

THE EFFECT OF CONCEPTUAL MAPS STRATEGY IN TEACHING FOUNDATIONS CURRICULUM ON THE ACHIEVEMENT OF STUDENTS OF AFIF EDUCATION COLLEGE IN SAUDI ARABIA

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ABSTRACT: *The aim of this study is to examine the effect of conceptual map strategy in teaching foundations curriculum on the achievement of the Afif Education College in Saudi Arabia. The sample of the study consisted of (56) One-Grade male students selected by purposeful sampling. The sample of the study was divided into two groups such that experimental group consisted of (28) students who studied using the traditional method. To achieve the purpose of the study, the researcher designed the teaching material in accordance to conceptual maps, and achievement test to measure the acquisition of students in the unit "knowledge base". The results of the study showed statistically significant differences in the achievement and the total of achievement in favor of the experimental group that studied using the conceptual maps. The study recommended the inclusion of conceptual maps as an instructional strategy in education and that the university teachers should use conceptual maps in their daily lesson plans.*

KEYWORDS: Conceptual Map Strategy, Achievement, Foundations curriculum.

INTRODUCTION

In principle, learning process at whatever level should focus on satisfying the immediate and long-term needs of the beneficiary, hence, serving as the basis for academic achievement. Modern teaching and learning strategies are based on students' active participation in the learning process. Therefore, this concern calls for the use of training and learning strategies that should focus on the teaching of skills or educational process, and student-centered inquiry-based instruction (Henderson, 2014). In this case, it is expected that teaching and learning strategies should be focused on the the training that would enhance a shift from passive status of learners by the lecture method to an active status. Therefore, educators should play the role of knowledge builders in support of this notion, but not supply of knowledge. This is in accord to the constructivist view of learning that it is a process whereby the learner constructs knowledge from a pre-existing idea (Ifenthaler & Hanewald, 2013).

Primarily, concept mapping measures the cognitive activities of the students. It teaches the mental skills as opposed to the psychomotor activities (Okada, Buckingham, & Sherborne, 2014). Thus, the pedagogical use of concept mapping is to assist learners understand the subject

matter in a meaningful manner. Similarly, a study of psychological theories of learning and teaching is fundamental since the two represent theoretical framework for innovative instructional strategies used in the teaching and learning process. Primarily, this research focuses on Ausubel's psychological theory of learning that is concerned with information processing, hence, vital to educational process.

Problem of the Study

In principle, the researcher observed that the instructional strategies the instructional studies that teachers use could be responsible for the low achievement of learners in varied subjects. In addition, it had been observed that using an appropriate teaching strategy at any given learning objective enhanced students' achievement (Lather, 2013). However, there are certain difficulties in teaching concepts that also proved to be contributing to poor achievement among learners. Therefore, this study is set to find out if the concept mapping teaching strategy could enhance learners' achievement at Afif Education College in Saudi Arabia.

the current study seeks to answer the following question:

- what effect of Conceptual Maps Strategy in Teaching Foundations Curriculum on the Achievement of Students of Afif Education College in Saudi Arabia .

The Importance of the Study

The findings of this study will benefit educators by providing them with an innovative teaching method for better understanding of concepts and cognitive development. In addition, the findings of the study will furnish policy makers as well as curriculum developers with vital information on how to assist both educators and students to develop appropriate teaching and learning skills for better cognitive achievement in examinations (Mintzes, Wandersee & Novak, 2012). Further, the findings of the study will open new grounds for conducting more research on the use of concept mapping in other subject areas, which will be aimed at improving academic performance at the Afif Education College in Saudi Arabia, as well as other colleges in various regions across the globe.

The Study Limits

The study was conducted within the number of limits that were related to methodological base of the study, approaches used and features of the research scope.

- I. A sample of students at the Afif Education College in Saudi Arabia in the fall semester of 2013/2014.
- II. The study discussed Conceptual Maps Strategy, hence, findings are limited to those variables within the used procedures.

