

The Effect of concept map on the EFL college students' achievement and retention in grammar

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Abstract

The current study aims at investigating the effect of concept map on the EFL college students' achievement and retention in grammar. Therefore two null hypotheses are formed to investigate the effect of concept map on students' achievement and retention in grammar. The total population consists of 497 male and female students in the first level - English Departments - at four private colleges / morning period for the academic year 2011-2012.

The randomly chosen sample of the research consists of 60 male/female students which are divided into two groups; each one consists of 30 students to represent one experimental and one control groups of the study. Individuals in all groups had been equalized through using certain variables such as (age, sex, etc.).

In addition to that, a pre-test was administered before the beginning of the experiment for the sake of equalizing the two groups and investigating the students' capabilities in grammar. After conducting the experiment, an achievement post-test was administered for the two groups in order to discover any improvements in their achievement in grammar. Then after a period of three weeks, the same post test was administered to test the students' retention in grammar.

Statistical means such as: Percentage, T- Test Formula, Chi- square: for equalizations between the two groups of the experiment in certain variables, Pearson-Correlation Coefficient, Difficulty level and Discrimination Power. On the basis of the positive results in favor of the experimental group which taught by concept map instructional strategy, some recommendations concerning the use of update strategies of teaching grammar to improve students' achievement are put forward. Moreover, some suggestions are provided for further studies in the field of developing methods of teaching English as a foreign language.

1.1 The Problem and its Significance

The inadequacy of traditional methods of instruction has led to innovations in education in many parts of the world. Innovations and renovations in education are necessary activities. In specific the traditional methods to be used for grammar teaching presents students with fewer abilities in the use of grammatical rules without comprehension. Ineffective strategies and disability to connect with learners' needs, which leads to deficiency in learning grammar, the inability of learners to differentiate between the spoken and written language and how to use grammatical rules in both cases. The unsuitability of

university curriculum at English departments, all of these are problems and obstacles in the teaching of grammar therefore the current trend in instructional design and development is to devise the most effective and economical instruction at low cost, using strategies that match individual learners which can lead to the highest degree of learning in classrooms at all levels (Sidney, 1996: 59).

In schools, training settings and learning environments printed materials form the bulk of instructional resources. It is also certain that printed texts will remain the principal source of instruction for some time to come. This precipitates the rationale for determining the strategies that facilitate efficient and effective learning from printed texts. Acquiring information is a vital aspect of education; however, retaining information is also important. Francis Bacon, the philosopher, has said that some books are to be read and thrown away while others must read, chewed and digested.

Ancient attitudes to grammar still survive: many people are in awe of it, know little about it, tend to fear or dislike it, often find it baffling or boring if exposed to it at school, and yet a minority is fascinated by it: a field in which precise scholarship and nit-picking pedantry have co-existed for centuries (Sidney, 1996: 88).

Learning rules of grammar is the main goal of learning English language. It raises students' awareness of main ideas in a text, exploring the structure of a text, i.e., seems to be essential for good use of language (Richards and Renandya, 2002: 277).

Much of what learners learn is stored, and it is not in use. Learners are not allowed to express themselves. They are afraid of situations requiring language use. The language programme must be built on certain topics or activities carefully selected, and can be a part of every lesson so as to enable learners to use their store of language (Rivers and Mary 1983:48).

As far as the researcher knows, Iraqi college students who have received several years of English teaching, frequently remain deficient in the ability to actually use the language, and to understand its use, in normal communication as shown in (Al-Azzawi, 2004) study when she investigated the effect of integrative L2 grammar teaching depending on EEE approach on the students' achievement in English grammar. When learners want to express themselves, the problem is not that they have a defective knowledge of the system of English, but that they are not familiar with English use. Moreover, their needs cannot be satisfied by a course

which provides them with further practice in the forming of sentences, but by one which develops knowledge of how sentences are used in the performance of different communication acts (Brumfit and Johnson, 1979:124). Hence, college students are in urgent need to teaching techniques that involve them in the lesson and use English communicatively in meaningful learning situations.

Therefore, this study is an attempt to experiment the effect of concept map as instructional strategy on the EFL college students' achievement and retention in grammar.

1.2 Aims:

This study aims at finding out:

- 1- The effect of using the concept map advance organizer as instructional strategy on the achievement of EFL college students in Grammar.
- 2- The effect of using the concept map advance organizer as instructional strategy on retention achievement of EFL college students in Grammar.

1.3 Hypotheses:

In order to achieve the aims of this study, the following two null hypotheses will be tested:

- 1- There are no statistically significant differences on (0.05) level of significance between the mean scores of achievement of EFL college students who studied Grammar by the Concept Map graphic organizer strategy and those who studied by the traditional technique.
- 2- There are no statistically significant differences on (0.05) level of significance between the mean scores in retention of EFL college students' achievement who studied Grammar by the Concept Map graphic organizer strategy and those who studied by the traditional technique.

