports Sciences.

1-4 Research Hypotheses:

- There is a statistically significant difference between the pre-test and post-test scores of the experimental group in favor of the post-test in the development of contemplative thinking.
- There is no statistically significant difference between the pre-test and post-test scores of the control group in the development of contemplative thinking.

-There is a statistically significant difference between the post-test scores of the experimental group and the control group in favor of the experimental group in the development of contemplative thinking.

1-5 Research Scope:

1-5-1 Human Scope: Third-year students at the College of Physical Education and Sports Sciences, University of Tikrit.

1-5-2 Spatial Scope: Classrooms at the College of Physical Education and Sports Sciences, University of Tikrit.

1– Hassan Hussein Zaitoun, **teaching skills and vision in the implementation of the lesson**: (Cairo, World of Books Library, 2001), p. 11.

[2]– Hassan Hussein Zeitoun**, ibid.,** 2001, p. 11.

1-5-3 Temporal Scope: From November 1, 2022, to January 25, 2023.

2- Research Methodology and Field Procedures:

2-1 Research Method:

The researchers used the appropriate experimental method for the nature of the research and its problem.

2-2 Research Population and Sample:

The research population consisted of third-year students at the College of Physical Education and Sports Sciences, University of Tikrit, for the academic year (2022-2023), with a total of 128 students distributed among three sections. Section D was selected as the experimental group, comprising a total of 42 students, and Section C was selected as the control group, comprising a total of 43 students. Section B, consisting of 43 students, was excluded from the study. Absent students from Section D, totaling 17 students, were also excluded, resulting in a final count of 25 students in the experimental group. Similarly, absent students from Section C, totaling 18 students, were excluded, resulting in a final count of 25 students in the control group.

Table (1) Shows the two research groups, the sample size, the method used, the total number and the excluded

Method	group	Percentage	Sample Number	Percentage	Excluded	Percentage	Total Number	Division
Model of John Zahoric	Experimental	59.52%	25	40.47%	17	100%	42	C
source	control	58.13%	25	41.86%	18	100%	43	D

2-3 Experimental Design:

It refers to a plan and work program for conducting an experiment, in which the researcher isolates the extraneous variables and studies the effects of the dependent variable in order to confirm the accuracy of certain information in an attempt to reach generalizations that govern the behavior of the dependent variable [4] .As shown in Figure(1).

Post-test Achievement + Contemplative thinking	Independent variable Model of John Zahoric	Pre-test Contemplative thinking	Experimental Group
Post-test Achievement + Contemplative thinking	Method	Pre-test Contemplative thinking	Control group

Figure (1) Experimental design of research

1- Bassem Hadi Ali, The effectiveness of John Zahorik's model in obtaining the history of ancient civilizations for the first intermediate grade student: (**Journal of the Faculty of Basic Education for Educational Sciences and Humanities** , University of Babylon, p. 26, 2016), p. 104.

2-4 Equivalence of the Research Groups:

Despite the homogeneity of the research sample in both groups in terms of cultural and social variables, and the selection of the two groups using a random method to represent the experimental group and the control group, with the independent variable being the John Zahorik model (in the dependent variable) of achievement, the researchers conducted an equivalence process between the students of the research groups in.[(5)] .

Equivalence of the Research Groups:

1- Age measured in months.
2- Academic achievement in the subject of Teaching Methods for the previous year (Second Stage).
3- Reflective - IQ test scores.
4- Thinking Skills Assessment test.

Table (2)

Shows the equivalence of the two research groups in terms of ages calculated in months and the scale of contemplative thinking

Sig	value	Calculated value (T)	Control group		Experimental Group		UM	Variables and unit of measure	s
			SD	Arithmetic	SD	Arithmetic			
unsig	0.209	1.273	14.702	291.458	12.652	286.416	Month	Age is calculated in months	1
unsig	0.236	1.200	8.783	83.320	9.123	86.360	degree	The degree of the scale of contemplative thinking	2

* Significant if the value of sig < 0.05.

2-5 Field Procedures of the Research:

2-5-1 First Survey Experiment:

The researchers conducted the survey experiment on the Contemplative thinking Scale on Tuesday, 1/11/2022, to ensure the clarity and validity of the scale, as well as the time required to respond to it. The researchers applied the scale to a sample consisting of 13 students from the research community. Through the survey application, the researchers concluded the appropriateness and clarity of the scale, with no ambiguity detected.

2-5-2 Second Survey Experiment for the John Zahorik Model:

The researchers conducted the survey experiment on (15) students from the research community who were not part of the sample on Wednesday, 2/11/2022. The objectives of this experiment were:

1- To ensure that the subject teacher can implement the model and proposed program.
2- To identify any expected difficulties during implementation.
3- To provide a clear understanding to the researcher of what is required.

