

The Effectiveness of a Proposed Educational Design Model According to Conceptual Field Theory in The Collection of Geographical Material for Female Students in the Fifth Grade Literary

By

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Abstract

The aim of this research is to identify (the effectiveness of a model for a proposed educational design according to the theory of conceptual fields in the achievement of geography in the students of the fifth grade of literature) An experimental design with partial control has been adopted by the researcher, and the researcher has chosen intentionally, (Anfal Preparatory for Girls) to conduct the research experiment, and has chosen from it two divisions, one of which is the experimental group and will be taught by the proposed educational design and a control group to be taught in the traditional way, and the researcher has worked equally between the students of two groups Research in variables: (the chronological age of the students calculated in months, the test of previous knowledge, the scores of the intelligence test, the academic achievement of fathers, the academic achievement of mothers), while the research tool was an achievement test prepared by the researcher and confirmed its truthfulness, stability and psychometric characteristics, the researcher studied the two research groups herself for a period of (12) weeks and the experiment ended with the application of the achievement test, and then the results were treated statistically where they showed the superiority of the students of the experimental group studied by educational design over the students of the control group.

Keywords: Effectiveness - Model - Instructional Design - Conceptual Field Theory

1. Introduction

1.1 Search Problem

In view of the fact that geography is taught at the preparatory stage in Iraq, we can say that it still focuses on traditional teaching methods, which focus only on preserving and receiving information, which is the lowest level of knowledge depth, and makes the teacher the focus of the educational process, as many studies have pointed out, in the 1980s and 1990s, including the study of both (Salman, 1987), (Al-Hassan, 1995) and (Al-Jabouri 1998), all of which confirmed that the teaching methods used in teaching are captive to the traditional concept of conservation and indoctrination. The teacher is the source of information and experience and is the focus of the learning process. The student has a negative role to play as a recipient of this information (Salman, 1987:77) (Al-HASSAN, 1995:168) (Al-J-Jabouri, 1998:188).

In an effort to diagnose this problem on the ground and identify its causes, the researcher provided an annex identification (2) Number of teachers and teachers of natural geography of the fifth literary grade (The class in which the research experiment will be applied) has 25 teachers and schools distributed to various schools of the General Directorate for the Education of Baghdad Al-Karakh The First, and has asked them a number of questions. The researcher has come up with the results of their responses to these questions: (85%) of them are not satisfied with their student's attainment levels, and found that (95%) of them depend on traditional teaching methods.

All of the above was born of a sense of the need to conduct a study that seeks to build a model of a proposed educational design in accordance with the theory of conceptual fields.

The problem of searching can be reflected in the answer to the following question:

Does the proposed educational design model based on conceptual field theory affect the attainment of geographical material by female students of the fifth literary grade?

2. The Importance of Research

One of the most important qualities of the 21st century is a rapidly evolving century. The current era is called the era of scientific revolution, the explosion of knowledge and the age of modern technological inventions. and educators have noted the importance of changes taking place in the world, For this reason, they scrambled to reconsider the content of the educational process, its objectives, means and strategies. (Hashemi and Muhsin, 2009:21) This will be done only through education. Education in its modern concept has become the means to solve all problems and promote individuals and the advancement of nations. It is one of the most important areas of life because of its function and its clear role in the events of comprehensive changes in society (Chaplin,1981: 27) Education is a fundamental pillar of the individual's construction and refinement, as it includes the types of activities that affect the individual, his preparedness, tendencies and behaviour, and its effects on his personality in its physical, mental and psychological dimensions. (Hafiz, 121:1965) Education is part of education and an important means of achieving its goals. It plays an important role in achieving learning, and the need to organize the education process is one of the imperatives imposed by humanity's progress (Fatlawi, 2003: 31) The relationship of education with education has been well established and is an important means of learning students through work between them and the teacher (Elayyan, 2010: 107 The renaissance of the developed world came only through the care of education and curricula (Fatlawi, 2003: 31) The curriculum is the tool of education in the individual industry and their preparation and development in knowledge, skills and conscience on which the task of cognitive, social, value and physical construction of future children lies. Since the task of educating people's preparation for life and life does not know stagnation and consistency, curricula must be upgraded. Based on this evolution of the concept of education and the concept of pedagogical curricula, and no longer accepted by the curriculum to remain subject-centred and shipped to mind as an end in itself, the curriculum is required to respond to life changes and the requirements of qualifying individuals to lead life and control its variables and developments (Attiya, 2009:15)

