

# The Effect of Concept Mapping on Iranian Pre-intermediate L2 Reading Comprehension

Omid Tabatabaei

Shahreza Branch, Islamic Azad University, Iran

Soghra Khalili

Shahreza Branch, Islamic Azad University, Iran

**Abstract**—Teachers are always looking for innovative ways to help students improve their reading comprehension. One popular method is the use of graphic organizers such as concept maps. This study examined the use of concept maps (a meta cognitive technique) to aid reading comprehension of Iranian pre-intermediate L2 learners in one of the language institutes in Shiraz. The researcher wanted to find appropriate answers to the following research questions 1) does the application of concept mapping technique have any significant effect on Iranian pre-intermediate L2 reading comprehension 2) do Iranian pre-intermediate L2 learners have positive attitude toward the application of concept maps in their reading classes? For this, 30 pre-intermediate L2 learners were selected and assigned as experimental group. *This experimental group received instruction on how to use concept mapping technique as a pre-reading activity.* This group took part in language classes twice a week for one hour and half and reading activities covered thirty minutes of the whole class and also they completed two thirty-minutes reading comprehension tests, one as the pre-test and the other as the post-test. The results of Wilcoxon Sign Rank test showed that the participants in concept mapping group performed better in post-test than in pre-test administration. Moreover, the results of Chi-square revealed that, on the whole, L2 learners had positive attitudes toward using concept mapping technique in reading classes. This study had theoretical as well as pedagogical implication in the field of second/ foreign teaching and learning.

**Index Terms**—concept maps, reading comprehension, experimental group, positive attitude, theoretical implication, pedagogical implication

## I. INTRODUCTION

Reading is one of the most useful and necessary skills for daily life. People usually read because they want to obtain information about a specific subject. People read variety of texts such as signs, timetables, directories, maps, letters, tables, application forms, stories, textbooks, instructional, leaflets and the like in order to get facts, exchange ideas, enjoy their leisure time, express feelings, etc. From a technical perspective, reading comprehension is a dynamic mental activity in which the reader interacts with the text to extract meaning (Farhadi, 2005).

In spite of the fact that a good number of books on reading comprehension have been published both locally and internationally, the number of books that has treated reading comprehension from a scientific perspective is very limited. Most of the textbooks published on reading comprehension, specially the local ones, consist of a certain number of passages followed by some true-false, multiple-choice, or fill in the blank exercises. Of course, the value of these types of activities should not be denied, because they are useful techniques to assure the comprehension of the readers. However, they do not suffice for a successful reading comprehension program. To cope with these complexities in the reading comprehension process, readers should equip themselves with certain techniques and skills (Farhadi & Mirhassani, 2005).

According to the context and their philosophy, teachers implement variety of techniques in their L2 reading classroom. However, regardless of the variation that exist between teaching methodologies, the ultimate goal of teaching reading is helping L2 learners progress to the advanced levels through a curriculum (Farhadi, 2005).

Besides, L2 learners have difficulties in organizing, maintaining, and comprehending text readings, and they just rely on decoding and encoding, vocabulary or structures. They are not able to grasp the general meaning as a whole, and also because the traditional methods used by teachers, which put emphasis merely on final product, do not make significant changes in L2 learners' reading performance, new techniques for teaching reading to L2 learners are required (Farhadi, 2005).

Concept mapping is one of the techniques that are related to the readers' prior knowledge. Background knowledge that aids in text comprehension has recently been studied under the rubric of schema theory. This theoretical framework (aptly termed by Grabe, 1991, a "theoretical metaphor") emphasizes the role of preexisting knowledge (a reader's "schema") in providing the reader with information that is implicit in a text so it seems that it is beneficial for L2 learners' reading development. Although its positive effect on students' L1 reading has been proved, few studies have been conducted to examine their effect on L2 learners reading performance.

Therefore, in this study one technique of teaching reading , namely concept mapping is surveyed in order to provide evidence on the method of teaching reading if it is effective for Iranian Pre-intermediate L2 reading comprehension.

*Concept Mapping*

A concept map presents the relationships among a set of connected concepts and ideas. It is a tangible way to display how your mind "see" a particular topic. By constructing a concept map, you reflect on what you know and what you don't know. In a Concept Map, the concepts, usually represented by single words enclosed in a rectangle (box), are connected to other concept boxes by arrows. A word or brief phrase, written by the arrow, defines the relationship between the connected concepts. Major concept boxes will have lines to and from several other concept boxes generating a network. (Novak, 1998).