2-5-3 Pre-tests:

The pre-test for contemplative thinking was administered to both the experimental and control research groups on Sunday (6-11-2022).

(2) Bassem Hadi Ali, **op. cit.,** 2016, p. 105.

2-5-4 Main Experiment:

The researchers implemented the teaching plans according to the Zahorik model, consisting of two lectures per week for the experimental group. After completing the procedures of group equivalence, preparing plans, and preparing the variables used in the research (including the contemplative thinking scale), the subject teacher began implementing the experiment on both the experimental and control groups. The model was applied to the experimental group, while the control group followed the conventional approach. This started on the date of 7/11/2022, with two lectures per week for the research groups. The experiment lasted for six weeks and ended on 4/1/2023, with a total of 12 lectures. Additional holidays and events were compensated for, thus extending the duration. The plan was prepared as follows:

Lesson Plan: It includes the introduction and preamble, which will take 10 minutes, and the presentation, which will take 70 minutes divided into two axes, with each axis consisting of 35 minutes. The detailed explanation of the plan is as follows:

- Introduction and Preamble: 10 minutes

In this step, the teacher provides general information about the topic to be taught comprehensively, defining it and highlighting its importance.

- Presentation: 70 minutes

This includes two axes, with each axis lasting 35 minutes, where the first axis covers half of the topic and is explained in detail.

In accordance with the stages of the model:

- Activation of Prior Knowledge Stage (5 minutes):

In this stage, the teacher activates the students' previous knowledge as a benchmark to assess the new information. The students' prior knowledge needs to be stimulated by providing an overview of the topic to be learned. This can be done through looking at visuals or the topic's title, facilitating the connection between previous and new topics. Students participate by sharing their existing knowledge and linking their personal and acquired experiences from various sources to the new knowledge they will learn.

- Information Acquisition Stage (15 minutes):

In this stage, the teacher explains the topic comprehensively, providing the general foundation of the subject. For example, the teacher introduces the concept's name and definition.

- Comprehension of Information Stage (5 minutes):

This step involves interpreting and providing clarifications with evidence of what they have understood. Students need to carefully analyze and examine all possible and expected differences in the new information, with the guidance of the teacher who acts as a guide and facilitator. Students actively engage in refining their knowledge, solving problems, and achieving a precise understanding by conducting thorough research on the detailed aspects of the new information.

- Information Utilization Stage (5 minutes):

Through new situations that students learn, they need to refine their cognitive structures to help them solve new problems or engage in different exercises that will enhance their understanding.

- Thinking about Information Stage (5 minutes):

This step in the model focuses on the acquisition and development of knowledge, its application, and understanding. Students need to consciously comprehend and think about how to implement what

they have learned accurately by seeking evidence of the new information in various situations within and outside the classroom.

- Second Axis (35 minutes):

In this axis, the topic continues according to the Zahorik model, consisting of five stages:

Activation of Prior Knowledge Stage (5 minutes):

The teacher quickly reviews the information previously mentioned in the first axis, such as defining the topic, making it easier to connect with the second part.

Information Acquisition Stage (15 minutes):

The teacher explains the second part of the lecture comprehensively.

Comprehension of Information Stage (5 minutes):

Based on providing clarifications with evidence of what they have understood, students need to uncover and understand the expected differences in the new information with the teacher's assistance, who acts as a guide and facilitator. They refine their knowledge, solve problems, and achieve a precise understanding by conducting detailed research on the small and large details of the new information.

Utilization of Information Stage (5 minutes):

In this stage, students are given a full opportunity to apply what they have learned to solve new problems or engage in different exercises that enhance their acquired cognitive knowledge.

Thinking about Information Stage (5 minutes):

Students should understand how to employ the studied information and utilize it in practical life.

- Evaluation (10 minutes):

Assessing the extent to which the lecture has achieved behavioral objectives.

- Homework Assignment (5 minutes):

Assigning a reading assignment for the upcoming topic.

2-5-5 Post-tests:

The post-tests were conducted on Sunday, January 15, 2023, for the experimental group, and on Monday, January 16, 2023, for the control group, to test the contemplative thinking ability under the same spatial and temporal conditions.

2-6 Statistical Methods:

The researchers utilized the statistical package SPSS (Statistical Package for the Social Sciences) and the following statistical methods:

1- Mean: Used to calculate the average.

2- Standard Deviation: Used to measure the variability.

3- Percentage: Used to express a fraction of 100.

4- t-test: Used for comparing means.

5- Spearman's Rank-Order Correlation: Used to assess the relationship between ranked variables.

