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Reading in a Foreign Language: Effectiveness of Computer-Based Reading Instruction in Comparison to Teacher-Based Reading Instruction

By

Mohammed Abdulmalik Awad Ali

A Doctoral Thesis
Submitted in Partial Fulfilment of the Requirement for the Award of Doctor of Philosophy of Loughborough University

Supervisors: Dr. Jocelyn Wishart, and Dr. Derek Stephens

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Dedication

My Late Father and Mother

My Wife Gada

My Daughter Minas

My Sons Malik, Ahmad and Bilal
ACKNOWLEDGEMENTS

I wish to express my sincere appreciation and personal thanks to the following individuals who have contributed to the completion of this study.

For her unlimited support, continued encouragement, academic expertise, guidance, constructive comments, friendship and assistance, I shall always be indebted to Dr. Jocelyn Wishart, my Major Professor and Advisor. Dr. Wishart has provided me with a very pleasant and intellectually stimulating environment to study and research. Her knowledge and insight have been genuinely creative.

My special thanks and gratefulness are due to Dr. Sane Yagi, the author of the CALL program RapidReader for his invaluable and generous help in evaluating the instructional materials and his sincere and actual participation in the actual teaching while conducting the experiments.

Special thanks are also due to my second supervisor Dr. Derek Stephens for his wise comments and sincere feelings.

Acknowledgements and gratitude are also due to Dr. Anne Morris, the director of my research for her continuous help, to my external examiner Dr. Sally Barnes of Bristol University, and to Professor Cliff McKnight the internal examiner for their co-operation and assistance.

My particular gratitude goes to Dr. Basem Badr, Dr. Neil Kreshna, Mr. Khalil Gebara and Mr. Yousuf Tahayneh for their generous assistance as members of the jury panel whose comments were of great help through the process of building up the learning materials, the questionnaires of attitudes and the reading tests.
Thanks are also due to the Dean of the Masanna’ Technical and Industrial College in Oman and to the administrators at the Faculty of Arts at Sharjah University in UAE for the facilities and assistance they offered to make conducting the experiments in their institutions successful.

I wish to thank Professor Ivan Reid for his substantial encouragement and the lovely feelings and unlimited help.

To the most friendly staff, helpful friends and tutors in the Department of Information Science at Loughborough University my respect and very best wishes.

Special thanks are expressed to all my relatives particularly my sister Maryam and her husband Ahmad whose continuous love and feelings encouraged me to complete this study. My sincere thanks are also due to my cousin Raja whose help was invaluable.

The researcher wishes to express his deepest appreciation and most sincere feelings to his family. My mother, who passed away before completion of this study, has always been the first and effectual teacher of mine, her sacrifices, keen interest and moral support have provided me with the needed motivation and persistence in all my endeavours since childhood. And I could not forget the great love and hard work my late father offered for us to live a successful, happy and productive life.

Inevitably my wife has sacrificed in favour of my full attention to this research. She has provided the much-needed understanding, encouragement and comfort during the writing of this thesis. She deserves my love and support, and I wish her a prosperous life and a very successful completion of her thesis next year.

Last but not least, to my beloved children Malik, Ahamad, Bilal, and Minas whose love, faith and sacrifice made this pursuit possible, I am greatly thankful and happy.

The researcher.
Abstract

Reading in a Foreign Language: Effectiveness of Computer-Based Reading Instruction in Comparison to Teacher-Based Reading Instruction

This study investigated the effectiveness of two methods of instruction, Teacher-Based Instruction (TBI) versus Computer-Assisted Language Learning (CALL), in improving undergraduate Arab learners' English reading ability in the three aspects of speed, comprehension and vocabulary knowledge.

The Experimental Pre-test/Post-test Treatment Group Design was implemented in both experiments carried out in this study. Two samples of 100 and 150 students for Experiments I & II, respectively, were randomly chosen from two higher education institutions in the Arab world. Each sample was divided into two groups depending on learners' pre-instruction preferences for TBI or CALL methods. After eight weeks of instruction using one method, the students of the two groups exchanged instructional methods for another period of eight weeks. In both cases the learners attended three 90-minute reading lectures per week.

Quantitative and qualitative data analysis showed that CALL was significantly more effective than TBI for improving the learners' reading ability in the three aspects targeted. Results showed that CALL was more effective due to different reasons: learners were more motivated to read and they enjoyed reading; CALL made learners' reading progress visible to them through immediate feedback; it fostered learner autonomy and their desire to be in control of the program and it offered the learners a large number of different reading activities to work on. Learners' suggestions for improving CALL were mainly related to increasing the time they can use CALL programs in learning to read.

Findings of the study should encourage higher education institutions especially in the Arab world to take considerable steps towards utilising computers in instruction. Even at school level this utilisation should be considered, but further research should be carried out with learners at different age levels and in different regions in the Arab world.

Keywords: Reading; Comprehension; Speed Reading; Vocabulary; Computer-Assisted Language Learning; Computer-Aided Instruction; TEFL; TESL.
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Chapter 1 The Problem and its Background

1.1 Introduction

Reading in English is an important language skill that is now in more demand than in any time in world history. With the enormous spread of the huge numbers of books, newspapers, journals and periodicals, people need to master reading in order to read fluently and understand the vast knowledge the world embraces them with. And with the large volume of information that the Internet has made available, honing people's reading skills has lately acquired special importance. At their fingertips, people can access a massive amount of information. They need to sift through such information quickly and at the same time critically; therefore, it is necessary that they should be equipped with good reading skills gained by attending literacy courses through the learning and teaching processes available.

However, a widely recognized problem faced by learners throughout the world speaking English as a second language (ESL) or English as a foreign language (EFL) is that of slow reading (Cooper 1986; Dreyer and Nel 2003). While 180 words per minute "may be a threshold between immature and mature reading and that a speed below this is too slow for efficient comprehension or for the enjoyment of text" (Higgins and Wallace 1989: 392), data from Segalowitz, Poulsen, and Komoda (1991:15) indicate that the second language (L2) reading rates of highly bilingual readers are “30% or much slower than (native language) L1 reading rates”. These data are also supported by Weber (1991), who points out that highly skilled bilinguals typically have a slower reading rate in a second language. Furthermore, Perkins and Pharis (1980) state that average ESL readers are well below average native English speakers in reading ability. More precisely, Jensen (1986:106) indicates that “at the end of a reading course, even advanced ESL students may read only 100 words per minute or less.”
This status of slow reading has often been linked with classroom methodology in reading lessons, particularly where such lessons focus on language development rather than reading per se. A number of specialists have commented on a common practice in intensive reading lessons, where reading texts are often treated as vehicles for the presentation, practice, manipulation, and consolidation of linguistic points, rather than the encouragement of reading itself. Slow reading as a problem for learners has been defined by Brown and Hirst (1983:140) as a “weakness independent of the purpose of reading”, involving the processing of information at such a slow rate that the reader is unable to hold enough detail in short-term memory to permit decoding of the overall message of the text.” In this context it should be noted that the development of adequate reading speed should receive a high priority in learning programmes, we should also recall, as Nuttall (1996) does that reading speed without comprehension is worthless since reading comprehension has come to be the essence of reading, essential not only to academic learning in all subject areas but also to professional success and, indeed to lifelong learning.

Another possible reason causing ineffective reading is limited vocabulary knowledge. Researchers such as Stahl and Fairbanks (1986), Harris and Sipay (1990) and Smith (1997) argue that knowledge of word meanings has a strong relationship to reading comprehension, and they conclude that vocabulary knowledge is the foundation for language learning. They profess that a high level of knowledge of word meanings seems to allow readers to gain better understanding of the reading input, but if word meanings are vaguely known, then comprehension will be greatly impeded. These arguments regarding the importance of comprehension, speed and vocabulary knowledge indicate how vital it is to include them in reading courses that aim at improving learners’ reading ability.

Talking about language learning in general, and in the realm of second language acquisition (SLA), the most recent effort to enhance the process of language learning has involved computer technology. In this regard, Garrett (1989:104) points out that the adoption of computer technology in foreign language education “represents one of the
most exciting developments coming out of the participation of advanced technology in education."

Since the initial introduction of computers into the field of second/foreign language education, a large number of practitioners (like Warschauer, 1996; AlKahtani, 1999; and Al-Seghayer, 2001) have concurred that this technology holds great potential for language learning. This belief leads to what is known as Computer-Assisted Language Learning (CALL). Even though the field is still young, the above mentioned researchers and many other language educators are endorsing its use as an essential component in language teaching. Embracing the use of computers in teaching and learning seems to be due to the fact that computers are capable of performing multiple tasks and thus are more than simply text processors. The computer can organize, select, and present multiple sensory components.

As far as the instruction of English is concerned in the Arab world, it could be noticed that reading lessons take the form of dealing with reading texts as sources for knowledge and linguistic matters to be learnt in classroom situations rather than dealing with them for the purpose of the reading skill itself. For example, reading speed is commonly ignored at all levels of education. Although learners sometimes face some rubrics like "read the following text as fast as you can and then write ... the answers to the questions below," those learners rarely receive any kind of training on how to speed up their reading, and their reading is not paced or timed in such activities. On the other hand, if interest is there to improve learners' reading speed, it is usually noticed that comprehension is sacrificed for the sake of reading speed; in fact comprehension is given minor importance in reading courses as such (Hill, 1981; Richard, 1982; Lai, 1993 and Bell, 2001).

In this study, however, the effectiveness of implementing the two methods of reading instruction [the conventional Teacher-based Instruction (TBI) vs. the Computer-Assisted Language Learning (CALL) methods] in which the three reading aspects of speed, comprehension and vocabulary learning are considered together in one reading course is
investigated. This consideration of the three reading aspects in one course is of great importance since these aspects of speed, comprehension and vocabulary knowledge are vital for enhancing students' reading ability in general, and the reading software RapidReader of Yagi (1998) which has been chosen for implementation in the CALL method is already in use at Sultan Qaboos University. A description of these two methods of reading instruction is described in detail in Chapter 4.

1.1.1. What is Reading?

Reading, for linguists and language educators, is a very large area to study. A huge number of books and multiple forms of research work have tackled different reading areas. Some of those publications deal with reading from a theoretical point of view, others try to identify its components and sub-skills, a third type established work towards reading approaches and some other work experimentally examined the efficiency of those different reading approaches in reading instruction.

Linguists and researchers have continuously attempted to define reading. Goodman (1971, p.135) describes reading as a "psycholinguistic process by which the reader, a language user, reconstructs, as best as he can a message which has been encoded by a writer as a graphic display". He refers to this act of reconstruction as being a cyclical process of sampling, predicting, testing, and confirming. Similarly, Perfetti (1984) and Geoffrion and Geoffrion (1983) argue for this definition of Goodman, but Perfetti adds that reading is thinking guided by print. He argues that it is a skill that involves complex cognitive processes by which visual information is converted to neural signals that go to the working memory for processing. To decode this information, the working memory retrieves conceptual and linguistic information, which match the visual information from the long-term linguistic and conceptual memory. Once a visual phrase is matched with conceptual information and grammatical patterns in the long-term memory, meaning or comprehension is said to have been achieved. To obtain this meaning that a reading text conveys, as Harris and Sipay (1990) emphasise, the reader must recognize most of the words in a text, and of course the syntactical knowledge comes into play when words come into sentences.
In the same sequence, Harris and Sipay (1990), who refer to reading as a process, describe it as the meaningful interpretation of written language that leads to the construction of meaning; in short, reading is comprehension for them. This process of comprehension is argued to be dependent on or influenced by the purpose of reading the reader has, his interest, and his motivation for reading the target text. When referring to reading as a process, it is necessary to quote Eskey (1986, p.11) who argues that “a good reader, by definition, reads fast”. This means that the time factor in the reading process which the reading definitions seem to overlook should be considered if the aim is “fluent reading” an expression which has been defined by Harris and Hodges (1981) as the ability to read smoothly, easily and readily. In this sequence, Buzan (1988) argues that educators can speed up this process through appropriate training.

In the light of these arguments, it could be concluded that reading comprises a variety of cognitive processes, the most important of which are ability to read texts as fast as possible, ability to comprehend the reading material, and ability to understand the meanings of the words appearing in the reading text. Nevertheless, for a greater understanding of this reading process, linguists and researchers have started long time ago analysing reading in terms of its components. A brief presentation of their analyses is provided below to give some rationale for this study to consider the three reading aspects of speed, comprehension, and vocabulary knowledge, and then to shed some light on how these aspects could be tested.

1.1.2. Analyses of Reading

Researchers have tried to identify the sub-skills and aspects of reading in different ways. This kind of identification which is the outcome of analysing the reading skill into its components helps researchers and teachers to note those vital aspects of reading that should be tackled so as to equip students with the learning strategies that lead to improving their reading ability. In their analysis of the reading skill, Harris and Sipay (1990) point out two kinds of analyses: the statistical and the logical analyses as they call them. Presenting these analyses in this sequence aims at justifying the need for this study.
to include the three reading sub-skills of comprehension, speed, and vocabulary as important aspects that have their impact on the reading ability in general (Harris and Sipay, 1990; Eskey 1986; and Buzan 1987).

Harris and Sipay (1990) provide a detailed review of the research work done to identify the components and aspects of the reading skill. In regard to ‘statistical analysis’ they point out the reading sub-skills that the psycholinguists (like Thorndike 1973 and 1974, Spearritt 1972 and 1980) identified through their studies of the standardised reading tests. To summarise those sub-skills, one could say that reading tests tend to check readers’ ability of recalling word meanings, i.e. the extent of their vocabulary and drawing inferences about a word from a text, getting literal sense of details and weaving together ideas in the content, drawing inferences from the content, i.e. skills that aid comprehension and recognizing an author’s purpose, attitude, tone, mood, and technique.

In the “logical analysis” Harris and Sipay (1990) found that the reading skill is basically concerned with the levels of reading comprehension which look interrelated. This identification of the reading comprehension levels is important as it provides reading educators with vital information about the expected performance of learners at the different stages of their learning process depending on the instructional approach implemented and the designated aims. In this sequence, Macmillan (1965) (in Mackay, Barkman and Jordan, 1979, p.112) argues against considering reading as a one single skill; on the contrary it is a process including a complex set of interrelated skills that involve:

1. Word recognition and the mastery of basic and technical or specialized vocabulary,
2. The ability to see in the material the structure of the sentences, paragraphs, and longer passages that constitute the thought units,
3. The intelligence necessary to follow the thought development presented in a text, and to make any relevant deductions, inferences, or critical assessments, and
4. The ability to concentrate on the reading task.
In their discussion of these interrelated comprehension skills, Mackay and Mountford (1976) (in Mackay, Barkman and Jordan, 1979) argue that if learners are taught the rules by which the units of language are put together to convey meanings, then it will be possible for them with an adequate and appropriate vocabulary to understand the meanings presented in a sentence or a text.

Furthermore, in terms of the objectives that should be achieved in relation to the reading skill, Herber (1978) shortened the set of the interrelated sub-skills of reading comprehension to three levels:

1. The literal level in which readers read to find out what the author says, and this level mainly depends on understanding the meanings of words used in the sentences.
2. The interpretive level in which learners read to find what the author means.
3. And the applied level in which learners read to find out how to use the ideas.

Looking deeply through the levels of reading comprehension in the above two classifications, it could be noticed that these two analyses of the reading skill state that comprehension of the content displayed in a text is the basic and most important aspect of reading. This comprehension skill has different levels as presented above, still reader’s knowledge of word meanings is given an important role for this comprehension skill to take place regardless of the designated level of comprehension which a reader or a reading course designer establishes. Research work has emphasised this strong relationship between vocabulary knowledge and comprehension (Hegelheimer and Chapelle, 2000; Tozcu, 1998).

Now, having pointed out comprehension and vocabulary knowledge as important factors of reading, linguists further argue that there is the factor of speed which has been identified as another important factor that significantly correlates with comprehension. As argued by Harris and Hodges (1981), Torgesen (1986) also argues that the studies on skilled readers suggest that fluent reading greatly aids comprehension. In addition to
being able to read smoothly, easily and readily, the fluent reader to Harris and Hodges (1981) does not face the problem of word identification. However, inadequate fluency, for them, is marked by hesitation, word-by-word reading, and improper phrasing, and repetition, that is to say slow reading. Therefore, this could be the reason that led Eskey (1986) to theorise that “a good reader, by definition, reads fast” (p. 11).

This kind of relationship between reading speed and comprehension has been stressed by LaBerge and Samuels (1985). They argue that although comprehension and speed are two distinct reading factors, they continue to be strongly related. Therefore they emphasise the need for developing readers’ quick and automatic identification of words which leads to devoting most of their attention while reading to understand the meanings and relationships of those words. More precisely, they report five beneficial effects of including exercises in a reading comprehension course to increase learners’ reading speed:

1. They help students to break the habit of translating word for word and reaching for the dictionary every time they come upon a new term.
2. They increase reader’s confidence by demonstrating that he can comprehend a great deal from a text without understanding every word.
3. They encourage students to change reading strategies, to utilize previous knowledge more efficiently and depend less on the printed text.
4. They help increase concentration, since the reader’s mind will be more actively involved in processing and integrating the information.
5. And they promote reading for ideas and concepts rather than deciphering letters and words.

This detection of the reading skill components helped the researcher identify the main aspects of reading that correspond to the aims of this current study. These reading aspects are: speed, comprehension, and vocabulary. This analysis also sheds light on the areas that should be tested to check learners’ reading ability. Therefore, the reading speed of the reader or the time spent to read a text should be counted for when assessing learners’
reading ability. Learners' comprehension ability should also be evaluated in that process. This evaluation of comprehension takes different shapes depending on the aims of that evaluation and the type of reading taking place. For the purpose of this study, and depending on the analyses presented above, learners' comprehension ability would be tested by multiple-choice questions that measure their understanding of the literal meaning of the reading texts. This type of assessment of comprehension has been affected by the aim of this reading course in which the learners were asked to read as fast as they could without making any kind of back skipping or regression to previously read words, phrases, sentences or paragraphs – actions that could take place in evaluative and critical reading to get the deep meaning in a text. This kind of reading was adopted in order to equip the learners with good habits of shortening eye-fixations, increasing the number of characters the eyes can get in each glance or movement, and minimising back-skipping or regression (Buzan, 1988). Added to the speed and comprehension components, the assessment of the reading should also include items checking readers' knowledge of vocabulary.

1.1.3. Two Methods for Reading Instruction

In light of the above research into the definition of reading, and the identification of the basic components of this reading skill, it appears that the most important aspects of a reading course directed to EFL/ESL learners are reading comprehension, reading speed and vocabulary learning. To Calfee, Henry and Funderberg (1988) these aspects are dependent upon each other since the gains in one basic reading aspect allow for gains in other aspects, and that an insufficiently developed basic aspect may limit development in other aspects. Following this line of reasoning, it has been decided that the instructional course of this study should aim to improve learners' reading speed, comprehension and vocabulary knowledge so that their reading ability could be improved as one unit. To achieve this aim an experimental study has been set up to investigate the efficacy of implementing two different reading methods that each take account of these three reading aspects in improving the English reading ability of adult Arab FL learners.
Choosing these three reading aspects was also inspired by Cooper’s (1986) and Bell’s (2001) argument that learners throughout the ESL/EFL world face the slow reading problem as previously described in Section 1.1. This reading deficiency, which should be of concern to educators and researchers, could have happened because of one or more of the following reasons:

- EFL/ESL reading courses lack the techniques and exercises directed for improving learners’ reading speed (Bell, 2001).
- EFL/ESL study-skills courses often concentrate on intensive reading activities that mainly tackle language aspects like grammar and vocabulary, (Cooper, 1986; Brusch, 1991).
- EFL/ESL reading courses neglect comprehension when speed is considered (Nuttall, 1996; Bell, 2001).
- EFL/ESL reading courses neglect learners’ attitudes and preferences forwards the ways in which they prefer to learn (Yagi, 1999).
- EFL/ESL reading courses ignore the fact that reading comprehension is dependent on reading speed, and vocabulary knowledge (Torgesen, 1986; Towndrow, 1997),
- EFL/ESL reading courses ignore the fact that vocabulary knowledge has its impact on reading comprehension and reading speed, (Stanovich, 1986).
- Learners’ perceptions of the role of the teacher in this revolutionary age have radically changed. Although technology devices are increasingly made available in educational institutions, there is a feeling that they are not utilised appropriately in education. In fact learners strongly like to see this utilisation (Yagi, 1999).
- Even when CALL systems are implemented in EFL/ESL reading courses, the main principles (control, complexity, and challenge) that Wishart (1990) and Underwood and Underwood (1990) argue for as leading to better learner involvement may not have been considered when working on Integrated Learning Systems (ILS).

This current study claims that there are two methods of reading instruction implemented to overcome those deficiencies and to promote better reading fluency or ability of EFL/ESL learners. The first is the conventional teacher-based (TBI) method in which the
reader works on different reading tasks and activities presented on papers and all is done under the supervision of the teacher. Bell (2001) and Buzan (1988) claim significant educational gains due to implementing this method. On the other hand, using computers in language learning and particularly in reading instruction has been recently given more importance by researchers and educators like Underwood & Brown (1997), Alkahtani (1999), Singhal (1999), and Al-Seghayer (2001). In this computer-assisted language learning method (CALL) learners are given more responsibility for the process of learning but the teacher continues to have a key role in the process of instruction (further details about these two methods are discussed in Chapter 4). This current study investigates their effectiveness in promoting higher levels of reading.

Because research findings are not consistent towards the implementation of one method of reading instruction rather than the other, this study has been set up to investigate its effectiveness in comparison to that of the TBI method. Nevertheless, research findings have shown that it is not only the nature of an instructional method that determines its efficacy, but there are many other circumstances that could also be important. Therefore, this study attempts to investigate some of those circumstances, such as learners’ attitudes towards the instructional methods before attending the reading course, learners’ beliefs about what makes an instructional method effective, features characterising that effective method and the changes learners suggest for increasing the efficacy of that method.

1.2 The Need for the Study

Reading is an important language skill that is now in more demand than in any time in our history. With the exposure of the Internet in a global arena, students need to master reading in the English language, in which most of science, business and technology sources are written, in order to understand and deal with the vast knowledge the world embraces them with. This fact places pressures on English FL/SL users to perform at a higher level than the users of this language before this time.

However, findings of research on the reading abilities of Arab learners who are usually exposed to traditional reading instruction are not encouraging. For example, Abu Sirhan
(1993), Ali (1994) and Sahakian and Al Sheikh (1997) expressed that reading in EFL has been recognised as a difficulty that a majority of Arab learners face. Shih (1992) also noted that the difficulty in reading and studying content area texts was high on the list of problems cited in surveys of ESL students who had completed intensive, pre-university ESL programmes. She asserted that ESL students experience great difficulties when they make the transition to the English-medium academic mainstream, whether it is at the elementary or secondary level or even at the college level. These studies recommended that a variation in the instructional processes should be applied in language instruction. In fact, a number of researchers (e.g. Sponder, 1993; Singhal, 1999; Yagi, 1999) argue for utilising computers in language instruction. Yagi (1999) for example reports that university students in the Arab world are anxious to see the effects of technology developments in their English language learning classrooms.

Inspired by these conditions, the importance of conducting this study arises as it has been directed towards improving the reading ability of undergraduate Arab EFL learners which has been reported above to be low. This study claims that the reading ability of undergraduate Arab EFL learners could be improved remarkably through exposing them to a reading course that includes reading speed exercises part of which are timed and paced reading, scanning and skimming and other comprehension activities, in addition to other vocabulary learning activities.

The importance of this study also lies in the fact that it explores the effectiveness of reading instruction methods on the three main reading aspects of speed, comprehension, and vocabulary, which have been identified as basics for promoting higher levels of reading proficiency to ESL/EFL learners of English. Previous research investigated the effectiveness of reading instruction methods on improving one or at most two of the reading aspects in a reading course as if these were independent from each other (Bell, 2001). It is true that readers should read faster, know more vocabulary words, and comprehend what they read to become fluent readers; still, there would be no use in improving speed and neglecting comprehension, or improving the comprehension ability and neglecting reading speed. And what would be the use of learning more words if these
were not used to increase the reading speed and the reading comprehension ability? In fact, neglecting one of these aspects in a reading curriculum may limit improvement in the other aspects as argued by Calfee, Henry, and Funderberg (1988). Therefore, the three reading aspects (speed, comprehension and vocabulary knowledge) identified as basic to the reading skill and closely related to each other (Stanovich, 1986), have been included in this study as important variables that the reading course aimed at improving.