1.4 Value:

It is hoped that this study will be of great value for:

1. Iraqi EFL students to improve their learning of grammatical concepts and rules easily by practicing the concept map which is graphic organizer used as instructional strategy.

2. Enriching the field of research in teaching English as a foreign language in terms of teaching grammar at college level.
3. Improving the achievement of EFL college students in English language grammar.
4. Directing the attention of EFL college instructors towards adopting new trends and techniques for teaching a particular subject-matter.
5. Encouraging educationalists and researchers to experiment the effectiveness of recently advocated teaching methods and classroom techniques to teach a variety of English subjects.

1.5 Procedures:

The following procedures will be adapted in this study:

- 1- Selecting randomly a sample of two groups: one experimental and one control.
- 2- Identifying the syllabus objectives and items.
- 3- Building a questionnaire of the behavioral objectives of these items.
- 4- Constructing the concept map graphic organizer strategy for each lecture and submit it to experts.
- 5- Applying the strategy on the experimental group.
- 6- Construct the achievement test.
- 7- Applying the achievement test.
- 8- Re-applying the achievement test after 3 weeks period in order to test retention.
- 9- Analyzing the data by using suitable statistical methods.
- 10- Stating conclusions, recommendations, and suggestions for further studies.

1.6 Limits:

The present study is limited to:

- 1- The use of graphic organizer as instructional strategy namely: concept map.
- 2- First year EFL college students in English Department at Al-Salam Private University/Morning Study.
- 3- The textbook of Grammar taught at the first stage is entitled: "Rapid Review of English Grammar" by Jean Praninskas.
- 4- The academic year is 2011-2012.

1.7 Definitions of Basic Terms:

The following basic terms are defined as follows:

- **Effect:** It is the ability or the degree of success which a method has in presenting instructional objectives and other tasks specified and claimed to perform (Cronbach, 1963: 209; Lado, 1972:321; Oller, 1974:4).
- **Concept map:** A concept map is a diagram showing the relationships among concepts. It is a graphical tool for organizing and representing knowledge. Concepts usually represented as boxes or circles are connected with labeled arrows in a downward-branching hierarchical structure.
- **Instructional strategies:** identified in studies conducted using research procedures and guidelines that ensure the trust of the outcome. In addition, several studies exist for each strategy with adequate sample sizes and the use of treatment and control groups to generalize to the target population. This allows the teacher to be sure about how to implement instructional teaching strategies in their classrooms.
- **Achievement:** it refers to the extent of learners' acquisition for specific experiences occurred through the process of instruction. It can be measured through degrees gained by learners in specific achievement tests performed for specific purpose (Samara, 1989: 16).
- **Retention:** it refers to the amount of information that learners kept through a specific course of study. This process can be measured by degrees that learners' achieve when re-applying the achievement test again on them after a period of three weeks after the first achievement test without exposing learners to any experiences through these three weeks (Al-Khazragi, 2003: 14).
- **Grammar:** is the study of all the contrasts of meaning that it is possible to make within sentences. The 'rules' of grammar tell us how. By one count, there are some 3,500 such rules in English" (David, 2006).

2.1 Concept Maps: Concept maps first suggested by Joseph Novak, who has studied the education field as an aid for learners to increase understanding (Richardson et. al, 2005: 8). The strategy was born out of the constructivist theory of learning which holds that the learner constructs or builds his own knowledge as opposed to the previous one (Basso and Margarita, 2004: 3) .

The idea was based on the Ausubels' assimilation theory of cognitive learning who sees that the meaningful learning takes place when new

knowledge is consciously incorporated into the concepts and ideas previously acquired by the learner (Clark and James, 2004: 224).

Ausubels advocates the use of the advanced organiser which is based on the idea that the teacher is given a short description to the new material before the lesson to prepare the students to accept the new material (Reece and Walker: 2003; 87).

2.1 What are Concept Maps?

Concept map is visualized through a graphical representation. Concepts are usually depicted by circles or boxes, forming the nodes of the new work by labelled links (Buzzetto-More, 2007: 61).

Juall and Moyet (2005: 7) maintain that concept maps are an educational technique that uses diagrams to demonstrate the relation of one concept or situation, by linking a central concept to another one, to help the learners to understand the central concept better. So concept maps are presented as a pyramids seen from above and they are arranged hierarchically with the super ordinate concepts at the top of the map and subordinate at the bottom which are less inclusive than higher ones (Ahlberg and Vukko : 2004 ;25) .

Novak and Canäs (2006: 17) see that concept maps are graphical tools for organising and representing knowledge. They includes concepts usually closed in circles or boxes of some type and relationships between concepts indicated by connecting or linking two concepts or words on line , referred to as linking words or linking phrase . The link between the concepts can be one-way or non-directional. The concepts and the links may be categorized and the concept may show temporal or casual relationships between concepts (Fitzgerald: 1999: 81).

2.2 Definition of Concept Maps

The researchers in the field of education studied concept maps as a means to facilitate the quick and effective learning. Concept maps were defined by Novak and Gowin (1984: 32) as graphical representations of knowledge that are comprised of concepts and the relationships between them.