3- Presenting and discussing the results:

This chapter includes a detailed presentation of the research findings, based on the current study's hypotheses, as well as an interpretation of the results to determine the statistical significance of the differences between the experimental and control groups. It aims to verify the research hypotheses as follows:

3-1 Presentation of the results:

3-1-1 Result of the first hypothesis:

There is a statistically significant difference in the pre-test and post-test of the experimental group in the contemplative thinking scale. After calculating the results, the mean score of the experimental group's students in the pre-test of the contemplative thinking scale was found to be 86.360, with a standard deviation of 9.123. The mean score of the experimental group in the post-test of the contemplative thinking scale was 93.920, with a standard deviation of 10.935. Using the paired t-test for correlated samples and calculating the obtained t-value, it was found that there is a statistically significant difference at the 0.05 level, with a calculated t-value of 3.455 and a significance level of 0.002, as shown in Table 3.

Table (3)

Shows the results of the T-test of the experimental group in the pre- and post-test in the scale of meditative thinking

SIG	Sig	T value	SD	Arithmetic	sample	test	group
*sig	0.004	3.455	9.123	86.360	25	pre	Experimental Group
			10.935	93.920	25	post	

* Significant if the value of sig < 0.05

3-1-2 Result of the second hypothesis:

There is a statistically significant difference in the pre-test and post-test of the control group in the contemplative thinking scale. After calculating the results, the mean score of the control group's students in the pre-test of the contemplative thinking scale was found to be 83.320, with a standard deviation of 8.783. The mean score of the control group in the post-test of the contemplative thinking scale was 84.440, with a standard deviation of 9.215. Using the paired t-test for correlated samples and calculating the obtained t-value, it was found that there is no statistically significant difference at the 0.05 level, with a calculated t-value of 1.120 and a significance level of 0.237, as shown in Table 4.

Table (4)

Shows the results of the T-test of the control group in the pre- and post-test of the reflective thinking scale

sig	Sig	Tabular value of t	SD	Arithmetic	sample	test	group
*unsig	0.237	1.120	8.783	83.320	25	pre	control
			9.215	84.440	25	post	

* Significant if the value of sig < 0.05

3-1-3 Result of the third hypothesis:

There is a statistically significant difference in the post-test scores between the students of the experimental group and the students of the control group in the contemplative thinking scale. After calculating the results, the mean score of the experimental group's students in the post-test was found to be 93.920, with a standard deviation of 10.935. The mean score of the control group's students in the contemplative thinking scale was 84.440, with a standard deviation of 9.215. Using the independent samples t-test and calculating the obtained t-value, it was found that there is a statistically significant difference, with a calculated t-value of 3.315 and a significance level of 0.002, as shown in the following table.

Table (5)

Shows the results of the T-test in the post-test of the reflective thinking scale for the experimental and control groups

sig	Sig	Tabular value of t	SD	Arithmetic	sample	group
*sig	0.002	3.315	10.935	93.920	25	experimental
			9.215	84.440	25	control

* Significant if the value of sig < 0.05

3-2 Discussion of the results:

Table 2 for the experimental group, which was studied according to the Zahorik model in contemplative thinking, shows statistically significant differences between the pre-test and post-test in contemplative thinking in favor of the post-test. The researchers attribute this improvement to the positive impact of the implemented teaching plan, which provides a fertile learning environment. They also attribute it to:

1- The use of the John Zahorik model, which increases students' ability to engage in contemplative thinking and interact with the educational situation. It allows for easy retrieval of information and obtaining necessary assistance from peers, teachers, or other experienced individuals in the subject matter. Therefore, it plays a positive role in the educational process.

A study by Taha Baniyan Al-Qaisi (2019) confirms that the Zahorik model puts students in a real confrontation with the educational situation, enabling them to adopt the educational situation by themselves. It broadens their perceptions, and they can determine whether they can pass the learning process independently or if they need the support and assistance of others. In this case, the Zahorik model achieves a sense of excitement, captures students' attention, and stimulates their thinking, leading them to acquire organized knowledge that remains in their memory for a longer period.

2- Teaching using the John Zahorik model provides students with an opportunity to present academic concepts in a way that differs from the traditional teaching method, which relies solely on the teacher. This model works to improve students' cognitive abilities and gives them a sense of acceptance from others and self-confidence. It also allows teachers to overcome the problem of class size and individual differences among students, adding an

element of excitement, stimulation, and freedom for students, while reducing boredom and routine.