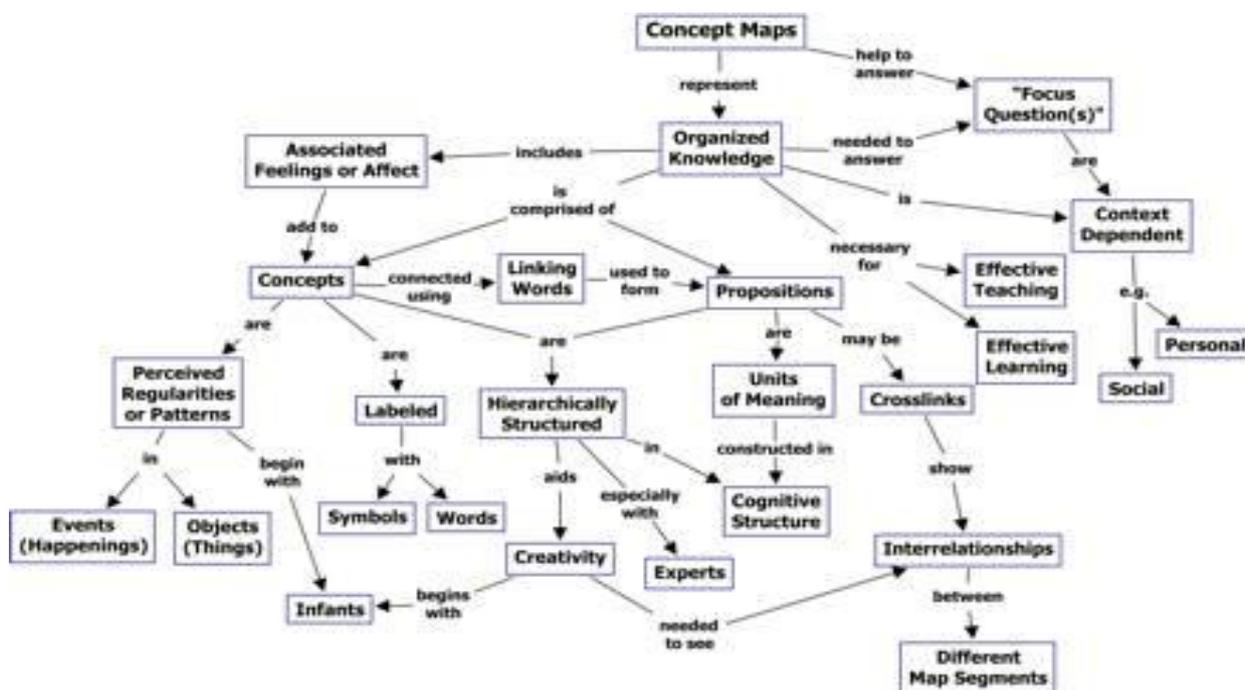


Figure 1.1 shows an example of the structure of a concept map.

**Types of concept map**

As it was stated earlier, depending on the nature of the subject matter, and context of learning, one can use different kinds of concept maps, regarding the ideas one can wishes to express. Each of concept maps are discussed here.

**1.1. Web Concept Mapping**

The web concept map is like a spider web, in which many ideas are linked by a common thread .this type of concept map is in accordance with hierarchical order of connecting concepts, which was emphasized by Novak (2006b). the web concept map is suitable for all subject matters. Figure 1.1 represents one example of web concept mapping.

**1.2. Fish Bone Concept Mapping**

The fish bone concept map looks like a fish skeleton, in which supporting reasons and specific example are pointed to the main idea. This type of concept mapping can also be useful for all topics.

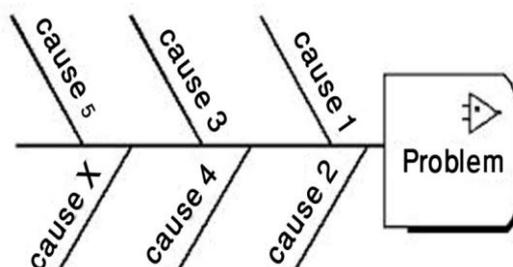


Figure 1.2 shows a fish bone concept map.

**1.3. Venn Diagram Concept Mapping**

The Venn Diagram is most appropriate for comparing and contrasting two issues. In this type of concept mapping, the circles represent the qualities of each issue. Where the circles overlap in the center of the diagram, it represents the

similarity of issues. Usually, the center of the map contains the general ideas and the outside section contain the specific differences. A Venn Diagram is often not as complete as a Web, and the topics are not fully developed.

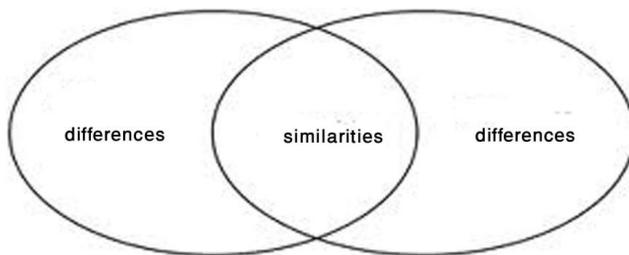


Figure 1.3 displays the format of such concept map.

**1.4. Matrix Concept Mapping**

The matrix concept mapping is useful for categorizing and classifying qualities. It can be used for all topics.

<i>General idea</i>		
<i>General idea</i>	<i>General idea</i>	<i>General idea</i>
<i>General idea</i>	<i>Supporting details</i>	<i>Supporting details</i>
<i>General idea</i>	<i>Supporting details</i>	<i>Supporting details</i>

Figure 1.4 shows one matrix concept map.

**1.5. NPR Concept Mapping**

NPR concept mapping is like a matrix and is also useful for categorizing and classifying qualities. It is most appropriate for making an argument. NPR stand for New (topic the way things are now); proposed (What we proposed to change); and Reason (Why we make this proposition).

<i>N (Now)</i>	<i>P(Proposed)</i>	<i>R(Reason)</i>
<i>General idea</i>	<i>General idea</i>	<i>General idea</i>
<i>Supporting detail</i>	<i>Supporting detail</i>	<i>Supporting detail</i>

Figure 1.5 shows the format of a NPR concept map

II. REVIEW OF LITERATURES

The technique of concept mapping was developed by Joseph D. Novak and his research team at Cornell University in the 1970s as a means of representing the emerging science knowledge of students. It has subsequently been used as a tool to increase meaningful learning in the sciences and other subjects as well as to represent the expert knowledge of individuals and teams in education, government and business. Concept maps have their origin in the learning movement called constructivism. In particular, constructivists hold that learners actively construct knowledge.

