

*The Impact of Using Indicative Concept Map Technique of Teaching
on Students' Reading Comprehension in the Region of Kurdistan
A Co- Research Paper Submitted*

*Dr. Kusai Tawfiq Ghazal /PhD proff. (Univ. of Mosul)
Mrs. Nada Jabbar Abbas /Instructor (Univ. of Salahidden)*

1-Introduction

Reading skill has not been given enough care by the teachers of English language in the classrooms so students are no more good readers. As a result students should be aware of the strategies that they can follow when they start reading in order to make the reading process a fruitful process. One of the reading techniques that help students comprehend what they read is the concept mapping technique of teaching (CM). The researchers conducted a study to investigate the effect of using the indicative concept mapping technique on the students' reading comprehension achievement . Therefore, this study tries to answer the following question:

“Is there a statistically significant difference between the mean scores attained by the experimental group and those attained by the control group on reading comprehension on the post-test that can be attributed to the concept mapping technique”?

To answer this question, the researchers selected two groups of students randomly to form the experimental and the control groups with (20) students for each group. The two groups set for pre-test to assure that the two groups are equivalent. The experimental group was taught reading comprehension (RC) lessons through the use of indicative concept map technique. On the other hand, the controlling group was taught by the traditional technique of teaching reading comprehension.

The findings revealed that there are significant differences between the mean scores attained by the experimental group and those attained by the

control group in favor of the experimental group due to the use of Concept mapping technique; therefore, the researchers rejected the null hypothesis and accepted the alternative one which indicates that there is a significant differences between the experimental and the control groups. The researchers recommended in light of the findings that the students should be encouraged to follow the concept mapping technique while reading and to engage students in such activities that allow them to transfer more and more lessons into different types of concept maps.

2. The Problem of The Study

Most of Iraqi students do not know how to read meaningfully. They only read the textbook required to be able to perform well in the achievement tests. Students are reluctant to read English texts other than their academic text this problem may due to the way they used to follow while reading. The Students do not interact with the passage they read, nor do they build relationships between the terms in the text to build up the meaning, and then to lead themselves toward reading comprehension. Students are not aware of the techniques that may help them in reading, because they are not taught to do so nor are they immersed in reading activities to follow such techniques. The main concern of this study is to determine the effect of the concept mapping reading technique on Students' reading comprehension skills, and to teach students how to use this technique in reading through teaching them how to build up the structure of the maps. It is widely believed that learners learn better if they are taught to build up relations between the terms in such a text. Concept mapping technique is based on building up new relationships between the components of the text. Mayer, (2003) identified the concept mapping technique as a method used to motivate and involve students in the thinking, reading, and writing aspects. It enhances vocabulary development by helping student link new information with previous experience. Accordingly, the researchers believe that, it is necessary to use concept mapping technique for teaching Reading comprehension. Students need to read about what they are interested in and to interact and communicate effectively.

1.1. Aims of the study are:

- 1- Teaching students the concept maps in an effective way to develop their reading comprehension skills. .
- 2- Testing the impact of using the concept mapping technique on students' reading comprehension.

1.2. The Hypothesis of the Study

The study hypothesizes that *“There is no significant difference at ($\alpha=.05$) between the mean scores attained by the experimental group and those attained by the control group on reading comprehension that can be attributed to the Concept mapping strategies”*.

1.3. Limitations of the Study

- 1- The study will be conducted on two classes of second college students of dept. of English /College of Education-humanities /University of Salahaddin, during the academic year 2011-2012
- 2- The instrument of the study is the pre -post tests for both groups: The experimental and the control group.
- 4- The study will be limited to (6) reading passages from the course curriculum which is called, New Headway (advanced students' book) by Liz & John Soars 2003, the curriculum which is used in teaching communication course.

1.4. Definitions of Operational Terms

1- Impact

The operational definition of the word “impact” is: *The influence of the application of a program that create an effective change.*

2 -Concept Map

The researchers operational definition of (CM) is: *a modern graphical learning tool that connects and maps the learners' visual ideas to stimulate the generation of the new ideas and aid students' expressive ability which help them to develop their communication of complex ideas.*

3- Reading Comprehension: the term as it is used in this study means, to what extent students understand the interrelationships between the ideas presented in the reading comprehension texts by the use of (CM) technique of teaching and to what extent students can create similar maps.