Consequently, to work on improving EFL/ESL readers’ ability that covers these three reading aspects, one should think of an appropriate instructional reading method to implement in classroom situations. The first method occurring in the mind is the conventional method which depends mainly on teachers and reading texts and activities printed on papers, and it is called in this study the Teacher-Based Instruction (TBI) method. This method uses different techniques and strategies that expose learners to reading exercises such as scanning, skimming, timed reading, paced reading, and different vocabulary activities (Buzan, 1988; Harris and Sipay, 1990). Educational technologists however, claim that the same reading exercises and activities and even much more could be effectively and attractively implemented in the CALL instructional method (Singhal, 2001). For this method, Yagi’s (1998) reading software RapidReader has been chosen for implementation. Descriptions of the two methods are demonstrated in detail in Chapter 4.

However, research findings are not consistent in this regard, thus validating the need for more research in this respect. This could be the reason that led AlKahtani (1999) to say that technology, especially computers, has not yet got to the point where it can make a difference in language instruction in ESL classroom. While there are some research findings that argue for the CALL method of reading instruction due to its effectiveness (e.g. Cortez, 1996; Hong, 1997; Tozcu, 1998) other research findings indicate that reading gains due to the CALL method are not significantly better than those of the TBI method (Greenlee-Moore and Smith, 1996; Spivery, 1992; Tillman, 1995). This inconsistency in findings is attributed to circumstances related to implementation (Johnston, 1996) and among these could be the role of the teacher in each study.
Therefore, if this study were to show how effective CALL can be in Arab educational institutions, then educators in this part of the world might become more interested to consider this instructional method seriously and conduct related research studies so as to promote high quality education.

In the same sequence, it is obviously noticed that higher education institutions, and many primary and high schools in the Arab world have acquired learning resource centres and computer networks, and although there are some voices and formal decrees directed towards implementing computers in classroom instruction, to the researcher's knowledge and according to Yagi (1999), regular implementations as such in formal Arab educational institutions occur rarely. This could have been influenced by the following reasons, which are at the same time important grounds for conducting this study:

- CALL research started with L1 learning; however, it is relatively new for FL/SL (Reinking, 1998), especially in the case of non-native speakers of English whose native tongue is Arabic.
- Research findings on CALL for FL/SL reading are not consistent. In spite of the increased research on the effectiveness of the CALL and the Teacher-Based methods of reading instruction in the areas of reading comprehension or reading speed or vocabulary learning, a lack of consistent findings is often reported (Singhal, 1999). For example, if an increase in the reading speed takes place, a decrease in the comprehension accuracy is reported as in Culver's (1991) study.
- CALL reading software rarely deals with the main reading sub-skills together in one program although those main sub-skills like speed, comprehension and vocabulary learning are reported as interrelated and, as Calfee, Henry and Funderberg (1988) say, the low ability in one of them leads to a decrease in readers' ability in the others and, consequently, the overall reading ability.

These findings amongst others have had their impact on shaping the educational policy in regard to implementing CALL systems in Arab schools and higher educational institutions and, therefore, it is noticed that teachers, educators and decision makers are
not yet convinced of the effectiveness of CALL programs in language learning. Such a situation motivated the researcher to conduct this study to investigate the effectiveness of applying CALL reading programs versus the conventional teacher-based reading lessons in classroom instruction. In fact, the importance of this study of the effectiveness of CALL in improving students’ reading skills lies in the fact that it deals with a new area in teaching English as a foreign language (TEFL) which has rarely been studied in the Arab world.

To sum up, below are the ideas that emphasise the need for conducting this study:

1. There is a lack of research concerning SL/FL reading instruction that takes into consideration all the main sub-skills or aspects of reading when investigating the effectiveness of the different reading instruction strategies.

2. There is also a lack of research conducted in the Arab region to investigate the effectiveness of implementing CALL in educational institutions and schools.

3. There is an ignorance of the importance of improving the reading speed ability of Arab learners in the processes of English language instruction.

4. There is evidence that the effectiveness and outcomes of implementing CALL programs in reading instructions are determined by different circumstances like learner’ attitudes towards this implementation, the characteristics of the reading software itself, the length of time allocated for the learner to work on the program, the level of ease or difficulty of the work on the program, learner ability and experience in using computers, and others.

5. This study unlike previous studies deals with the reading speed, comprehension, and vocabulary learning as the three main aspects of the reading skill. As demonstrated above previous studies tackled either one or two aspects of these rather than the three together, although neglecting one of them negatively affects the achievement in the others.

6. The special design of the study strengthens the validity and value of the findings of this study since all the groups were exposed to the two instructional methods during the reading course. Therefore, educational gains due to the two instructional
methods for every group would be evaluated and analysed. Learners’ attitudes towards the two instructional methods and their suggestions for improvement would also be more reliable due to that exposure to the two instructional methods. Findings as such are expected to shed light on the issues and aspects of reading instruction that educators need in the work planning and designing reading curriculum.

Tackling the issues raised above in the field of CALL reading instruction for FL adult Arab learners is expected to add new aspects to existing research findings. Through the results of this study, educators will be provided with the experimental evidence to help them take the right decision towards implementing the CALL method or continuing to use the conventional TBI method. Furthermore, results of the post questionnaire and the interview surveys of the study would also encourage reading specialists and teachers to reinforce all the features of the instructional method that would prove its effectiveness for reading instruction and also to consider the newly pointed out features of that instructional reading method and learners’ suggestions for improving it when designing and producing reading curriculum. Findings of this study will also help educators decide whether it would be worth working on changing learners’ attitudes towards the methods of FL language instruction in general, and towards the methods of reading instruction in particular. This study would also help English FL reading teachers identify what their learners would expect from them to do in and outside classrooms.

1.3 Questions of the study

This study attempts to answer the following seven questions:

1. Are there any significant differences in the reading ability achievements of the freshman students at Al Masanna’ Technical Industrial College (MTIC) in the Sultanate of Oman (SO) and Sharjah University (SU) in the United Arab Emirates (UAE) due to the instructional method (CALL vs. TBI)?

2. Are there any relationships between the reading ability achievements of the freshman students at MTIC, and SU and their pre-instruction preferences for the CALL and the TBI methods of instruction?
3. As expressed in the post-questionnaire survey, which one of the two reading instruction methods was the most effective in improving their reading ability, the CALL or the TBI?

4. As expressed in the post-questionnaire survey, what were the learners' reasons for their preferences for the CALL or the TBI method(s)?

5. As expressed in the personal interviews, what were the learners' reasons for the significant improvement (if taking place) in their reading ability?

6. As expressed in the personal interviews, what were the features and functions that characterised the instructional method the learners believed to have caused the significant improvement in the three target reading aspects?

7. As expressed in the personal interviews, what changes did the learners suggest for improving the instructional method that caused the significant improvement in their reading speed, reading comprehension, and vocabulary knowledge?

1.4 Hypotheses of the Study

Depending on the questions that this study deemed to find answers for, four hypotheses were put forward for investigation:

1. There were no statistically significant differences ($p < 0.05$) in the adjusted reading speed scores of the freshman learners at MTIC and at SU due to the instructional methods (CALL vs. TBI).

2. There were no statistically significant differences ($p < 0.05$) in the reading comprehension scores of the freshman learners at MTIC and at SU due to the instructional methods (CALL vs. TBI).

3. There were no statistically significant differences ($p < 0.05$) in the vocabulary learning scores of the freshman learners at MTIC and at SU due to the instructional methods (CALL vs. TBI).

4. There were no statistically significant differences ($p < 0.05$) between the achievements of the freshman learners at MTIC and SU in the three reading aspects (speed, comprehension, and vocabulary knowledge) due to their
preferences for the CALL or the TBI methods of reading instruction as expressed on the pre-questionnaire.

1.5 Structure of the Thesis

This thesis consists of this introduction and ten other chapters, followed by a list of references and a group of appendices, which include two questionnaires of attitudes, the questions of the interview survey, and the three reading achievement tests.

Chapter 2, "Literature Review", reviews the previous research work carried out in the field of reading instruction in English. This chapter presents studies that are closely related to the methods of reading instruction including the three main aspects of comprehension, speed, and vocabulary. The focus is on implementing the CALL method of reading instruction in schools and higher education institutions. What determined choosing a study for presentation in this sequence was how close it is to the issues investigated in this current study. These issues include learner achievement in the reading aspects due to the CALL and the conventional reading instruction methods, attitudes of learners and teachers to CALL and conventional methods of instruction, features and factors characterising the CALL and the conventional methods. Conclusions were also derived as a result of the review of the research studies introduced in this chapter.

Chapter 3, "Method" focuses on the design of the study. It introduces the dependent and independent variables and it describes the population and the sampling processes of the study, which took place in two experimental settings. This chapter also deals with the instrumentation processes implemented in the study. The different instruments the study implemented and their objectives are presented in this chapter. A description of the stages followed for conducting the two experiments including the data collection, and the statistical test used for analysing those data are also presented in this chapter.

Chapter 4, "Description of Instructional Methods and the Pilot Study" talks about the two reading methods implemented in this study for the reading instruction course. It gives
concrete examples of the activities and techniques the learners were exposed to in the process of learning/teaching reading. Details related to the pilot study are also found in this chapter.

Chapters 5, 6, 7 and 8 describe the processes of analysing the quantitative and qualitative data collected in this study. Results of those analyses are presented in these chapters, and each one chapter of these includes (a) discussion section(s) of the findings achieved.

Chapter 5 introduces the analysis of the data collected in Study I. The first three questions of the study (which are shown in Section 1.3) address the effectiveness of the CALL method versus the TBI method and will be answered in this chapter. Analysis of the relationship between learners' reading achievements due to their exposure to the CALL method of reading instruction and their preferences for that method are also presented in this chapter. In addition to that some implications are pointed out in this chapter to be considered in Experiment II.

Chapter 6 follows the same sequence as Chapter 5 but this chapter deals with the data gathered in Experiment II from a different group of students in order to investigate the reliability of the findings of Study I.

Chapter 7 also deals with the data collected in Study II, but focuses on analysing the data of the post-questionnaire of attitudes. This chapter presents an analysis of the learners' responses to the post-questionnaire to identify the reading instruction method that was the most effective in improving their reading ability according to the learners' point of view (Question 3). It also presents an analysis of those responses to identify the learners' reasons for their preferences for the CALL or/and the TBI method(s) (Question 4).

Analyses of the qualitative data collected in the personal interview surveys following Experiment II are shown in Chapters 8, 9 and 10. The themes decoded from the data collected which correspond to the last three questions of the study shown in Section 1.3 above are presented in these three chapters. Chapter 8 shows the reasons, according to the
participants' point of view, for the significant improvement in their reading ability that took place (Question 5). Chapter 9 introduces the features and the factors that characterised the CALL method as pointed out by the interviewees (Question 6). And Chapter 10 introduces the changes that the interviewees suggested in order to make the CALL method more effective (Question 7). A discussion of the themes pointed out and the findings achieved follows each of these three chapters.

The last chapter in this study "Chapter 11" presents the general discussion of the results obtained, the conclusions derived from this study, and the implications for follow up research studies in the field of reading instruction in general and in CALL implementations in particular.

1.6 Definition of Terms

For the purpose of this study the related terms are defined as follows:

- The reading course: is one of the four intensive English language study skills courses that the students should attend during the first academic year in the educational institutions where the sample of this study has been chosen. This course aims at equipping the freshman students with the reading skills needed to help them become fluent readers.

- Freshman students: are those male and female 18-20 years old students who attend the educational institutions where the sample of this study has been chosen after passing the General Third Secondary Certificate Examinations. Those students are admitted under a competitive procedure depending on the General Point Average in the above-mentioned certificate. The students admitted in each institution in each country come from different regions in the country where the institution stands.

- The instructional material: an authentic novel chosen from a set of stories recommended by the English departments for the study skills reading courses. Each section or chapter in the novel has been allocated for reading in one lecture. Each
chapter of these has been accompanied with numerous reading and vocabulary activities for the students to work on during the lecture time.

- Reading ability: learners’ scores on the reading examinations that cover the three reading aspects of speed, comprehension, and vocabulary knowledge.

- Reading comprehension is an active purposeful process in which meaning is constructed through the interaction between reader and text (Durkin, 1993). Learners’ ability to comprehend the literal meaning of a reading text is measured in this study using multiple choice questions that test learners’ understanding of and memory for ideas that are explicitly or straightforwardly stated in a text.

- The Computer-Based Reading Instruction (CALL): is one of the two methods implemented in the study for teaching and learning the reading skill using Yagi’s RapidReader software which has been used under the leadership of the instructors of the reading courses.

- The Teacher-Based Reading Instruction: is the conventional method of reading instruction implemented in the study for teaching and learning the reading skill. A variety of techniques and activities similar to those of the CALL but without implementing computers have been used by the instructors and the participants of the reading course.

1.7 Assumptions of the Study

The following basic assumptions were proposed for this study:

- The two instructors who taught the reading courses implemented the instructional materials and the TBI and CALL methods objectively with an equivalent level of enthusiasm.

- Students responded to the items of the administered questionnaires and the personal interviews objectively and honestly, understood the instructions given and that the items of these questionnaires provided a reliable measure of the participants’ preferences and attitudes towards the two instructional methods of reading implemented in this study.
The data related to participants' preferences and attitudes should best be obtained by the developed scales.

Participants' pre- and post-treatments reading ability should best be obtained by the achievement examinations designed for those purposes.

The samples were randomly selected to represent the population of the freshman students at higher education institutions in the Arab world.

The methods of statistical analysis used were the most appropriate for handling the data and answering the questions of the study.

1.8 Limitations of the Study

The study was limited by the following circumstances:

1. The study was limited to adult freshman students attending three higher educational institutions in the Gulf region. A group of the participants were attending the MTIC - a technical college in the Sultanate of Oman, a second group were attending SQU in the same country (for the pilot experiment), and the third group were attending SU in the UAE, also in the Gulf area.

2. This study implemented the multiple-choice form of questions to evaluate learners' comprehension ability. Learners were asked to respond to the comprehension tests immediately as they finished reading the target texts and they were not allowed to refer to those texts while responding to the test items. It could be argued that such comprehension tests measure learners' retention or memorising ability rather than their understanding of what they read; still it is globally known that retention is dependent on understanding. Although learners were exposed to different comprehension activities like cloze tests, summarization and different comprehension activities that tackled higher or deep comprehension on evaluative and interpretive levels during the reading course, learners' understanding was assessed by comprehension questions mainly dealing with the literal level of text understanding and that was due to the nature of the Universities' set reading examinations.
Chapter 2 Literature Review

Extensive research studies have been conducted to investigate the effectiveness of different reading instruction methods and the benefits that each of these methods holds for improving learners' reading ability. In this review of literature, some of the most related research studies that dealt with the effectiveness of the conventional TBI method and the CALL method are described below in the sections of this chapter. There will be a section that reviews a few studies tackling the effectiveness of some reading techniques like the paced and timed reading on improving learners' reading ability. A second section deals with the effectiveness of the CALL method of reading instruction compared to the TBI method, in some cases, in improving learners' reading speed, comprehension, and vocabulary abilities. A third section deals with the factors relating to CALL instruction such as reading from screen, role of feedback and learners' motivation toward using computers. This section will include studies investigating the effects of implementing computer-assisted instruction on the cognitive aspects related to learning from computers like learner motivation and acceptance of this technology in learning, and the relationship between these cognitive aspects and learner achievement and involvement in the learning process. The next section tackles research findings related to some extra facilities (like pictures, line length and font, text size, eye-movement activities and highlighting groups of words for learners to read in one fixation) that the computer can offer for the learner as well as the teacher that could improve the educational gains. And finally, a summary of previous research findings and their implications are presented in the last section of this chapter.

2.1 Teacher-Based Instruction

One important procedure to improve the reading speed of ESL learners is by making reading in the target language a habit for those learners, (Eskey, 1986). “Timed reading” and “paced reading” are well known techniques suggested for increasing learners' reading speed. Champeau de Lopez (1993) studied the effectiveness of using the
techniques of 'timed reading' (p.51) in which the learners were given the chance to read at their own pace and then calculated their speeds in words per minute, and 'paced reading' (p.52) where the teacher controlled the time allowed and tapped on the desk to indicate times when a certain marked place in the text should be reached. In her research she examined the effects of these two techniques on improving Venezuelan EFL learners' reading abilities. She found that students increased their reading speeds on average from 120 to 170 words per minute, after following a course of nine weeks long based on a combination of timed and paced readings. However, a slight drop in comprehension from 78% to 67% was noted over the same period. This finding reminds us of the danger, referred to earlier in Chapter 1, of developing reading speed at the expense of comprehension (Berkoff 1979; Nuttall, 1996). However, if appropriate attention is given to comprehension in addition to speed, different findings could be achieved. To avoid this deficiency of neglecting comprehension for the sake of reading speed, Lai (1993) investigated the effects of a four-week reading course on learners' reading comprehension, reading speed and writing development. Graded readers and short passages were used to supply comprehensible input to 226 students at grades 7 to 9 from Hong Kong secondary schools. Results showed that there was improvement in all three areas tested for those students who had reached a certain level of proficiency. Depending on the teacher's emphasis, the quantity of reading done had a significant relationship with reading comprehension gains in one course and with reading speed in another course. Lai's finding showed that one important variable that affects learners' gains in speed and comprehension is the amount of material the learner reads; reading longer texts and more materials lead to better increase in speed and comprehension.

Bell (2001) made use of Lai's suggestions regarding the amount and nature of reading materials offered for ESL learners in her study to investigate the effectiveness of implementing two teacher-based techniques for reading instruction for young adult students working in various government ministries in the Yemen Arab Republic. This study measured both reading speeds and comprehension in two groups of learners exposed to intensive (n=12) and extensive (n=14) reading programs. The experiment lasted for two semesters in which the reading programme covered one quarter of the total
class time (36 out of 144 hours). The extensive group was exposed to a scheme of graded readers consisting of class readers, a class library of books for students to borrow, and regular visits to the library providing access to a much larger collection of graded readers. The control group received an intensive reading course based on the reading of short passages and the completion of tasks designed to cover aspects of grammar, lexis, and rhetorical patterns. Results indicated that the students exposed to extensive reading achieved significantly faster reading speeds and significantly higher reading comprehension scores at the same time. The results of this study were consistent with those of Lai’s (1993); both emphasised that extensive reading courses where learners were exposed to longer reading texts and greater amounts of reading material positively affected learners’ reading speed and comprehension abilities.

This demonstration of the closely related studies that investigate the effectiveness of the conventional TBI reading instruction is to give evidence that once the attention is given to more than one of the components of reading, positive gains could be achieved regardless of the instructional method implemented. However, educators are interested in maximising those positive effects and so numerous research studies have been conducted to investigate the effectiveness of the CALL method of reading instruction in comparison to the TBI method. The following section is directed towards reviewing some of those studies.

2.2 CALL vs. TBI Methods of Reading Instruction in Higher Education

Collins & Wende (2002, p.7) observe that "ICT use, in terms of email, word-processing, Power Point, and the Web has become standard as part of the teaching and learning process." More interestingly, Jarvis (2004) argues that English as a Foreign Language (EFL) and English as a second language (ESL) have played a significant role in developing the use of computers in language instruction in universities or Higher Education Institutions (HEIs). Additionally the vast majority of HEIs have access to local and international networks (WWW) as pointed out by Jarvis.
In the UK-based context, Jarvis (2004) conducted a study to investigate the range of EFL courses available in the HEIs, the frequency with which computers are used on such course, and the types of computer-based materials (CBMs) used. Regarding the first aim of this study, Jarvis found that EFL courses mainly include English for Specific Purposes (ESP) courses from which English for Academic Purposes (EAP) stems and computers have been found increasingly important in the EAP courses. In the UK, a range of computer products are delivering EAP materials in a multimedia environment. For example, Warwick University describes on its Web an academic English CD-ROM "Essential Academic Skills in English" which consists of 6 units guiding students through the key language skills involved in listening to lectures. These units deal with different language issues such as language functions and argumentation. The students can, for example, watch a clip from a lecture and practise their listening and note taking skills, and so the target students who are usually non-native speakers of English can improve their language reading, writing, listening and speaking skills. Another example that can be seen on the Web belongs to the Anglia Polytechnic University. As the Web describes, the CALL materials are presented on a CD-ROM called "EXCEL AT ACADEMIC ENGLISH CD-ROM". The software claims that the program contains: 300 screens of interactive instructional material and guidance, exercises covering the three main language skills, and 'Test Yourself Units' in writing and reading; audio and video clips are also incorporated. This CALL program enables the user to record his/her own voice, and different colours are used.

More interestingly, Jarvis (2004, p.121) documented in his study the percentage of respondents of the questionnaire who use the CBMs designed for each EFL course type, and the percentage of the HEIs that use CALL software on at least one EFL course. Although this list does not show the exact number of users nor the types of software used due to the noticeable number of the HEIs that did not respond to the questionnaire, the data indicate that a large number of CALL programs and computer features are implemented in HEIs in the UK.

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A large number of CALL programs are implemented in the UK universities for teaching English to students. For example, “Hopalong” (Higgins and Wallace, 1989) is a reading pacer and diagnostic tool for readers. It goes through a text, highlighting pages at a speed the reader can control. When the reader is finished, it displays a graph to show the way the text has been read. The reader can print the complete text with inserted marks to show where the reader sped up, slowed down, paused, or re-read a page or pages. The goal is to assist students in understanding their bad (and good) habits, not to replace reading on paper.

A second example is the writing and reading CALL program “Headline” implemented at Stirling University for the use of first year students. Each student using this software types in their own name and some basic personal information, such as home town and hobby. Then the computer generates a string of zany newspaper headlines (nothing negative or offensive), and the students can print out any they like. Then they can discuss their headlines, compare them with others, and write the news article which would fit their own headline.

There are other examples used in the US HEIs like “REAL Reading in English” and the “HyperStory” programs used at Oregon State University. The first consists of two packages. The primary purpose of the two REAL Reading packages, REAL Reading in English for Business and Management and REAL Reading in English for Social Scientists is to enable students to recognise and apply the reading skills of prediction, skimming, scanning, searching and demonstrating understanding to a range of text types likely to be encountered during the second or third year of a first degree at an English-speaking university. Nine texts are provided in each package, and each text is designed to occupy a higher intermediate level student for approximately two hours. The secondary purpose is to encourage students to assess their own work and, as a result, to become more independent language learners. Where responses, rather than suggestions, are required from the students, answers are provided with which students are required to compare and evaluate their own input. The second program “Hyperstory” makes use of Charles May’s collection of short stories. Students read the text in the book, and then go
to the HyperCard version. At crucial points in the text, they can click on a light bulb to get study questions, food for thought, etc. From there they can open a notebook and write answers. Toward the end of the story, they click open and choose a short writing assignment. For each of the 18 or so stories, they must print out their notes and their short writing assignment for the teacher to read, or they e-mail them to him/her.

CALLEAP is another commercial CALL program published by the Wida Software group. This software uses Wida's Gapmaster program to offer a range of practice materials for English for Academic Purposes students. This program has 21 exercises to train students on finding the missing words, word building, finding and correcting mistakes in a text, answering questions about a written text, and analyzing data in a table. A student workbook, teacher's manual, and learner's manual are included.