Novak’s work is based on the cognitive theories of David Ausubel (assimilation theory), who stressed the importance of prior knowledge in being able to learn new concepts: “The most important single factor influencing learning is what the learner already knows. Various attempts have been made to conceptualize the process of creating concept maps. Ray McAleese, in a series of articles, has suggested that concept mapping is a process of off-loading. In this 1998 paper, McAleese draws on the work of Sowa and a paper by Sweller & Chandler.

**Concept mapping and Reading comprehension**

Chularut and DeBuker (2004), examined the effect of concept mapping on achievement, self-regulation, and self-efficacy when reading an English text. The major participants of the study were 39 students attending a Center for English as a Second Language located on the campus of a major university in the Midwest, US. According to the scores obtained on Michigan Test of English Language Proficiency, the participants were divided into four language proficiency levels: 19 students for beginner level, 20 for intermediate level, 20 for advanced level, and 20 for expert level of proficiency. By using stratified random assignment, students were assign to two experimental groups: 40 student in concept mapping group, and 39 students in the individual study plus discussion group. Before starting the intervention, all participants were given the Achievement Test and the Survey of Learning Behaviors as pre-test. Following pre-testing, all students participated in five 60-minute study sessions. Each session was devoted to reading one English passage. In these study sessions, either concept mapping or individual plus discussion was employed. All students were encouraged to study each passage in order to understand both stated and implied information in the passage .the findings showed that all students made progress from pre-test to post-test in all variables of self-efficacy, self-monitoring, and achievement. However , the groups which used concept mapping technique showed statically greater gains from pre-test to post-test than individual study group.

### III. METHODOLOGY

Grabe (2001) believes that reading is like watching a movie in your head. Rivers (2001) also believes that reading is the most important skill in language learning because it can extend one's knowledge of the language.

In this part, the criteria for choosing participants of the study, the characteristics of the instrument used in the study, and the data collection and analysis procedure are presented. An accurate explanation of the above-mentioned principles will be necessary for obtaining appropriate results.

#### A. Participants

This research is a type of experimental study with a pretest-treatment-post test design.

Initially, 30 learners were selected from Farzanegan English institute in Shiraz. They were female students within the age range of 16-20. This Experimental group taught by concept mapping technique, To make sure about their level of language proficiency at the time of study, the QPT (quick placement test) which include 60 multiple-choice tests was administered. Of course, this test was administered to 60 learners in that institute and 30 of them selected based on their proficiency level, it determined that they were pre-intermediate learners.

#### B. Materials

The materials employed in this study were as follows:

Two readings for concept mapping experimental group.

Samples of concept maps

#### C. Instruments

The first instrument utilized was quick placement test version 1, a type of Oxford Placement Test (OPT) (ALLEN, 2004), to assess the participants' primarily knowledge of the reading comprehension. The second one was a research questionnaire in order to gather information about the participants' opinion toward the specific technique they have been exposed.

After three months, a post test with a same structure was administered to them in order to measure the students' learning. Of course an interview and class observation were performed then.

#### D. Procedure

To carry out this study, these procedures were followed: First, administering the QPT (Allan, 2004) 30 pre-intermediate were selected out of a pile of 60 L2 learners in one of the language institutes in Shiraz (Farzanegn institute) and named experimental group. this experimental group who received instruction on how to use concept mapping technique as a pre-reading activity participated in a pre-test administration first, and then a post-test was administered to them to see whether participants' performance improved in post-test design.

##### **Concept Mapping Experimental Group**

Thirty pre-intermediate L2 learners participated in this experimental group. This group received four sessions of instructions on using concept mapping as a pre-reading activity. Before starting the treatment, a descriptive reading pre-test (see Appendix B) was administered to this group. Then the following procedures were pursued to teach concept mapping technique to the L2 learners.

In the first session of instruction, learners ought to read the text carefully, then they divided it to three sections, beginning, body, and the conclusion. Then, they summarized it and finally they illustrated the main point of the text.

In the second session, after giving a brief explanation about concept mapping technique, the reading's topic was given to the students and they were asked to draw a concept map for this topic. In other words, L2 learners followed these steps in this session:

1. Group brainstorming: Students were asked to think about the topic and then express what comes to their minds, without caring about their appropriateness or relevance.

2. Putting the relevant concepts in boxes: at this stage, L2 learners were asked to determine the relevant concepts and put them in boxes.

3. Arranging the concepts from the general ones to more specific ones: L2 learners were asked to determine the most exclusive concepts to less exclusive ones, and then arranging them in a hierarchical order in which the most exclusive terms stand above, and the least exclusive ones at the bottom.

4. Determining the relationship between the concepts: at this step, L2 learners were asked to determine the relationship between concepts by drawing arrows between the concepts and by using linking words on the arrows. Then, the actual reading (see Appendix D) along with its concept map drawn by the researcher (Appendix F) was delivered to the students, and their concept map was compared with writer's concept map. Afterwards, the actual text was read in the class, and the students learned how concept map is changed to a text.