2. Review of Literature & previous studies

One big advantageous outputs of using (CM) is its visual representation of the concepts under study in a changeable form which enables learners to focus very easily and quickly. They can be readily revised any time when necessary. Thus it makes learning an active process, not a passive one. Teacher should never ask students to memorize prepared concept maps before presenting concepts to students. This could merely promote rote learning and so defeat the purpose of encouraging active meaningful learning on that part of the learner (Novak, 1986) .Here are some more advantages of (CM):

1 -It is an information-gap activity since students must fill in gaps in the map and in their personal schemata of the topic as the map takes shape.

2- Concept map is interactive tool, it allows for sequential negotiation of meaning.

3-it Organizes information into meaningful categories.

4- It Synthesizes and integrate information and ideas.

5-It is student -centered activity because the concept map makes use of the students' prior knowledge and because students control the input at each stage of the map's building.

6- It develops higher-level thinking skills, strategies, and habit through the effective use of graphics.

7-It enables the student to classify the links among the key ideas more easily. This is particularly important for creative work such as essay writing.

8-It allows the reader to see all basic information on one page when mapping the whole reading passage in one map.

9-it is an integrative activity, since it allows students to connect previous knowledge with new knowledge, thereby expanding their reservoir of knowledge through that interrelationship.

10-(CMs) offer a useful way to help students **"learn how to learn"** they also serve as useful vehicles for course development and as graphic organizers before, during and after instruction. (Novak, 1984)

However, at any learning or teaching technique while it has its own positive or advantageous points, nevertheless, it has also its own cones and disadvantageous. Here are some of the teaching technique cons:

1-Comparisons among students are more difficult because concept maps tend to reveal the students different views, therefore reaching one conclusion upon one topic is somehow difficult.

2-Evaluation can become more time-consuming for the instructor, especially in large classes.

If you score maps, you must use a consistent (and tested) scheme. ۳ -

4-Students who have developed a strong facility or habit for rote learning of verbal knowledge sometimes find concept maps intimidating.

5- Constructing (CMs) demands cognitive tasks that require intensive teacher & students training. As far as the researcher concerns, it took her (8) teaching hours as to prepare the students for the use of this new technique of teaching .Thus, it was difficult and time consuming as the researcher tried to train students cognitive processes to be connected with presented teaching tasks which demands much more assimilated processes than the traditional technique of teaching which is based on rote learning. One significant problem the students faced every time they construct a map was that, they found it difficult to connect concepts with the linking words. (Mary & Jana, 2008)

This review of literature covers studies related to techniques of concept mapping.(CM). (Harvey, et al 2000) mentioned that (CM) techniques of teaching are valuable instructional tools. Unlike many tools that just have one purpose, (CM) is flexible and endless in application and

they show different aspects of an issue in close and also the big picture, since many concept maps use short words or phrases, they are ideal for many types of learners, including English Language readers with intermediate proficiency. Concept maps can be used to show classifications, analysis, structures, attributes, examples, and brainstorming. Raymond C. Jones, (2006) added that concept mapping can be a helpful reference for students to use in clarifying confusing points as they are reading. Once students are familiar with the nature of the concept maps, they can create their own as a during-reading or post-reading activity.

Williams, C. R. (1994) said that, concept mapping enables students not only to visualize relationships, but to categorize them as well. As a direct teaching strategy that includes brainstorming and teacher-led discussions, it provides opportunities for schema development and enhancement, as well as prediction, hypothesizing and verification of content when used as a pre-reading activity. It is also referred to as a web or concept map. The teacher can introduce (CM) to the class in different appearances. They can be shown as circles, squares, or ovals with connecting lines. The students read an assigned text. Through class discussion, the teacher writes the main idea of the text in the middle of the top circle. The students share the supporting details of the main idea and place them in circles that are connected to the main idea by lines. This activity can also be used by students in cooperative groups or individually.

Thomas, H. Estes (1999) explained that concept mapping is a strategy for graphically representing concepts. (CM) portray the schematic relations that compose a concept. It assumes that there are multiple relations between a concept and the knowledge that is associated with the concept. Thus, for any concept there are at least three types of associations:

1. Associations of class; the order of things the concept falls into.
2. Associations of property; the attributes that define the concept.
- 3-Association, elaboration and rearrangements of the prior knowledge.