In other parts of the world, and more specifically in the Arab world where the current study took place, CALL is not noticeably implemented. Word processing is the computer feature that university students use most. They use it to draft their assignments for English and other subjects taught in English as well. However, in some institutions like the Sultan Qaboos University in the Sultanate of Oman, students attend a language skills course which presents them with activities and exercises covering the four main language skills. The RapidReader software (described in Chapter 4) is an example of a CALL program implemented there during the time when this current study was conducted. Computers are also used on individual basis by English teachers at other Arab HEIs. For example, at Birzeit University in Palestine, the researcher noticed that some English language teachers ask their students to use Word for writing their assignments. In the same course, some teachers who are interested in improving their students' writing fluency ask them to use MSN messenger for writing in the form of internet chat. Those teachers usually have a look at what their students wrote just to make sure that the students are doing the work. They usually comment positively praising the students' efforts. Generally speaking, it has been noticed that the Web pages belonging to most of the Arab universities the researcher managed to visit lack any signs to show their interest in using computers in classroom instruction, especially English classrooms. This is
indicative of the limited research in the field of using computers for teaching and learning English in the Arab world.

In the international field of reading instruction, however, a wide range of research studies have investigated the effectiveness of implementing different computer systems of reading instruction on educational gains. Some of those studies compared the effectiveness of CALL systems to TBI reading instruction strategies, and others made a comparison between different implementations of CALL systems. A number of these studies are discussed in the following sections. While the variability of findings was noted in different studies, many researchers concluded that CALL systems have a great potential that should be utilised in the educational practice.

2.2.1 Comprehension and Speed

Wepner, Feeley and Wilde (1989) investigated whether a commercially prepared reading software package, Speed Reader, could be utilized as effectively as traditionally printed paper text with college students over time to improve reading efficiency, namely, rate and comprehension. Two of four sections of a second-level fourteen week basic skills course were randomly designated as the experimental group and the other two were assigned to the control group. All sections read a novel and the experimental group spent one period a week using Speed Reader materials. The only difference between the two methods was in the mode of delivery as the experimental group used the materials in the computer lab and read passages on a computer screen. A specialist in CALL nowadays might argue that implementing the target instructional methods of this study would not lead to a significant difference in the achievement of the two groups at least due to the fact that computer systems have much to offer for learners like immediate feedback, records of performance, pacing one's own learning and other features that seem to be difficult to offer in conventional instruction. This was in fact the result of the study. Results of the achievement test at the end of eight weeks of instruction showed that computers could be used as effectively as traditional approaches in delivering timed, whole text readings with comprehension checks to improve the reading efficiency of college students.
Nevertheless, while no significant differences in reading achievements were found, motivation benefits were observed for the computer-displayed group.

In another study which dealt with learners in prison, results were completely against using CALL reading instruction. Spivery (1992) conducted a study to compare the effectiveness of Computer-Assisted Reading Instruction to that of a direct teaching model. Nineteen adult male prisoners from a school in Texas, USA, who were enrolled in special education classrooms served as participants. The participants were divided into two groups each of which spent one-hour a day on reading for two weeks. One group used computer-assisted instruction, while the other group participated in traditional teacher-led reading lessons. Treatment effects were measured after two weeks using a special reading inventory test in the areas of oral reading and reading comprehension. Results of the study indicated: (1) significant pre-test to post-test gains made within the traditional teaching model; (2) and gains were made by both the instructional methods, even though the gains did not show one method better than the other in a statistically significant way. A survey given after the treatment indicated that student preference was for teacher-led lessons over computer-assisted instruction.

Slightly different results were achieved by Culver (1991) who was also interested in studying the effects of using computer programs on improving ESL students' reading speed and comprehension. Culver implemented a computer reading program to determine the exit and entrance scores of ESL college students and to find out if their reading speed and comprehension would improve. The results showed some improvements for the majority of students in the target group with an overall increase of 3.9 grade levels in reading rate. The results showed that the effect of increasing reading speed on student comprehension as a result of implementing computers was remarkably noted. This study concluded that the computer was a good tool for improving students' reading rate despite the fact that increased speed did not lead to increased levels of comprehension for some students.
Although results of such studies could be considered promising at the times when they were conducted, still it could be argued that there were some circumstances that might have affected the results. For example, the time the learners spent using the software in the study of Wepner et al (1989) could be argued as not enough to cause a significant increase in their achievement. We were not even told in both studies about the role of the teacher in the CALL sessions and learners' pre-instruction attitudes towards using that instructional method were not considered although these could have affected the learners' involvement in the learning process at that time and so their achievements (Sponder, 1993).

Some other research findings in different contexts were not far away from those of the findings obtained in the studies described above. For example, Tillman (1995) and Johnston (1996) showed that implementing CALL reading programs did not help learners increase their reading ability significantly more than in the case of implementing the conventional TB! method.

For example, Johnston (1996) tested the effectiveness of CALL for teaching adults the reading skills. A pre- and post-test design was used for conducting the comparisons of the study. The experimental group included adults enrolled in one of three computer labs (n = 26). The comparison group included adults enrolled in one of seven traditional classrooms (n = 20). The Tests of Adult Basic Education (TABE) were used for pre- and post-testing. A t-test of independent means found no significant differences in the pre-test scores between the two groups, and the application of the same t-test indicated that there were no significant differences in post-test scores for CALL lab versus traditional classroom for reading instruction. Johnston concluded that what determine whether a CALL program is beneficial to the teaching process are circumstances. These circumstances are of different types such as: learner acceptance to use computers in learning to read, the facilities the CALL program offers to learners, how motivating is the program and the reading material, and how easy the program is for learners to use.
This conclusion of Johnston looks very logical not because of the ineffectiveness of CALL programs in instruction but because of the circumstances related to the learner; the CALL program itself, the curriculum and the instructional practice. AlKahtani (1999), Berberich (1996), Chen (1996) and other researchers believed that the way materials and exercises are presented in a program, attitudes of learners and instructors towards CALL programs, level of the target learners, classroom arrangement, and number of learners assigned to each computer set in a classroom or lab all affect educational gains when using a CALL program. This argument was also emphasized by Sponder (1993) who argued in a paper presented at the Annual National Reading Conference in Singapore that information technologies offer powerful support for learning, but teachers must learn to use these technologies effectively in order to achieve the potential they hold for the educational system. Sponder added that computers provide motivational and dynamic tools that can foster a child’s experience and reflective skills. He concluded that computer technologies are only as effective as a learner’s willingness to embrace them and a teacher’s enthusiasm for using them.

Tillman (1995) also examined whether implementing Reading Computer-Assisted Instruction compared to Traditional Reading Instruction would produce more effective comprehension at the elementary school level. The 30 participants of the study chosen from a low socioeconomic area in New York were divided into experimental and control groups. Participants in the experimental group used a computer one day a week for nine weeks to read and answer questions on reading passages. Participants on the control group read and answered questions on reading passages using printed handouts. Results indicated that both control and experimental groups increased their reading comprehension scores, and that no statistically significant differences in reading comprehension between the two groups existed. Results indicated that even though both groups had an overall positive attitude toward reading and computers, the experimental group’s positive attitude seemed more explicit. Again, in this study we were not told about the participants’ previous experience with computers and their attitudes towards using them in learning. Because they came from a low socioeconomic area one could argue that they may have lacked experience with computer equipment and this might
have affected their results; not to forget that one day of access per week to the system (only 9 sessions in all) might not have been enough for training the children to use the system easily making it difficult for them to learn to read effectively.

On the other hand, it has been noted that other research studies found that implementing CALL in classrooms helped learners attain significantly higher levels of reading achievements than the TBI method did. Examples of such studies are those of Arroyo (1992), Greenelee and Smith (1996) and Hong (1997).

Arroyo (1992) for example examined the effect of extended use of computers on reading achievement. The participants consisted of 75 grade seven students attending an elementary school in the USA. Of this total, 15 students were subjected to an intensive computer assisted instruction program for the entire school year, while 15 others, randomly selected from the remaining group of 60 received no computer training and served as a control group. Results of the Iowa Tests of Basic Skills indicated a statistically significant increase in reading achievement of the students who used computers. In addition to an improvement in reading scores, Arroyo also pointed out that using computers also appeared to increase student’s motivation to learn.

In their study of the effectiveness of reading from interactive computer software on young children’s reading achievement, Greenlee-Moore and Smith (1996) investigated the effect on reading comprehension when reading shorter and easier narrative texts and longer and more difficult texts on the printed page as compared to reading the same narrative texts using interactive CD-ROM software displayed by the computer. They found that reading from computers increased comprehension when participants read longer and more difficult narratives because such reading texts, with the help of the different facilities the learners were offered on the screen, encouraged them to maintain the desire to keep on reading for longer and so to learn more structures and new words, that in turn improved their reading ability.
Hong (1997) also attributed positive reading achievements for CALL implementation in a study that evaluated the effectiveness of multimedia computer-assisted reading in business Chinese in comparison with the conventional paper-pen-dictionary reading method. He found that computer-assisted reading is much more effective in improving students' reading efficiency and in enhancing students' comprehension of business Chinese articles than the conventional reading method. He added that factors of the multimedia technology as speed, electronic dictionary and sound effects contributed considerably to the reading efficiency of second-year business Chinese students.

Levine, Ferenz and Reves (2000) investigated the issue of the development of EFL critical reading skills in a computer-networked environment. The computer-networked environment was seen as a means to combine the security and support of the language learning classroom and exposure to authentic reading material. The 58 participants of the study were assigned to four groups (29 for the experimental and 29 for the control groups) of students participating in EFL academic reading courses at university level. Among the questions that are related to the current study that the researchers tried to answer were: To what extent did the environment contribute to the development of critical reading skills and strategies in the computer networked EFL academic reading classroom in comparison to a conventional EFL academic reading class? What was the nature of the EFL teacher's role in the computerised academic reading class? And, what was the effect of computer mediated instruction on learners' attitudes and motivation? With reference to the research questions, it was found that the computerised learning environment affected the development of EFL critical reading skills and strategies to a greater extent than the conventional environment. The researchers also found that the teacher's role in a computerised EFL classroom was mainly that of mentor and facilitator. Through the use of ClassNet, the teacher provided assistance when it was appropriate and necessary. This study provided evidence that CALL positively affects the development of EFL reading skills.

The last study to present in this section could be viewed as the most important one. Yagi (1999) conducted a study to learn about the value of the effectiveness of the CALL
program "RapidReader" (the first draft of the same program implemented in this study) in teaching English reading skills. The participants were 28 first year students at Sultan Qaboos University in Oman. The experimental pre-/post-test design was used to test the effectiveness of the fourteen weeks reading course using RapidReader. The researcher found that CALL reading instruction improved the learners' adjusted reading speed significantly. It helped them to almost double their reading speed. Although this result of Yagi was very encouraging to implement this CALL program in the current study, it should be noticed that the vocabulary aspect was not tackled in the study, perhaps because at the time when Yagi conducted his study, the vocabulary aspect was not included in the program design.

As shown above in this category of research studies, different findings were pointed out in the different studies. Even in those studies that dealt with children the findings were of different levels. While Arroyo (1992) and Greenlee-Moore and Smith (1996) reported positive CALL findings, Tillman (1995) did not note any significantly higher levels of achievement of learners using CALL over TBI. In the case of college and university learners, the same variability of findings was noted in the studies conducted by Johnston (1996), Hong (1997), Yagi (1999), and Leven, Ferenz and Reves (2000). This indicated that there should be some variables like the role of the teacher, the design of the CALL program in terms of the facilities and features offered, the time learners spend learning to read with CALL, and above all, the inclusion of the different reading aspects together in the CALL reading course.

Furthermore, while most of the research studies reviewed above tackled the effects of implementing the CALL and the TBI methods on learner reading speed and/or the comprehension gains, some others were interested in the effects on the reading ability in general. However, the reading aspect of vocabulary learning was not investigated in those studies. That category of studies which tackled the vocabulary learning aspect as an isolated variable or in combination with other variables is presented in the next section.
Vocabulary knowledge has been viewed by many researchers as a critical feature of the reading ability. Some current first language (L1) reading theories suggest that processing at the word level is central to successful reading (Carr and Levy, 1990; Coady, 1993; McKeown and Curtis, 1987; Rayner and Pollatsek, 1989). This indicates that there may be a causal connection between vocabulary knowledge and reading comprehension. In ESL research, Grabe (1991) suggests that "virtually all second language reading researchers agree that vocabulary development is a critical component of reading comprehension" (p. 392).

Related to research on reading skill development, a considerable attention has been given to vocabulary learning in CALL (Groot, 2000), and a variety of studies have shown the importance of using computers in ESL reading and vocabulary learning, (Willet, 1992). While giving an overview of previous research on vocabulary learning in CALL environments, this current review presents the research findings of using the computer for vocabulary learning in terms of linking CALL with vocabulary acquisition and searching for effective ways to use CALL in vocabulary instruction. Due to the fixed relationship between vocabulary knowledge and comprehension ability (Nation, 1990; Grabe, 1991; Levine and Reves, 1990), some of the researchers have tackled both of these reading aspects together in their investigations, while others have confined their research interest to the vocabulary learning issues away from other reading aspects.

Interest in the relationship between vocabulary knowledge and reading comprehension has a long history in the research of ESL reading. Observing the performance of non-native readers, confronted with unknown vocabulary, researchers have noted the important role of vocabulary as a predictor of overall reading ability (Nation, 1990; Grabe, 1991). In fact, researchers often refer to the "lack of adequate vocabulary as one of the obstacles to text comprehension" to non-native readers (Levine & Reves, 1990, p39). In certain contexts, a sentence or even an entire paragraph might become incomprehensible because of the occurrence of even a small number of unknown
vocabulary items, (Ulijn, 1981). Stimulated by such arguments, many researchers investigated the effectiveness of vocabulary learning methods, one of which was the CALL method, and the factors facilitating vocabulary learning.

Starting with the studies that tackled the methods of reading instruction with more concentration on the vocabulary and comprehension aspects, we could see that Chun and Plass (1996a) investigated how reading comprehension can be facilitated with a multimedia application for language learning. Furthermore, they examined the relationship between vocabulary acquisition and reading comprehension. The results of their study indicated that the CALL system Visual Advance Organizer aided in overall comprehension and that annotations of vocabulary items consisting of both visual and verbal information helped more than verbal information only. Also, a moderate correlation between vocabulary knowledge and reading comprehension was found. Chun and Plass (1996a) claimed that the results emphasised the significant role that visual information in addition to verbal information played in supporting both top-down and bottom-up processing in reading in a foreign language. In another study Chun and Plass (1996b) emphasized that associating lexical items with different types of media fosters richness of recall cues and increases the likelihood of retention. The rationale is that because words are coded dually in two modes, they are learned better than those coded only in one mode. Dual coding provides more paths for retrieval, and as such, helps learners build two types of recall cues in memory. This argument of Chun and Plass (1996b) is consistent with other research findings in the sense that using more than one way to deal with word meaning could increase the chance for learners to learn that word more profoundly. For example, Cumming, Cropp and Sussex (1994) argued that language educators should give attention to some key consideration in the design of on-line lexical resources such as the length of definitions, the amount of information and the presentation method of information. Therefore, in their study they compared four word definition formats in a paper-pencil experiment. The experimental formats were (1) phrasal definition alone, (2) sentence definition alone, (3) phrasal definition plus a usage example, and (4) sentence definition plus a usage example. They found that most ESL learners preferred having the sentence format definition plus a usage example.
Motivated by this view of incorporating different verbal and visual information with computers, Kang (1995) investigated the effect of a context-embedded approach to ESL vocabulary instruction with elementary school students who had basic knowledge of the English alphabet and sentence structure. The instructional methods used for vocabulary learning were: "Paper and Pencil (P&P), Computer-based Word-for-word (CW), Computer-based word-for-word plus Picture (CP) and Computer-based Context (CC)" (p. 46). The P&P condition represented a conventional method of vocabulary learning guided by a human instructor. The CW condition incorporated the same definition-based approach used in the P&P, but employed a computer instead of a human instructor. In the CP condition, pictures were additionally used with the features included in the CW. The CC condition provided students with a situational context first in which the target English vocabulary occurred and then the meaning of the word and an example sentence. The results showed that the group treated to the computer-based context method performed significantly better than any other group in a retention test. This suggests that the presentation of vocabulary with visual, aural and sentence contexts in computer-assisted learning environments would enhance vocabulary learning and teaching.

This feature of the CALL method which enables educators to build in different forms of visual and verbal information makes it easier for ESL learners to acquire abstract words as Tsou, Wang and Li (2002) argued. In their study they investigated the effectiveness of using a specially designed computer program for learning foreign abstract words in comparison to learning such words in regular learning classes. A total of thirteen abstract English words commonly encountered at the Chinese elementary sixth grade (about 11 years old) were chosen to be learnt by the participants. The program was designed to provide context for the language learning as well as flexibility in learning time, paths and modes. Pictures and translation in L1, in addition to sound facilities, were also provided. Using the t test for data analysis showed that the experimental CALL group not only did better in their achievement test on target words, but also demonstrated high motivation toward learning with the system. This study therefore recommended that applying CALL in language learning can improve both the quality and quantity of language learned.
Tozcu (1998) studied the effect of direct vocabulary instruction, using CALL, on (1) vocabulary knowledge, (2) reading comprehension, and (3) speed of word recognition. The purposes of this study were to find out if students in an intensive English program who used CALL to learn highly frequent vocabulary will learn significantly a larger number of words than those in a control group; if they will decrease their reaction time for frequent word recognition as compared to the control group; and if they will exhibit significantly better reading comprehension than a control group. In this experimental study the students in the treatment group studied the highly frequent words of English on the computer for three hours per week for eight weeks, whereas the students in the control group completed three credit hours of reading and reading comprehension exercises (without CALL). The research findings were that both groups showed increase in vocabulary gain, reading comprehension, and a decrease in reaction time for frequent word recognition. However, the treatment students showed significantly greater gains on all three aspects than did the control students who did not use CALL.

Laufer and Hill (2000) investigated the relationship between what is looked up about new words when different kinds of information are available and how well these words are remembered. The dictionary information was incorporated into a CALL program which was comprised of a text, highlighted low-frequency words, and access to different lexical information about these words (explanation in English, translation into L1, sound, root, and extra information). The target words examined for incidental learning were 12 low frequency words for students at university level. After testing learners' recall of the target words and analysing the data collected, results suggested that different people had different lookup preferences and that the use of multiple dictionary information seemed to reinforce retention. This result indicates to CALL educators that providing learners with a variety of information related to the meaning of an unfamiliar word makes it easier to learn it.

In a more comprehensive study, Groot (2000) spoke about the necessity for ESL learners at the intermediate and advanced stages of language acquisition to learn a large number
of vocabulary words in a short period of time. Because, incidental acquisition of the words is only possible up to a point, and because the acquisition of new words from authentic second language reading texts by means of strategies such as contextual deduction is also not always the solution, there appears to be no alternative to intentional learning of a great many new words in a relatively short period of time. In this sequence, Groot used the findings achieved in four experiments undertaken by Bonte (1997), Dufour (1997), Janssen (1996) and Nep (1998) which compared the effects implementing the incidental and the intentional methods of word acquisition on immediate and long-term word retention to support his argument that a combination of the incidental instruction of words using CALL programs and the intentional approach of bilingual lists of new words was most advisable for ESL learners. In his review of the four studies, Groot indicated that the experimental groups used the CALL program Computer Assisted Vocabulary Acquisition (CAVOCA) while the control groups used the printed bilingual lists for the new words. These experiments had a quasi-experimental, pre- and post-test, differential treatment design, with the learning method as the independent variable and the scores on the post tests as the dependent variable. Participants, ranging from upper level secondary school pupils to first year university students, were presented with two equivalent sets of words, one in the experimental and the other in the control condition, in two separate learning sessions of the same length. In all experiments the effect of the two methods was measured twice: immediately after the learning session and 2 or 3 weeks later to determine the long-term retention effect. The experimental results revealed that a combination of the approach that supports the incidental instruction of words using CAVOCA and the intentional approach of the bilingual lists of new words was most advisable, and probably the most efficient.

Groot (2000) pointed out that in the experiments carried out by Janssen (1996) and Dufour (1997) the effect in each of the two methods was measured by means of a test of receptive knowledge. The participants were shown the two sets of words learned and asked to give a translation or definition. Obviously, this testing method favours the control condition since the method used in the testing session is the same as the one followed in the learning session. Participants needed only to remember the translation of
the control condition words to achieve a high score. For the words used in the experimental condition, this direct association was not possible since no translation was provided. As it was expected the findings of these experiments showed that the scores on the immediate tests of receptive knowledge were considerably higher for the control condition. However, the scores on the delayed tests in these two first experiments were considerably lower for both conditions. Retention loss as manifested in the decrease in scores on the delayed test was larger for the bilingual word list method than for the CAVOCA condition.

The two follow-up experiments (3 and 4), carried out by Bonte (1997) and Nep (1998) were set up in the same way in all other respects as the first two, except for the testing technique used to measure the effect of the two methods of word learning. The cloze testing format was used to measure more than just receptive knowledge of words, since the word itself was not given but had to be provided by the participants themselves. This form of lexical retrieval clearly required a deeper knowledge of a word than receptive knowledge. In these last two experiments the mean scores for both conditions on the immediate tests did not show the large differences observed in the first two experiments. However, as in the first two experiments, the decrease in the scores on the delayed tests was larger for the bilingual word list condition than for the CAVOCA condition, resulting in higher scores for the experimental condition.

Discussion of these results led Groot to conclude that from a pedagogic ESL teaching perspective, the results "strongly suggest that a combined approach, making use of the two methods simultaneously, is probably the most efficient" (p.77). He also added that the data collected with the CALL program CAVOCA could be "regarded as the first indication that theories about word learning are correct in the importance they attribute to intensive processing [with more chances for learners to practice using the target words] for long term retention," (p.78).

In fact, this argument of Groot (2000) is the model expected to be more helpful for Arab students learning English as a second or foreign language, especially as it has been
reported before, the inadequate word knowledge that ESL learners of English face hinders their reading abilities, (Sahakain and Al Sheikh, 1997; Anderson, 1999; Ali, 1994). The CALL program RapidReader implemented in this current study has been designed to support the adoption of this instructional argument in vocabulary acquisition.

This review of research tackling vocabulary instruction has shown that students learn unfamiliar words more profoundly once they are offered a greater chance to work on vocabulary activities including those target words, and this learning could be remarkably enhanced when different verbal and non-verbal information are presented to make word meanings clearer. Verbal information about a word may take the form of giving its definition, the context it occurs in, and its L1 translation, and non-verbal information which sounds more appropriate to children includes using pictures and sound or aural information. We have also noticed that word lists whether presented in print or on computer are vital for better vocabulary learning for ESL learners at high school and university levels. Furthermore, although some researchers like Kelly (1990) and Bensoussan, Sim & Weiss (1984) argue that many non-native readers do not effectively use context to guess word meanings, many researchers (e.g. Carnine, Kameenui and Gayle, 1984; Liu & Nation, 1985) believe that successful non-native readers can correctly guess meanings of unknown words while reading. However, Groot (2000) found that a combination of the different approaches to vocabulary learning could be the most efficient. This combination of the different approaches might be best introduced through CALL software, and this current study attempted to investigate its efficiency compared to the TBI method.

2.3 Factors Relating to Computer-Assisted Instruction

Previous work on the effectiveness of computer-assisted instruction in general has attempted to identify the cognitive factors (e.g. motivation, attitudes, autonomy, and self-efficacy) related to implementing computers in education and the effect of those factors on learner involvement with computers and their educational achievement. Yi and Hwang (2003) linked the remarkable interest of researchers in this field to the growing reliance on computerised systems in education and the increasing rapidity of the new
technologies. Alongside with this research interest, researchers have also worked on the factors associated with reading from screen and their effects on promoting better reading performance.

2.3.1 Reading from Screen

As reviewed by Muter (1996) and Dillon (2004) research has been conducted into the legibility of reading from screen and the manner in which material is displayed on screen. An observation by Muter (1996) that we do not know how to optimize reading from screen is still true in relation to the layout of text. However, Dillon (2004, p. 43) argues that "[S]ince hypermedia provides a powerful means of manipulating large amounts of data, presumably tasks that require such actions are likely to be better supported in the electronic domain than on paper."