The social subjects curriculum is one of the main components of the school curriculum and is taught at the various levels of school, because they contribute by their nature, the subjects dealt with and the aspects of the activities accompanied to them with a significant share to the

achievement of educational objectives. (Tattoui, 2007:20) The developed countries have been interested in developing the curricula and teaching methods of social subjects that are part of the social sciences and followed the example of developing countries, including the Arab States, which have recognized the importance of developing the curricula and methods of teaching social subjects, primarily geographical subjects. Geography is concerned with the study of man's activity and his relationship to the natural environment in which he lives. Their teaching also highlights the vital problems facing the world's nations, particularly the problems of regions related to food production and natural and human phenomena. (Problet, 2009:14).

Despite this great interest in geography, the use of education technology has been necessary because of its flexibility and because it allows the diversification of educational expertise in various aspects of life (Pratt,1980: 33). In the last years of the twentieth century, teaching and learning is known as educational design science as an application of the concept of education technology. Educational design is the main nucleus of contemporary education technology, which is based mainly on system analysis, which describes the procedures for selecting, analysing, organizing, developing and evaluating the educational material to be designed in order to design educational curricula that may help the learner learn better and faster and help the teacher to follow the best educational methods to bring about learning at least possible time and effort. (Al-Farra: 1984:34),

The importance of achievement lies in the fact that it is a measure of the efficiency of the educational process as one of the educational objectives that seeks to provide the individual with science and knowledge that develops his perception and allows his personality to grow properly. It is one of the most important educational outputs that students seek. Attainment helps to obtain descriptive information indicating the extent of students' direct access to the content of the subject and aims to access information indicating the ranking of students among their colleagues in terms of scientific level. (Ahmed, 2010: 93-94).

3. Research Objective

The current research aims to indicate:

(The effectiveness of a model of a proposed educational design in accordance with conceptual field theory in the collection of geographical material for literary fifth graders)

4. Research hypothesis

To achieve the research objective, the researcher developed the following zero hypothesis:

There are no statistically significant discrepancies at 0.05 between the average grades of the pilot group students studied in the proposed educational design model according to conceptual field theory and the average grades of the control group students who study in the traditional way in the collection of geographical material.

5. Search Limits

This research is limited to: -

1. Fifth Grade Literary Students in Government Girls' Preparatory and Secondary Day Schools affiliated to the General Directorate of Baghdad Education First Kurkh for the academic year 2020-2021.

2. Content of the Natural Geography Book for the Fifth Literary Grade to be taught by the Ministry of Education and for the academic year 2020-2021, Ta '10 of 2018.

5.1 Definition of terminology

Educational design was known by: -

(Al hila, 1999): is a logical process that addresses the procedures for the organization, development, implementation and evaluation of education consistent with the cognitive characteristics of the learner "(al hila, 1999:12).

(Al-Nashif, 2003): is a set of practical activities and practices undertaken by the learner under the supervision and guidance of the teacher. These activities serve to give him experience, information, concepts and trends, which will train him in good thinking methods, and solve problems that drive him to research and discover. " (Al-Nashif, 2003:115)

Procedural definition: a structured plan that includes the procedures and methods adopted by the researcher in designing her proposed model according to the conceptual field theory according to the steps (analysis, design, development, implementation, evaluation) and by which the students of the experimental group of the research sample study for the duration of the research experiment in order to achieve the desired educational and educational objectives.