Procedural Definitions

Concept Map Strategy

The strategy refers to graphical tools, which are used in learning institutions to organize and present knowledge. These tools include concepts, which are usually enclosed either in circles or boxes and demonstrate the relationships between the concepts that are shown by a connecting line that links the concepts (Howey & Zimpher, 2013). Thus, words in these lines are regarded to as the linking phrases, or words used to specify the relationships, which exists between the concepts. On the other hand, the concepts are defined as perceived regularity in the events or the objects, and are mainly designated through the use of a label. In most cases, the labels used for most concepts are words, but at times, symbols such as + or % may be used. However, in some instances more than a single word may be used.

A concept map refers to a map that constitute a graphical node-link like representations that specify the concepts knowledge domain and the relations among them It has been observed that since the information concept maps represent semantic knowledge in general sense, they are at times referred to as semantic networks (Informing Science Institute. (2015).

Concept maps can also be defined as construct maps with reference to a specific question that an answer can be sought, which is regarded to as a focus question. In essence, a concept map may be relevant to some circumstances that learners and educators are seeking to understand through a well-organized knowledge in the form of a concept map, hence, providing a context of the concept map.

Achievement

In an educational setting, achievement may be defined as is accomplishing learning goals, particularly by great effort, courage or special skills. Different motivational strategies affect learner's achievement. Achievement may be identified as the educational theory (Krajewski, Mayfield & Walden, 2012). Learning achievement is regarded to as target measured through a learner's competency in pedagogic techniques, which is shown by the score as a measure but may not necessarily mean the final expectation. Learning achievement focuses on assisting economic aspects as well as some basic aspects that make students have more ability to change and improve their learning environment. Hence, curriculum in learning demonstrates the general achievement that is regarded as competence, which demonstrates minimum target of a learner and is explained through effective cognitive as well as psychomotor learning (Nonaka & Takeuchi, 2012).

Procedures of Study

In the current study, the procedure that was employed was quasi-experimental. In particular, the pre-test, post-test as well as non-equivalent control group design was used. The population of the study comprised 56 One-Grade male students. Purposeful sampling method was applied, as it fits the objectives of the study. The sample of the study was divided into two groups so that the experimental group consisted of 28 students who studied using the traditional method. The researcher designed the teaching material in accordance to conceptual maps to achieve the

purpose of the study. Moreover, the use of the achievement test was to measure the acquisition of students in the unit "knowledge base".

Fundamentally, different instructional strategies were employed, for example, concept mapping and lecture methods were used to deliver similar content to groups. Teachers were trained to deliver the same content to the groups and carry out teaching in the experimental and control classes. The pre-test and post-test scores were analyzed using averages, standard deviation as well as covariance.

LITERATURE REVIEW

The inquiry emerges as to the root of the first learning concepts, which are procured by learners. However, it is noted that these are acquired by children amid the times of three years when they perceive regularities in their general surroundings and start to distinguish dialect marks or images for these regularities. Therefore, the early learning of concepts is basically a revelation of learning process where an individual perceives examples or regularities in occasions or protests (Howey & Zimpher, 2013). Essentially, this happens through a group learning process where new implications are found by making inquiries and getting illumination of connections between old and new concepts and recommendations (Mayer, 2014). This is intervened in an important manner when solid encounters are accessible.

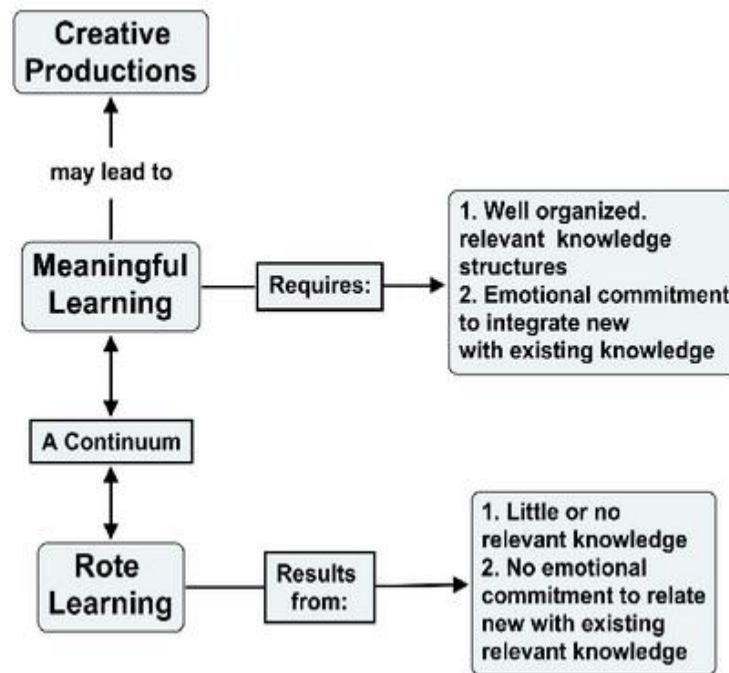
Principally, Ausubel's made the critical refinement of repeated and meaningful learning, despite the distinction of the discovery learning process, where the qualities of concepts are recognized automatically by the learner. However, the former learning obliges three conditions as named below.