In this regard, McKnight et al. (1990) investigated if reading accuracy is affected by presenting reading material in two versions of hypertext, a word processor file and a paper copy of the material. Accuracy was measured by the number of correct answers to a group of questions asking students to locate information in the reading material. The researchers found no significant difference between paper and word processor file, but readers in both hypertext cases were significantly less accurate than readers of the reading material on paper. However, in a subsequent study, McKnight et al. (1992) investigated the effect of exposing postgraduate students to material presented via hypertext and book on their comprehension. Students' comprehension was assessed by the essays they wrote depending on the notes they took during their exposure to the material. The researchers also found no significant comprehension difference between the media. They also reported that readers of a hypertext material complained more than readers of the printed document that they lacked confidence in finding the requested material. It could be argued here that the factor of the students' familiarity with the computer and finding information on the screen played an effective role in this result. This is also emphasised by Dyson and Haselgrove's (2001) argument that familiarity with the computer and the instructional software, if used, affects the process of reading and students' reading achievements. In fact, this factor of learners' familiarity with computers
and reading from screens has also been argued for by Belomre (1985) in a study which measured students' reading time and comprehension as they read short texts from screen and paper. Initial data analysis of the students' comprehension and speed were considerably better for the paper group. Further analysis, however, indicated that the initial result reported was only true when the learners were involved in reading on screen first. It was also found that learners' lack of familiarity with computers and reading from screen was an important factor that negatively affected their reading performance.

There is the commonly held belief that screen reading is more fatiguing, regardless of the changes taking place for improving the screen qualities, and regardless of the research results. In an early study conducted by Muter et al (1982), the readers were requested to complete a rating scale on a number of measures of discomfort including fatigue and eyestrain both before and after exposure to the task. Results of the study showed no significant differences on any of these scales. Gould et al (1987) also reported a similar result. The users in their study were exposed to six 45-minutes work periods on screens. The study used a 16-item 'feeling Questionnaire' after each period that requested users to rate their fatigue levels of tension mental stress and other aspects. It also implemented various visual measurements at the beginning of the day and after each period of exposure, such as flicker and contrast sensitivity, and visual acuity. Data analysis for the questionnaire responses and the visual measures showed no significant effect for the presentation medium, and this led the researchers to conclude that good-quality screens do not cause fatigue effects. Wilkinson and Robinshaw (1987), on the other hand found in their study significant higher fatigue for screen reading, and in response to the study of Gould et al (1984) they argue that their method of measuring fatigue was artificial and their equipment was too good to show the disadvantages of screen reading.

In a more recent study and despite the great improvement in screen production, Sheih (2000) reported visual fatigue disadvantages of reading from liquid-crystal displays (LCDs). The readers in this study pointed out higher levels of visual fatigue especially when reading from screen of higher reflections which may result in a shorter viewing distance and a greater variability of viewing distance because they may reduce the
contrast between target and its background, and thus may induce greater visual fatigue. This result urged Sheih to conclude that screen designers should strive to produce a workplace free of unwanted reflections. Future studies, especially with the advancement of LCD technology, the disadvantage of the LCD screen may disappear.

Other factors relating to reading from screen such as material display, use of colours, and interactive environments are discussed below in the following sections of this chapter.

2.3.2 Learner Motivation and Attitudes

Learner motivation and attitudes towards using computers in learning has been widely researched. Wenden (1998, p. 52) defines attitudes as 'learned motivations, valued beliefs, evaluations, what one believes is acceptable, or responses oriented towards approaching or avoiding'. For her, two kinds of attitudes are crucial: attitudes learners hold about their role in the learning process and their capability as learners. Brown (1987) argues that once attitudes are positive they contribute to increased motivation, while negative attitudes have the opposite effect. Closely related to attitudes and motivation is the concept of self-esteem, that is, the evaluation the learner makes of him/herself with regard to the target language or learning in general. '[S]elf-esteem is a personal judgement of worthiness that is expressed in the attitudes that the individual holds towards himself', (Coopersmith, 1967, p. 4-5). If the learner has a 'robust sense of self', to quote Breen and Mann (1997), (cited in Benson and Voller, 1997, p.134) then his relationship to himself as a learner is unlikely to be marred by any negative assessments by the teacher. Conversely, a lack of self-esteem is likely to lead to negative attitudes towards his capability as a learner, and to 'a deterioration in cognitive performance', thus confirming his view of himself as incapable of learning (Diener and Dweck, 1978, p.457).

CALL has been shown to cause positive learner attitude towards language learning. Warschauer (1996) studied the effects on student motivation of using computers for writing and communication in the language classroom. He reported that the participants overall had a positive attitude towards using computers. In addition, he found that self-
reported knowledge of computers and amount of experience using e-mail correlated positively with student motivation. Lin (2003) has also pointed out similar findings in his study to investigate the attitudes of EFL learners towards the integration of multimedia into a language-learning program. In this study a questionnaire-based survey was administered at the end of the academic semester to 46 first year junior college students in Taiwan. All of those students were majoring in Spanish but were also taking English listening and writing as one of their required language courses. The survey was related to the English Listening and Writing course. The results of the survey indicated that the majority of ESL learners had a positive attitude towards the use of multimedia resources in their language program, appreciating, in particular, opportunities for more practice on language activities, ability to record and save their performance, and ability to make use of multi-media resources in developing their reading skills.

In the Arab situation, Towndrow (1997) examined the use of a particular kind of software by a group of undergraduate Arab students at the United Arab Emirates University (UAEU). The purpose of his study was to examine the perceived benefits of computers in a language learning program through an assessment of the appropriateness and effectiveness of custom-designed software. The participants of the study were 188 students attending an English course at UAEU. Data were collected through a courseware evaluation questionnaire administered towards the end of the course. 70% of the students who participated in the study indicated that they liked the programs, and 79% of the responders reflected that the software was useful in helping them with their studies. The researcher also found that the use of computers in the instructional process reinforced the learner-centred approach although the findings showed that the students instead of referring to the computer or to their colleagues in cases of inquiries and questions about their learning, referred to the teacher. This finding emphasised the role of the teacher even when computers were used for instruction, but with a change in the nature of that role. Instead of being a traditional supplier of information, the teacher has become a counsellor and a manager of learning resources, who also helps learners to build up their confidence in independent learning which leads to learner autonomy (Ying, 2002).
To probe the relationship between CALL and autonomy, Jones (2001) focussed on the role of the teacher in making the technology an effective learning opportunity. He argued that the success of enhancing learner autonomy depends to a great extent on an active role for teachers, whether in a classroom or even in a self-access centre. He also added that teacher's guidance and encouragement would prove beneficial towards learners' autonomous learning, as all learners need to be prepared and supported on the path to greater autonomy. Still, it should be noted that for teachers to change their role from purveyors of information to counsellors and managers of learning is not an easy job (Little, 1991).

Over the last two decades, a significant body of research has focused on identifying various factors that influence user willingness and preference for use educational computer systems. Wishart (1990) tried to identify some of the various factors and variables in the field of computer assisted instruction that promote higher educational gains and stronger preference for this kind of learning. Wishart reports that children's high motivation to use computer software and their deep involvement with them are known to be affected by three cognitive factors. These factors are desire in the user to control the computer, the user's response to a perceived challenge from the computer, and the user wishes to explore the complexity of the software. Her study aimed at investigating these factors using a developed educational computer program (VESTA) designed to teach children what to do in the case of a domestic fire. It also aimed at assessing the effects of those factors on child involvement with that simulation program and consequently the learning gains achieved with it.

Six different versions of the game were produced each providing or lacking one of the factors proposed to create involvement. The versions provided control by giving the user a choice of routes through the simulation, complexity in the form of colour graphics to engender curiosity and challenge in the form of a high score table. A sample of one hundred and fifty pairs of primary school children, matched for age and ability, played two of the six versions and compared them on questions designed to assess differences in involvement with the two versions. They also completed a questionnaire on fire safety
knowledge before and after playing the first version. The children enjoyed using the simulation very much but did not show much diversity in their choice of routes through it. They appeared to follow two main plans, either to get everything right or to see what happened if they did something wrong. The results showed that being in control of the program was most important in creating involvement with it.

Introducing challenge and complexity separately did not increase involvement by any significant amount. However, the children became more deeply involved when the program contained both complexity and challenge. It was found that increased involvement led to increased learning from the simulation program. Therefore, each of the three cognitive factors of challenge, complexity and learner's control of the learning process were found to increase involvement with control being the most important in affecting learning. These results led Wishart to conclude that the presence of the three cognitive factors in software supports the concept of active learning and where the student is in control of the learning process, enhanced learning should occur.

However, until very recently, and with the growing reliance on computerised systems and increasing rapidity of the introduction of new technologies, research has continued to focus on identifying additional factors influencing user willingness and preference for use of technology and computer systems in learning. For example Yi and Hwang (2003) tried to extend the Technology Acceptance Model (TAM) introduced by Davis (1989) by using the motivation variables of self-efficacy, enjoyment and learning goal orientation in order to predict the use of Web-based Information Systems. One hundred and nine students from three sections of an introductory Information Systems course at the University of South Carolina in the US voluntarily participated in the study. A survey was administered after a 2-week trial period and the actual use of the system was recorded by the Blackboard software over 8 weeks. The results largely supported the proposed model which highlighted the important roles of self-efficacy, enjoyment, and learning goal orientation. In particular, the results of this study were: (a) users regarded the system easier to use and on the actual use, their confidence in their own efficacy became higher, (b) enjoyment had a significant effect on ease of use, (c) enjoyment had a
significant effect on usefulness of the system, (d) enjoyment had a significant effect on user's conviction of his/her self-efficacy, (e) learning goal orientation had a significant effect on application-specific self-efficacy and (f) although the learning goal orientation had no significant effect on enjoyment, the effect was in the hypothesised direction. These factors especially when investigated in different circumstances and particularly in CALL contexts confirmed the results that Wishart (1990) indicated in her study as described earlier in this section.

Implementation of computer systems in classroom instruction was extensively investigated in the UK schools. The different publications related to those investigations, especially in Underwood and Brown (1997) indicated the variability of findings that featured the effects of implementing what is called the Integrated Learning Systems (ILS) for literacy and numeracy instruction in that context. However, as summarised in the first three chapters of the book (pp.1-29), ILS effectiveness is influenced by many factors. The most important factors related are:

1. "ILS must include a management system which contributes to the initial assessment of each pupil and then places them appropriately within the system," (p.8).
2. The role of the teacher is vital for ILS effectiveness, and so teachers should be trained well on implementing ILS in instruction.
3. ILS should be enjoyable to learners, and while using the ILS learners should be able to work at their own pace and in private.
4. ILS should give learners the opportunity to tackle a variety of learning materials and activities.
5. The more time spent on the system and the more frequent the lessons, the greater the gains.
6. The materials presented on the ILS should be tailored to the individual.
7. Variability of ILS effectiveness has been noticed to be affected by the age and ability of the learner, and by his/her socio-economic background.
8. ILS feedback to learners upon their performance improves their motivation.
These factors have been identified as important factors to be considered while building up the post-questionnaire of attitudes of this current study.

2.3.3 Feedback

CALL programs can provide learners with different formats of feedback depending on their responses to different activities and stimuli offered for them to work on. To find out about the role of feedback in CALL instruction many researchers tried to answer the question whether this factor affects learner acceptance of this method of instruction and learner achievement. Feedback is known to have a positive effect on learning achievements. As mentioned in the section above, immediate feedback in general motivates students to use ILS systems for learning (Underwood and Brown, 1997). Below are two examples of research studies emphasising the importance of feedback in learning through computer systems.

Hanna (1976) compared post-test performance resulting from total feedback, partial feedback, and no feedback in a multiple-choice test. Approximately 1,400 5th and 6th graders who were assigned to the three conditions first took a completion-format pre-test which was used to match triads. Next, all the participants in the three experimental feedback conditions took a multiple-choice test; each group belonged to one condition of: total immediate feedback, partial immediate feedback, and no feedback. Finally, the participants took a completion-format post-test. As the researcher predicted, the participants taking the multiple-choice test without feedback had significantly lower post-test performance than either feedback group. A hypothesized Aptitude * Treatment interaction was found between achievement level and feedback treatment. Kulik and Kulik (1988) also conducted a meta-analysis of findings on feedback timing and human verbal learning that were obtained in 53 separate studies. They reported that their analysis of the applied studies in which actual classroom quizzes and real learning materials were used led to the conclusion that immediate feedback was more effective than delayed.
In a related study, Wang and Chan (1995) explored the advantages and disadvantages of CAI. Depending on implementation of a new CAI project in Singapore secondary schools, this study investigated two issues: first, what the teachers perceived to be the major advantages and disadvantages of implementing CAI. Second, what they perceived to be the major facilitators and inhibitors of CAI implementation. One hundred and seventeen secondary school teachers were randomly chosen to respond to a questionnaire designed to collect the data. Results of the study showed that immediate feedback to students and provision of alternative teaching techniques are the major advantages of CAI. The researchers argue that when CAI provides the student with an immediate feedback, the learning difficulties can be discovered quickly, and the student can rectify his/her mistakes immediately.

2.3.4 Learner Autonomy

Computer-assisted instruction has been found to support learner autonomy (Wishart, 1990; AlKahtani, 1999; Jones, 2001; Ying, 2002; Lim and Chai, 2004). For example, Lim and Chai (2004) studied the effects of integrating ICT in Singapore schools on learner autonomy. The researchers argue that in the ICT-based learning environment, "students have more autonomy over their learning processes as they have a substantial amount of control over their rate of learning and learning sequences. They are then in a better position to make judgments about their progress, monitor their own learning needs, and construct their own knowledge based on the information available; and ultimately, they may adopt a more favorable approach towards learning, and operate more efficiently in the learning environment," (p.217). In this study the researchers investigated the effect of some orienting activities on promoting learner autonomy. The data were collected from 7-12 year old students and their teachers at two Singapore primary schools through classroom observations and formal and informal interviews. The results of the study showed that in order to support learner autonomy, the orienting ICT activities have to address students' belief system or confidence and their lack of learning strategies and motivation to learn with ICT. It was also found that learners were more likely to be motivated and involved in the learning process when they knew how to use the ICT tools.
thus the study highlights the importance of training learners to use CAI systems effectively and the importance of learners being in control of those systems.

Ying (2002) also conducted a study to explore the possibility and applicability of CALL systems on the promotion of Chinese students' autonomous learning ability. Ying's study aimed at answering the following questions: How were the students able to set their goals, decide the path to the goal and the pace of learning? In what way did their peers and teachers provide support and help? And, how did the students take responsibility for self-evaluation and mutual assessment? In order to find out whether the factors crucial to learner autonomy took place in the CALL research process and what effects the project had on learner autonomy, quantitative data were collected through a survey administered at the end of the project. A statistical analysis was conducted to measure the degree to which the CALL project promoted learner autonomy. Besides, a record of students' writing quantity was also collected. Moreover, in order to gain further insights into the topic under investigation, qualitative data such as students' responses to an end-of-project interview, students' weekly reports and reflections on the project were also collected. The final results indicated that due to a flexible syllabus, the highly motivating research topics the learners were involved in and the network-assisted environment, learners did exercise control over their own learning and evaluate its outcome, and they took responsibility for most aspects of their learning and thus the CALL project proved to be a promising approach for autonomous training.

Finally, in a recent and more comprehensive study that tackled more factors related to CALL, Stepp-Greany (2002) conducted a study that attempted to answer the following questions “1) What role did the instructor play in Technology-Enhanced Language Learning (TELL) and how important was the instructor's presence? 2) Were the lab and the online resources accessible and useful to students? 3) What was the technology's perceived effect on the learning of subject matter and language skills? 4) Did students enjoy the TELL activities and experience, and were the activities relevant to either their present or future use of Spanish? And, 5) did students perceive that they gained
confidence as a learner, gained technical skills, or improved their performance on class assessments as a result of the TELL experience?" (p.170).

The study presented survey data from beginning Spanish language classes at a US university using a combination of technologies: Internet activities, CD-ROM, electronic pen pals, and threaded discussions. A total of 358 students completed the questionnaire in the CALL classes out of an enrolment of 449 students. Stepp-Greany (2002) achieved the following results:

1. Students strongly perceived that their instructors facilitated instruction and that they were important to the TELL environment.

2. Most students (81.3%) agreed that they had adequate access to a computer. Additionally, they seemed to prefer a lab environment, with over 73% reporting that they liked the learning environment of a regularly scheduled lab. Less than half (46.1%) expressed a desire to do all the activities at their own computer without any lab access. Less than 35% expressed a preference for having access to the lab at any time, without any scheduled lab. These findings seem to lend support to the statements by students that indicated the importance of an instructor's facilitative presence.

3. Almost two-thirds agreed that their listening and reading skills had improved in Spanish as a result of the lab activities.

4. A slight majority of students (52.2%) believed that they had learned significantly from the interactive CD-ROM. Moreover, the CD-ROM also had a function that allowed audio texts to be visually displayed, permitting students to read texts to aid comprehension.

5. Less than half (45%) felt that they had learned more Spanish language skills than they would have learned in a regular Spanish course. The perceptions about the learning value of the individual components and the TELL experience in general may have been influenced by students' feelings of lack of control over time pressures, since they conveyed strongly that the technology-enhanced class required a significant amount of time investment. Although the majority said they completed their Internet activities in an hour or less, almost 37% disagreed. Many,
therefore, felt pressured to finish during their lab time. This result has been pointed out earlier by Nowaczyk (1998) who found that time pressures played a negative role in students' perceptions of the effectiveness of multimedia, particularly among low-achieving students.

6. In spite of divided perceptions about the instructional value of the TELL, two-thirds (66%) of the students agreed that the computer lab made the course more interesting, and slightly more than half (52%) said that they would take another technology-enhanced class in Spanish.

7. A majority (54%) also believed that they had gained confidence in their ability to use technology successfully.

8. Almost two-thirds (65%) expressed a gain in confidence as independent learners.

Overall, the results of this study showed that the students attributed an important role to instructors and perceived that cultural knowledge, listening and reading skills, and independent learning skills were enhanced but were divided in their perceptions about the learning or interest values of the individual components.

2.4 Summary

The review of literature has shown that computers can be a powerful tool to use in language instruction and particularly in reading instruction, although variability of findings characterised in the effects of implementing CALL. The different findings of the research undertaken in this area could not be attributed to the ineffectiveness of CALL, but as Johnston (1996) argues, it could be the circumstances surrounding the course of the experimental research that lead to the different findings as it has been made clear in the case of the ILS experiments conducted in the UK. Nevertheless, such findings urged the researcher to conduct this current study in different circumstances in a situation where implementing computers for reading instruction is rarely researched.

It has been noted in this literature review that CALL programs have been assessed from one or at most two perspectives. That is, the three closely related aspects of reading speed, comprehension and vocabulary knowledge have not been tackled together on one
reading CALL program, although a deficiency in one of these aspects is known to cause deficiencies in the other two aspects. Therefore, this study aimed at assessing the efficiency of a CALL program “RapidReader” from a triple perspective of reading speed, comprehension and vocabulary learning.

This literature review also showed that the findings relating to assessing CALL efficacy were debatable because of the following reasons:

1. The time the learners were exposed to CALL instruction was not enough to make the difference in attainment, as in Wepner, Feeley and Wilde (1989) and Tillman (1995).

2. Findings of some studies like that of Wepner, Feeley and Wilde (1989) which compared the effectiveness of CALL and TBI methods are questionable since the only component they tackled was the mode of delivery. Such studies ignored the fact that CALL programs can offer learners with many facilities like immediate feedback, records of performance, large number of activities, pacing one's learning and learner autonomy.

3. We were not told in most of the studies reviewed about the role of the teacher in the learning process, although research findings have emphasised this role of the teacher in CALL instruction.

4. We were not told in all the studies reviewed in this chapter about learners' attitudes towards or preferences for CALL and TBI, although this could be an important variable that could affect learners' motivation and achievement.

5. The sampling procedures were not mentioned in some studies, and so it would be difficult to generalise their findings.

This current study pays attention to these problems, and so with regard for example to the duration of time for the learners' exposure to the target instructional methods, it has been significantly increased if compared to the studies reviewed in this chapter. As it will be shown in Section 3.1 in Chapter 3, the participants attended the reading course of 16
weeks split into two halves of eight weeks, with three ninety-minutes reading lectures per week. The CALL program chosen for implementation in this study is also designed in a way to offer the learners a greater number of word activities and reading tasks with different modes for them to check their learning attainments in comprehension, speed, and vocabulary aspects. As discussed in Chapter 4, Section 4.1.1, the CALL program provided the learners with immediate feedback, the opportunity to record performance, to pace their learning, and to choose the type of task or activity to work on. In this study, the teacher was given a vital role as a mentor and a facilitator who responded to learners’ inquiries on individual bases in classroom, not to forget the important managerial role of the teacher who prepared the reading material, and advised learners to follow the appropriate choices depending on their performance which he had access to because it was recorded on the master computer. This review of literature also motivated the researcher to identify learners’ pre-instruction preferences for CALL and TBI so as to investigate whether such preferences would affect their reading achievement, and if these preferences would change due to their enrolment in the reading course.

This review of literature has shown that adult ESL learners need to learn a large number of new words in a short period of time, and Groot’s (2000) point of view was to adopt an integration of both the intentional and incidental approaches to vocabulary learning for ESL intermediate and advanced learners. This study aimed at assessing the effectiveness of this approach in CALL and TBI for Arab learners at college and university levels.

Although most of the studies that assessed CALL effectiveness emphasised the finding that CALL leads to positive attitudes towards and stronger motivations to CALL learning, there is, however, a need to find out if this finding would prove to be true in reading instruction on the one hand, and if it would be true for Arab adult learners on the other hand, especially as these learners have a different cultural situation to that in the earlier studies. A particularly relevant aspect of which is learners’ beliefs about the role of the teacher. One more important issue would be to spot the reasons for these positive attitudes and motivations to CALL instruction. Once these reasons or features of the
CALL reading method are identified, there would be another need to find out learners' suggestions for improving this CALL reading method.

In the cases when the effectiveness of two instructional methods were investigated depending on the experimental group and control group design, as this is the conventional design of educational research, learners in each group are only exposed to one instructional method which is not available to the other group. Still one could ask the question, what would be the result if the other group were exposed to the instructional method which they did not meet in their learning? To avoid this kind of question, a special design in which the two groups of the current study were exposed to the two methods of reading instruction was implemented. This way learners' attainment due to each enrolment would be assessed, and so the findings would be more valid. This also would be applicable to the data collected through the post-questionnaire of attitudes and the interview surveys. Participants will respond to the questionnaire items and the questions introduced in the interview with clear knowledge about the two methods of instruction depending on the experience they were exposed to while attending the sessions of the reading course.

As demonstrated in the review above, it has been noted that there are some factors that should be available on the CALL program or should be considered by the designer of the CALL program. Among those factors that should be considered are: Does the program offer the user the chance to pace his/her learning, the chance to have a control over the program or to control his/her learning? Does it provide the user with feedback and what kind of feedback does it offer? Does it have the feature of keeping records of performance? Does it provide the user with appropriate input for enough practice and to choose what could be interesting? Does it cause enjoyment and lead to higher motivation and positive attitudes? Does it include sources of complexity and challenge? And above all, is it easy to use?

The researcher claims that most of the problems noted in the previous research described here will be avoided in this current study. Still, there are some limitations (Section 1.8:
Chapter 1) that were not possible to avoid due to the nature of the CALL program on the one side and to the regulations of the educational institutions where the experiments were conducted, on the other side. However, descriptions of the method of the study and of the methods of instruction and the CALL program (presented in Chapter 3 and 4, respectively) shed light on the strengths of the study and the features of the CALL program implemented. The descriptions of the method of the study and the instructional methods introduced in the following two chapters demonstrate how most of the previous research deficiencies have been avoided in this study.
Chapter 3 Methods

A large number of research studies have investigated the effectiveness of the CALL method of reading instruction as discussed in Chapter 2, but it was noted that findings were inconsistent. This inconsistency could be attributed to different reasons related to learners with respect to their age, their status as native or ESL or EFL learners, the CALL program in terms of its features, components and facilities and to the reading aspects it covered, the role of the teacher in the teaching-learning situation, and the research design with respect to data collection.