Achievement Defined by

(Webster, 1998): A student's achievement in class is quantitative and qualitative within a specified period. (Webster, 1998: 9)

(Hamadna and Obaidat, 2012): "A procedure organized according to specific criteria to determine what learners have come up with and acquired from facts, concepts and skills after studying a subject, regardless of the number of pages, may be after the completion of a module, class or course". (Hamadna and Abidat, 2012:147)

Procedural definition: cognitive achievement achieved by female students of the research sample experimental group of female students of the fifth grade in the material of natural geography as measured by the grades of the postgraduate achievement test in the light of their answers to its paragraphs prepared by the researcher and applied to them at the end of the experiment.

Chapter II: Theoretical Framework and Previous Studies

First Axis: Educational Design

Introduction

A new science emerged at the end of the last century, regarded as a revolution in the field of education, namely the science of educational design. The use of the design of education has made the education process structured and built on the foundations and steps to ensure the achievement of the desired goals and the quality of the educational process (Al-Qasaizi,

2016:265). This science arose as a result of the conditions and the urgent need to find solutions to the problems of education, as well as to establish a link between teaching theories and pedagogical practices, thereby achieving the best educational benefits, the least cost and the shortest effort, and reducing the burden on teachers in determining modern teaching methods and methods that are compatible with technological development. (Al-Zind 2018:43)

Importance of Educational Design

The objective of educational design is to formulate general and behavioral objectives, identify strategies and develop educational materials with which interaction will lead to the achievement of objectives. The importance of educational design is as follows:

- ❖ To reflect the relationship between the principles of theory and its applications in the educational situation.
- ❖ Using educational theories to improve educational practices through education at work.
- ❖ Relying on the learner's self-effort in the learning process.
- ❖ Using different educational methods, materials and devices in an optimal manner.
- ❖ Work to save time and effort by excluding weak alternatives and contributing to Achieving goals.
- ❖ Integrate the learner into the learning process in a way that maximizes interaction with the substance.
- ❖ Clarify the teacher's role as regulator of environmental conditions that facilitate learning.
- ❖ Assessment of students' learning and teacher teaching.
- ❖ The teacher is empowered to perform other educational duties as well as education. (Al hila, 1999:31)

Educational Design Steps

Given the stages of educational design, it involves nine important steps. Most specialists agree on these steps, which are not separate but interrelated and interactive. These are referred to by Kamp, 1987, Trick, 1999 and Gray and Resourcefulness, 2000.

- 1) Setting the educational objective.
- 2) Analysis of educational function.
- 3) Identification of input behavior.
- 4) Writing performance goals.
- 5) Developing tests.
- 6) Development of the education strategy.

- 7) Organizing educational content.
- 8) Developing and testing educational materials.
- 9) Design and implement the formative calendar process.

(Kump, 1987:15) (al hila, 1999:113) (Mar,ee and al hila, 2000:197)

Educational Design Stages

Educational design models vary in number of stages and steps of each stage from design to design. By reviewing the literature on learning design and some of its models, there is a total of the stages to be addressed by the researcher as follows:

Analyze): It is the first stage of educational design and refers to the compilation, study, analysis and translation of information that must be accomplished before the design of education and the purpose of this step is to determine where the problem can be solved through the design process (Qatami and others, 2000: 5.2.)

Design: Design is a logical process that addresses the procedures required to organize, develop, implement and evaluate education in line with the learner's cognitive characteristics (Al-Hili, 1999:25)

Implementation: One of the important stages of educational design is that it determines the appropriateness of the design, its components and its educational content in real conditions. At this stage, the design designed is designed to demonstrate actual implementation, in real conditions, apply classroom teaching and ensure that all activities are conducted with all quality and mastery.