- i. The material to be studied has to be conceptually clear and give dialect and cases related to the learner's earlier learning. As such, concept maps can be useful to meet this condition by recognizing extensive general concepts held by the learner and supporting the sequence of learning assignments. In this case, the learner has to get earlier pertinent information. This condition can be met over three years for purposes in any area.
- ii. The learner has to decide to learn get information. The inspiration of college students to learn, is one condition that the educator has just backhanded control.

The important control over this decision is vital in instructional procedures utilized and the assessment methodologies' efficiency. Instructional procedures that accentuate relating new learning to the learner's current information foster important learning. Assessment methodologies encourage learners to relate thoughts they have with new thoughts additionally empowering significant learning (Liston & Zeichner, 2014). Regular target tests sometimes require more than repetition learning. Actually, the most exceedingly bad types of assessment tests, or short answers tests, oblige verbatim review of explanations and this may be blocked by significant learning where new information is absorbed into existing structures, making it hard to review particular, verbatim definitions or portrayals. This sort of issue was perceived years prior in Hoffman's 'The Tyranny of Testing' (1962).

As noted above, it is imperative to perceive that in light of the fact that people change in the amount and nature of the applicable learning they have, and in the quality of their inspiration to consolidate new information into important learning they as of now have, the significant of this may not be regarded as a basic dichotomy yet rather a continuum. Inventiveness can be seen as an abnormal state of important learning.

Figure 1: Learning can vary from highly rote to highly meaningful (Novak, 2012).



Individuals frequently befuddle meaningful learning and rote learning with instructing methodologies that can shift on a continuum from direct presentation of data (which may be conceptually dark or unequivocal) to self-sufficient revelation approaches where the learner sees the regularities and develops her or his own concepts. Both direct presentation and revelation showing techniques can prompt exceptional repetition or exceedingly important learning by the learner, contingent upon the demeanor of the learner and the association of the instructional materials. These qualifications are demonstrated in the Figure 1 above.. Without a doubt, unless learners have at any rate a simple conceptual comprehension of the wonder they are researching, the action may prompt virtually zero increase in their important learning and may be minimal more than occupied work. Actually, the exploration premise for backing of generally suggested request learning is to a great extent missing.

Previous Studies

In a previous study conducted by Afamasaga-Fuata'i (2012) the researcher conducted a study on the training of concept mapping in mathematics. The study reported that concept maps have

not been extensively used in China schools for the teaching of mathematics. Thus, he observed that the lack of exposure suggested that learners must be properly trained before they can construct meaningful concept maps. The paper reported in various ways to train high school students to construct concept maps concerning elementary geometry (Afamasaga-Fuata'I, 2012). Different training methods were used and a revised training scheme having a high demand on detailed lining phrase was proposed and then carried out with a Grade 8 class. The results, demonstrated that with most of the students were able to construct a meaningful concept map as assessed by a specifically designed Concept Mapping Skill Test. The study was designed to compare different training methods on concept mapping, in order to provide the researchers with a better understanding on how the concept maps should be introduced to high school students. The findings of the study revealed that the training that was offered succeeded in helping many students to master relevant concept mapping skills (Afamasaga-Fuata'i, 2012). Thus the students could use the links to demonstrate the connections and ad linking phrases to show relationships.