Rubin and Babbie (2005: 537) see that concept mapping is the relationships among concepts in graphical format. Vanides et.al (2005: 27) maintains concept map is the graphical representation of the relationships between terms. Vakilifard and Armand (2006) see that concept map is a

graphic representation which not only transmits basic information, but also presents relationships between the concepts.

Talebinezhad (2007: 2) maintains concept maps for Novak represents the relation among concepts, with the visual representation of key words. Students can identify main issues of text and organise these key issues of text and organise these key issues in a meaningful way.

Novak and Canäs (2006: 18) see that Concept map is a graphic organiser which uses schematic representation to hierarchically organise a set of concepts connected by means of words in order to build meaningful statements. Showing meaningful relationships between concepts in a shape of prepositions, the concept map reveals students' comprehension and knowledge structure. From the previous definitions the researcher sees that concept maps are an educational strategy which has different shapes and it is arranged hierarchically with the super ordinate concept at the top and subordinate at the bottom, and there are some links among concepts to represent the relationships between the concepts.

2.3 Basic Principles of Concept Maps:

Novak (2001: 74) believes concept map is a tool for organising and presenting knowledge. This knowledge is mostly semantic (Asan: 2007; 11), so it needs to be organised and presented hierarchically from the most general concept to the most specific one. Pill et .al (2005: 40) mentioned the main principles of concept maps:

- 1) Key ideas are presented in a hierarchy, which moves from the most general ideas to the most specific.
- 2) Key ideas are additionally arranged in domains or clusters, which visually define their association and related boundaries.
- 3) The nature of the interrelationships between the key ideas is identified through the use of relationship lines. These lines are annotated to clearly indicate the nature of these relationships within discrete sections of the map and between the different domains.
- 4) The lowest point of hierarchical representation of ideas is illustrated by the use of relevant examples.

2.4 The Use of Concept Maps

Leou and Liu (2004: 22) suggest that learning can be enhanced if learning involves interaction, student -centered and engaging activities when learners construct their understanding rather than more traditional methods of teacher-centered direct instruction in order to make learning organized and meaningful. So concept maps became more prevalent in

educational programme. Instructors began to explore ways to utilize them more effectively to facilitate student learning (Love et .al, 2004: 11).

2.5 Concept Maps and Teaching

Concept maps were used by different ways .They could reach all the fields of education. Affana and AL Khozendar (2007: 135) suggested some certain steps that the teacher can follow inside the classroom to have an effective teaching and learning see figure 1.

- 1) Teachers tell their learners about the item or the subject that he is going to teach with identification for the main concepts in the lesson.
- 2) Teachers identify the sub concepts which are in relation to the main one. Teachers can write them on the board to give the students the chance to know them.
- 3) Teachers find key words or link -words between the sub-concepts in order to make a meaningful relation between these concepts.
- 4) Teacher organises the concepts in a pyramid form and puts the link words on the arrows.
- 5) Teacher explains the sub-concepts by giving examples, so that teacher can transfer his students from main concepts at the top of the map to subordinate at the bottom.
- 6) Teacher asks students to make concept maps in the subject matter either individually or groups.

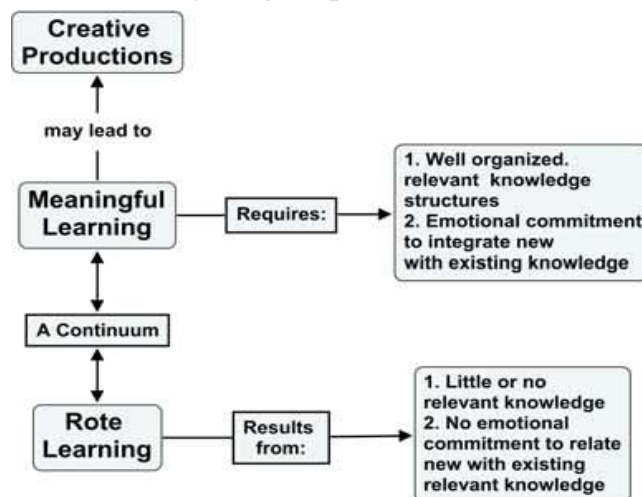


Figure (1): Concept Map

2.6 Concept Maps During the Process of Teaching:

AL Hwidi (2005: 310) suggested that the concept map can be used in three ways during the process of learning.

- 1) Pre- teaching: - Teachers can survey the concept maps in front of the students as an advanced organiser, either by drawing the map on the board or by using the over head projector.
- 2) During- teaching:- Students may use concept maps during -learning , when teacher copies the map and gives everyone a copy to benefit from.
- 3) Post- teaching: - Teachers can ask individuals or groups of learners to build up concept maps for the lesson or for the unit, then he checks it to know the places of weakness and the places of strength to help them to overcome the weakness later.