Assessment: This is the stage at which what has been learned and what has been achieved have been predetermined and weaknesses identified for improvement or strengths to be enhanced. The evaluation here is an ongoing process in which educational goals, content, activities and strategies are evaluated. (Salama, 2002:130)

Second Axis: Conceptual Field Theory

Conceptual Field Theory

It is a cognitive theory that offers a coherent and practical framework, organized around a set of fundamental principles, to study the learning process and develop complex concepts and competencies. By providing a scenario to address aspects of learning (Chevallard, 1985:40), it aims to study cognitive development and learn complex skills taking into account not only the interaction with the subject that accommodates, but also approaches the problem of objects as interactions between assimilation schemes (cognitive entities) and attitudinal problems that have schemes addressed). It also aims to provide a productive and comprehensive framework, with some concepts and principles, to study and develop complex knowledge competencies and activities through experience and learning. Through complex knowledge competencies and activities, those developed in education, work and normal experience, required to confront both routine situations that do not require significant adaptation of past knowledge, non-routine attitudes (or problems) that require a new mix of prior knowledge and ultimately some construction or discovery of new knowledge. (Steffe et al,1996:219)

Vergnaud believes that cognitive development and learning, occur in long periods of time, through "clash" between schemes and a large number of formal or informal situations, allowed this approach (for Ferneio) to perceive specific contents as playing important roles in development and learning processes. This realization prompted him to build a cognitive matrix called the conceptual field, which for him is a set of attitudes (Vergnaud, 1998:168).

This theory is widely used in different fields, both in mathematics and in other sciences, It is geared towards providing a coherent framework and some principles with a base for studying growth and learning complex skills. And that acquiring meaning or connotation of a particular concept or knowing what is done from matching positions that include the concept or knowledge to be known, Its key is to take into account the person's movement in the situation and to regulate his or her actions, as defined by the theory through the totality of modes during the processing that incorporate the schemes and concepts between them and comments Ferneio on the sending and renewal of the Biagi heritage. "In particular with regard to the concept of the plan, so that the construction of the plan is a changing organization of an individual's cognitive and indicative activity relevant to the type of status given; It is also considered to be a knowledge element that facilitates an individual's activity (orientation thinking) as well as linking various behavioural forms (signals, looks, verbal) and cognitive activity (cognition, taking information, logic, adaptation, monitoring beyond information), thus plans are not an activity but a dynamic basis organization (Vergnaud,1996: 80).

From this theory's point of view, concepts are developed in all areas of human experience: family, school, vocational training, employment, etc. However, there are particularly appropriate contexts, for example, conceptual field theory suggests that in each area of knowledge, certain conceptual analysis processes are needed. These processes appear in a kind of situation and event, which necessitates the development of certain types of activity. Therefore, it is necessary to clarify the reference knowledge through which teaching will be conceived, the knowledge to be taught and transformed, as well as the knowledge already taught, taking into account conversions. (Chevallard , 1985:40)

Some researchers that conceptual field theory relates to the learning and teaching of explicit and formal concepts, which is not true, its first goal is rather knowledge found in most ordinary activities, those performed at home, at work, at school or in play by children and adults. It also refers to knowledge in problem solving. (Harel &Jere,1994:44)

Vergnod's theory also assumes that knowledge is organized in conceptual fields, acquired by the individual over time, through experience, maturity and learning. These conceptual areas form extracts from the physical world associated with cultural components and can be defined as "An informal and heterogeneous set of problems, attitudes, concepts, relationships, structures, contents and thought processes, linked to each other and possibly intertwined during the acquisition process, according to Virginod, perception is the central problem in the knowledge acquisition process. The key factor in students' difficulty solving problems is not the separation of procedural knowledge and explanatory knowledge, but is closely linked to "thought processes". Therefore, the conceptual aspect does not happen quickly but gradually, from different attitudes and shaping schemes to overcome the conceptual difficulties faced by students (Pixel, 2018:684).

Conceptual field theory is based on the following:

- Analysis and understanding of educational status.