With regard to the literature review which has taken place in Chapter 2, it was noticed that most of the studies limited their investigations to one reading aspect such as comprehension, speed or vocabulary learning. However, findings could be much more valid if methods were adopted to study these three main aspects of reading together in one study especially as linguists emphasised the fact that those three reading aspects are closely related to each other as discussed in Chapter 1, Sections 1.1.2 and 1.2.

When positive attitudes to learning were reported due to CALL instruction rather than to TBI (e.g. Wepner, Feeley and Wilde, 1989; Underwood & Brown, 1997; Tillman, 1995), one should ask the question why significant reading improvement was not reported, too? Was it because the learners did not get enough time to use the CALL program and to practise more on it so that significant reading improvement could have been obtained? And, would there be a relationship between reading achievement and learner pre and post attitudes towards the methods of reading instruction? Even in the cases of reporting significant reading improvement due to CALL instruction, most of the studies reviewed failed to shed light on the specific CALL features which enhanced that improvement. Of course, a large number of studies pointed out the CALL features of enjoyment, immediate feedback, learner autonomy, learner ability to pace and control learning, etc.,
but would these be true for the reading context, and would there be other CALL features and reasons to make it more effective from the learner point of view? And, if the learners, as claimed by the CALL method, would be more independent in their learning, their point of view gains more importance and it should be highly considered. So, there would be the need to investigate their opinions about CALL reading instruction, and their suggestions for improving this method.

Stimulated by these issues which emerged while reviewing the literature and due to the necessity for improving the CALL method (Egbert and Jessup, 1996), the need for conducting this study has become so vital, especially as it aimed to answer the research questions described in Section 1.4, Chapter 1.

3.1 Design of the study

Since the study aims to first evaluate the effects of the two target instructional methods on students' reading speed, comprehension and vocabulary knowledge, it has been decided to conduct an experiment to compare students' reading achievements due to their exposure to the two methods of instruction (CALL vs. TBI). This experimental design will give a true measure of what the learners will have learned as measured by the post-test designed for assessing learners' reading achievement as opposed to a questionnaire or a structured interview asking the learners what they think they learned which will only give their perceptions that may not be representative of their actual learning. Consequently, this means that one of the groups will be asked to learn through the CALL method while the other group will learn through the TBI method. As specified in experimental designs described by the experts in the field of educational and social research such as Bryman (2001), Cohen, Manion and Morrison (2000) and Gay (1987), both groups of the study in the two experiments will be administered a pre-test which will constitute the baseline measure of the students' reading ability before enrolment in the reading course. A post-test will also be administered after students' exposure to the teaching method (treatment). Students' reading scores on this post-test will allow the researcher conducting the data analysis to find out the instructional method which was most effective in helping the students improve their reading ability. Adopting the
systematic procedure to form the samples of this study reduces the threats to the internal validity of the study. Therefore, this experimental design will give you a true measure of what the learners will have learned, and so the confidence in the causality finding will be greatly enhanced, as indicated by Bryman (2001).

More interestingly, since most experimental research has concentrated on assessing the reading in terms of outcome, and "in particular, has been driven by a desire to identify a single variable to account for the significant reading speed differences that has been reported," (Dillon 2004, p.68), this study attempts to go beyond this trend. Therefore, it considers students' ability in three reading aspects together (speed, comprehension and vocabulary) as dependent variables. A post-questionnaire of attitudes has also been designed to collect data related to students' perceptions and attitudes toward the two instructional methods targeted. Furthermore, a structured interview will be implemented to collect the data which cannot be obtained through the post-questionnaire. The design of the study considers these last two instruments in order to learn students' perceptions toward the two instructional methods, the reasons for students' positive attitudes towards one of the two methods rather than the other, and their suggestions to improve that method. Validity of information as such can be greatly enhanced when integrating the three instruments for data collection. For example depending on a survey asking about what the students think they learned will only give the students' perceptions which may be inaccurate to identify the most effective instructional reading method. However, an experiment with a pre- and post-test design or experiment will yield a true measure of what they will have learned. The post-test attitude questionnaire itself is asking students to rank the perceptions appearing in the instrument according to their level of agreement with those perceptions, but Bryman (2001) argues that respondents to questionnaires such as this usually have something more to say. Therefore, structured interviews will also be conducted in this study where participants are expected to disclose other important ideas and perceptions which will enrich the findings of this study and increase the possibility that they can be generalized beyond the sample of the study.
Taking the aims of this study into consideration and in light of its questions, the main variables of this study were:

1. The independent variables: Two implemented methods of instruction: CALL and TBI.

2. The dependent variables:
   - Reading ability of undergraduate Arab freshman students in the target 3 reading aspects as measured on the post-treatment achievement examinations.
   - Attitudes of undergraduate freshman students towards the CALL and TBI methods of reading instruction as expressed on the post-questionnaire of attitudes.

Accordingly, as the study compares the effectiveness of the CALL and the TBI methods of reading instruction in improving learners' reading ability the Experimental Pretest/Post-test Design was implemented because of its appropriateness as discussed in the introduction for this chapter (see Figure 3-1). The reading course which would be conducted in classroom situations would implement the CALL method as one experimental group and the TBI method as a second experimental group for improving learners reading speed, comprehension and vocabulary knowledge.

This study also consisted of two experiments, and in each experiment the participants were enrolled in a reading course of 16 weeks split into two halves of eight weeks, with three ninety-minutes reading lectures per week depending on the prescribed specifications of the study skills course at the educational institutions.
Figure 3-1 The experimental design of the study
The first experiment (Exp.I) was conducted to investigate the effects of the two target reading instruction methods on the participants' reading achievements. The second experiment (Exp.II) replicated the first experiment in terms of investigating the effects of the two reading methods on reading achievement, and so it aimed at confirming the results achieved in Exp.I. Still, the other main emphasis of Exp.II was to find out the features and factors according to learners' point of view (as collected via the post-questionnaire completed immediately as the students finished the Final 2 test and the personal interviews conducted immediately during the first week after the end of the module) that characterised the reading method which would significantly improve learners' reading ability and their attitudes towards this method after being exposed to the reading course. The effect of learners' pre-instruction preferences for the CALL and the TBI methods of reading instruction on learners' reading achievements due to CALL instruction were also investigated.

Table 3.1
The Experimental Pre-test – Post-test Control Group Design

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL</td>
<td>Treatment</td>
</tr>
<tr>
<td>Group A</td>
<td>Pre-test</td>
</tr>
<tr>
<td>Group B</td>
<td>Pre-test</td>
</tr>
</tbody>
</table>

3.1.1 Population

To investigate the effectiveness of the CALL versus TBI methods of reading instruction for Arab undergraduate learners of English as a foreign language, it was found that Sharjah University (SU) students would be the most appropriate population. AlMasanna Technical Industrial College (MTIC) is also a big higher educational institution where
learners are allocated to intensive English study skills courses. These two institutions were chosen for conducting the experiment for different reasons. The first was that these two institutions have the appropriate facilities in terms of the large computer labs which have good networks that are appropriate for implementing the CALL method of instruction. It was also noticed that these two institutions encourage using computers in teaching and learning. There is another reason relating to the participants. As for the MTIC institution, although the population were only of Omani nationality, they were belonging to all the socioeconomic classes spread all over the different regions in the country. More appropriately, the SU of the UAE is open for all the people living in that country regardless of their nationality. Therefore, the population in this university was considered as more representative for Arab undergraduate students learning English as a foreign language.

In fact, the target population of the study consisted of all the freshman students aged 18-20 years who attended MTIC in the Sultanate of Oman and the SU in UAE in two academic years. The total numbers of those students for Exp.1 at MTIC and SU were 352 and 612, respectively as shown in Table 3-2, for the academic year 2000-2001. For Exp.2 of the academic year 2001-2002, the total numbers of students were 370 and 605, also respectively.

<table>
<thead>
<tr>
<th>Academic Year 2000/1 (Exp.1)</th>
<th>Academic Year 2001/2 (Exp.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTIC</td>
<td>SU</td>
</tr>
<tr>
<td>Male</td>
<td>159</td>
</tr>
<tr>
<td>Female</td>
<td>193</td>
</tr>
<tr>
<td>Total</td>
<td>352</td>
</tr>
</tbody>
</table>

### 3.1.2 Sampling

To achieve the purpose of this study the following samples were selected:
3.1.2.1 Pilot Sample

The aim of the pilot study was to identify how learners would work on the CALL reading program RapidReader and the kind of training they would need before starting using that program to learn reading, and to identify the problems that could appear during the reading course. It also aimed at piloting the pre-questionnaire of attitudes towards the CALL and the TBI methods, the reading materials and the reading achievement tests. It also aimed to investigate if the implementation of the CALL method using the chosen software RapidReader would help the learners improve their reading ability.

Among two reading groups of freshman students enrolled in an English language skills course for the second semester (2000) at the Sultan Qaboos University in the Sultanate of Oman, one group of 25 students was randomly chosen. The 25 students (14 males, and 11 females) were all Omanis and aged 18-20 years.

3.1.2.2 Study Sample

As the study was conducted in two experiments, two samples were designated. For both experiments, the same multi-stage sampling procedure was implemented to choose the samples.

3.1.2.2.1 Experiment I Sample

As shown in Table 3-3, the sample was chosen from the two institutions of MTIC and SU. The systematic procedure was implemented to choose the group of students who were to respond to the pre-questionnaire of preferences for CALL and TBI. For the MTIC situation, every even number from the list of the students who were to attend the study skills English course was chosen to respond to the pre-questionnaire. That is, the pre-questionnaire was given to 176 (50%) out of 352 participants who were to attend the reading study skills course in the first semester at the MTIC. However, every student represented by an odd number from the list belonging to SU was chosen for the same purpose. One hundred and thirty three students from the MTIC, and 98 students from SU responded to the questionnaire. Preferences for the two methods as expressed on the pre-questionnaire (see Appendix 4) were as follows: 80 (60.2%) and 55 (56.1%) participants (from MTIC and SU, respectively) preferred the CALL method, and 49
(36.8%) and 38 (38.8%) participants (from MTIC and SU, respectively) preferred the TBI method (see Table 3-3). Four (3%) participants from MTIC and three (3.1%) others from SU were undecided in their preferences. And so they were not given the chance to be included in the study sample.

Now, to choose the sample of the 25 students out of the 80 noted to prefer CALL in the MTIC and who were to be allocated to one group, the simple random procedure using the Table of Random Numbers (Popham and Sirotnik, 1973, p.368) was used. That simple random procedure was also used to choose the 25 students out of the 49 noted to prefer TBI in MTIC. The same process was also applied to choose the two groups of 25 students in the SU setting.

Table 3-3
Distribution of Sample for Experiment I

<table>
<thead>
<tr>
<th>Experiment I</th>
<th>MTIC</th>
<th>SU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-</td>
<td>Pre-</td>
</tr>
<tr>
<td></td>
<td>Questionnaire</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>CALL Male</td>
<td>34</td>
<td>23</td>
</tr>
<tr>
<td>Female</td>
<td>56</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>55</td>
</tr>
<tr>
<td>TBI Male</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Female</td>
<td>34</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>38</td>
</tr>
<tr>
<td>Un-decided</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>98</td>
</tr>
</tbody>
</table>

As shown in Table 3-3, the established sample for Experiment I included 100 students equally divided into four groups of 25: two for those preferring CALL and two for the others who preferred TBI.

3.1.2.2.2 Experiment II Sample

The procedure implemented to choose the sample for Experiment I was exactly followed to choose the sample for Experiment II, but with differences in numbers as the size of the sample assigned for Experiment II was larger. As displayed in Table 3-4, the sample size
for Experiment II was increased by 50 participants. Although this increase was not intended at the beginning, the researcher welcomed a volunteer lecturer who was enthusiastic to take part in the experiment. These extra two groups of 50 students were considered as an increase that would boost the chance for generalizing the findings of this study. While it continued to be 50 participants at SU, the total size of the sample became 150 students. And so depending on their pre-treatment preferences for CALL and to TBI, 75 participants out of the 150 were randomly (using the same Table of Random Numbers used in Experiment I) assigned to the group that were enrolled in Sequence 1 (CALL followed by TBI), and the other 75 were also assigned to the Sequence 2 group (TBI followed by CALL).

Table 3-4

<table>
<thead>
<tr>
<th></th>
<th>MTIC</th>
<th></th>
<th>SU</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CALL</td>
<td>TBI</td>
<td>CALL</td>
<td>TBI</td>
<td></td>
</tr>
<tr>
<td>Experiment I</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150</td>
</tr>
</tbody>
</table>

Furthermore, in terms of numbers, from the 185 (50% of the new freshman students) students in the MTIC who were handed the pre-questionnaire of attitudes, 145 (78.8%) participants responded: 86 (59.3%) of them preferred CALL and 56 (38.6%) preferred TBI while 3 (2.1%) participants were undecided. As was done in Experiment I, 50 (58.1%) out of the 86 students were randomly chosen and assigned to two groups preferring the CALL method. Another 50 (89.3%) out of the 56 students were also randomly chosen and assigned to two groups who preferred the TBI method (see Table 3-5). In SU however, out of the 151 (49.8%, about half of the target 303 population) students who received the pre-questionnaire, 118 (78.1%) of them responded to the questionnaire: 68 (57.6%) preferred CALL and 46 (40%) preferred TBI with four (3.4%) students who showed they were uncertain. As done before, the simple random procedure was implemented to choose 25 students from the CALL preference group and another group of 25 students from the TBI preference group.
Table 3-5

Distribution of Sample for Experiment 2

<table>
<thead>
<tr>
<th></th>
<th>MTIC</th>
<th></th>
<th>SU</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-</td>
<td>Sample</td>
<td>Pre-</td>
<td>Sample</td>
</tr>
<tr>
<td>Experiment II</td>
<td>Questionnaire</td>
<td></td>
<td>Questionnaire</td>
<td></td>
</tr>
<tr>
<td>CALL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>46</td>
<td>20</td>
<td>35</td>
<td>10</td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td>30</td>
<td>33</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>86</td>
<td>50</td>
<td>68</td>
<td>25</td>
</tr>
<tr>
<td>TBI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24</td>
<td>20</td>
<td>21</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>30</td>
<td>25</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>50</td>
<td>46</td>
<td>25</td>
</tr>
<tr>
<td>Un-decided</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>145</td>
<td>100</td>
<td>118</td>
<td>50</td>
</tr>
</tbody>
</table>

Should there be an interest in gender, Table 3-6 below displays the numbers for both male and female students who were assigned to the groups of both Experiments I and 2.

Table 3-6

Distribution of study sample with respect to gender and institution

<table>
<thead>
<tr>
<th></th>
<th>MTIC</th>
<th></th>
<th>SU</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Experiment I</td>
<td>17</td>
<td>33</td>
<td>17</td>
<td>33</td>
</tr>
<tr>
<td>Experiment II</td>
<td>40</td>
<td>60</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>150</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.2 Instrumentation

Different instruments were used to collect the data needed to answer the questions of this study. Three achievement examinations were built up to assess learners' reading ability before and after attending the reading courses. Concerning the attitudes and preferences of learners to CALL and TBI and the features of the instructional method that led to the significant improvement in reading ability, the pre- and post-questionnaire of attitudes were designed, and these were followed by the schedules for the interviews.

Regarding testing learners' reading ability, it has been discussed in Chapters 1 and 2 that the most important aspects of reading that should be considered in reading instruction and in testing this ability are reading speed, and reading comprehension as they are closely
related (Eskey, 1986). Vocabulary knowledge has also been added to these two aspects because an increase in learners' vocabulary knowledge positively affects their speed and comprehension ability (Chun and Plass, 1996b; Groot 2000).

Different methods are used to test comprehension and vocabulary. Some previous researchers have used the 'cloze' pattern for testing comprehension and vocabulary (Brown, 1996). However, other researchers such as Egan et al (1989) and McKnight et al (1992) tested comprehension by asking students to write an essay depending on their reading of a text or passage. However, the most common way of testing comprehension is by asking students to respond to questions like open-ended, gap-filling, True/False, multiple-choice, summarising, identifying the main idea, putting jumbled sentences in correct sequence (rebuilding of text) and other patterns. As argued by Yagi (1999), the most appropriate of these to fit the design of the CALL program and the circumstances related to this study used is the multiple-choice pattern. First of all, this kind of comprehension test can be marked automatically on the CALL program, and so this will help the researcher conduct the experiments within the time available. More interestingly, the CALL program has the feature of calculating the adjusted reading speed of the learner when the multiple choice pattern of questions is used. And so this saves considerable time and effort. This feature of linking comprehension to speed is an important one since the aim is to help students improve their ability in both rather than in one for the sake of the other. However, it can be argued that multiple-choice questions tests readers' recalling or memorising ability. But, taking into consideration the fact that readers will be training themselves on speeding up their reading ability, and so they will not be reading the texts so deeply in order to understand the hidden ideas of the reading texts can justify this pattern of testing. The pattern concentrates more on referential and factual types of questions, but with a few inferential ones as will be discussed in Section 3.2.1 and its sub-sections.
3.2.1 Reading Ability Tests

Before introducing the reading ability tests implemented in this study, it should be borne in mind that the researcher has chosen to administer all the exams on computers, even for the Placement test. This of course implies that the students were exposed to the training needed for that purpose. A model of how to deal with the exams was demonstrated by the instructors in the two experimental settings. They were shown how to prepare themselves, to Login, to choose the heading Exam from the Activities menu, to choose the option As multiple-choice questions for the Comprehension Test Type, to establish the raw speed for reading, then to do the reading, and to provide their answers to the multiple-choice questions, and finally to save their answers. Clear instructions were also provided on paper-scripts of test instructions for each exam, (see Appendices 1, 2 and 3).

The mode of testing using computers was preferred because of its advantages for both the teacher and the students. Roever (2001) argued that tests on computer can be offered at any time unlike mass paper-based tests which are constrained by logistical considerations. They can also provide feedback on each test taker's responses immediately upon completion of the test, a characteristic that is very useful for pedagogical purposes. The teacher is also benefited from this way of testing as the heavy work of marking and recording of students' marks is done by the computer. And above all, RapidReader has a valuable characteristic as it provides the exam items and even the foils for each item in different order for each user, and so the chance for exam takers to copy answers from each other is reduced to the minimum as every taker is having a different copy of the exam in terms of the appearance of the question items and the choices.

As far as this study is concerned, the students' reading ability was tested in three stages. The first step started with the assessment of students' reading abilities regarding their reading speed, comprehension, and vocabulary knowledge. In consequence with the design of the study that was conducted in two phases in each experiment, three tests
{Placement (PL), Final 1 (F1) & Final 2 (F2)} were built up to test learners’ reading ability before and after enrolment in the reading course.

The reading excerpts for the three tests were chosen from a list of short stories available on a CD at Sultan Qaboos University where the Pilot experiment was conducted. The first reason for choosing this pattern of reading texts for the three reading tests used in this study was that the three short stories chosen ("Ever Such a Nice Boy" by William Flower -1616 words, "Bellflower" by Guy de Maupassant -1799 words, and "Model Millionaire: a Note of Amiration" by Oscar Wilde -2047) had the same pattern of reading material that the learners were exposed to all through the reading course; therefore, it would not be reasonable to expose the students to different patterns of reading texts when testing them. The second reason for this choice was that the length of the three texts was appropriate. The text used for the second test (F1) is longer than that of the Placement test, but shorter than the third test (F2). The third reason was that the three texts fulfil the assumption that a reading text should be challenging to the reader; i.e., the learners did not read them before the sitting the tests, and each text of them was characterised included new words at the time the test was conducted (Krashen, 1986). This enabled the examiner to test the students’ ability to guess word meanings through context.

Before moving into the description of the tests established to measure learners’ reading ability, it should be made clear here that there was not a special part in terms of test items in the different achievement tests specified for testing speed as the case was for comprehension and vocabulary. As discussed in Chapter one: Section 1.2, there would not be any use of asking learners to read as fast as they could and then say that the reading speed of this reader is say 20 p/h, without relating this speed to how much has been comprehended through that reading. Therefore, in this study speed was not dealt with in isolation from comprehension. The CALL program RapidReader has the feature of calculating reader’s adjusted reading speed in relation to the raw reading speed chosen before starting reading and the comprehension mark in percentage that the reader obtained. Thus, according to Yagi’s (1998) formula, a user who reads a chosen passage at 80 p/h and obtains 70% on the comprehension test for example, will get the adjusted
reading speed of 56 p/h (i.e., 80 X 70 + 100 = 56). This process is done automatically for any reading activity on RapidReader, and it was done on all the reading achievement tests administered in the study. Furthermore, participants’ results obtained through this process were provided by the RapidReader and saved on computers. The target adjusted reading speed scores for each reader were compiled and recorded on SPSS (Statistical Package for the Social Sciences) files specified for data analysis.

For the purpose of establishing the validity and appropriateness of the reading achievement tests in addition to the questionnaires and the reading materials, a jury committee of specialists in evaluation and measurement, education science and applied linguists in addition to the two reading course instructors was formed (see Appendix 7). In addition to the objectives of the reading course and those for each instrument, the panel members received a copy of all the achievement tests, the questionnaires, and the reading materials. They were asked to judge the relevance of the items of each instrument to its objectives and the appropriateness of the reading materials and the achievement tests. The comments and suggestions of this jury were considered and implemented whenever it was possible in the whole process of building up all the achievement tests, the questionnaires, and the instructional materials used in the study. To establish the reliability of these achievement tests, on the other hand, they were administered in the pilot experiment, and the alpha coefficient was calculated for each test as it will be discussed in the following three sections.

3.2.1.1 Placement Test

The placement test aimed at identifying the reading abilities of the participants of this study regarding the target three reading aspects at the outset of experiments. The short story by William Flower entitled “Ever Such a Nice Boy” was chosen for conducting this exam and it was accepted by the panel members. Thirty nine comprehension multiple-choice questions were built up to cover the literal and simple inferential meaning conveyed in the story. When this test, and of course the other two achievement tests were given to the panel members to assess their appropriateness, it was made clear to them that the comprehension part in each test was built mainly to cover learners’ literal understanding (surface meaning) of the reading text, with some items checking the
inferential understanding (deep meaning) conveyed in those reading texts. The reason behind that was that the readers were asked to read at a challenging reading speed and at the same time to understand what they were reading.

By default, indeed, the learners during the test sessions were unable to make back-skipping or “regression” as Buzan (1988) called it; and so it was not possible to expect the learners to read profoundly in order to understand the deeper meanings the writer tries to convey in the reading text. For example, it was so difficult for the learners of this current study to understand the deep meanings conveyed in texts because reaching that stage of understanding implied making complex links between the words and the information bits spread all through the reading text, provided that they were discouraged from doing any kind of regression or referring back to reread a text they had finished reading so as to confirm a meaning they could have missed. This of course limited the inferential understanding. However, depending only on surface understanding of a text could lead to a criticism that the reading tests of this study were assessing only readers’ recall ability. Therefore some inferential questions that required a higher level of reading ability (like questions 1,2,6,10,34 and 35 in the Placement test in Appendix 1) were added to the tests to make them tests of reading comprehension rather than only tests of memory. For example, the last two questions in the Placement test (34 and 35 which are shown below), could not be answered correctly unless the reader understands the setting in which the incident took place and puts a link between a piece of information here and another there. For question 34 the correct answer (choice 1) is not mentioned as a reason for Mrs Dyke’s creeping into his wife’s window because she would not let him set foot in her room in the ordinary way (see Appendix 1). This also applies to the second example which asked about the reason that made the narrator and Freddy laugh. In fact the reason is not mentioned at all in the text, still it is not very difficult for the reader who understands what is being said in that context to guess that “choice 1” is the correct answer.

Question 34: *Why did the man go into Mrs. Dyke’s room?*
   - To surprise her because she would not let him set foot in her room in the ordinary way

74
To sleep in her bedroom because Edith would not let him set foot in his own room
To rob her
To make her love him"

Question 35: "Why could the narrator and Freddy not help laughing when Mrs. Dykes said, "I thought it was a man"?"
Because what she said implied that the Major was NOT a man
Because what she said implied that Freddy was NOT a man
Because they were rude
Because the Major was actually a woman"

However, in other questions like question 3, the reader needs to remember the name of the disease which is clearly stated in the text; this of course is not guaranteed unless the reader understands the meaning of the question 'to suffer from' and knows that 'rheumatism' is a disease.