He continued that, the major purpose of the (CM) is to allow students to organize their prior knowledge into these formal relations, and thus to provide themselves a basis for understanding what they are about to read and study. Comprehension can be thought of as the elaboration and refinement of prior knowledge. What the (CM) provides is a graphic structure of that knowledge to be used as the basis for organizing new ideas as they are understood. Heimlich, J. E., & Pittelman, S. V. (1986) explained that, a concept Map is one type of graphic organizer which helps students visually organize and graphically show the relationship between one piece of information and another. This strategy has been identified by researchers as an excellent technique for increasing vocabulary and improving reading comprehension. As a pre- reading activity, concept mapping can be used to activate prior knowledge and to introduce key vocabulary words. As a post reading activity, words, categories, and new concepts can be added to the original maps to enhance understanding.

Zaid, (1995) applied the concept mapping technique in teaching reading to his students at Abha college of Education/King Saud University . He explained that concept mapping has been shown to be a beneficial learning/teaching technique for native speakers of English at all grade levels in regular and remedial classrooms as well as for those who are learning-disabled. He added that students who use (CM) manifest considerable improvement in reading comprehension, written expression, and vocabulary development. He suggested some areas of correlation between what a concept mapping activity does and the principles and objectives of communicative language teaching (CLT). For the students, the map was providing a graphic conceptualization of their randomly given ideas. There are three places in a lesson where (CM) may be used as he clarified:

- 1-As a pre-assignment strategy to activate students' prior knowledge or to help the teacher in assessing the students' readiness to do the assignment.
- 2- As a strategy to allow students to record what they are learning during the assignment.

3-As a post-assignment strategy to allow them to integrate or synthesize what they have studied.

He concluded that:

- 1- (CM) is interactive tool, it allows for sequential negotiation of meaning.
- 2- It is an information-gap activity since students must fill in gaps in the map and in their personal schemata of the topic as the map takes shape.
- 3- It is a predictive activity.
- 4- It is student -centered activity because the (CM) makes use of the students' prior knowledge and because students control the input at each stage of the map's building.
- 5- It is teacher-friendly because it allows the EFL teacher unobtrusively to pre-assess the students' readiness to do an assignment, take immediate steps to enhance their preparation and to post-evaluate how well the students integrated or synthesized what they had studied.
- 6- And finally, it is an integrative activity, since it allows students to connect previous knowledge with new knowledge; which helps in expanding their reservoir of knowledge through that interrelationship.(Zaid , M. (1995)

Canas, J.D et al (2004) conducted a study about text concept mapping in Spain, the contribution of mapping characteristics to learning from texts in Spain. The effects of text concept mapping were tested during one school year (4 classes, 112 eighth graders: two classes were taught using concept mapping with practicing .The other two classes were taught through regular learning skills) . The classes were tested on language mapping comprehension after the teaching process. The findings indicated an advantage of using text concept mapping on reading comprehension. The researchers recommended that text concept mapping is a potent mediator for learning with texts and for conducting complex learning tasks, compared with concept mapping only.

Grigaite (2005) conducted a study to investigate the effect of using concept mapping strategies on developing child's thinking skills in The Scientific Publishers Academy/ Estonia .She defined semantic mapping as a strategy in which information is categorically structured in a graphic/visual representation. She examined the cognitive outcomes stimulated by the teachers' use of semantic mapping as a strategy for accelerating two cognitive operations, classification and satiation in a child's seventh year. Fifty-seven children at the age of six took part in the research. The findings revealed that students in the experimental group who participated in the training were creative. They revealed high degrees of cognitive.

In conclusion, many studies revealed almost the same findings; they showed that the impact of using the Concept mapping do not only improve the learner's reading comprehension, but also their thinking, brainstorming and writing abilities. However, the researchers noticed few studies of using this technique in teaching English in the province of Kurdistan which makes the present study worth conducted.

3-Research Methodology

Section three deals with:

- Data collection procedures
- The population and subjects, design, instruments, validity and reliability of the instruments.