- Understanding learners' activity in terms of their linguistic representations/linguistic connotations
- Symbolic forms used in education (graphic representations, drawing, shapes, tables... etc.)
- Change the status of knowledge gained through activity carried out during application.
- Speeches by adults (teachers) and other individuals provide the child with numerous questions, making the issue of language and its relationship to thinking central.
- Language activities are indispensable bridges in teaching and learning status as a subset of knowledge activities.
- Attention to linguistic activities as a subset of an individual's cognitive activities and exchanges between or among teachers and learners. (Qadori, 2017: 37-38)

Chapter III: Research Curriculum and Procedures

This chapter describes the procedures for determining the research curriculum and choosing the appropriate design, identifying the research community, its sample and equivalence procedures, as well as the preparation of research requirements that include building the proposed educational design model, preparing the achievement test, testing the design thinking and identifying the appropriate statistical means to process the research results as follows:

6. Research Curriculum

The researcher followed the descriptive approach in the analysis and design phases because it is consistent with the nature and purpose of the research and because it is more common in this field and cannot be dispensed with. The researcher followed the experimental curriculum in the implementation and evaluation phases, For its relevance to research objectives, it develops the structure of education and its various systems as it provides an acceptable limit on adjusting for extraneous variables that can affect the dependent variable, as well as the most efficient in achieving reliable accurate results (Melhem, 2011:388)

Search Procedures

First: Selection of Experimental Design

Choosing an experimental design is one thing that a researcher should do when adopting experimental research and before conducting appropriate research to test results from research hypotheses (Van Dallen, 1994:391), and experimental design is the plan against which individuals are assigned to experimental conditions, or empirical processors are assigned to individuals in a sample or search samples The researcher adopted the partial-tuned experimental design, the dimensional test control kit design, which is suited to the research conditions, consisting of the first two experimental sets studying the proposed model, and the other control in the traditional way.

Stages of Construction of the Proposed Educational Design Model

To achieve the research goal, the researcher needs to build a model of educational design according to the conceptual field theory to know its impact in the collection of natural geography material and the development of design thinking among the fifth grade literary students. And the researcher has seen many educational literature on educational designs and theoretical background for their construction and educational sources. Previous studies have included the building of educational design models, all of which have demonstrated the basis for this and reached almost general agreement on the phases of its construction, namely, the following phases:

1. Phase I: Analysis

This stage is one of the basic stages in educational design since all the following stages and procedures are based on what has been reached and determined at this stage. The information obtained during this stage is the cornerstone of determining how learning will be done (Al-Shahman, 2019:139). At this stage, the researcher has identified the research sample, analysis of the educational environment, identification of educational material, analysis of the characteristics of learners, identification of educational difficulties.

2. Phase II: Design

This stage is defined as the process of organizing, improving, developing and sustaining education by describing the best educational methods and developing them in codified forms and plans that are suitable for all educational content and consistent with the cognitive characteristics of the learner (Druze, 2000: 41), therefore, it contains the structural formula in which the elements of the proposed educational design model are regulated. At this stage, the researcher organized educational content, set behavioural objectives, prepare study plans, prepare a brochure of activity, and prepare a post-achievement test.

3. Phase III: Implementation

At this point the researcher implemented the educational design she prepared in the previous two steps by experimenting on the original research sample within the following steps (facilitating the task, experimental design, identifying the research community and its sample, adjusting variables, applying the experiment).

4. Phase IV: Evaluation

This stage is an essential part of the construction of the proposed educational design model. The evaluation component is accompanied by the educational design model from the start of its journey, and in order to achieve its objectives, it is the process that provides the teacher with information and data that enables him to judge the progress and success of students in achieving educational outcomes. (Al-Aqeel, 2004:17), and reveals the success of the proposed educational design model in raising the attainment of female students in the natural geographical material, through the adoption of the calendar tools prepared for the proposed educational design model for measuring the variable, the attainment test

Statistical Means

The researcher used the following statistical means to process the data:

1. Ease/difficulty factor for substantive paragraphs: The two equations were used to create a factor of ease and difficulty for each substantive attainment test paragraph
2. Ease/difficulty factor for the pans:

The two equations were used to create a factor of ease and difficulty for each of the PIC paragraphs.