2.7 Concept Map as an Assessment Tool

Ozdemir (2005: 11) believes that concept maps can be typically used as an evaluation method before and after teaching (Francis: 2006; 2). Concept maps can be used as an assessment tool in education and it provides the faculty of interesting and effective ways to assess learning by students in all academic areas .

Ruiz –Primo (2000 : 33-34) assume researchers use the term assessment to reflect the belief that reaching judgment about individuals' achievement , in a domain requires an integration of several pieces of information, therefore, concept maps as an assessment tool is characterized by:

- 1) A task that invites a student to provide evidence bearing on his or her knowledge structure in a domain.
- 2) A format for the students' response.
- 3) A scoring system by which the students' concept map can be accurately and consistently evaluated.

Kommers (2004: 53) suggested that concept maps can be used in educational assessment and described two main purposes.

- 1) Formative evaluation of teaching and teaching materials. Daley (2006: 48) sees that formative evaluation where the teachers can assess the students' learning at a particular point. Vecchai and Pedroni (2007 : 308) see that this kind of evaluation plays as a diagnostic role_in that it is geared towards defining the compensatory intervention should the monitoring operations show that the learner is having difficulties progressing through his or her training programme .
- 2) Using concept maps as part of achievement tests , then who concludes that concept maps provides a theoretically powerful and

psychological sound tool for assessing conceptual change in experimental and classroom setting.

2.8 Reasons of Using Concept Maps:

Pill et.al (2005: 40) mentioned some reasons for using concept maps on the base that they can.

- 1) Facilitate the development of self -directed learning within which conceptual and prepositional relationships can be reflectively and critically explored.
- 2) Enhance problem-solving practically in the context of acquisition and sequencing of the new information.
- 3) Aid the development of deep meaningful teaching moving towards critical thinking rather than more surface approaches.
- 4) Have potential value in assessment during students' learning journey.

Fitzgerald (1999: 81) added some uses for concept maps to:

- 5) Generate ideas.
- 6) Design complex structure.
- 7) Communicate complex ideas.
- 8) Aid learning by explicitly integrating new and old knowledge.
- 9) Assess understanding or diagnose misunderstanding.

Advantages of concept maps:

Fitzgerald (1999: 82) mentioned some certain advantages for concept maps.

- 1) Visual symbols are quickly and easily recognized.
- 2) Minimum use of text makes it easy to scan for a word, phrase or general idea.
- 3) Visual representation allows for development of holistic understanding that words alone can't convey.

Kommers (2004: 53) added some advantages of using concept maps

- 4) Concept maps can be used as an advanced organizer to improve learners' achievement.
- 5) It provides teacher with a meaningful and practical structured approach.
- 6) A concept map is also gaining in roads as a tool of problem solving in education.
- 7) Concept maps also allows for students to reflect on their own misunderstanding and take ownership of their learning (Novak and Gowin, 1984: 74).

Daley (2006: 12) added:

- 8) Concept maps have the possibility to measure a students' evolving knowledge framework.

Ruiz-Primo (2005: 28) sees concept maps may give students an opportunity to:

- 1) Think about the connection between the terms being learned.
- 2) Organize their thoughts and visualize the relationships between the key concepts in semantic way.
- 3) Reflect on their understanding. In sum concept maps allow to think deeply about the content by helping them to better understand and organize what they learned.

3.1 The Experimental Design

Before embarking on the components of the experimental work, it is essential to define the experimental design. Good (1974:74) explains that the experimental design is "the plan according to which experimental groups are selected and experimental treatments are administered and their effect is measured".

It is an important fact that researchers must select "an experimental design that is suitable for testing the deduced consequences of their hypotheses (Van Dalen, 1962:230). To provide a clear picture of the experimental design, consider Table 1:

Table (1): The Experimental Design

Groups	Pre-test	Treatment	Post-test	Retention test
Exp. G	T1	Concept map strategy	T2	T3
CG.	T1	Traditional technique	T2	T3

3.2 Population of the study

The population of the present study includes all the EFL students of the first year (morning study), at the Departments of English, Private Colleges at Al-Karkh (1) as they were four authorized by the ministry of higher education (Al-Turath, Al-Mamoon, Al-Salam, and Dijlah private colleges) as documented by the ministry of higher education during the academic year 2011-

2012. The total number of those students is 445 of both sexes distributed into the four colleges (see Table 2).

Table (2): Total Population

Name of College	Number of the 1st year students
Al-Turath	125
Al-Mamoon	109
Al-Salam	141
Dijlah	70
Total	445

3.3 Sample of the Study

Al-Salam Private College who was selected intentionally for the following reasons:

- 1- Being not too much far away from the researcher household and this will guarantee the researcher accurate arrival to her experiment place in time and to prevent being late on lectures due to traffic and check points' discrepancies.
- 2- The head of the English department shows his welcome and provide the researcher with necessary directions to start the experiment. Even the original teacher of grammar shows his help and guidance on the contrary of the other colleges who refuses to show their welcome to the researcher and her experiment even when the researcher shows an official letter from the college of Education (Ibn Rushd) asking for providing necessary help to the researcher but unfortunately it wasn't work. Therefore the researcher is asking the authorities to make their arrangements and provide researchers with more helpful environments in future.
- 3- For having the required number of groups to suit the experiment's needs. This study required three groups and it could be possible at Al-Salam Private College in contrary with other colleges who most have less than the required number.