In the next session, another text (see Appendix E) was given to the students and they were asked to draw its concept map collaboratively (see Appendix G). Then the next concept map was compared with that of the researcher.

In the last session of the instruction, a topic was given to the students and they were asked to draw a concept map for it and then they changed it to a reading text. In fact, in this session, L2 learners did what they had done in the first session besides the following steps:

1. Changing the relationship determined by arrows to sentences: L2 learners changed the concepts and the relationship between them to well-formed sentences.

2. Connecting the sentences to each other and creating a nice reading text. In this step, the sentences written in the previous steps changed to a coherent and cohesive reading text.

It should be pointed out that all students took part in all the stages and all the steps were covered collaboratively.

After the concept mapping treatment was finished, a reading post-test (see appendix C) was administered to see the degree of L2 learners progress in reading performance. In this test, students should draw a concept map for the topic and then write a text based on that concept map, and also the concept map questionnaire (see appendix H) was given to students to determine L2 learners' attitudes toward using this technique in reading classes.

IV. DATA ANALYSIS

To address the research questions, At first, descriptive statistics were computed and displayed, Then, Wilcoxon Signed Ranks Test was used in order to determine whether concept mapping post-test scores were significantly higher than concept mapping pre-test scores. Afterwards, chi-square computed in order to measure the attitudes of learners toward the specific instruction they have been exposed.

Before the obtained data in concept mapping group analyzed, descriptive statistics for all scores presented in the following table.

TABLE 4.1.  
DISPLAYS RESULTS OF DESCRIPTIVE STATISTICS OF TOTAL SCORES FOR CONCEPT MAPPING GROUP

		N	Minimum	Maximum	Mean	Std. Deviation
Concept mapping	Pre test	30	8.00	17.50	13.9500	2.23742
	Post test	30	14.00	19.50	17.6000	1.59011

A. Testing the First Research Question

Does the application of concept mapping have any significant effect on Iranian pre-intermediate L2 reading comprehension?

For the distribution scores of pre-test and post-test was not normal, the Wilcoxon sign rank test was run. now the researcher wanted to find out whether or not there is a significant difference between the mean rank of Concept mapping pretest and posttest.

TABLE 4.2  
DISPLAYS THE RESULTS OF WILCOXON SIGNED RANKS TEST FOR THE PERFORMANCE OF LEARNERS IN CONCEPT MAPPING EXPERIMENTAL GROUP (CMEG).

		N	Mean Rank	Sum of Ranks
pretest-posttest	Negative Ranks	0	.00	.00
	Positive Ranks	30	15.50	465.00
	Ties	0		
	Total	30		
Z	4.797			
Sig.	.000			

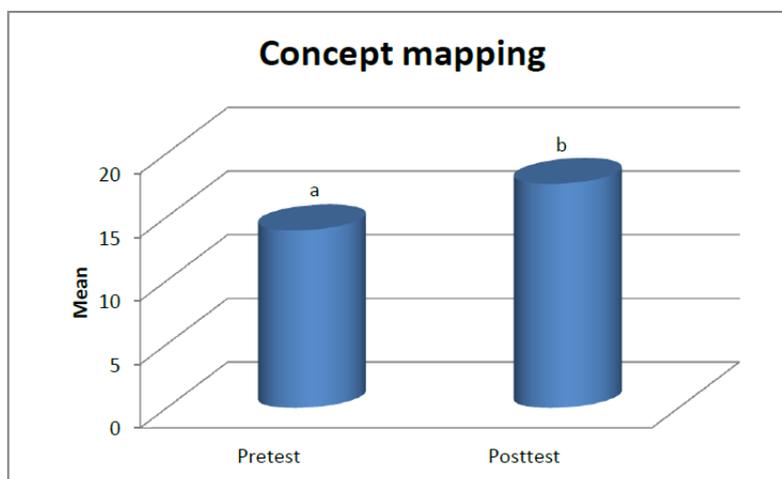


Figure 4.2. Displays mean of the pretest and posttest in concept mapping experimental group

As this table shows, the Wilcoxon test which is calculated by z was equal to 4.797 at probability level of  $p=0.000$  which is smaller than  $\alpha 0.05$ ,  $sig<0.05$ . therefore, it is determined that the scores increases highly in post-test. The following figure also confirms this result.

As you noticed the first research question was proved.

*B. Analyses of the Questionnaire*

**Testing the second research question**

*Do Iranian pre-intermediate L2 learners have positive attitude toward the application of concept maps in their reading classes?*

To address this hypothesis, chi-square test was run.

TABLE 4.3.  
RESULT OF CHI-SQUARE FOR CMQ  
CONCEPT MAPPING QUESTIONNAIRE

	Observed N	Expected N	Residual
not at all	6	30.0	-39.0
very little	10	30.0	-35.0
uncertain	23	30.0	-22.0
somewhat	98	30.0	-53.0
to a great extent	88	30.0	-43.0
Total	225		

As Table 4.3 displays, the observed number for scale 1 (*not at all*) is 6, for scale 2 (*very little*) is 10, for scale 3 (*uncertain*) is 23, for scale 4 (*somewhat*) is 98, and for scale 5 (*to a great extent*) is 88, respectively. Therefore, on the whole, CMEG participants have selected choice 4 (*somewhat*) more than the other ones, and since all the questionnaire items were positive statements, it can be concluded that they had a positive attitude toward using concept mapping technique in reading classes. So the second research question also was proved.