3.1. The population and sampling of the Study.

The population of this study is limited to the students of 2nd stage department of English /College of Education –humanities /University of Salaheddin –city of Erbil for the academic year 2011-2012. The total number of the 2nd stage students is (86) student. A research sample is “a group of individuals who share the same characteristics as those of the population” (Bluman, 2007:789). The research sample is a type of randomly stratified sample which means that the participants will be chosen randomly from each layer. Then the two samples will be equalized according to certain statistical procedures of sample equalization, this included *the age variable*

, intelligent test scores , last –year students achievement scores and (RC) and (SIS) pre-test scores, the sample of the research consisted of (40) students which were randomly distributed on two groups (20) students constitutes the experimental group and the other(20)as the controlling group , as shown in table (1) below:

Table (1)

Sample of the study

<i>Males</i>	<i>Female</i>	<i>The sample</i>	<i>Section</i>	<i>Group</i>
<i>6</i>	<i>14</i>	<i>20</i>	<i>B</i>	<i>Ex.</i>
<i>7</i>	<i>13</i>	<i>20</i>	<i>A</i>	<i>CG.</i>
<i>17</i>	<i>27</i>	<i>40</i>		<i>Total</i>

The researchers selected randomly (20) students from section (B) to represent the experimental group and (20) students from (A) to represent the control group.

3.2.The Experimental Design

The design of the study is a complete experimental design. It consisted of two groups: The experimental and the control with pre-test and post- test for each group. The teacher will give the two groups the pre-test. The control group will be taught the (6) reading comprehension passages taken from the course book in a traditional way while the experimental group will be taught the same reading comprehension lessons by using the concept mapping technique . Then both groups will be given the post-test to investigate the effects of both strategies.

Table (2)

The Experimental Design

Post-test	Treatment	Pre-test	Groups
Written Comp.T2 Oral inter.T2	CM .TT	Written comp.T1 Oral inter.T1	Exp.
written comp.T2 oral inter.T2	Traditional .T.T	Written comp.T1 Oral inter.T1	Con.

3.3. The Instrument of the Study

1-An achievement reading comprehension test which is to be *used as a pre-test* to both: the experimental and the control group.

2- An achievement reading comprehension test which is to be *used as a post-test* to both: the experimental and the control group with some modification related to the ways each group is taught accordingly.

3.4. Procedures of the Study

The study will go to preparing the reading pre-test through the following procedures:

- 1- Preparing the reading pre-test to test the two groups.
- 2- Testing the two groups, correcting their papers, and calculating the mean scores to the experimental as well as the control groups.
- 3- Preparing the sample lesson plans, concept maps and activities.
- 4- Establishing the required validity and reliability of the instrument.
- 5- Dividing the classes to be given for (12) weeks, (6) teaching hours per week.
- 6- Planning the traditional way for teaching the control group .In the traditional way, the researcher teaches the control group the reading

comprehension lessons in the traditional way which is illustrated in the teacher's book.

7- The traditional way is presenting the topic of the questions, asking students who belong to the control group to read silently and sometimes loudly, and then asking students to answer the questions that follow each reading comprehension lesson.

3.5.Validity and the Reliability of the Instrument

3.51. Pre-and Post-test Validity

To determine the validity of this research instrument, both of the pre and post tests are given to a group of jury members. The jury consists of (11) EL teachers with not less than ten years experience of teaching college stages with MA degree and PhD in English teaching methods from different universities in Iraq . They all suggest some changes in the post-test to be able to investigate the differences. The researcher modifies the post-test accordingly.

3.5.2. The Validity of the Concept Maps

To investigate the validity of the teaching materials, lesson plans and the teaching technique created by the researcher, the researcher follows some Models of concept maps which were done by well-known researchers whose studies are trusted and published in a well-known data base, such as EBSCO and ERIC data bases. They enrich the research materials with some related ideas which in turn will have significant role on the students' reading comprehension.

3.7.The Reliability of the test

In order to ensure the reliability of the pre- and post-test of the study, the researcher administers a test retest on an experimental sample of (10) subjects who are taken from the population. Their tests are corrected. A statistical formula of Cronbach Alpha is calculated. The result is (.90%) which is a very high internal contingency coefficient. This is very appropriate for the reliability of the test and for the purpose of the study.