The first stage at English department of the involved college consists of four sections namely A, B, C, and D. Sections A & B have been selected randomly out of the four sections. Section A to represent the control group

which is taught grammar according to the traditional technique set by their prescribed textbook, section **B** to stand for the experimental group who applies concept map strategy. Repeaters for one or more years are excluded from the three sections, to avoid their past experience. The distribution of subjects above can be clearly shown in Table 3:

The final number of the selected sample is sixty. They represent 37.5% of the whole population distributed equally in the two groups, i.e. thirty students for each group as shown in Table (3).

Table (3): The Number of the Subjects before and After Excluding the Repeaters

Group	Section	Number of Subjects before Exclusion	Number of Subjects After Exclusion
CG	A	35	30
Exp. G	B	36	30
Total	2	71	60

The two groups (experimental and control) have been exposed to a pre - test among other variables controlled equalization so as to make sure that they are of equal level in grammar in English. Then, these groups were taught grammar by the researcher herself from February 17th, 2012 to the 17th of May, 2012.

The post – test is administered to the two groups in order to find out which group is better in grammar. The aim of examining these groups' achievements is to detect the effect of exploiting the independent variable concept map on the dependent variable (i.e., grammar). These steps should be taken into consideration in order to equalize certain variables affecting students' achievements.

Then the same post-test is repeated to the two groups after three weeks from applying the achievement post-test in order to find out which group is better in retention the achievement of grammar.

3.4 Equivalence of the Sample Subjects

Before starting the experiment, the two involved groups of students (one Experimental and one Control) have been equalized in some variables, as it is thought that these variables may affect the research results and testees' achievement. Students' gender, age, pre-test, the academic level of the mothers, the academic level of the fathers,

and socio-economic status may play an effective role and make a difference in their achievement in English (Good et al, 1976:366).

3.5 Fixing the Intervene Variables

Behavioural phenomena are not materialistic but complicated in which factors conflicted and confused (Human and Tala'at, 1984:203-204). Therefore, in any experiment, the dependent variable may be affected by some intervene variables, other than the independent ones. These variables have to be held constant in order not to be confounded with the obtained results (Christensen, 1980:94). These variables include the following: (History, selection bias, maturation, instrumentation, and the effect of experimental procedures)

3.6 The Statement of The Behavioural Objectives

Effective instruction involves a clear statement of objectives, (Tyler, 1969:46-47; Gerhard, 1971:159-160; and El-Hassan, 1989:78). A successful construction of a test requires a clear and precise definition of the objectives involved (Valette, 1967:17). After defining the instructional objectives and being validated by experts for teaching grammar in behavioural terms and outlining the course content as prerequisites of the present study, which represent the first step in constructing any achievement test, the next step was to prepare a table of specifications describing the nature of the test items (Gronlund, 1978:53).

A table of specifications is a two-dimensional grid that represents the relation of content and behavioural objectives; with the objectives on one axis, the content on the other. The cells in the table then represent the specific content in relation to a particular objective (Bloom, 1981:12).

The behavioural as well as the content aspects of the involved course of the present study have been spelled out and specified in detail as shown in Table (4) and considered in the construction of the questions of the pre and post tests. These questions mostly cover the intended lessons and the related exercises which have been taught to the involved students during the experiment period.

Table (4): Specifications of the Contents and Behaviours Of the Pre and Post Achievement Tests

Chapters %	Page no.	Chapters	Behavioral objectives levels			Total
			Application 20 %	Comprehension 30 %	Knowledge 50%	

Lesson V Uncountables and Plural Forms, Quantities and Number Agreement	19	21.34	6.5	4	2.6	13
Lesson VI Future: Simple and Continuous, Time Clauses, Adjective Phrases	18	20.22	6	3.6	2.4	12
Lesson VII Simple Past: Regular and Irregular, While, When, Ago	20	22.47	6.5	4	2.6	13
Lesson VIII Used To, Have To, Expletive It, Nouns That Modify Nouns	16	17.97	5.6	3.3	2.1	11
Lesson IX Continuous Past, Compound Sentence Patterns, Adjective Clauses	16	17.97	5.6	3.3	2.1	11
Total	89	100%	30	18	12	60

3.7 The Construction of the Achievement Post-Test

An achievement test has been constructed in order to measure students' achievement in grammar. The achievement test is considered as one of the most important techniques to be used in evaluating students' capabilities and comprehension to grammatical rules. It has the greatest usage as an evaluative technique in colleges for its easiness in preparation

and application in comparison with other techniques (Heaton, 1975:87). Moreover, results of the achievement test can be used in evaluating the efficiency of the used teaching methods (Kridel, 1996:58).