V. DISCUSSION

This part is concerned with the discussion and the general conclusions which can be drawn from the analysis of the obtained data. First, the possible reasons for the findings of the study will be discussed. Then, a comparison will be made between the results gained in this study and the previous ones conducted in other settings. Finally, some implications for the findings will be presented.

Although today most of the teachers try to use new strategies, especially meta cognitive ones, in their L2 reading classrooms, it seems that the implication of such techniques have been overlooked in Iran. Therefore, an attempt has been made in this study to investigate one of such techniques (namely, concept mapping) on reading performance of Iranian EFL learners.

The results of data analysis revealed that concept mapping technique has a positive effect on L2 students' reading comprehension. The results of this study can be interpreted in the light of three ideas from Ausbel's (1968) Assimilation Theory, which are also of psychological foundations of concept mapping strategy. These three ideas are as follows:

1. "Ausbel sees the development of new meanings as building on prior relevant concepts and propositions" (Novak & Canas, 2006, P.4). The first step in developing concept mapping is brainstorming. In brainstorming, L2 learners start with their prior knowledge by reading relevant elements. Then, by using their imagination and creativity, and developing new relationships among those concepts and propositions, they reach to new meanings. In other words, in the brainstorm phase of developing a concept map, L2 learners become aware of their current level of knowledge, and then they try to advance themselves to a higher level, by building appropriate schemata in their minds. This is also in accordance with Vygotsky's (1978) ZPD Theory and Rumelhart's (1980) schema Theory. Vygotsky believes that by knowing the current level of knowledge, students try to advance to higher ZPD, and little by little this will lead to learner autonomy.

2. "Ausbel sees cognitive structure as organized hierarchically, with more general, more exclusive concepts occupying higher levels in the hierarchy, and more specific, less inclusive concepts subsumed under the more general concepts" (Novak & Canas, 2006a, P.4). In the technique of concept mapping, L2 learners use an order to draw one.

3. "When meaningful learning occurs, relationships between concepts become more explicit, more precise, and better integrated with other concepts and propositions" (Novak & Canas, 2006a P.4). By drawing concept maps, the relationship between concepts and propositions in readings, become more explicit, and so meaningful learning can occur.

Regarding the first research question, the result of this study is in accordance with the action-research of Reinildes Dian (2008). In this study, which was conducted in Brazil on one group of ESP readers, participants were enrolled in an ESP course in order to comprehend of texts related to specific field of study. By analyzing four readings from each of the learners with and without concept mapping, he concluded that, by using concept mapping technique, the participants made progress in their reading comprehension.

In the same vein, Chang, Chung & Sung (2002), have examined the effect of concept mapping to enhance text comprehension in one National University in Taiwan. Like this study, they also concluded that concept mapping technique can help L2 learners in developing their reading comprehension.

The result of this study is also in line with those which have been conducted in first language. For example, in a study conducted in one High school Biology classroom in USA Cynthia H. Joseph (2001) found that using concept mapping technique can lead to more creativity and higher order thinking in students. In another study, Nikoliarazi and Vikiri (2012) examined the effect of concept mapping instruction on reading comprehension by students who are deaf in Greece. she also concluded that this technique was very helpful in enhancing learners' reading ability.

## VI. CONCLUSION & IMPLICATION

The basic concern underlying the present study is to what extent concept mapping, one of the meta cognitive techniques can help L2 learners autonomous regarding reading performance. According to Ausubel (1968, cited in Novak & Canas, 2006 a), effective language learning environment is one that makes learners autonomous. However, without applying appropriate reading techniques, L2 learners cannot reach to such high level of understanding and learning.

The findings of this study revealed that pre-intermediate L2 learners enjoy using concept mapping to develop their reading proficiency (both in overall and components of reading). Also, responses to the questionnaires confirmed that L2 learners have positive attitudes toward using such technique in reading classes. Therefore it can be concluded that concept mapping technique has the criteria of fostering meaningful learning (i.e., clarity of materials, their relevance to learners' prior knowledge, and increasing students' motivation to learn) in L2 learners.

However, since the data in this study have been taken from a small sample of learners in one institute in Shiraz, it is important not to over generalize the results of the study. But replication studies elsewhere can help in building a rich body of knowledge.

The findings obtained from this study have theoretical as well as pedagogical implications. Regarding theoretical implications, the present research, providing some data on the effect of concept mapping on the readings of EFL learners, has tries to enrich the literature behind it.

The findings also have pedagogical implications for foreign language teachers and learners. By being aware that concept mapping techniques can help L2 learners develop their reading performance in almost all reading aspects, teachers become motivated to use such techniques in their L2 reading classes. Findings of this study can also encourage students to use such meta cognitive strategies in completing reading tasks.

Syllabus designers, curriculum developers, and course book designers can also benefit from the findings of the present study. They can include concept mapping in foreign language course books and curricula.

## APPENDIX A. CONCEPT MAPPING PRE-TEST

Name.....

*Please read this passage and then answer the following questions.*

There is a major difference between the Islamic calendar and the Western calendar. The former is based on the time required for the moon to revolve around the earth. Whereas the latter is based on the time for the earth to revolve around the sun.

Where the Western calendar is used, the seasons always come in the same months each year. Thus, summer falls between mid-June and the end of September, whereas the cold weather of winter falls between the beginning of December and the end of March.

Why does each month always come in the same season each year? The reason is that the Western Calendar is based on the earth's revolution around the sun. the passage of the seasons is caused by this movement of the earth, too.