In another study conducted by Macnamara (2012) the researcher described whether concept mapping can be used to assist students to improve their learning achievement, as well as, interests. In this study, the researcher selected 126 participants from two classes enrolled in an advanced accounting course at the School of Management of the university if Taiwan. In addition, the experimental data demonstrated two fundamental results. First, adopting the concept of mapping strategy can significantly improve student's learning achievements compared to using the traditional expository teaching method. Secondly, most of the learners were satisfied with using concept mapping in an advanced accounting course (Macnamara, 2012). Thus, the learners indicated that concept mapping could be applied in other curriculum areas.

In another study conducted by Alhaddabi (2011) The research aimed to identify the effect of using the concept maps method in teaching science on science achievement for the sixth grade female students in Basic education in the capital Sana'a, Republic of Yemen. The research sample consisted of (60) female students divided into two groups, (30) female students in each.

The experimental group was taught by using the concept maps, while the control group taught by the traditional method. A test consisted of (15) items was developed of multiple-choice type to measure science achievement levels (Remembering, Understnading and Application). The validity and reliability of the test were ensured. The research results showed a significant statistical difference in science achievement in favor of the experimental group.

In another study conducted by Albashairah and albdoo (2012) This study aimed at investigating the effect of teaching by using concept mapping method on the students' achievement of environmental education at Mu'tah University. The study sample was consisted of 114 students (male and female), randomly chosen from the students who were registered for environmental education. The results of the study revealed statistically significant differences in the achievement of the students on the posttest in favor of the concept mapping method.

Defining Conceptual Maps

As demonstrated earlier, a concept is considered as an apparent consistency in occasions designated by a label. It is coming to be by and large perceived now that the significant learning processes portrayed above are the same processes utilized by researchers and mathematicians, or specialists in any control, to build new learning concept (Macnamara, 2012). Indeed, a new knowledge creation is simply a moderately abnormal state of important learning fulfilled by people who have an all-around information structure in the specific region of learning. Further, there is a compelling, enthusiastic responsibility to persevere in discovering new meanings.

Epistemology is the branch of reasoning that deals with the way of information and new knowledge creation (Nickerson & Adams, 2013). There is a critical relationship between the brain research on learning, and the developing accord among rationalists and epistemologists that new knowledge creation is a productive process. This includes both insights and feelings or the drive to develop better approaches to speak to these implications. Learners attempting to develop customized concept maps are themselves occupied by an inventive process, and this can be tested, particularly to learners who have spent the greater part of their life learning methodically. As defined above, concepts and recommendations are the building pieces of information in any area. Thus, the making of concept mapping strategy for recording learners' understandings has driven new chances to study the process of learning and new information creation. While there is esteem in mulling over all the more widely the process of human learning, this is past the extent of this archive. Therefore, a concept map can be regarded as a network structure that can be used to aid learners to understand given concept, and can be illustrated in the form of a hierarchical tree-like structure. In addition, to the concepts and labeled links, a concept map can include another type of labeled links, which are known as labeled links. Thus, concept mapping is most generally regarded as a learning strategy that can be utilized to develop learners' capacity to learn independently.

Strategies used in Conceptual Maps

Conceptual map (Cmap) tools give a mixture of highlights that make it feasible for teachers to utilize mind mapping techniques for various undertakings that learners perform (Tan & Subramaniam, 2014). It is noted that the product permits clients to perform a number of tasks as listed below.

- (a) To quest for data in light of a concept map by which a student can utilize the Cmap to research data.
- (b) To record the process of building a Cmap for later playback, giving backing to the instructor on what is thought to be a key part of concept mapping
- (c) To show a outline related assets full-screen for oral presentations.
- (d) To graphically analyze two Cmaps, permitting the educator to contrast the learners' guide with his or hers for a beginning assessment.

Types of Conceptual Maps

Concept Maps for Evaluation

In essence, change in school practices is constantly moderated. However, it is likely that the application of concept maps in school learning process domain will be widely spread in the

following decade (Kirk, 2015). Other inventive practices for evaluating understudy comprehension of topic are equally accessible.