3- The John Zahorik model stems from the constructivist theory, which advocates for teaching for understanding, contemplation, and knowledge. It emphasizes that the student is the center of the educational process, meaning that teaching is based on the principle that the student is an active and positive learner, while the teacher is a facilitator and leader of the learning process. This is in contrast to the traditional teaching method. This result is consistent with a study by Taha Baniyan (2019) and a study by Rasul Thamer (2018) .[(6)]

The use of John Zahorik's model in lectures to develop contemplative thinking has contributed to the preparation of information and the processes that take place on it, and its impact on memory and its relationship to thinking. Additionally, the connection of academic subjects to students' real-life experiences has helped transfer information from short-term memory to long-term memory and, consequently, enhanced their contemplative thinking abilities. Presenting information in an organized manner according to the steps of John Zahorik's model has aided students in note-taking, maximizing their reception of information, and organizing it, thus fostering their contemplative thinking. These results align with the findings of Taha Baniyan and Youssef Qatami. The results from Table 4 of the experimental group, which was taught according to the Dewey model, and the control group, which followed the conventional teaching method in physical education teaching methods, showed statistically significant differences in favor of the experimental group in the post-test. The researchers attribute this to:

The researchers also attribute the clear improvement in the level of cognitive achievement to the proper design of instructional units according to the Zahorik model. The reason for this is that teaching according to the Zahorik model is better and more positive than the conventional method. Applying the stages of the Zahorik model helps develop critical thinking skills among students and increases their effectiveness in expressing and discussing their opinions. It also enhances the teacher's professionalism in finding solutions to teaching-related problems. Additionally, its use increases the utilization of higher-order mental processes and their alignment with students' cognitive abilities. Furthermore, it encourages teachers to stimulate and guide students in practicing creative thinking by finding innovative solutions to the problems they encounter in the classroom environment, thus improving their cognitive achievement.

Through the Zahorik model, there is an exchange of questions and answers between the student and the teacher, as well as among students themselves. Cognitive aspects are addressed, and some questions are presented, attempting to obtain answers from students. The model also involves recalling previous information with current information during the information activation stage. The topic is initially explained by the teacher in a general sense, and then it is divided and clarified in detail during the information acquisition stage. Feedback is provided through effective discussion among learners to correct errors during the understanding stage. Knowledge and information are employed through understanding what has been learned and applying it during the information utilization stage. New information about the topic is then approached differently, as it is utilized in discussions among

1− Rasul Thamer, The effectiveness of the John Zahoric model in the processing of biological information among fourth grade students (published research **Journal of the College of Education**, University of Qadisiya, 2018), p. 288.

students to assess their levels of thinking about the information during the information thinking stage. All of these factors have contributed to the development of the cognitive aspect of the experimental group by granting students the freedom to exchange ideas and opinions related to the subject they are learning. Moreover, following the logical sequence in the model's implementation in presenting the topic through two axes has been effective, as it ensures the proper application of all components of the model and emphasizes its cognitive aspect. Therefore, it has contributed to achieving the research objectives .[7] .

This study aligns with the study conducted by Ahmed Mahdi Shareef in 2022, which focuses on information thinking, processing, and searching for answers to any questions. It also confirms what Farida Ibrahim emphasized in 1987, that the best learning model is through visualization. Furthermore, the activation and acceleration of learning will occur when information is presented and processed through multiple senses. One of the fundamental principles of the Zahorik model is for the learner to have prior knowledge of the subject being learned, even if it is basic knowledge. This facilitates the connection between what the student has learned and what they already know, leading to the rapid acquisition and storage of new information in memory, which can be retrieved when needed[8] ..

Youssef Qatami, in 2013, emphasized that acquiring knowledge involves integrating the acquired knowledge with previous learning and organizing it into meaningful patterns and meaningful storage formats in the learner's long-term memory. This final step is crucial because it includes the ability of students to retrieve information as needed .[9] .

4- Conclusions:

4-1 The conclusions are as follows:

−The study conducted according to the Zahorik model helped students to think and express opinions and engage in discussion on the lecture topic.

−The Zahorik model allowed students to actively participate in the lesson rather than being mere recipients.

−The Zahorik model had an impact on developing contemplative thinking among third-year students in the College of Physical Education and Sports Sciences, as evident from the pre-test and post-test scores of both the experimental and control groups. A comparison was made between the post-test scores of the experimental group, which was taught using the model, and the post-test scores of the control group, which was taught using the conventional method.

1− Ahmed Mahdi Sharif, The **effect of the Zahorik model on cognitive achievement and teaching some basic skills in tennis for female students**, (unpublished master's thesis, University of Thi−Qar, College of Physical Education and Sports Sciences, 2022), p. 79.

2− Farida Ibrahim**, kinetic education for kindergarten and primary stage** , 1st edition: (Kuwait, Dar Al−Qalam, 1987), p. 92.

3− Youssef Qatami, **cognitive learning and teaching strategies** , 1st edition: (Amman, Jordan, Dar Al−Maysara for Publishing and Distribution, 2013), p. 552.

−Teaching models can contribute to the development of students' higher cognitive abilities, including contemplative thinking, as the steps of the model require students to understand and perceive the concept.

5- Recommendations:

- It is necessary to emphasize the use of strategies that encourage the role of the learner in the educational process and actively involve them in it.

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