Where the Islamic calendar is used, that is not the cause. The basis of the calendar is the moon's movement, not that of the earth. there is no connection between the moon's movement and the seasons.

The months and holidays of the Islamic Calendar don't always come in the same seasons. Let's suppose the Feast of the Sacrifice comes in the summer this year. In a few years it will come in the winter.

1. The Islamic and Western Calendar basically differ in.....
  - a) two ways
  - b) no way
  - c) many ways
  - d) one way
2. Where the Western calendar is used, summer falls between mid-June and September, autumn always comes between the months of.....
  - a) December and March
  - b) June and September
  - c) September and December
  - d) June and March
3. According to the Western calendar, each month always comes in the season because the calendar is based on the movement of the.....
  - a) earth
  - b) sun
  - c) moon
  - d) season

4. Holidays of the Islamic calendar , falls in accordance with the.....
  - a) movement of the moon
  - b) basis of the season
  - c) revolution of the earth
  - d) use of the calendar
5. The best title for this passage would be .....
  - a) Solar and Lunar Calendar
  - b) Plant’s Movement
  - c) Season’s Change
  - d) Calendars’ Origin

APPENDIX B. CONCEPT MAPPING POST-TEST

Name: .....

*Please read this passage and answer the following questions.*

There is a major difference between the Islamic calendar and the Western calendar. The former is based on the time required for the moon to revolve around the earth. Whereas the latter is based on the time for the earth to revolve around the sun.

Where the Western calendar is used, the seasons always come in the same months each year. Thus, summer falls between mid-June and the end of September, whereas the cold weather of winter falls between the beginning of December and the end of March.

Why does each month always come in the same season each year? The reason is that the Western Calendar is based on the earth’s revolution around the sun. the passage of the seasons is caused by this movement of the earth, too.

Where the Islamic calendar is used, that is not the cause. The basis of the calendar is the moons movement, not that of the earth .there is no connection between the moon’s movement and the seasons.

The months and holidays of the Islamic Calendar don’t always come in the same seasons. Let’s suppose the Feast of the Sacrifice comes in the summer this year. In a few years it will come in the winter.

1. The best title for this passage would be .....
  - a) Season’s Change
  - d) Calendars’ Origin
  - c) Solar and Lunar Calendar
  - d) Plant’s Movement
2. The Islamic and Western Calendar basically differ in.....
  - a) one way
  - b) no way
  - c) many ways
  - d)two ways
3. According to the Western calendar, each month always comes in the season because the calendar is based on the movement of the.....
  - a) sun
  - b)earth
  - c)moon
  - d) season
4. where the Western calendar is used , summer falls between mid-June and September , autumn always comes between the months of.....
  - a) December and March
  - b) September and December
  - c) June and September
  - d) June and March
5. Holidays of the Islamic calendar, falls in accordance with the.....
  - a) movement of the moon
  - b) basis of the season
  - c) use of the calendar
  - d) revolution of the earth

APPENDIX C. WHAT IS A COMPUTER

Computers are changing all over lives and also old ways of doing things with their superhuman speed. They come in different sizes-from very large to small pocket-sized ones. they can always be used in any field of activity. No one can deny their influence and importance.

Computers are used to design different things. They are used in giant airplanes and modern cars. All spacecraft which are orbiting out through space are controlled by computers.

In addition to helping us to work better, computers are opening new fields of Endeavour. Perhaps the most important is in medicine where computers are helping doctors to research disease, chemist to design drugs and disabled people to learn skills.

Furthermore, computers can also be programmed to do many separate tasks at the same time. The central computer of an airline, for example, is constantly busy sending and receiving information to and from office and airports around the world.

1. According to the passage.....
  - a) the computer has had little effect on your life
  - b) people usually use pocket-sized computers at home
  - c) computers are available everywhere
  - d) the computers will influence our life in different aspect
2. computers can be used .....
  - a) in the field of medicine

- b) to design drugs for disabled people
  - c) to switch from one job into another
  - d) by chemists only
3. we learn from the passage that.....
- a) disabled people do research to design drugs
  - b) doctors teach the disabled people different skills
  - c) computers are used in research projects
  - d) computers should only do certain tasks
4. what can computers do in an airline?
- a) it can correspond information to and from airport
  - b) it can design different things
  - c) it can help passengers talk to each other
  - d) it can help the flight attendant to convey the information

#### APPENDIX D. VARIOUS FORMS OF COMMUNICATION

Ever since humans have inhabited the earth, they have made use of various forms of communication. Generally, this expression of thoughts and feelings has been in the form of oral speech. When there is a language barrier, communication is accomplished through sign language in which motions stand for letters, words, and ideas. Tourists, the deaf and the mute have had to resort to this form of expression. Many of these symbols of whole words are very picturesque and exact and can be used intentionally, spelling however can not.

Body language transmits idea of thoughts by certain actions, either intentionally or unintentionally. A wink can be a way of flirting or indicating that the party is only joking. A nod signifies approval, while shaking the head indicates a negative reaction. Other forms of nonlinguistic can be found in Braille (a system of raised dots read with the fingertips).

Road maps and picture signs also guide, warn, and instruct people.

But verbalization is the most common form of language. Writing a letter, having a telephone call, a class discussion, and a friendly chat are examples of this kind of language.

1. which of the following best summarizes this passage?