Concept Maps and Curriculum Planning

In the educational program arranging, concept maps can be helpful. This is because they show in a succinct way the key concepts and standards to be taught. The various leveled associations of concept maps propose more ideal sequencing of instructional material (. Since the basic standards for important learning is a mix of new information with the learners' past concept and propositional structures, continuing from the comprehensive concepts to the particular data, generally serves to improve efficiency of learning activities (Afamasaga-Fuata'i, 2012)..

Advantages of Conceptual Maps in the Teaching

Utilizing concept maps as a part of arranging an educational module or guideline on a particular theme serves to make the direction "conceptually straightforward" to learners. Many students experience challenges in recognizing the critical concepts in content, address them or other types of presentation (Kirk, 2012). Some of these challenges derived from an example of learning that obliges remembrance of data, and no assessment of the data is needed. Such students neglect building comprehensive concept and propositional structures, driving them to see learning as procedural standards to be remembered.

RESULTS OF THE STUDY

- what effect of Conceptual Maps Strategy in Teaching Foundations Curriculum on the Achievement of Students of Afif Education College in Saudi Arabia .

The results obtained from data analysis are presented based on the objectives of the study. On the effect of different teaching strategies, concept mapping and the traditional approach on students' achievement mean scores.

Table 1: Averages and standard deviations and the value of (T) and the level of significance of the response of the students on the pre-test for academic achievement

Group	Number	Average	The standard deviation	T	sig
Experimental	28	29.69	3.98	0.32	0.24
Control	28	30.42	3.51		

Table 2: Averages and standard deviations and the value of (T) and the level of significance of the response of the students on the post-test for academic achievement

Group	Number	Average	The standard deviation	T	sig
Experimental	28	34.14	6.26	9.8	0.004
Control	28	25.14	8.89		

From the above result, it is clear that concept maps are important teaching tool. With a positive significance value, it indicates the positive correlation between concept maps application and student understanding of taught in class. It also indicates the relevance of such maps in aiding tutor deliver teaching in an organization. In pretest for student achievement, the significance value is 0.24. the average test for the experimental group was high at 29.69 indicating the relevance of this teaching approach. the post test outcome was even higher at 34.14 indicating the high relevance of application of concept maps sharing or learning new information.

As seen above, there is a statistical significant difference between the means of the performance of the group that received training and the control that didn't receive any training even in the total score of the test or its sub skills. This may be attributed to the nature of Conceptual Maps strategy that encourage students to generate the highest number of ideas that are varied and creative in a spontaneous and free open climate that is not critical and doesn't limit the freedom of launching ideas. Moreover, its nature based on phases allows students to move from one step to another freely after completing the previous step.

The effect of this strategy in developing creative thinking as a whole and in its sub skills may be attributed to the advantages of this strategy that are accepted among students. Some of those advantages are the preparing element and making students ready to participate in the sessions as well as joy environment that provide students with a free climate that doesn't contain any critics and interference.

The findings of this study are Consistent with : Afamasaga-Fuata'i (2012) , Macnamara (2012), Alhaddabi (2011) and Albashairah and albdour (2012) .

Summary of the study

One of the learning strategies that are developing at a rapid rate is the application methods of concept maps for learning. This implicit learning is provided over years of experience and gets to a limited extent from exercises that include considering, feeling, and acting. Regularly educators talk about a need to get an inclination for what they are dealing with. The majority of routines utilized before concept maps involved different manifestations of meetings and investigations with specialists. This included contextual analyses of how teachers and learners finished some accomplishment in the learning environment

RECOMMENDATIONS

In essence, it is recommended that the learners and educators construct their own concept maps. It is not advisable to use maps that have been made by others because several concepts used proved to be incorrect and most of them do not fit other case-specific requirements. In addition, someone's map will not help the students, but they can be used to refine the original concept map.

The findings of this study to further experimentation, critique, as well as, dialogue concerning the application of the tools in an educational setting because it has been observed that the tool

provides wonderful opportunities that can boost lively exchanges among students and educators.

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