3. Alpha Cronbach Formula:

Used in calculating the persistence factor of the collectible test

Test Man and TNI for large samples (U- test):

The researcher used this equation in the following matters:

- A. Procedures for parity in research variables (intelligence, previous knowledge testing, geographical material scores for the first course, time age calculated by months)
- B. Test achievement

Chi-Square Test

Use to determine the difference in parental parity

Chapter IV: Research Results

First: Presentation of Results

There are no statistically significant discrepancies at 0.05 level between the average grades of the pilot group students studied in the proposed educational design model according to conceptual field theory and the average grades of the control group students in the collection of geographical material.

To verify the validity of this hypothesis, the researcher applied the post-graduate test, monitored all the final scores of the students of the two research samples, and after correcting the responses of the students, the scores underwent statistical treatment, where the researcher used the Man and T U test for the large samples, and the statistical results showed that there were statistically significant differences between the two groups' average collection variable. (3.31) which is greater than the tabular angular value (1.96), at an indicative level (0.05), indicating statistically significant differences between the average test group grades and the adult (32.32) The average control group rank of 18.68 and for the benefit of the pilot group students who studied in the proposed educational design model, the control group students who studied the same subject in the traditional way, thus rejecting the zero hypothesis.

The Value of Man Whitney U and The Calculated and Tabular Z Value of The Scores of The Post-Achievement Test for The Students of The Two Research Samples

Indication level on 0.05	Z value		Man, Whitney u value	Rank average	Total rank	Sample volume	Group
	Tabular	Calculated					
Statistically significant	1.96	3,31	142	32,32	808	25	Experimental Control
				18,68	467	25	

7. Interpretation and Discussion of the Outcome

The result showed that the female students of the experimental group who studied natural geography by using the proposed model prepared according to conceptual field theory outweighed the female students of the control group who studied the same subject without the proposed model of educational design (in the traditional way) in attainment. The researcher attributes the result to the following:

Teaching through the application of the proposed model for pilot group students provided real opportunities to lead the educational position in which they discuss issues, put forward ideas, opinions, concepts, and come together in a uniform way of thinking. To reach new creative outcomes, it may have contributed to encouraging them to move what I learned. And employing him in new situations, which contributed to the group's superiority over its (officer) counterpart, which lacked the spirit of cooperative action.

Determining the manner and timing of the introduction of the enhancements, which prompted the students to complete the tasks with perfection.

8. Conclusions

- 1) The proposed educational design model contributed to encouraging female students' freedom of opinion, exploration, questioning, positive participation and promoting a positive spirit of competition among them.
- 2) The use of the proposed educational design model led to students' positive interaction with lessons, as evidenced by active engagement throughout the experience.
- 3) The possibility of implementing educational design through its proposed model emanating from the conceptual field theory in our schools, and within the available possibilities, which will contribute to raising the level of attainment.

9. Recommendations

In view of the results of the present study, the researcher recommends:

- 1) Providing educational materials to students in the form of problems that affect their lives, thereby encouraging creative solutions.
- 2) Introduction of the results of studies and theses that have demonstrated the effectiveness of the proposed models of educational designs for educational directorates and curriculum developers, in particular the current study in order to raise the attainment level and emerge from conscious and polling-loving generations.

10. Proposals

To complement this study The researcher proposes to conduct the following studies:

- 1) Study similar to the current study of other school stages or other subjects or between males and females
- 2) A study similar to the current study in other variables such as: (acquisition and retention of concepts, thinking of its kinds, orientation, tendency towards the substance).

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