- a) nonlinguistic language is invaluable to foreigners
- b) although other forms of communication exist, verbalization is the fastest
- c) when language is a barrier , people will find other forms of communication
- d) everybody uses only one form of communication

2. which of the following statements is not true?

- a) verbalization is the most common form of communication
- b) ideas and thoughts can be transmitted by body language
- c) there are many forms of communication in existence today
- d) the deaf and mute use an oral form of communication

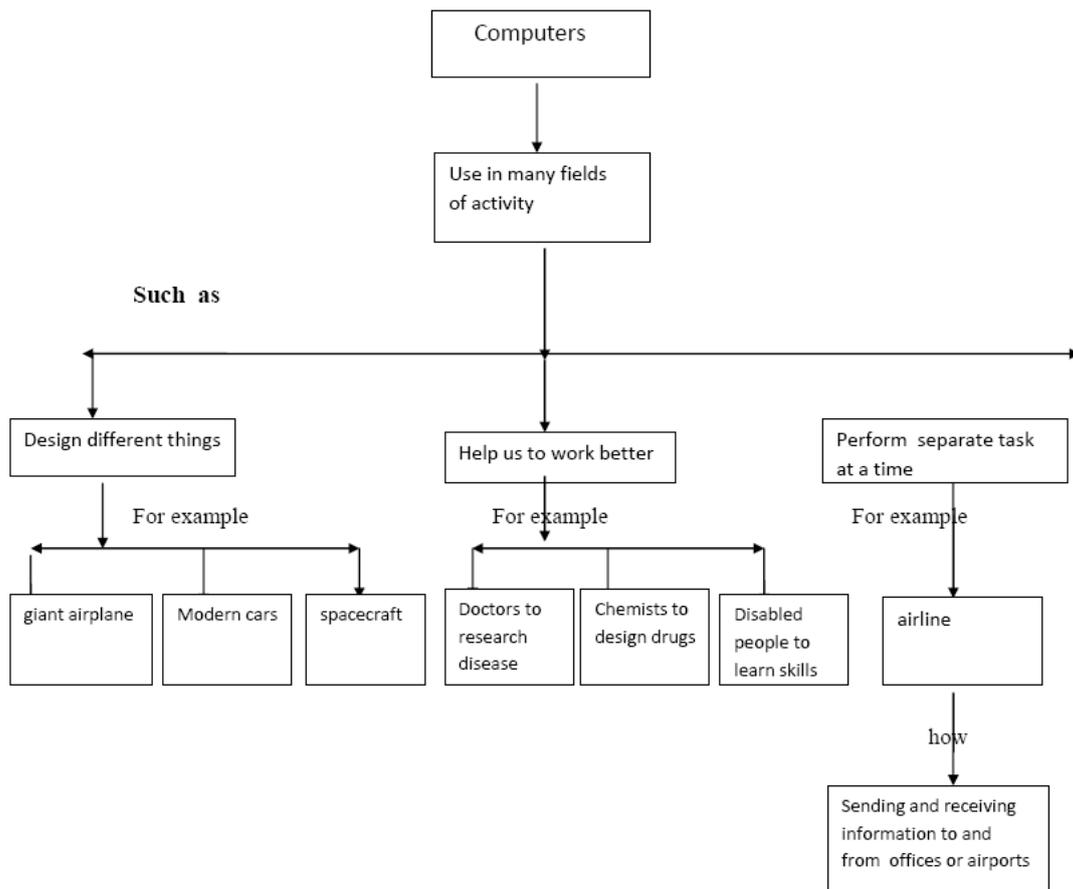
3. which form other than oral speech would be most commonly used among blind people?