Question 3: "What disease did the Major suffer from?"
- Rheumatism
- Heart problems
- Dermatitis
- Tuberculosis"

Going back to the comments of the jury on the Placement test, two questions were deleted because they were, as noted, asking about the same pieces of information which were tackled in other two questions. Additional minor amendments took place to fit the jury's suggestions, and consequently, the total number of questions appearing on the Placement test before piloting it was 37.

However, when the test was administered to the participants of the pilot study at the beginning of the pilot experiment during the second semester 2000 at SQU, the results showed that there were two items which were not scored correctly at all by any of the participants. That result indicated that those two questions were too difficult for the participants to answer correctly or there was some kind of ambiguity in them. Therefore, those two questions were dropped from the test. This way, the final version of this test included 35 comprehension questions.
Results of the participants on the comprehension part of the test were recorded in a special file on the Statistical Package for the Social Sciences (SPSS) which was used to estimate the internal reliability of that test. Two parallel sets of items, one of the even and another of the odd numbers were compiled to calculate the split-half reliability coefficient. The output of this assessment of the internal reliability of this comprehension part of the test indicated that it was acceptable as the alpha coefficient was 0.79.

Regarding the vocabulary part on the placement test, 30 multiple-choice items were written and provided for the jury members to judge their appropriateness for testing participants’ vocabulary knowledge, taking into consideration that the items included were supposed to be new words for the learners. Those words were chosen randomly from the glossary list of words that occurred in the novel chosen for the reading course. The researcher compiled that list of words as they were expected to be new for the learners. Of course some of the words could have been known to some students. So it was made clear to the jury members that some of those words or all of them could appear as new to the learners, still the aim was to check their knowledge of those words before attending the reading course. Their jury's feedback included two types of notes. The first was related to a few amendments in the choices provided for the vocabulary questions, and those were considered. The second note suggested including no more than 20 vocabulary items in the reading tests, just because of time limitations. Once the amendments were done, 10 items out of the 30 were randomly chosen and deleted. Thus the final version of the vocabulary part in the placement test included 20 items as shown in Appendix 1. As shown in the two examples quoted from the test, two types of multiple-choice vocabulary questions were included. The first provided the learner with a sentence with a blank space in which the correct word or phrase from the four choices should be ticked, as in the first example below (Question 16). The second form provided the learner with a sentence in which the target word was included in the context, and the learner was asked to tick the correct choice that gave the meaning for that word (Question 7).
When the test was administered for the pilot sample of the 25 students at SQU during the second semester, the data related to the vocabulary part was collected and recorded on the SPSS file specified for the data related to the pilot study. Learners’ results showed that their knowledge of the words that appeared on the test was remarkably limited. In many cases the example given below, only one or two participants responded correctly.

Question 16 “She said she didn't .......... open her eyes or else they'd go red too.

dare  
hassle  
sink  
sprint”

In some other cases, a relatively larger number of participants were able to identify the correct response. The item which was marked as the highest scored correctly (by 6 participants) was:

Question 7 “Kate patted me on the shoulder. The word" pat" means:

to tap gently with the open hand or with something flat.
to hit with a sharp blow of the fist
to bite strongly
to push lightly”

The scores for the rest of the items indicated that the majority of the participants lacked knowledge of the vocabulary items included in the placement test before enrolment in the reading course, and because those items were randomly chosen from the list of the words which were expected to be difficult for the learners to understand, this result indicated that participants’ knowledge of the vocabulary items appearing in the glossary list was low; the mean for correct responses on the Placement test was 3.45 as shown in Table 3-7.
Table 3-7

Vocabulary scoring with respect to items appearing on the 3 reading tests

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Placement Test</th>
<th>Final 1 Test</th>
<th>Final 2 Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<td>4</td>
<td>2</td>
<td>5</td>
<td>9</td>
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<tr>
<td>5</td>
<td>1</td>
<td>9</td>
<td>9</td>
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<td>6</td>
<td>2</td>
<td>10</td>
<td>10</td>
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<td>7</td>
<td>6</td>
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<td>10</td>
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<td>8</td>
<td>2</td>
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<td>9</td>
<td>3</td>
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<td>8</td>
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<td>10</td>
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<td>11</td>
<td>4</td>
<td>10</td>
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<td>9</td>
<td>11</td>
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<td>13</td>
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<td>14</td>
<td>4</td>
<td>5</td>
<td>10</td>
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<tr>
<td>15</td>
<td>4</td>
<td>8</td>
<td>10</td>
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<td>16</td>
<td>1</td>
<td>10</td>
<td>11</td>
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<tr>
<td>17</td>
<td>4</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>19</td>
<td>5</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>20</td>
<td>4</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Mean</td>
<td>3.45</td>
<td>7.85</td>
<td>9.65</td>
</tr>
</tbody>
</table>

3.2.1.2 Post-test (F1 Test)

This achievement test aimed at assessing the gains in reading speed, comprehension, and vocabulary knowledge the participants in the two groups in both experiments of the study were able to achieve as a result of applying the CALL and the TBI methods for the first eight weeks of the reading course, i.e. after attending Phase 1 of experiments 1 and 2. The same procedure that took place for building up the Placement test was followed to build up this test. This Final 1 test had the same structure as the placement test except for the reading text and the vocabulary questions which were different. The short story entitled “Bellflower” by Guy de Maupassant was chosen as the reading text for the test. Once the comprehension questions were written for this test, the same procedure followed in the Placement test was applied for establishing its validity and reliability.
The first draft of this test included 45 comprehension multiple-choice questions that mainly covered referential questions to check participants' understanding of the literal meaning of the story, and some inferential questions asking about the deep meaning conveyed in the story. The jury members suggested dropping one of the questions because it looked ambiguous, and some minor amendments were also suggested. Amendments were carried out to meet the jury's suggestions. Consequently, the comprehension part of the test included 44 questions which were judged as valid questions directed towards evaluating the participants' comprehension ability.

Concerning the vocabulary part of the test, again a group of 20 words were randomly chosen from the glossary list of words. These words were tested through multiple-choice questions. The jury were asked for their comments and suggestions, and amendments were carried out in light of those comments. The two types of vocabulary questions provided in the Placement test were also provided in this Final 1 test, as shown in Appendix 2.

For the purpose of establishing the reliability of this test, it was administered to the participants of the pilot study at the end of the fifth week of their enrolment in the 10 weeks reading course of the pilot study. No problems were noted while the learners were working on the test, and the learners did not raise any complaints.

Participants' results were recorded on the SPSS file specified for the pilot experiment. Two frequency lists of the participants' correct responses to each item of the comprehension and the vocabulary parts were formed separately. For each part two parallel sets of items, one for the odds and another for the evens, were compiled so as to calculate the split-half reliability coefficient via the SPSS package. The internal reliability of the test on both comprehension and vocabulary was acceptable as the alpha coefficients for the two parts was .82 and .79, respectively.
On the vocabulary level, after enrolment in the reading course this time, and so gaining knowledge of new vocabulary words, it was possible to calculate the estimated reliability of the vocabulary part on the Final 1 test.

3.2.1.3 Post-test (F2 Test)

The Final 2 test had the same aim of Final 1 test, but this Final 2 test was administered once the learners finished Phase 2 of each experiment, and the researcher followed the same procedure to build it up and to administer it. The story entitled, "Model Millionaire: A Note of Admiration" by Oscar Wilde was chosen for this exam. The researcher built up this test that covered the comprehension and vocabulary aspects, using the same procedures followed to establish the Placement and the Final 1 tests. Once the comments were received from the jury members, its two parts of comprehension and vocabulary were amended to fit the comments suggested. There were 41 multiple-choice comprehension questions covering the literal and the surface meaning of the reading text and there were 20 multiple-choice questions that dealt with 20 vocabulary items randomly chosen from the target list of words that appeared in the novel (see Appendix 3).

This test was administered at the end of the tenth week of the pilot experiment. Learners' scores on the two parts of the test were recorded on the SPSS file related to the pilot study.

Using the same procedure implemented in tests 1 & 2 for calculating the reliability coefficients for the two parts covering comprehension and vocabulary, the calculations indicated that both parts of the test were reliable. The alpha coefficient for the comprehension and the vocabulary parts of Final 2 test was .80, and it was .79 for the vocabulary part.

3.2.2 Attitudes Questionnaires

Many researchers argue for considering the variable of students' attitudes towards using computers in language instruction. Levine, Ferenz, and Reves (2000), AlKahtani (1999),
Yagi (1999), Towndrow (1997), Cox (1996) and Johnston (1996) noted that learners' attitudes towards CALL programs play an important role in their learning performance and language learning abilities. Therefore, this study was designed in a way to tackle this variable in relation to freshman Arab students learning English as a foreign language.

Because one of the aims of this study was to investigate learners' attitudes towards the two reading instructional methods, the factors and features of those methods which enhance learners' reading ability and the relationships between those attitudes and the reading achievements, Likert type rating scales would be the appropriate instruments to collect the data needed. Cohen, Manion and Morrison (2000, p.253) argue that these rating scales "combine the opportunity for a flexible response with the ability to determine frequencies, correlations and other forms of quantitative analysis. They afford the researcher the freedom to fuse measurement with opinion, quantity and quality.” Consequently, two questionnaires were designed to collect the quantitative data that served this purpose of the study (Appendices 4 and 5).

On the other hand, Cohen, Manion and Morrison (2000) argue that the rating scale questionnaires have their limitations. They say that researchers “have no way of knowing if the respondent might have wished to add any other comments about the issue under investigation. It might have been the case that there was something far more pressing about the issue than the rating scale included but which was condemned to silence for want of a category,” (p.254). Depending on this cautionary remark, and stimulated by the fact that the study aimed at finding out learners’ suggestions for improving the most effective instructional method to their view, the researcher found that a word-based qualitative instrument for data collection would be required. However, although the participants were asked on the post-questionnaire to write any other comments they wanted to add, there was the fear that few of the learners would do that, and the expectation was true indeed; very few of the learners did add anything in the space provided. Above all, the study aimed at finding out learners’ suggestions for improving the reading method they would prefer. The researcher also thought that including issues in an interview like “learners’ reasons for preferring this method or the other, and the
features of the CALL or the TBI method that caused it to be more effective than the other would increase confidence in the data collected and this kind of “triangulation is a powerful way of demonstrating concurrent validity”, (Cohen, Manion and Morrison, 2000, p.112). And so, the researcher designed a semi-structured questionnaire to collect the target qualitative data through personal interviews (Appendix 6).

3.2.2.1 Pre-Questionnaire of Attitudes

Once the researcher built up the first draft of this pre-questionnaire of attitudes, it was handed to the jury committee together with a description for its purpose as noted in the above section. The most important suggestion made by the jury was to add to the questionnaire an item in which the respondents could write their own reasons after their preferences for CALL or to TBI methods, and this item should appear immediately after the question related directly to the preferences. This item was added to the questionnaire as suggested, and other minor amendments were done. The final version of the pre-questionnaire included two parts with 9 questions as displayed in Appendix 4.

The first part included 3 items that asked the respondents to give their names and their educational institutions; this was just to help the researcher identify the learner in the sampling process and the comparisons that followed the experiments. The participants were also asked to give their age and gender and that was just to make a control of those variables should the need arise.

The second part of the questionnaire included items that aimed at identifying the learners’ competencies, abilities and the usage of computer for learners who did use it, (Items 4, 5, 6 & 7). Such information was also vital as it would help the researcher decide on the kind and level of training that the learners would need before enrolment in the CALL reading course. The last question on the questionnaire (Item 8) was the most important and related to the aims of the study as it asked the respondents to choose whether they would prefer to attend the CALL or the TBI method of reading instruction. The respondents were also given the chance to mention the reasons after their preference in a space provided for that purpose after question 8.
This questionnaire was piloted with ten learners chosen randomly from the participants who were about to enrol in the first experiment at the MTIC during the first semester 2001-2002. It was noticed that most of the learners had adequate knowledge in using computers but they had different attitudes towards the two instructional methods. Preferences were noted for both of the instructional methods. The final version of this pre-questionnaire was administered before Experiments I and 2. The data collected were input into two SPSS files (one for Experiment I, and the second for Experiment II). Whilst these data were first used for choosing the samples for each experiment, they were used later for conducting the correlation tests between pre-instruction preferences and reading achievements at the end of each reading course.

3.2.2.2 Post-Questionnaire of Attitudes

The post-questionnaire of attitudes aimed at collecting quantitative data about learners’ attitudes towards the two target methods of instructions after enrolment in the reading course. In particular, it aimed at identifying learners’ preferences for the two methods implemented and the reasons causing those preferences. Another aim was to identify, from the learners’ point of view, if they really witnessed a significant improvement in their reading ability, the features of the instructional method that led to that significant improvement and the relationship between the preferences for that method and learners’ reading gains.

To construct this post-questionnaire, all items used a 5-point Likert-type scale where 1=completely disagree, 2=disagree, 3=no opinion, 4=agree, and 5=strongly agree. An initial draft of 30 items was designed to cover the ideas which the questionnaire aimed at collecting information about. Those items were presented in three parts:

- **General**, which included 10 items to collect learners’ points of view towards the nature of the activities which they met in the learning course regardless of the instructional method.

- **Reading with CALL**, which included 20 items asking learners to express the level of satisfaction with respect to each of the statements provided.
• Reading with TBI, which included the same statements appearing on the previous part, but learners here were to express their opinions with reference to the TBI method.

A space was left for the respondents to write (in Arabic or English) any further feelings about using computers in English classrooms, and about the reading material, the activities, the achievement tests.

The comments the researcher received from the jury members suggested dropping the items included in the general part, and to make sure that the learners were responding to the target items in two settings. The first was to respond to the 21 items in regard to the CALL method of instruction as shown in Appendix 5. The second was to respond to the same 22 items in regard to the TBI method. This way made the questionnaire more consistent as the statements concerning each method were in the same direction rather than being positively phrased here and negatively phrased there. Other suggestions like rephrasing of some items and using a word instead of another were also noted. The modified version of the post-questionnaire was piloted to a group of 10 participants from the MTIC who were enrolled in the first experiment. This administration was conducted by the researcher a short time before the end of Phase 2 in that experiment and it showed that the learners were able to respond to all the items without any complaints of ambiguity or inability to understand those items.

Consequently, the final draft of the post-questionnaire included three parts. As displayed in Appendix 5, the first part was just for managerial purposes to help in identifying the responder's name, the educational institution, and the group s/he belonged to during the experiment.

The second part included the 21 statements that were directed to point out learners' views about the reading activities, their needs and preferences while learning to read in addition to the features and variables that characterised the target instructional methods as discussed in Chapter 1. Therefore, and based on the three reading aspects that this study tackled, the statements were of different categories. Perhaps one of the vital data needed
for investigating the implementation of CALL and TBI was related to how the learners felt about the activities they were exposed to in both instructional situations. Therefore, it should be noted (as shown in Appendix 5) that Items 1, 2 and 3, for example, collected information about the usefulness of the word activities from different aspects. And there was Item 18 which elicited learners' opinions about the vocabulary knowledge they believed they were after all able to gain, and to which one of the two methods of instruction it could be attributed. As the example below shows:

Example:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Word activities helped me learn words quickly</td>
</tr>
<tr>
<td>2</td>
<td>Word activities helped me become able to use the new words in</td>
</tr>
<tr>
<td></td>
<td>real life situations</td>
</tr>
<tr>
<td>3</td>
<td>I was able to deal with a large number of word activities</td>
</tr>
<tr>
<td>18</td>
<td>I learnt a large number of vocabulary items as a result of this</td>
</tr>
<tr>
<td></td>
<td>method of instruction</td>
</tr>
</tbody>
</table>

In the same way, there were items related to the aspects of reading speed and comprehension. Items 5, 6, 7, 8 and 14 were related to the speed aspect, while items 9 & 15 were specified for comprehension. It should be noted here that more items were related to the speed aspect only because of the larger number of activities related to this aspect on the CALL program and even during the TBI course. Other important issues were tackled in the questionnaire. Item 4 for example dealt with the kind of interaction learners preferred between them and the teacher. Item 10 tackled the importance of the feedback to the learners; Item 11 dealt with learners' chance in the two instructional methods to pace their learning; and Item 12 dealt with learners' ability to record their performance. Affective factors were not neglected in this questionnaire as it asked them about the way they preferred to participate in lessons and introduce their inquiries (Item 19) and above all whether they liked the target methods of instruction and if they would like to recommend them for other learners (Items 20 and 21).

The third part of the post-questionnaire was a space left for the respondents to comment freely in Arabic or English about how they felt in regard to using computers in the reading course and about the reading material, the activities and the achievement tests.
This final version of the post-questionnaire was administered to the sample of the second experiment (150 students) that was conducted in the second semester 2001-2002. Every student was given a copy of this questionnaire once they finished the Final 2 test, and all were requested to respond to the items immediately after the achievement test, and to hand back the copies to the instructors. Learners' responses were collected and recorded on the SPSS file for the data related to Experiment II.

### 3.2.2.3 Personal Interviews

This instrument of the post-instruction personal interview was designed to elicit the respondents' views on certain issues to get a deeper understanding and more information than what was obtained through the post-questionnaire of attitudes. In particular, the interview surveys aimed at going into greater depth into a) the reasons which made the CALL or the TBI method more effective according to the participants' point of view, b) the features that characterised the CALL or the TBI method which in turn could have helped the learners significantly improve their reading ability, and c) the participants' suggestions for improving the method which caused the significant improvement in their reading ability.

To obtain these qualitative data, a semi-structured questionnaire was designed. The jury committee were asked to check for the validity of the questionnaire items with respect to the aims mentioned above. The final version of the questionnaire (Appendix 6) included two parts. The first part was specified for managerial purposes. The second part included three sections: one for each of the three reading aspects of speed, comprehension, and vocabulary. In each section the respondents were asked the same questions but with reference to the reading aspect denoted. As shown below, the first started with some piece of information which was known to the interviewer and the respondent, while the other parts of the question deemed reasons for their YES/NO response to the first part of the question.

"1. Has your (reading speed) improved remarkably as a result of the reading course you attended?"
If NO, what was/were the reason(s)?
If YES, which method contributed most to this improvement – the teacher- or the computer-based method of instruction? And why?

The second question addressed the most important part about the features and factors which made one of the instructional methods more effective than the other.

“2. What were the features or factors in the instructional method you were exposed to, that caused the remarkable improvement in your (reading speed)?”

The third question addressed the other important issue of the ideas the respondents suggested for improving their preferred instructional method.

“3. What changes or modifications would you suggest for improving this method of reading instruction?”

This final version of the questionnaire was administered to a group of five learners at the MTIC and to five other participants at SU before the end of Phase 2 of the second experiment 2001-2002. This pilot administration aimed at finding out if the learners would be able, on the one hand, to express themselves in English, and on the other, if they would be willing to say what they believed out loud. In addition to that the researcher wanted to find out the average duration of time needed for conducting one personal interview. Results of the pilot indicated that the learners were motivated to say their views, but it was slightly difficult for them to express themselves easily and accurately. So it was decided to conduct the interview surveys in Arabic, and then to translate the scripts into English. It was also noticed that each interview could take between 15 to 28 minutes.

The actual interview surveys were conducted after the end of the second experiment. Thirty participants out of the 100 learners who participated in the second experiment at the MTIC were randomly chosen using the Table of Random Numbers (Popham and Sirotnik, 1973, p.368) for the purpose of the interviews and 15 students out of the 50 participants of SU were also chosen under the same conditions. Those interviews were to be conducted as soon as the learners finished their exams because they wanted to start
their end of year holidays. We were lucky that learners usually waited to know their grades before starting the holidays. Out of the 45 participants who were chosen for the interviews it was possible to conduct the interviews with 36 of them (25 from MCIT and 11 from SU).

The data were compiled together, and the researcher started translating the materials into English. Then the work of examining the interview transcripts to identify the themes in relation to the respondents' reasons for preferring one of the instructional methods or the other, the features of those instructional methods and the suggestions for improving those methods. The process of coding interview responses into themes started by reading through the responses without taking any notes while reading them for the first time. This first reading ended with jotting down some interesting and important notes. After the identification of the thematic ideas related to each of three main issues or aims of the interview questions and with respect to the three reading aspects, a second reading of the target data followed but this time it was a thorough reading accompanied by making as many marginal notes as possible about the significant remarks and observations, and this is the primary coding of the themes. The next step was to record how often each theme occurred on an Excel file which was used for conducting the descriptive analysis of these data and so to answer the related questions of the study. Although the researcher started using the Atlas software for categorising and coding the themes emerging from the data collected through the interviews, it was found the using this software would be time consuming and difficult. Therefore, the decision was taken to use Excel which in general supports the classification of interview responses into categories. In fact Excel made it easy to collect and store text quotes under the different headings.

The data dealing with whether the interviewees believed that their reading ability (in the target reading aspects) improved or not and their reasons for their beliefs is addressed in Chapter 8. Data on the features and components of the reading methods implemented in the study will be discussed in Chapter 9 and the suggestions the interviewees pointed out for improving the target reading methods will be dealt with in Chapter 10.
Concerning the first two sub-questions that asked whether the learners believed that their reading ability improved or not, and if improved, which reading method contributed most to that improvement, the responses were very straightforward as the interviewees were to respond with ‘Yes’ or ‘No’ for the first part, and the ‘CALL’ or the ‘TBI’ methods for the second part.

For identifying the themes, all the significant remarks and ideas were noted while reading through the data. When an idea or comment was explicitly presented in the context referring to an interviewee, this was considered as an occurrence of that theme in that interviewee’s response. If a group of words said by an interviewee clearly indicated that the learner meant one specific theme, then this occurrence was also counted for. So, it was not necessary that the wordings of the interviewees’ sentences or statements were exactly the same for the purpose of considering the presence of a theme in their response. Below is an example for a theme that was expressed in different ways:

Interviewee 3: I was learning more vocabulary items during the CALL session.
Interviewee 14: I was always able to learn more new words whenever I used the CALL program.
Interviewee 16: I noticed through the computer feedback that my learning of new words was increasing remarkably.
Interviewee 29: My vocabulary knowledge was improving a lot while attending the CALL session.

All of the above mentioned steps were followed for the treatment of the whole data. However, the actual analysis of the data would appear in the following sections of this chapter, and in Chapters 9 and 10.

3.3 Reading Materials

Different criteria were considered to choose the reading material to be implemented in the reading courses. Recently, a lot of second language research has been directed towards the study of comprehension input. Krashen (1985) argues that comprehension input should be at a level slightly higher than the student is capable of using, but at a level that s/he is capable of understanding. In their discussion of comprehension input to second language learners Pica, Young, and Doughty (1987, p. 737) claimed that “there
has been a widespread conviction that input must be comprehended by the learner if it is to assist the acquisition process."

Moreover, in his model programme of reading for foreign learners of English, Eskey (1979) added another important criterion regarding the reading material. He suggested that there should be plenty of it, "perhaps a book or a series of articles," because of the fact that "for many foreign students, the problem is not only to learn to read English, but to develop a reading habit," (p. 73). He also argued that material difficulty should be controlled to make sure that it should not be too easy or too hard. However, a reading material offered to adult foreign language learners should also include a good amount of new vocabulary items that learners as such should learn incidentally and intentionally (Groot, 2000).

Consequently, in collaboration with the course instructor at Sultan Qaboos University where the pilot study took place, the novel "In the Fifth at Malory Towers" by Enid Blyton was chosen as the reading material for the reading course. This novel was chosen from a list of reading materials provided by the English Department at Sultan Qaboos University where the pilot study took place. Although it was preferred to choose a more appropriate and up to date story or novel, the Department did not allow any other choice other than the list provided which mainly consisted of Blyton's stories. Nevertheless, this novel was judged by the jury committee as a story with an interesting plot, which had material enough for implementation during the academic semester in classroom situation and a good amount of new words for the target participants to learn. The jury also agreed that this novel would be challenging but not frustrating to the participant's reading competences.