The researcher has prepared an achievement test in the light of the material contents, its nature, and the aims for teaching grammar to the EFL College students i.e. pre and post tests, have been constructed in order to measure students' achievement in grammar. The test constructed on the light of the behavioural objectives based on the first three levels of cognitive domain at Bloom taxonomy as the researcher found it will be suitable for the first year college students on the English departments in private colleges.

The post- test involves (60) multiple choice questions designed in the light of the behavioural objectives situated for scheduled (5) topics as shown at the table of specifications. Each question has four related answers but there is only one correct accurate answer. Each question will be scored for one degree if the choice is correct or zero if not.

3.8 Test Validity

One of the most important aspects which must be considered when selecting a test is its validity, which can be defined in general, as " the degree to which a test is capable of achieving certain aims" (Mehrens and Lehman, 1973:124). Sometimes validity concerns with the concept of truthfulness, which means that the test measures what is purported to measure (Lado, 1962:321; Chase, 1974:56; and Rubin, 1982:22).

In language tests, validity depends on two aspects: the linguistic content of the test and the situation or technique used to test this content (Lado, 1972:30). There are four types of validity: construct validity, empirical validity which constitutes predicative and concurrent validity, content validity and face validity (Harrocks and Schonnover, 1968:63). According to this study, two types of validity have been applied, i.e. content and face.

Content validity can be defined as "the extent to which a test measures a representative sample of the subject – matter content and the behavioural changes under consideration" (Gronlund, 1976:82-83). In order to obtain greater assurance of content validity it is preferable to build a table of specifications that specifies the relative emphasis the test should give to each content area and to each behavioural objective. The closer the test corresponds to the specifications indicated in the table, the greater the likelihood that the students' responses to the test will have a high degree of

content validity (Smith and Adams, 1966:93; Gronlund, 1976:82-83; and Bloom et al. 1981:182).

The content validity of the present achievement post test are asserted since they are constructed in the light of the table of specifications which has been already prepared after a careful content analysis of the material covered in the experiment, including the weights assigned for content items.

Face validity means simply the way the test looks to the examinees, test administrators, educators and the like (Smith and Adams, 1966:63; Harris, 1969:21; Ebel, 1972:555; and Gronlund, 1976:82).

In order to ensure the face validity of the constructed achievement post test and whether it, in its appearance, measure the content of the material covered throughout the experiment, their items are exposed to a jury of specialists .

After discussing the items with the jury members, their directions and comments are taken into consideration and some items are modified. Then the post test items have proved to be valid and appropriate for the first year college students at the department of English in Al-Salam private college.

3.9 The Pilot Administration of the Test

The pilot study aims to: ensure the clarity of the tests instructions, check the time that testees need to do their tasks, identify the discrimination power (DP) and the difficulty level (DL) of the test items, and to estimate their reliability. The achievement post validated test has been applied on a sample of thirty students who are out of the actual sample of this study. They are randomly selected from section "C" at the department of English.

The pilot administration of the post test has been carried out at the 11th of January, 2012. The pilot test is a try out for the test direction, and the time required for the testees to work out the test by counting the average length of time needed by the testees to complete the test, which is found out to range between 35 to 45 minutes. So the average length of time needed for the test is 40 minutes, which means that the time of one lesson is enough for taking the test, and it also shows that the directions of the test are clear and that there is no ambiguity in it.

This sample has studied the same subjects which have been studied by the intended sample of this study.

3.10 Item Analysis

The process of tests item analysis means: "checking responses constructed by all students for each item included in the test" (Oliva, 1988:15). The aim of item analysis is to reveal the difficulty and easiness level of each item and to make the necessary modification or reformulate it and exclude the unsuitable one.

After scoring the test papers of the pilot study, the testees' total scores have been ranked from the highest to the lowest in order to select the 27% of the highest scores to be put in one group (those represent an upper group) and the 27% of the lowest scores to be put in the other group (those represent the lower group). This process is done in order to obtain the DL as well as the DP of the test items.

3.11 Difficulty Level of the Test Items

After the application of the formula of the item discrimination power, it was found out that the discrimination power ranges between 0.30 and 0.67 with an average difficulty of 0.52. This means that all the items of the post test have an acceptable level of difficulty since "any item whose difficulty level ranges from 30 percent to 90 percent is acceptable" (Madsen, 1983:182; Mousavi, 1999: 194).

The following formula has been used for estimating the difficulty level of each item:

$$DL = \frac{HC + LC}{N}$$

Where: DL: difficulty level, HC: High Correct, LC: Low Correct, N: Total number in the sample (Valette, 1967:38)

4.1 Analysis Of Data

4.1.1 Comparisons of the Two (Experimental and Control) Groups in their Achievement in Grammar

In order to verify the first hypothesis of the study, the mean scores in the achievement test of both groups have been computed and compared. The obtained results show that the mean scores of the experimental group is 77.40, whereas the mean scores of the control group is 70 which means that the performance of the subjects in the experimental group outweighs that of the subjects in the control group.