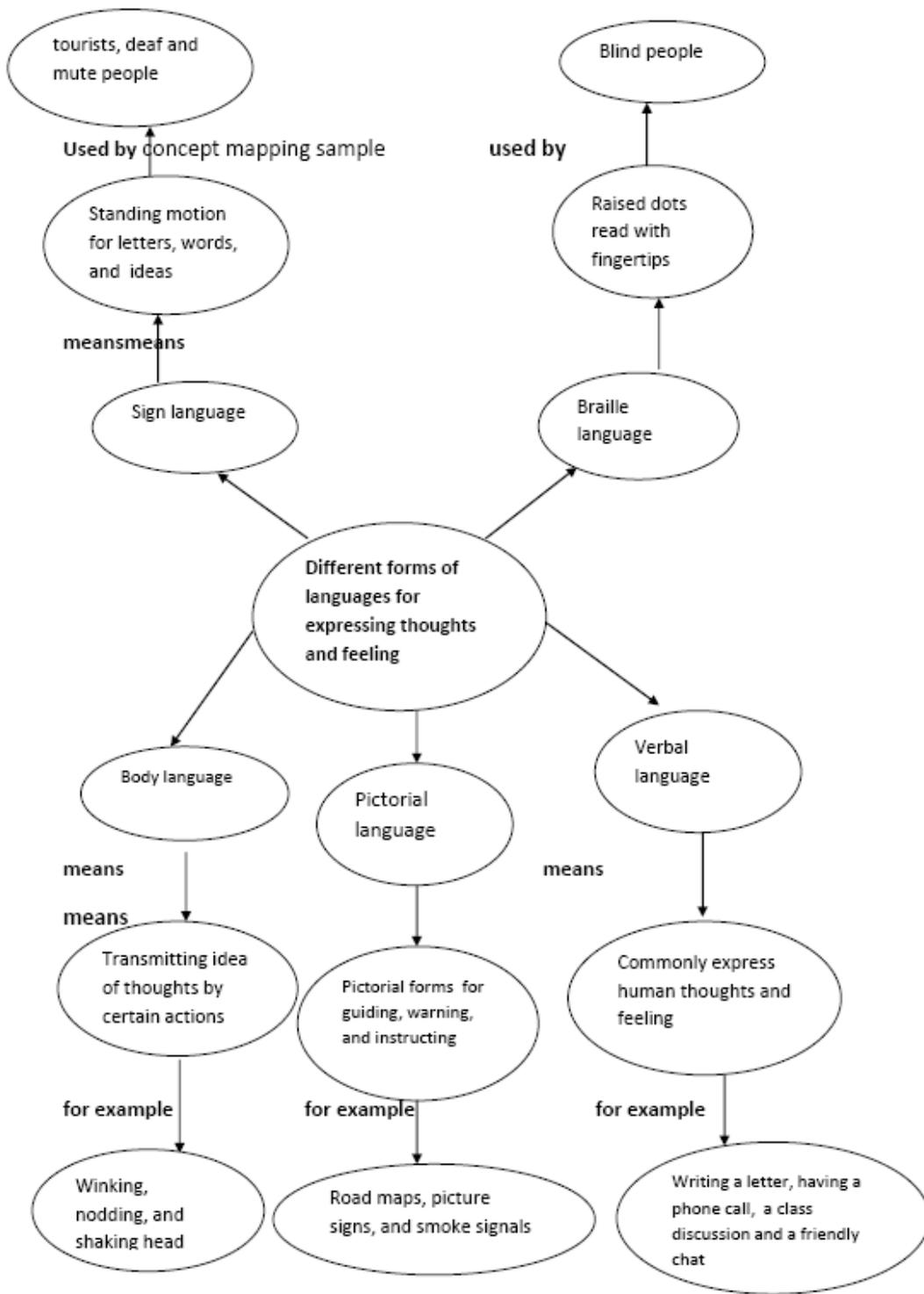
- a) picture signs
- b) road map
- c) Braille
- d) body language

4. how many different forms of communication are mentioned here?

- a) 5
- b) 7
- c) 11
- d) 9

#### APPENDIX E. CONCEPT MAPPING SAMPLE





APPENDIX F. CONCEPT MAPPING QUESTIONNAIRE

Name.....

Date.....

What is your preference for using concept mapping in reading classes? Please check the number that best describes your attitude.

1= Not at all      2= Very little      3= Somewhat      4= To a great extent

	1	2	3	4
1. Concept mapping helped me to improve my learning of reading.				
2. Concept mapping increased my motivation in learning the principals of reading.				
3. Concept mapping increased my involvement in the class interaction.				
4. Concept mapping helped me to communicate my obtained information to others in the class.				
5. Concept mapping stimulated me to think analytically and independently.				
6. Concept mapping helped me to learn cooperatively with my classmates.				
7. Making association among concept events in concept mapping tasks challenged my critical thinking.				
8. Concept mapping helped me to remove my deficiencies in reading comprehension.				
9. Concept mapping helped me to gain a better understanding of my learning process in the class.				
10. Concept mapping helped me to critique my own learning as well as others.				
11. By the use of Concept mapping, the content of my writing (e.g appropriate development of ideas , unity, etc.) was improved.				
12. By the use of Concept mapping , the form of my reading (e.g. correct use of grammar , vocabulary, punctuation, etc.) was improved.				
13. Concept mapping was useful in developing reading comprehension process.				
14. Concept mapping was useful for the improvement of the quality of final product ( complete comprehension delivered at the end).				
15. Concept mapping decreased the time I spent on reading.				

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**Omid Tabatabaei** received his B.A. in translation in 1994 and M.A. in teaching English as a foreign language (TEFL) in 1997, and then his Ph.D in TEFL in 2007. He earned all the mentioned degrees from Iranian Universities.

He is presently an assistant professor at Islamic Azad University, Najafabad Branch, head of English Department and vice-dean of the Faculty of Humanities and Literature.

He has published a couple of articles at national and international journals and presented papers at national and international conferences. His areas of interest are language acquisition, testing and assessment, teaching skills, and psycholinguistics.



**Soghra Khalili**, she is 28 years old and was graduated from Shahreza University in MA Degree, of course she was born in Shiraz, Iran, but studied English in teaching major in Shahreza, Iran.

She has already graduated from the college and this is the first time that she wished to publish an article in journal, of course she has some accepted articles in academic English held in some cities in Iran but they were orally presented. For example, the study that she worked on high school students which titled (An Evaluation of Graphic Representation in Iranian Intermediate EFL Textbook) was one of them, it was accepted by *US-China Foreign Language* and *Sino-US English Teaching* journal, but she didn't follow its procedure and never published. And also she has an article about Contrastive Analysis, titled, (A Contrastive Investigation of English Two-word verbs and Persian Compound verbs: Implication for Translation) she can send their files to you if you want.

She (SoghraKhalili), the author of this article, works in her own home, she is a private teacher for Pre-universities students. her thesis in university was about The Effect Of Concept Mapping and Story Mapping On Pre-intermediate L2 Reading Comprehension and the paper that she send it to you is one of the article elicited from this thesis. she hopes she could send more papers for your journal.