Once the story was chosen, the researcher started compiling the comprehension questions for its 22 chapters. Those comprehension questions took the same form as those that appeared in the reading ability tests. The researcher also prepared the list of the words that could be unknown to the learners. Although some words were expected to be known to some of the target learners, they were included in the list just in case those words were
unknown to a few of them. The Longman International Advanced Dictionary was used to compile the glossary of vocabulary items for the 22 chapters of the novel. As shown in the example below, the target word first appeared in the first column, the context in which it appeared in the text was presented in the second column, and its definition appeared in the third column.

<table>
<thead>
<tr>
<th>glumly</th>
<th>She glanced at Moira who was frowning glumly.</th>
<th>sadly; in low spirits</th>
</tr>
</thead>
<tbody>
<tr>
<td>resourceful</td>
<td>She could plan and she could be more resourceful than anyone.</td>
<td>good at finding ways to deal with difficult situations</td>
</tr>
</tbody>
</table>

The comprehension questions and the vocabulary items were all input and saved on the Notepad program, and then input to the RapidReader program. Copies of the reading texts and the vocabulary lists were offered for the learners while they were participating in the TBI reading courses.

3.4 Data Analysis Procedures

The two methods of reading instruction (CALL vs. TBI) were compared in two experiments. These experiments had an experimental pre-test/post-test treatment design, with the two instructional methods (CALL and TBI) as the independent variables. On the other hand, learners' reading achievements in the aspects of speed, comprehension and vocabulary knowledge due to the instructional methods were the dependent variables. These aspects were measured twice, that is, on the Final 1 post-test of Phase 1 (which also stood as the pre-test for Phase 2) and Final 2 post-test. Post-treatment questionnaires of attitudes and personal interviews with the participants of the study were conducted in Experiment II. The data collected through these reading ability tests and surveys were recorded on special files on the SPSS program for quantitative analysis and on Excel for analysis of the frequency of themes resulted from the personal interviews for the purpose of answering the questions of the study.

For the purpose of answering some of the questions of the study, four null hypotheses were put forward to be tested as shown in Section 1.5 of Chapter 1. The significance level
suggested for rejecting the null hypotheses was $p < 0.05$ because this level of $p$ dropping below $0.05$ "is the golden standard, the general yardstick by which differences or relationships are counted or not," (Coolican, 1994: p.244).

To explore the appropriateness of implementing the parametric statistical tests in analyses to find out 1) the instructional method that helped the learners most significantly improve their reading ability, 2) the relationships between learners' pre-questionnaire of preferences for the target reading instructional methods and their reading achievements, and 3) the relationship between learners' responses to the post-questionnaire items related to the different features of the reading methods and the preference for that method in general, the data were initially tested to see if they would fulfil the conditions proposed for using those parametric tests. Bryman and Cramer (2001) say that parametric tests are only appropriate when the data fulfil the following assumptions:

"1. the level or scale of measurement is of equal interval or ratio scaling, that is, more than ordinal;
2. the distribution of population scores is normal; and
3. the variances of both variables are equal or homogeneous." (p.115)

One fourth condition of random sampling of cases so that parametric tests could be implemented was also argued for by Siegel and Castellan (1988).

Starting with the last condition of Siegel and Castellan, it should be noticed that the sample for the experiments in this study were randomly chosen as discussed in sections 3.1.2.2.1&2 above, and so this condition was fulfilled. Regarding the three conditions as given by Bryman and Cramer (2001), the data collected on reading speed, comprehension and vocabulary knowledge fulfils the first condition as speed measured in pages per hour, and comprehension and vocabulary measured in the number correct items are all ratio data. However, where attitude scales were used the data collected concerns learners' perceptions and therefore is ordinal. Bryman and Cramer (2001) argue that in order to treat such data as ratio there must be a large number of numeric intervals. As there were only five intervals used to assess attitudes and depending on Siegel & Castellan's (1988)
argument that availability of a large sample (over 100 in both experiments) increases the power of non-parametric tests such as the Mann-Whitney, non-parametric statistical tests will be used in the analysis of the attitude data.

Regarding the data collected through the post-questionnaire of attitudes, the level of measurement is at the ordinal level since the 5-point Likert-type scale is used to collect learners’ preferences and attitudes towards the two method of instruction. However, in the case of the scores related to the pre-questionnaire of attitudes, the scores collected were only nominal; that is of two levels, 1 for the TBI preference and 2 for CALL preference. Therefore, this condition was not met in this situation, and so the non-parametric test (Mann-Whitney U test) was used to analyse the data for investigating the relationship between learners’ preferences before enrolment in the reading course and their reading achievements on the post-tests.

Above in this section it has been noted that parametric statistical tests would not be appropriate to use for analysing the data collected on learners’ attitudes through the pre- and post-questionnaires; the non-parametric tests, however, should be used. Concerning the fulfilment of the rest of the conditions with regard to the data collected on speed, comprehension and vocabulary via the achievement reading tests each experiment is discussed separately below.

3.4.1 Experiment I

As far as the second condition of the normal distribution of scores, and regarding Experiment I, a quick look at the histograms of the mean scores distributions for every two parallel groups at the Placement and the Final 1 tests shows that they have remarkable differences. While the distribution of the adjusted reading speed scores on the Placement test for the Sequence 2 group shown on the right hand histogram of Figure 3-2 looks almost normal, the left hand histogram of the same Figure shows that the distribution of the score of the Sequence 1 group does not look normal. In fact, the left hand histogram shows that the adjusted reading speed scores for this group of learners tend to cluster to the right and there is a long tail to the left and so this means they are
negatively skewed. This of course means that the assumption of the normality of
distribution of scores has not been fulfilled at the level of the Placement reading speed
scores. As we move to the adjusted reading speed scores on the Final 1 test, although the
skewness directions (positive) of the two groups are the same as shown in Figure 3-3, it
could be clearly noticed that there is a high level of score clustering to the left in the left­
hand histogram (Sequence 1), but the scores tend to cluster in the middle in the right­
hand histogram (Sequence 2). Normality of distribution has not been fulfilled at this
level, either. Different directions of skewness could also be seen in Figure 3-4 regarding
the scores of the two groups on the Placement comprehension scores. The scores in the
left-hand histogram of Figure 3-4 tend to cluster to the right (negative skewness), but
they almost cluster in the middle with a very small tendency to clustering to the left for
the other parallel group appearing in the right-hand histogram. For these differences in
the distribution of the learners’ scores, the researcher argues that the second condition of
the normal distribution for scores of the two groups of the study was not fulfilled.

As far as the homogeneity of variance condition is concerned, Table 3-8 shows that the
variances of each pair of parallel groups were not statistically significantly different and
so can be considered homogeneous, and this means the fulfilment of the third condition
Figure 3-2 Histograms for Placement adjusted reading speed scores: Sequences 1 and 2

Figure 3-3 Histograms for Final 1 adjusted reading speed scores: Sequences 1 and 2

Figure 3-4 Histograms for Placement comprehension scores: Sequences 1 and 2
Table 3-8
Test of Homogeneity of Variances for the two groups on the Placement and Final 1 tests with respect to the three reading aspects

<table>
<thead>
<tr>
<th></th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement Adjusted Reading Speed</td>
<td>1.176</td>
<td>1</td>
<td>98</td>
<td>.281</td>
</tr>
<tr>
<td>Final 1 Adjusted Reading Speed</td>
<td>2.009</td>
<td>1</td>
<td>98</td>
<td>.160</td>
</tr>
<tr>
<td>Placement Comprehension Accuracy</td>
<td>.752</td>
<td>1</td>
<td>98</td>
<td>.388</td>
</tr>
<tr>
<td>Final 1 Comprehension Accuracy</td>
<td>2.467</td>
<td>1</td>
<td>98</td>
<td>.119</td>
</tr>
<tr>
<td>Placement Vocabulary Score</td>
<td>1.262</td>
<td>1</td>
<td>98</td>
<td>.264</td>
</tr>
<tr>
<td>Final 1 Vocabulary Score</td>
<td>.000</td>
<td>1</td>
<td>98</td>
<td>.996</td>
</tr>
</tbody>
</table>

Going back to the three conditions as given by Bryman and Cramer (2001), the data collected on reading speed, comprehension and vocabulary knowledge fulfil the first condition of the ratio level of measurement. However, it has been noticed that the second condition of the normal distribution of means scores was not fulfilled in that data collected through the achievement reading tests, and so this means implementing the non-parametric tests which would be the Mann-Whitney U test for testing the data collected in Experiment I. In this context, it should be pointed out again that the sample size for Experiment I was 100 participants, a large sample that could, as Seigel (1956) pointed out, increase the power of using the Mann-Whitney test, and in turn would validate implementing the Mann-Whitney U test in the data analysis.

One more procedure that the researcher attended to before conducting the Mann-Whitney test was to implement what Coolican (1994) called the “Eyeball Test” (p. 242) so as to shed light on the direction of differences in learners’ achievements in the three reading aspects targeted.

3.4.2 Experiment II

The same procedure followed in Experiment I to test the appropriateness of implementing parametric tests was implemented for Experiment II. The outcome of this test led to the
same conclusion that some assumptions necessary for using parametric tests to conduct data analysis were not fulfilled.

On the first step, histograms of scores for the three reading aspects of every two parallel groups on the Placement and the Final 1 tests were normally distributed. For example the distribution of the adjusted reading speed scores on the Final 1 tests (Figure 3-5) were the most different ones, still they continue to have almost normal and similar curves. And so this assumption, in addition the first two assumptions of the random sampling and the level of measurement were fulfilled in Experiment II data, except for the data related to the pre-questionnaire of preferences which continued to be unfulfilled.

![Figure 3-5 Histograms for Final 1 comprehension scores: Sequences 1 and 2](image)

When testing the assumption of the homogeneity of variances, however, results did not encourage using parametric tests. The test for the homogeneity of variances shown in Table 3-9 indicates that the there were statistically significant differences in the variances of each two parallel groups regarding the three aspects of speed, comprehension and vocabulary on the Final 1 test which stood as the placement test for the second phase of the experiment. This means that this condition of the homogeneity of variances was not fulfilled and so necessitates the adoption of a non-parametric statistical test for testing the data related to reading achievements.
Table 3-9

Test of Homogeneity of Variances for the two groups on the Placement and Final 1 tests with respect to the three reading aspects

<table>
<thead>
<tr>
<th></th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement Adjusted Reading Speed</td>
<td>.966</td>
<td>1</td>
<td>148</td>
<td>.327</td>
</tr>
<tr>
<td>Final 1 Adjusted Reading Speed</td>
<td>24.313</td>
<td>1</td>
<td>148</td>
<td>.000</td>
</tr>
<tr>
<td>Placement Comprehension Accuracy</td>
<td>.966</td>
<td>1</td>
<td>148</td>
<td>.327</td>
</tr>
<tr>
<td>Final 1 Comprehension Accuracy</td>
<td>24.313</td>
<td>1</td>
<td>148</td>
<td>.000</td>
</tr>
<tr>
<td>Placement Vocabulary Score</td>
<td>2.993</td>
<td>1</td>
<td>148</td>
<td>.086</td>
</tr>
<tr>
<td>Final 1 Vocabulary Score</td>
<td>24.818</td>
<td>1</td>
<td>148</td>
<td>.000</td>
</tr>
</tbody>
</table>

Again, in the case of Experiment II, the data collected on reading speed, comprehension and vocabulary knowledge fulfil the first and the second conditions (of Bryman and Cramer, 2001) of the ratio level of measurement and of the normal distribution of the scores but the third condition of the homogeneity of variances was not fulfilled so the non parametric Mann-Whitney test as in Experiment I would be used to test the data collected. The sample size for Experiment II was increased by 50 participants (it became 150), a sample size that could, as Seigel (1956) point out, increase the power of using the Mann-Whitney test. The Eyeball test of Coolican (1994) suggested earlier for Experiment I was also conducted in Experiment II before the Mann-Whitney test through the calculations of the means and the standard deviations of the learners' achievements on the three reading aspects.

Concerning the data collected through the post-questionnaire of attitudes in Experiment II, the learners were asked to respond to the questionnaire items by means of a 5-point Likert-type scale. The questions ask the learners about their attitudes to and preferences for various aspects of the instructional methods used in the study. The questionnaire itself is given in Appendix 5. As well as being used to illustrate the learners' attitudes to these individual aspects of the instructional software or teaching strategies used, responses to each question were tested for association with the final question (Q20) "I prefer this method of reading instruction". As the associations sought are between two variables, both measured on 5 point scales, the chi-square statistic should be used to assess the
strength of the association between learners' preference for the TBI or the CALL methods as shown in their responses to Item 20 of the questionnaire and how satisfied are those learners with the different features, components and learning techniques occurring in the TBI and CALL methods. This test, which is commonly used in educational research, has been found appropriate to assess whether two variables that are measured at the ordinal level but with few categories are associated, (Siegel, 1956; Bryman and Cramer, 2001).

However, when trying to apply the chi-square test to find out the association between the learners' responses to the items of the post-questionnaire on one side and their responses to Item 20 of preferences for the two methods of instruction on the other side, it was discovered that applying this chi-square test would not be possible. This is because, as shown in Table 3-10 as an example, the expected count in more than 20% of the cells of nearly all the crosstabulations is less than 5. Bryman and Cramer (2001) argue that in this situation it is not possible to use the chi-square test. Reducing the 5 point scale to 3 categories did not improve the situation as so many of the participants fell into the same cell each time.

Table 3-10
The crosstab and the chi-square test for Items 1 & 20 related to CALL instruction

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I prefer this method of reading instruction/CALL</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Opinion</td>
<td>Agree</td>
<td>Strongly Agree</td>
<td>Total</td>
</tr>
<tr>
<td>Word activities helped me learn words quickly/CALL</td>
<td>1</td>
<td>16</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>17</td>
<td>130</td>
<td>150</td>
</tr>
</tbody>
</table>
## Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>154.396*</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>83.277</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>92.959</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>150</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 6 cells (66.7%) have expected count less than 5. The minimum expected count is 0.02.

Although it was not possible to apply the chi-square test in order to investigate the association between learners' preferences for the instructional methods and the features and components of those two methods targeted, a strong association between these preferences of the learners and the features of the instructional methods was noted. This is clearly seen in Table 3-10 which shows in the case of the CALL method that the vast majority of the learners, 126 of the 150 in the study, show their strong agreement with both their belief that word activities helped them learn more quickly and their preference for CALL.

In regard to the qualitative data which were collected through the interview surveys, the descriptive analysis procedure as described in Section 3.2.2.3 will be followed to show the frequency levels of the themes and the number of participants who pointed out those themes.
Chapter 4 Instructional Methods

This chapter introduces the two instructional reading methods which were implemented in the experiments. It also describes the different activities offered to the participants in the reading course, in addition to the facilities made available to the participants. A special section in this chapter has been included to present the pilot experiment which in addition to the aim of piloting the pre-questionnaire of attitudes and the achievement reading tests, as discussed in Chapter 3, aimed to learn about the value of the CALL program “RapidReader” in teaching English reading, and the training needs of the learners.

4.1 RapidReader – a CALL Software

RapidReader is a computer software program that has been developed by Dr Sane Yagi, a specialist in the field of applied linguistics and information technology, during his work (1996-2000) at Sultan Qaboos University/Sultanate of Oman. In his description of the RapidReader program, Yagi (1999) says this software package aims at cultivating student’s reading speed and reading comprehension abilities by expanding their visual span, improving eye movement, reducing their visual regression, developing their stock of vocabulary, and by honing their skimming, scanning, and understanding what they read. Using this software gives the teacher the chance to train his students on the basic skills identified by researchers as closely related to reading. It provides learners with different exercises that activate their reading speed, their comprehension, and their vocabulary learning. Moreover, it has the ability to keep a record of their achievements and suggestions for the speed suiting their level in the training course, and it provides them with the immediate feedback learners usually prefer to have. Should this software program have these highly qualified characteristics that may cause effective results on learners’ English reading abilities, the researcher has chosen to implement it in the CALL instructional approach.
4.1.1 Program Functions

Below is a summary of the RapidReader’s functions that indeed affected the researcher’s decision to implement this specific CALL program in this study that aimed to investigate the effectiveness of CALL and TBI in improving the reading aspects of speed, comprehension, and vocabulary knowledge for undergraduate Arab learners of English. This summary depended on the experience the current researcher acquired through the experiments and on the detailed description that the program designer Yagi (1999) wrote about it.

4.1.1.1 User Profile and Record of Learning

To start using the RapidReader program, the user is asked to log in by filling out a user-profile form supplying such information as their name, identification number, course title and number. If they have already enrolled in the course (i.e., their user name exists in the user database), it will load their user information and past results and allow them to proceed in their training.

A learner record is kept for every user who logs on the program (Figure 4-1). This record keeps track of all their activities including warm-ups. Using a result wizard, the user can view graphically any part of their record of learning, be it the number of times they did an activity or the results they obtained. Access to this record is given only to the user and
their course instructor. Teachers can have a grade-book-like record for each of their students whereby the marks obtained by a student are averaged daily for each activity accompanied by the total number of times they practiced each activity; thus, giving the teacher a greater ability to monitor their students' performance. The teacher can even get statistics and graphs on their students' performance.

While the following sections continue to describe the features of RapidReader and the facilities it offers, there will be indications of how the program was implemented in the actual instruction that took place in the CALL sessions.

4.1.1.2 Placement Test
To determine learners' reading ability, the program has the facility of testing learners' reading ability before they actually start using it. So, at the beginning of each experiment, the learners sat a Placement Test so that comparisons would be conducted depending on the post-instruction reading ability scores to learn the effectiveness of the CALL and the TBI method. To fix the raw reading speed for the learners on the placement test, a timed reading activity was conducted. The raw mean reading speed (i.e., without integrating speed and comprehension) was 15p/h for learners on the pilot experiment. Therefore, the raw reading speed for the Placement test was fixed as 15p/h on the placement test.

To use the program, the learner starts by a placement test. The placement test reports to the learner three results and some calculations are automatically performed to decide on the user's reading level. It tells them their raw reading speed by timing them as they flip through the pages of the reading passage and by dividing the number of words in the passage by the duration of their reading. It also quizzes them on their comprehension by giving a set of multiple choice questions that are displayed one at a time with four choices for each (Figure 4-2). The user clicks an answer and gets immediate feedback: if they answer correctly, they get a tick, but if they do not, an arrow pointing to the correct answer is displayed. A brief delay after the marking allows students to reflect on their answers. Upon the completion of the test, the user is given their comprehension mark as a percentage. Then RapidReader calculates their adjusted reading speed by finding the ratio
of the comprehension mark from the raw reading speed. Thus, a user who reads the
placement test passage at 30 pages/hour (p/h) and obtains 80% on the comprehension test
will get the comprehension-adjusted reading speed of 24p/h (30 X 80 ÷ 100 = 24). RapidReader then recommends to the users a step higher speed target but gives them the
option of setting their own target.

Figure 4-2 Multiple Choice Comprehension Questions

4.1.1.3 Options

Users can modify the program's default settings through the options tab strip. They can
change the font type, size, and colour of their reading material, and can change the target
speed.

Reading speed plays an important role in activities other than comprehension; the
stimulus material in the cognizance, eye movement, and concentration activities is
displayed at speeds determined by the target the user sets for themselves. Therefore, it
was essential that they had control over their target speed at any point in the program
because they might have found the target speed too slow for an activity that demanded
little cognitive resources, such as cognizance and eye movement, or too fast for an
activity that could be cognitively taxing such as concentration and comprehension.
4.1.1.4 Activities

RapiReader fosters three basic reading skills: reading speed, comprehension, and vocabulary building. To facilitate skill development, this program classifies speed reading into three types: rapid reading, skimming and scanning, and it identifies the fundamental components of the reading skills and offers activities for each of them.

As part of a warm-up routine, users were offered cognizance, eye movement, and concentration activities to drill them on focussing, to train their eye muscles on moving at higher speeds, and to improve their comprehension. RapidReader offered learners the warm-up activities which were usually done before they move to work on comprehension activities.

4.1.1.4.1 Cognizance

Cognizance is an integral component of reading. Without being able to discern words, no one can claim to be able to read; and without being able to perceive words quickly, speed reading is impossible. Therefore, RapidReader is designed in a way to develop the user’s ability to focus on the reading material at varying speeds through a set of exercises which flash words or phrases for a duration of time reflecting their target speed (Figure 4-3). Thus, if the user’s speed is 7p/h, then the pages are multiplied by the average number of words in a page and the sum is divided by the number of seconds in an hour. In other words, (7 pages X 400 words/page) ÷ 3600 seconds in an hour = 0.77 seconds. This is the duration for which the flashed stimulus remains on the screen if the user’s target speed is 7p/h.

Once the item has been flashed, the user is requested to identify it. Their response can be either in the form of typing what they saw in a text panel or selecting from a list. There is a two-second delay after the response has been entered or selected to give the user time to get ready for the next stimulus.

Students will read the flashed item, remember how it is spelled, and type it in the text box. RapidReader alerts users when they type a wrong letter by beeping but does not prevent them from typing it anyway. The program then compares their input with the
target item and if there is 100% match between them, it counts the answer correct. Matching the flashed target with items in a list, on the other hand, is an option that the user may opt for if their typing skills are not adequate.

Upon the completion of a cognizance exercise, the user is promoted, demoted or held at the same level automatically. If they score below 50% they get demoted one level down, 50% to 75% they remain at the same level, and 75% or above they get promoted to the next level up. This promotion score is higher by 15% from that suggested by Jensen (1986, p.113), the reason being the importance the author places on the belief that comprehension should not be sacrificed for speed. To allow for flexibility, however, the users may also promote themselves against the recommendation of RapidReader by simply entering the desired level in the speed box.

4.1.1.4.2 Eye Movement
Eye movement is another essential component of reading. One needs to move one’s eyes across a line to be able to read it, and needs to do so quickly to master reading speed. Hence, eye muscle development is vital to the advancement of good reading skills.

RapidReader develops the user’s eye muscles together with comprehension skills through a set of exercises in target-hunting (Figure 4-4). The intentions are to get the student to
move their eyes from left to right, and to get them, at the same time, to decode every word, compare it with the target, decide whether they are identical or not, and if so count it as a target occurrence. Thus, RapidReader ensures that students not only read the stimuli but also understand what they read. It, furthermore, increments their reading speed in accordance with the accuracy of their responses.

The eye movement activity is comprised of light exercises that put the user in a reading mode by requiring them to spot the copy of a target word from a group of foils. The items from which users identify the target copy are displayed one at a time in a paragraph format; they are displayed at a specific speed. The user’s task is to count the number of times the target copy appears in the paragraph as it does, because the paragraph will disappear once the last item has been displayed. Obviously, the target copies are displayed at random. A score is given upon the completion of an exercise.

When the eye movement activity is done for the first time in a session, RapidReader displays targets and foils at the target speed set upon the launch of the program. It does not take note of any speed achieved in other warm-up activities whether in the present or a previous session. As in cognizance, users are promoted, demoted or held at the same level automatically but they can over-rule the recommended target by specifying their own speed levels.
4.1.1.4.3 Concentration

This activity is identical to eye movement except that users here count the synonyms or antonyms of a target item (Figure 4-5). The reading speed achieved here tends to be significantly lower than in eye movement and that, in turn, is lower than that achieved in cognizance. The cognitive effort involved in each of these activities is a determining factor. Concentration does not only require that users read the stimuli then recognize the item that matches the target but also decode the target and each of the foils and compare between their meanings. When they find a synonym or antonym of the target item, the user takes note of its frequency up to that point.