In order to decide whether the obtained difference between the two mean scores of the two groups is significant or not, t-test formula for two independent samples has been applied. The results of applying this formula have revealed that the computed t-value is 2.5, while the tabulated t-value is 2.00. This comparison indicates that there is a significant difference at 0.05 level of significance and with 58 degree of freedom between the two involved groups (see Table 5). This difference is in favour of the experimental group, i.e. the experimental group is better than the control group in grammar. This indicates that the first hypothesis which states that " There are no statistically significant differences on (0.05) level of significance between the mean scores of achievement of EFL college students who studied Grammar by the Concept Map graphic organizer strategy and those who studied by the traditional technique is rejected.

Table (5): Mean, Variance and T-Value of the

Achievement Test

Group	Number of subjects	Mean	Variance	Computed T-value	Tabulated T-value	Degree of Freedom
Experimental	30	77.40	11.199	2.5	2	58
Control	30	70	11.623			

4.1.2 Comparison of the Two (Experimental and Control) Groups in their Retention of Achievement in Grammar

In order to verify the second hypothesis of the study, the mean scores in the retention test of both groups have been computed and compared. The obtained results show that the mean scores of the experimental group is 78.67,, whereas the mean scores of the control group is 65.37 which means that the performance of the subjects in the experimental group outweighs that of the subjects in the control group.

In order to determine whether the difference between the obtained mean scores of the two groups is significant or not, t-test formula for two independent samples has been applied. The results of applying this formula show that the computed t-value is 3.49, while the tabulated t-value is 2.00. This comparison indicates that there is a significant difference at 0.05

level of significance and with 58 degree of freedom between the two involved groups (see Table 6). This difference is for the benefit of the experimental group which means that the experimental group is clearly better than the control group in the retention of achievement in Grammar. Hence, the second hypothesis which indicates that " There are no statistically significant differences on (0.05) level of significance between the mean scores in retention of EFL college students' achievement who studied Grammar by the Concept Map graphic organizer strategy and those who studied by the traditional technique" is also rejected.

Table (6): Mean, Variance and T-Value of The Retention of Achievement Test

Group	Number of Subjects	Mean	Variance	Computed t-value	Tabulated t-value	Degree of Freedom
Experimental	30	78.67	14.506	3.49	2	58
Control	30	65.37	15.052			

4.1.3 Discussion of Results

By noticing tables (13, 14, and 15), it could be find out that there is statistical differences at level of significance between (the experimental group those who taught grammar by using concept map and the control group at the achievement mean scores in grammar to the favour of the experimental group as follows:

The experimental group who taught grammar by concept map strategy being on a high level in achievement in comparison with the control group, the researcher attributed this result for the following:

- 1- Minimum use of text makes it easy to scan for a word, phrase or general idea.
- 2- Visual representation allows for development of holistic understanding that words alone can't convey.
- 3- Concept maps can be used as an advanced organizer to improve learners' achievement.
- 4- Concept map provides learners with a meaningful and practical structured method of teaching.

- 5- Concept maps are also gaining in roads as a tool of problem solving in education.
- 6- Concept maps also allows for students to reflect on their own misunderstanding and take ownership of their learning.
- 7- Concept maps have the possibility to measure a students' evolving knowledge framework.

It gives opportunity to students to:

- 8- Think about the connection between the terms being learned.

4.1.4 Results of the Effect Concept Map on the Retention of Achievement in Grammar

it could be find out that there statistical differences at level of significance between (the two experimental groups those who taught grammar by using concept map and the control group at the retention of achievement mean scores in grammar to the favour of the experimental group as follows:

The researcher attributed this result for the following:

- 1- Concept map strategy is basically visual symbols that are quickly and easily recognized and easily could be recalled.
- 2- Organize their thoughts and visualize the relationships between the key concepts in semantic way that lead to keep information in mind for a long period.
- 3- Reflect on their understanding. In sum concept maps allow to think deeply about the content by helping them to better understand and organize what they learned.

4.2 Conclusions

In the light of the empirical evidences of this study, it is concluded that concept map is an efficient teaching technique in teaching grammar for EFL college students, other things being equal. It is also concluded that teaching grammar through concept map proved to be more vital and useful for EFL college students than through the traditional method. This adequacy of this strategy is clear on developing both achievement and retention of students.

The identified significant differences in the achievement as well as retention of the grammatical concepts between the two involved groups and for the benefit of the experimental group could be attributed to many factors which could be summed up into:

1. The enjoyable English lessons created by concept map strategy allow students to behave freely and talk to their peers inside classroom confidently and semi-naturally.
2. Putting students in active situations and making them make connections and relate previous knowledge with the new encourage meaningful use of language.
3. Although the traditional teaching technique is important in helping the students to acquire grammar, it can be said that through mere sitting, imitating, and reading students will learn lesser than what is expected from them to learn. The traditional method cannot supply students with the opportunities needed to interact in meaningful and interesting contexts.