4. Findings of the study

As the aim of the study was to investigate the impact of using concept mapping technique on teaching reading comprehension for second stage college students. Thus the researchers tried to answer the question of the study that is: *“Is there a statically significant difference between the mean scores attained by the experimental group on the post- test that can be attributed to the effect of using the concept mapping technique of teaching?”* To obtain data related to this question, the researchers administrated the reading comprehension pre- test in the first semester of the academic year 2011/2012 on Tuesday, 8th of November 2011 at (College of Education /dept. of English), just before the beginning of the experiment. Both the experimental and control group sat for the same format of the pre- test to evaluate the student comprehension level. After conducting the experiment for (12) teaching weeks and teaching the experimental group with concept map strategy, in addition to teaching the controlling group through the traditional way. The experimental and the controlling groups sat again for another test which is referred to as the post –test. The collected data were statistically analyzed to investigate the statistical differences between the two groups. (Seetabl

Table (4)

The pre-post –tests differences between the experimental &controlling group in students reading comprehension achievements.

<i>Groups</i>	<i>Tests</i>	<i>N</i>	<i>Means</i>	<i>Std. Deviation</i>	<i>T-Test calculated</i>	<i>T-Test tabulated</i>
<i>Ex.G</i>	<i>Pre-test</i>	<i>20</i>	<i>18.25</i>	<i>6.18</i>	<i>14.105</i>	<i>2.093at (0.05)</i>
	<i>Post-test</i>	<i>20</i>	<i>36.00</i>	<i>3.69</i>		
	<i>Pre-test</i>	<i>20</i>	<i>18.65</i>	<i>4.36</i>	<i>6.006</i>	
<i>Con.G</i>	<i>Post-test</i>	<i>20</i>	<i>28.25</i>	<i>5.40</i>		

The findings of the study indicate that there are statistically significant differences between the experimental group and the control group. The mean scores of the students in the experimental group on the reading comprehension achievement post-test are (36.00). While the mean scores achieved by the students in the control group which is only (28.25). *and the experimental group calculated t-test value (14.105) is higher than the tabulated value of the controlling group (6.006) at (0.05) degree, this means that the null hypothesis that “there is no statistically significant differences at ($\alpha=0.05$) between the experimental and the control group which can be attributed to the concept mapping technique” is rejected .this due to the effect of the implementation of the concept mapping technique. One major purpose for concept mapping is to assist teachers in planning and conducting reading instruction. Therefore, in preparing to have students read narrative selection, it is recommended that teachers analyze the structure of the story and create a map. Concept mapping is a good way to organize information about a problem or subject. Construction of concept maps helps us pull together information we already know about a subject and understand new information as clarified by Schlesinger et al (2000) who depicted semantic mapping as a “graphic representation or picture of one’s thoughts, ideas, and attitudes toward a key concept.” They also added that semantic mapping focuses on categorizing and connecting these thoughts, ideas, and attitudes in relation to the key concept. The concept maps consist of nodes and labeled lines, node is the name for important terms or concepts. The students at the beginning showed little interest when they were taught by the concept mapping strategy. Later, when the students were informed how to read the concept maps , they showed great enthusiasm toward it because they feel that they can build similar maps as built by the researcher depending on the steps they were taught and their background knowledge and their schemata as indicated by Thomas (1999) in reference to how semantic maps portray the schematic relations of the readers that compose a concept and how it assumes that there are multiple relations between a concept and the knowledge that is associated with the concept. Moreover, William (1994) explained that direct teaching strategy that includes*

brainstorming and teacher-led discussions provides opportunities for schema development and enhancement, as well as prediction, hypothesizing and verification of content as a pre-reading activity.

In conclusion, most of the researchers who have conducted their researches on concept mapping technique agreed upon the significant role of applying the concept mapping technique in teaching reading comprehension for its great benefits that may serve a variety of learning purposes. They may serve as student's journal or record or instruction, providing students with a systematic means to integrate their new knowledge with their prior understanding, activating students prior knowledge and stimulating them to use that knowledge to interact with the text. The process of creating such a map helps teachers determine what is important enough about a story to be emphasized in class. For example, the theme often indicates background knowledge that students will need to use to comprehend, and this can become the focus of a rereading discussion.

The researchers observe how enthusiastic students were with this way of teaching reading. They were very active to the extent that they started giving their suggestions to develop the concept map. Their suggestions were unexpected and great. This proves what Raymond (2006) once said that once students become familiar with the nature of the concept maps, they can create their own during-reading or post-reading activity.

5.2. Recommendations of the Study

In light of the findings of this study, the researchers put forward the following recommendations; they are expected to be taken into consideration by the English college teachers, the material producers and the curriculum designers:

- 1-Students should be fully engaged in the reading process: Pre-reading activities, drawing concept maps...etc.
- 2-Encouraging students to gather ideas and develop them in a well organized concept maps.

3-Students should be encouraged to read for authentic purpose even if they are asked to read about certain topic chosen by the teacher.

4-Reading needs time and this time is necessary for students to grow, develop and improve their reading comprehension. Improvement entails practice. Time allocated for any reading task should be limited and agreed on for students to know how to read in an effective way using the mapping strategy to plan their reading.

5-Students need an environment that promotes reading and provides opportunities for individuals to work together in creating such maps. Teachers can provide students with some technical ways of how to organize the reading process.

6- Students must be trained to use the innovative reading strategies and techniques in their classroom such as the Concept mapping strategy.

7-Students need modeling for teaching reading by using concept maps technique; therefore, teachers should familiarize students with the concept mapping strategy by providing them with some models of maps.

8-concept map technique can be used with different language aspects such as teaching vocabulary and grammar (word mapping can be used).

Suggestions for Further Studies

For further studies the researchers suggests the following:

1-Studying the impact of indicative concept mapping on self-regulating learning of students of English as a second language

2-Studying the impact of the use of (CM) teaching technique on other variables such as:

A- Students' motivational attitudes.

B-Students pre-planning task of oral language performance.

C- Developing students' grammatical competence

D- Developing students essay writing skills and other linguistic skills at college level

3- A study can be conducted to investigate the effect of Concept mapping technique on institute and Secondary schools students' achievement in EFL.

4- Another similar study can be conducted to investigate the effect of other types of mind mapping teaching techniques such as story –mapping on the students language performance in literary courses to facilitate critical thinking and encourage a deep approach to literature learning.

References

-Canas, J.D et al. (2004). **Text Concept Mapping: The Contribution of Mapping Characteristics to Learning from Texts**. Pamplona, Spain.

-Clark-Edmonds, S. (1998). **Specialized program individualizing reading excellence (SPIRE)**. Kennebunk, ME: Progress Learning, Inc.

-Grigaite . (2005). **Developing Child's Thinking Skills by Semantic Mapping Strategies** .CEEOL Trames. The scientific publishers Academy, Estonia

-Heimlich, J. E., & Pittelman, S. V. (1986). **Semantic Mapping: Classroom Applications**. Newark, DE: International Reading Association Embroke Publishers Limited.

-Marier, R. (2000). **Reading Comprehension - Techniques for Improving Students' Success in Extracting Useful Knowledge from Text (Mayer, p 34) Learning and Instruction**. Upper Saddle River, New Jersey: Pearson Education, Inc.

-Mayer, Richard. (2003). **Learning and Instruction**. Upper Saddle River, New Jersey: Pearson Education, Inc.

-Roy B. et al. (2006). **The Criterion-Related Validity of a Computer-Based Approach for Scoring Concept Maps**. International Journal of Instructional Media, vol 33no (3), in Press . Anticipated Publication Date.

-Schlesinger, Ch. (2000) . **Reading in the Content Area Summary/ Critique** Journal Article In “Mapping” Learning at the Secondary Level, The Clearing House.

-Williams, C. R. (1994). **Semantic Map Planning: A framework for Effective, Reflective Teaching, Teacher Development, and Teacher Research. Master of Arts Thesis**, School for International Training, Brattleboro, VT.184 p. ED377677.

-Zaid, M. (1995) . **Semantic Mapping in Communicative Language Teaching** . King Saud University, Abha College of Education, Abha, Saudi Arabia.

E-Sources

-**"Partnership for Reading." December 11, 2005.**

<http://www.nifl.gov/partnershipforreading>

-Raymond C. Jones. (2006). **Strategies for Teaching Reading Comprehension.**

<http://www.readingquest.org/strat/graphic.html>.