4.3 Pedagogical Recommendations

In the light of the yielded results and conclusions mentioned earlier, some pedagogical recommendations have been stated as follows:

1. It is necessary to use concept map as a teaching technique in teaching grammar for EFL first year college students.
2. College instructors should be encouraged to use concept map in teaching grammar for EFL first year College students. This could be accomplished by preparing the instructors psychologically to accept these two strategies, and persuading them with their significance in teaching because they suit the modern pedagogical teaching techniques of education.
3. The necessity of putting students in actions and active situations, and motivate them to organize information and participate during teaching EFL subjects and especially grammar.
4. A pamphlet which includes a full explanation for each lesson by using concept map strategy and how to employ it inside the classroom could be supplied to teachers of grammar.
5. Constructing TV programme depends on utilizing concept map strategy in teaching English grammar for primary, secondary and intermediate stages.
6. Specialists in charge should build a special programme to be used in computers depending on using concept map strategy in teaching grammar for college students and train the student to use them effectively.
7. Increasing the lessons allocated for teaching grammar to be (5) lectures during a week instead of (3) in order to enable college

instructors to utilize concept map while they are teaching English grammar.

8. College students should be asked to infer, produce, explain, imagine, organize and virtually indulged in the process of learning EFL subjects.

4.4 Suggestions

As a complement for the present study another studies for further work are presented, as follows:

1. Experimenting the effectiveness of using concept map in teaching other English subjects like (composition, poetry, novel, drama, etc).
2. Conducting similar studies for teaching EFL by using concept map at other academic stages especially at the intermediate stage.
3. Making a comparative study between the efficiency of instructional strategies as concept map and other new teaching strategies in developing students' achievement at the various levels of study.

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أثر خارطة المفاهيم على التحصيل والإحتفاظ به للطلبة دارسي اللغة الإنكليزية لغة أجنبية في القواعد

بحث مسئل لطلبة الكتوراه: حنان ضياء عاكف

الدرجة العلمية: مدرس مساعد

الشهادة: ماجستير في طرائق تدريس اللغة الإنكليزية

بإشراف: الأستاذ الدكتور مؤيد محمد سعيد

الخلاصة :

سعى البحث الحالي الى معرفة أثر خارطة المفاهيم في تحصيل طلبة الكلية دارسي اللغة الانكليزية لغة أجنبية في مادة قواعد اللغة الإنكليزية، وأثرها في الإحتفاظ بالتحصيل لمادة القواعد. للنتبث من تحقيق أهداف البحث في الدراسة الحالية، فرضت الباحثة فرضيتين صفريتين لمعرفة أثر خارطة المفاهيم على تحصيل الطلبة والإحتفاظ بالتحصيل في مادة القواعد.

أن مجتمع البحث الحالي يتمثل بطلبة قسم اللغة الإنكليزية - المرحلة الأولى - في أربع كليات أهلية / الدراسة الصباحية ، حيث يبلغ عدد الطلاب الكلي هو 497 طالب وطالبة .

وللتحقق من الفرضيات المذكورة آنفاً ، أختيرت عينة بصورة عشوائية تضم (60) طالب وطالبة والتي توزعت على مجموعتين: مجموعة تجريبية ومجموعة ضابطة ،كل مجموعة تضم (30) طالب وطالبة

كوفئت المجموعتين في بعض المتغيرات من ضمنها: (العمر، الجنس، وغيرها). طبق الاختبار القبلي قبل البدء بالتجربة وذلك لغرض مكافئة المجموعتين من ناحية قدراتهم القواعدية . وبعد الانتهاء من التجربة، تم تطبيق الاختبار البعدي على المجموعتين لغرض التحقق من فاعلية الأسرراتيجية على تحصيل الطلاب في مادة القواعد. وبعد فترة ثلاث أسابيع من أنتهاء التجربة، طبق نفس الاختبار البعدي مرة ثانية لغرض التحقق من مدى فاعلية الأسرراتيجية على الإحتفاظ بالتحصيل في مادة القواعد.

عولجت البيانات وأحصيت ببعض الوسائل الأحصائية مثل : الاختبار التائي، مربع كاي للمكافئة بين المجموعتين في متغيرات محددة، معامل ارتباط بيرسون، ومعامل الصعوبة، وقوة التمييز .

أظهرت النتائج تغيراً أيجابياً بالتحصيل لصالح المجموعة التجريبية بأستخدام أسرراتيجية التدريس خارطة المفاهيم في تدريس مادة قواعد اللغة الإنكليزية وأيضاً تحسناً بالإحتفاظ بالتحصيل لدى الطلاب.

وأوصت الباحثة بضرورة أستخدام الأسرراتيجيات الحديثة في تدريس قواعد اللغة الإنكليزية والتي بدورها تساهم في تطوير امكانيات الطلاب في التحصيل. وأقترحت بعض المقترحات التي من شأنها تساهم في تطوير طرائق تدريس اللغة الأنكليزية كلغة أجنبية.