![Concentration Form](image)

Figure 4-5 Concentration Form

Obviously, these mental activities require far more cognitive resources than the simple task of matching items in terms of identity. Deciding on whether an item is identical to the target or not is yet more cognitively taxing than the simple perception of a flashed item, as is the case in the cognizance activity. The motivation for this activity is to circumvent the frequently cited deterioration of comprehension as speed improves. Foreign language learners often complain that there is a trade off between speed and comprehension. In this activity, users are trained to concentrate while reading rapidly; they learn to decode quickly every item they read. If practiced frequently, the author of RapidReader argues that this activity is capable of improving users' comprehension under the pressures of speed reading.
4.1.1.4.4 Comprehension

Each of the activities described above focuses on one or more specific aspect of speed reading and comprehension. There is yet a separate activity for comprehension which consolidates all warm-up activities and has additional goals of its own. RapidReader gives four levels of use for comprehension: elementary, where users have a pacer to help them move their eyes across a page; lower elementary, which still has pacing but it prevents regression; upper intermediate, which offers timed reading but without any pacing; and advanced where users are completely unaided but the program discreetly keeps track of their speed.

RapidReader offers three sizes of reading material to reflect what users encounter in the real world. The most frequently encountered reading material sizes are: a single column text as in newspapers and magazines, a double column text as in popular novels and pocket size books, or as shown in Figure 4-6 a triple column text as in textbooks and reference material. In these sizes, the eyes move different distances across the page and...
have different numbers of fixations per line. RapidReader acknowledges these differences and trains users on the three conditions.

Pacing is thought to be necessary for the early stages of training for several reasons: (1) It encourages the student to move their eyes across which is an integral aspect of reading. (2) It makes them read in phrases; scholars (e.g., Weaver, 1980) are of the opinion that word-by-word reading hinders comprehension and speed. (3) It helps them focus on reading and consequently improve their reading speed. (4) It enhances their text prediction skills. Traditionally, teachers encouraged their students to use their fingers or pens as pacers, but RapidReader uses instead a highlighter. This is a yellow rectangle of approximately 2.5 cm length that moves across text lines at the user's target speed (Figure 4-6).

Although rapid eye movement is essential to efficient reading, the tendency of back skipping is an acknowledged impediment. Back skipping, also called regression, is a backward movement of the eyes during the reading process. Some regression is accepted as normal (Buzan, 1988 and Rayner, 1981), but it is inefficient readers who practice it regularly (Mahon, 1986). Often the causes are lack of concentration, poor vocabulary, or bad habit. RapidReader addresses this problem in the concentration and the vocabulary activities and it also addresses it here in comprehension. At the lower intermediate level, users are offered reading exercises that have pacing, and no regression features. RapidReader highlights the phrases that users must currently read and at the same time dims those that are supposed to have been read; this way, users are discouraged from reading back.

The author argues that once users are trained to move their eyes across in a forward motion and not to regress, they will have developed good reading habits. What they need next is sheer practice. RapidReader gives them two types of practice: timed reading and free reading. In both, they get texts without any pacing or dimming, but in timed reading a page remains on the screen for a duration of time reflecting their target speed, then RapidReader flips it automatically. Free reading, on the other hand, is real world reading.
where the user has complete control. RapidReader’s role is simply to time them in order to keep track of their speed.

4.1.1.4.5 Vocabulary Building
A serious hindrance to fluent reading is the frequency of unfamiliar words; they slow down the reading and deteriorate the comprehension. Therefore, any serious reading program must offer ways of improving students’ vocabulary (Aweiss 1993). RapidReader offers four such ways; it gives training in conventionalized expressions through giving the chance for learners to practice more and more word games and activities which include phrasal verbs, speech formulas, and idioms, furnishes the opportunity to compile personal vocabulary lists, and it provides word games.

RapidReader gives the learner 10 items to choose from for filling the blank (Figure 4-7). To help them make the right choice, pointing the mouse on an item (e.g., the word ‘cliff’ as shown in the right hand picture of Figure 4-7) will get it highlighted in red and will offer a definition of the word that appears at the bottom of the form as a clue at the bottom of page. Thus, the learner is given two things to figure out the correct answer: the context of the stimulus sentence and the dictionary meaning offered in the form of a clue.
The nicest feature for vocabulary development that RapidReader offers is the facility for getting the user to compile their own vocabulary and expressions list. When users come across an unfamiliar or an interesting word or expression in some reading passage, they can simply highlight it and click "Enter". RapidReader will copy the item and the sentence it occurred in into a dictionary-like vocabulary list which is formatted in three text panels: one for entry-items, another for the sentence in which it occurred, and the third for student notes (Figure 4-8). But since the compilation of the personal dictionary in terms of the word meaning by looking it up on the online dictionary was expected to take a relatively long time, the researcher prepared a complete glossary or list of all the words expected to be unfamiliar to the learners. Still, it was also possible for the learner to add to the glossary the words that might look strange.

What motivated this feature is the belief in two things: looking up a word while in the process of reading is an interruption that breaks the reader's concentration and slows them down. The other is using a dictionary while reading constitutes a bad habit that educators discourage. Mahon (1986) says, "Over reliance on dictionaries makes reading a tedious translation exercise and fluent reading impossible".

One important part relating to vocabulary learning that the reading course tackled in both the CALL and the TBI sessions was the word parts (prefixes, suffixes, and roots). However, RapidReader does not directly teach word parts although it is claimed that learning about 30 word parts in English is a key to unlocking the meanings of about 14,000 words (Smith, 1984). It is, indeed, an excellent investment to get language learners to master a few Greek and Latin prefixes, suffixes, and stems since they can increase their stock of vocabulary by so much. Knowing these affixes and roots will facilitate rapid reading and will improve overall comprehension. They will make it possible for students to guess the meaning of some unfamiliar words and will help them remember the definition of new words that they may encounter in textbooks. Therefore, it was decided that there should be some period of time (about 5 minutes in each lecture during the CALL and TBI sessions) specified to teach the different word parts. A few affixes and roots; at first, affix and root meanings are introduced, then users are asked to
select the meaning of a word from a list, to match words with their meanings, or to choose a word to fill in the blanks. Examples of those word parts which were tackled in the reading course are presented below and a complete list of them could be found in Buzan (1988).

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>il-</td>
<td>not</td>
<td>illegal, illogical</td>
</tr>
<tr>
<td>mis-</td>
<td>wrongly</td>
<td>misfit, mislead</td>
</tr>
<tr>
<td>pre-</td>
<td>before</td>
<td>prehistoric, pre-war</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Root (Latin &amp; Greek)</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>ann</td>
<td>year</td>
<td>annual, anniversary</td>
</tr>
<tr>
<td>loc</td>
<td>place</td>
<td>location, local</td>
</tr>
<tr>
<td>pos, posit</td>
<td>place</td>
<td>deposit, position</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>-able, -ible</td>
<td>capable of, fit for</td>
<td>durable, comprehensible</td>
</tr>
<tr>
<td>-acy</td>
<td>state or quality of</td>
<td>accuracy</td>
</tr>
<tr>
<td>-ation, -ition</td>
<td>action or state of</td>
<td>condition, dilapidation</td>
</tr>
</tbody>
</table>

To give an idea on how the teacher dealt with this part of word activities, the teacher should excerpt a few complex words, for example 'invisible' to occur in the target reading text to be covered in a lecture. The teacher then tells the students that this word is made up from word parts and that a great many words in English are as well. The teacher breaks the word down into its parts, writing on the board what each part means. Then, he introduces other words that have the same roots in them, "television". Then he defines the prefixes and suffixes of the words. This kind of brainstorming should be kept to a minimum in the first week and then indulged in more freely as the students gain in confidence. This kind of knowledge was expected to help the learners in their reading performance in general and in responding correctly to the items appearing in the word activities they meet on the computer or on the printed papers.
4.1.1.4.6 Skimming and Scanning

To get a general idea about the text to be read and to determine appropriate reading strategies, students were taught to preview a passage before setting out to read it. They were usually taught the skills of skimming and scanning for this purpose. Skimming in general involves reading the title, table of contents, introductory and concluding paragraphs, the first sentence of some paragraphs in the text, etc. aiming to get at the nature of the text content and its main ideas. Scanning, on the other hand, involves knowing the organization of a reading material in order to locate specific information in it. Both of these skills are indispensable for efficient reading; they allow readers to skip parts of the text to get at the gist of it or to find some specific information they need.

When people have large quantities of text to go through, they start reading selectively. Since human language has built in redundancies (Chafe, 1976; Halliday and Hassan, 1979) efficient reading requires that people learn to identify the redundant parts of a text and to skip them. The role of the teacher in CALL and TBI was clearly vital as learners needed much help so that they could use the reading passages and the warm up activities to improve these two reading strategies of skimming and scanning.

RapidReader's skimming activity has several types of exercises that gradually take the user to the stage when they can devour reading material without worrying about its volume. With the aid of automatic pacing, users are trained to skip different types of information. At first, they learn to skip function words. These include pronouns,
auxiliaries, determiners, and prepositions. Function words are low on content; they rarely carry ideas that an author would want to communicate to their readers. In the second stage, users learn to skip nominal and verbal modification; i.e., adjectives, adverbs, and adjectival and adverbial clauses and phrases, parenthetical statements, etc. In the third stage, they are taught to skip unnecessary details, examples, restatements, summaries, and irrelevant and familiar material. In the fourth stage, they learn to read only the topic sentences in a reading material. In the last stage, they are given complete freedom to leaf through some reading material using the strategies they learned in the previous stages; meanwhile their speed is discreetly monitored.

An important aspect of reading is prediction (Champeau de Lopez, 1993) which is a skimming skill. The better the reader can predict what he or she is going to read, the faster and more effective he or she will read. The prediction process begins with the title. Before starting to read a text in detail, the learners are given a very short time to preview the text. This stage usually ends by eliciting some events that the learners expected to take place in the target chapter. At this step learners are asked to read the few lines appearing at the beginning and a few other lines appearing at the end of the chapter and to flip very quickly the pages of that chapter in order to get a general idea about it and they are asked to write their expectation of what will happen in that chapter depending on the previous chapter(s) they read, and on the title and the quick flipping of the pages they are asked to do. Those expectations are usually discussed very briefly.

Let us consider this example to clarify how this skimming activity was conducted. After reading the first chapter which describes the return of Malory Towers' children to school at the end of a term holiday, the narrator continues to describe that incident in the second chapter. Participants were able to tell that chapter two continues to describe that event, and this was predicted through the title given at the top of this chapter "More Arrivals" as shown in the example below. Again, the learners were asked to read very quickly (in about 5 minutes) through this chapter with more concentration on the first and the last paragraphs, shown in the example below, which indicate that the children were still excited ("and without bothering about rules and regulations") to be back at school and to try to predict what sort of events were expected to be seen in this chapter. An
elicitation of some of their predictions took place, and the learners were told to keep those expectations in mind to see if they would really be true or not.

Example:

Chapter 2: More Arrivals

First paragraph:

The first day of term and the last day were always exciting. Nobody bothered about rules and regulations, everyone talked at the tops of their voices, and as for walking down the corridors or up the stairs, well it just wasn't done, except by the staid sixth-formers and the mistresses.

Last paragraph:

"Dear old Irene – she's not horse-mad, she's music mad," said Belinda, putting away her sketch-book. "Now we shall have nothing but galloping tunes for the next few weeks! Come on, tirretty-too!" And she galloped her friend out of the room at top speed. "Tirretty-tirretty-too. Oh – so sorry, Miss Polts – we never saw you coming!"

Closely associated with skimming is the scanning technique which is an intense target-oriented search for specific information. Without high speed skimming, locating information in texts is extremely slow. Furthermore, a good knowledge of the organization of information in a text is crucial to successful scanning.

Scanning is hard to teach, but the various skills fostered in the instructional process were instrumental in honing users' scanning techniques. The cognizance activity trains them to focus better, the eye movement to move their eye muscles fast, the skimming to skip the unnecessary information and focus only on the relevant. In the actual CALL course, there were slots in lectures specified for developing users' scanning technique. For example there were brief explanations about information organization in the reading texts, such as the introductory sentences for some paragraphs, and the summary or concluding paragraphs in some chapters as those two paragraphs extracted from chapter two shown in the example above. Some slots were allocated for the teacher to discuss the different parts of speech like function words, pronouns, auxiliaries, determiners, prepositions,
adjectives, adverbs, and adjectival and adverbial clauses and phrases, parenthetical statements, etc. and the relationship between these parts of speech and the meaning to be conveyed in the passage. Such discussions were necessary to discuss in both CALL and TBI sessions and this indicates how important was the role of the teacher even in CALL sessions.

4.1.1.4.7 Summarisation
A good feature of RapidReader is the facility in which the skills of reading are integrated with those of writing and grammar. It tests users’ understanding of the material they read for comprehension by requesting that they either summarise it (Figure 4-9) or complete a modified cloze comprehension test (Figure 4-10). The first is an open-ended test in which learners were asked to give a synopsis of the main ideas in the passage that they read. This is a teacher-marked rather than a computer-marked test, so it gives the teachers the opportunity to assess their students’ overall comprehension of a reading passage and their general language proficiency at the same time.

The cloze procedure in its standard form, on the other hand, requests students to supply the missing nth words in a copy of a passage they read. It is a classical test that has recently come under attack. Shanahan, Kamil, and Tobin (1982) and Klein-Braley (1984) for example, are not happy with the arbitrary deletion of every nth word in a passage and claim that such a random deletion procedure does not provide a reliable measure of language proficiency or reading ability. For this reason, RapidReader gives the learner choice. It offers traditional as well as modified cloze tests. The modified version of the cloze procedure is where only key words were deleted, the key words that the teacher deleted manually. Undoubtedly, a student who succeeded in comprehending a skimmed or rapid-read passage had to be able to supply missing key words in a reproduced version of it.
"Oh well-I suppose it's because you're my sister," said Felicity.
"But thank goodness you passed" said Felicity, proudly.
"Not again.
Wish I wasn't so tired today," said Darrell.
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4.1.2 Teacher’s Role

It should be emphasised that the teacher was having an important role in the CALL sessions. This role started by training and helping each learner to fill out a user-profile form in which their performance record was saved, and then the learners were trained on how to use the program’s different components and to work on each type of activity. The teacher’s role as a facilitator, a helper, and a manager was emphasised all through the CALL reading course. He was to respond to learners’ inquiries and questions on an individual basis. Some of those questions were relating to technical issues on how to deal with the different components of the program. Others were related to language issues, especially when working on the comprehension activities like the cloze test, and the summarisation teacher-marked activities. These two activities mainly aimed at enhancing learners’ skimming technique as discussed earlier. The summarisation activity required the teacher to discuss with the learners some linguistic aspects relating to sentence structures and word usage, and learners’ summaries were marked by their teacher. Regarding the cloze test activity which is also enhancing skimming, the teacher was involved directly in it. First of all, he was to build up the modified type of the cloze test activity for each chapter by deleting the key words in the sentences appearing in the target passages. He was also discussing with the learners some linguistic aspects relating to the sentences and the deleted words.

The other most important role of the teacher was the managerial part. The teacher had to allocate appropriate time slots for each type of activity in each of the 90 minutes lectures. It was noticed for example, that the learners enjoyed very much working on the warm up activities. In fact the learners were competing with one another when asked to do those warm up activities and the teacher had to cajole them into moving to different activities. Among this managerial role, and depending on the performance records of the learners and the actual monitoring of their performance in the lecture time, the teacher was advising the individuals on the type of activity which would appropriately meet their needs, and it was noted that learners were from time to time asking about the appropriate speed they should fix for themselves before starting activities.
Another important role for the teacher was related to vocabulary learning. During the reading course whether in CALL or TBI lectures, the different meanings that prefixes and suffixes add to stem words were dealt with. Furthermore, to help the learners improve their skimming and scanning reading techniques, the teacher was playing a core part in the learning process. Regarding the skimming technique, for example, the teacher was asking the learners to read the title for the target chapter in the story to be read, and to write one or two sentences about their expectations of what would happen in that chapter. Then they were asked to quickly flip through the pages of the target chapter on the screen to get at the nature of the text content and to get the main ideas or incidents in that chapter. This of course helped the learners write down their expectations and motivated them to reread the passage to find out what really happened in that chapter. For the scanning technique, however, the teacher was from time to time asking the learners to go through the target chapter in each lecture and to find specific pieces of information such as who said a statement or a sentence? For example: What was “Maureen’s” last response to …? What was the name of Felicity’s sister? Such tasks were to help the learners get familiar with the reading text, to motivate them to read it, and to improve their reading techniques of knowing where in the text to find specific information, and above all to do that very quickly.

4.2 Teacher-Based Instruction

Under this method of instruction, the reading texts and activities were offered to learners on printed papers instead of the computer screen. It should also be pointed out that the materials designated for each lecture were handed over to the learners only as that lecture started and they were collected at the end of the lecture in order to be sure that these materials were not read or tackled by the learners in advance before the lecture time. This would also insure that the two groups of the CALL and the TBI were exposed to the same conditions while attending the reading course.

Most of the activities and tasks during the TBI course were offered to learners on worksheets, and sometimes they were presented on the class board, or done orally.
through direct instructions from the teacher to the whole class. The role of the teacher was much more dominating with this method of reading instruction. In addition to his role as a helper, a monitor and a facilitator as the case was in the CALL course, the teacher in the TBI was to control learners' reading process in terms of choosing the activity for all to work on, to pace the reading speed for learners, to mark, correct and provide feedback to learners, and above all to work on designing, producing and delivering all the reading activities such as the word, the cognizance, the eye movement, and the concentration activities, not to forget the activities of summarization and cloze test.

The teacher was to control the reading speed for the learners, and he was to provide them with oral or written (depending on the sort of task done) feedback upon their responses and performances. Generally speaking, during the TBI reading course, it was possible to offer feedback on individual bases only in the case of written activities which were marked by the teacher outside the lecture time; however, regarding those activities which were discussed orally, feedback was offered to the whole class and each individual was to compare their performance to the model responses offered orally or printed on paper. Regarding the comprehension questions, and the word activities, for example, once the time allocated for responding to the questions given was over, the learners were offered the chance to mark their responses depending on the key answers provided on printed sheets. Still, in such activities, the teacher was moving around to monitor learners' performance and to respond to their inquiries as it was done in the CALL course.

Although on many occasions the activities conducted in the TBI sessions were similar to those done in the CALL sessions but with differences such as the role of the teacher, the mode of delivery, the quality and quantity of activities, the freedom of choice, and other difference, the following sections give an idea on how instruction was conducted using the TBI method of reading instruction.
4.2.1 Warm up Activities

Two types of warm up activities were implemented in TBI lessons. Depending on Buzan's (1988) approach for improving learners' reading speed, two types of activities were found equivalent to the CALL warm up activities on RapidReader. These activities which Buzan named the “Visual Span” (p. 23) and the “Word Scanning” (p. 63) activities were modified to meet the level of the target learners of this study.

4.2.1.1 Visual Span Activities

These activities aimed at making the learners more aware of their own visual span, and to provide motivation for taking in more at a glance as they read, and they paralleled the cognizance warm up activities on the CALL program. To do a visual span activity, each learner was given a work sheet on which two columns of numbers or words were printed. Although Buzan started with two-digit numbers, it was suggested by the jury to start up with three-digit numbers as shown in Example 1 below. Again, Buzan is not suggesting using words in the visual span activities, but as shown in Example 2 words were also used. In addition to the designated aim for this activity, using words could be more useful since the main aim is reading and this use was expected to improve learners' spelling abilities. Both of the activities started with less demanding activities as shown in the examples. It should also be pointed out that for every practice, there was only one level introduced; for example the first practice started with a worksheet with three-digit numbers, and the second practice dealt with the four-digit numbers.

To do these exercises, the learners were asked to use a card to cover up the column of numbers or words, and then to expose each number or word as briefly as possible, giving themselves no more than a split second to see it, and to see it only once. Then they were supposed to write in the space next to the number or the word what they thought it was. This process continued with the rest of the numbers or the words shown on each worksheet until almost all numbers or words were done without mistakes. This practice was given about 5 to 10 minutes every lecture until the learners obtained this skill. Nevertheless, one should bear in mind that this skill got more challenging as the number
of word letters or the digits got more and more, and so learners need this practice all through the reading TBI course.

Example 1

533 772299
763 902461
4221 534427
8619 357293
55123 535839
84629 927465

Example 2

lie  pleasant
spy  progress
spot  widening
neck  awareness
tough  relatives
naive  strategies
shrink  neighbours
caught  frightening
skating  establishes
arouses  construction

4.2.1.2 Word Scanning

Word scanning was another activity designed which paralleled the eye-movement warm up activity on the CALL program. Such activity usually took place as the reading lecture started. As a warm up activity, learners were usually referred to a text in the story used as the reading material, and they were instructed to read that text as quickly as possible in order to count and write the number of times a target word is repeated in that text, and they were also asked to write the exact time it took them to do the task.

Example:

The word “fifth” is repeated ...... times in the following text.
I did the task in ........... seconds.
(Darrell went to look for the rest of her friends in the fifth form. Fifth form! How grand it sounded! She was actually in the fifth now, with only one more form to go into. Oh dear - she was certainly getting very grown-up. Alicia and Sally came up, with Irene and
"Let's go and see our new classroom," said Darrell. "The fifth! My goodness!" "I suppose you're coming into the fifth, Alicia?" said Sally. "I mean - I know Connie's been left down in the fourth because she didn't pass her School Cert.- and you didn't either, because you had the measles. But surely you won't be left down?"

"Oh no. I'm up all right!" said Alicia. "Gosh, I wouldn't have come back if I hadn't been put up with the rest of you. Miss Grayling wrote to Mother and said I could pass School Cert. on my head any time I liked and I could go up into the fifth with you, and work for School Cert. on the side, so to speak."

"Anyone left down with us from the old fifth form?" asked Darrell.

(From In the Fifth at Malory Towers, Chapter 2, p 11)

Consequently, as in the eye movement activity on RapidReader, this parallel TBI activity aimed to get the student to move their eyes from left to right and to get them, at the same time, to decode every word, compare it with the target, decide whether they are identical or not, and if so count it as a target occurrence. This indicates that the students were not only reading the stimuli but also understanding what they were reading.

### 4.2.2 Skimming and Scanning

As it took place in the CALL sessions of reading instruction, the same types of activities shown in Section 4.1.1.4.6 were implemented to improve learners' skimming and scanning skills. The only difference was that the learners were reading texts printed on papers while attending the TBI sessions.

### 4.2.3 Word Activities

Word activities in the TBI sessions were exactly the same as those implemented in the CALL method. In fact they were copied from RapidReader and printed on papers and offered to learners as worksheets during the TBI session to work on during the times specified for that purpose. Key answers were also printed on separate sheets and handed to learners to check their responses. Hence, it should be noted that the number of word activities in the TBI session that were prepared for the learners were definitely much less than those offered to them on the computer. This was because, the CALL program automatically designs those word activities depending on the words inserted in the personal dictionary of the reader, and the reader could choose as many of those word activities as (s)he wished to work on. But, should these activities be copied and printed
on papers meant that the teachers should have spared much more effort to do that, which in fact was difficult to afford, not to forget the need for lots of ink and paper bundles which was not affordable, too. Again, printing the word activities on paper meant that these activities lacked some features which were available on computer like colours and the other clues like word definitions.

However, regarding the activities on word parts everything was done exactly the same for the CALL and the TBI sessions.

4.2.4 Reading Speed and Comprehension

Two main activities were adopted for the purpose of improving the reading speed and comprehension of the learners in the TBI sessions: timed readings and paced readings.

4.2.4.1 Timed Reading

In timed readings, students read at their own speed. Once they finished reading a text, they calculated their reading speed by dividing the number of words in the text by the time they spent reading it. For example, if they took twenty minutes to read a six-pages text, their speed would be: $6 \times 60 \div 20 = 18$ pages per hour (p/h). Participants were given instructions to move to the reading comprehension multiple-choice questions to answer once the reading part and the calculation of their reading speed were done. They were also instructed not to refer back to the reading text while responding to those comprehension questions which were copied from the computer but with reshuffling of the questions and the choices. Each participant was to check his/her responses with reference to the key answers sheet and then to write the appropriate score achieved. In fact on each sheet for the key answers the learners were provided with the formula for such calculation as shown in the example shown in Section 4.2.4.3, below.

4.2.4.2 Paced Reading

In paced readings, the teacher controlled the time allowed for the readings. To do paced readings the teacher instructs the learners that once they hear a tap on the desk, they should move to read a page next to the one they would be reading. In fact this notification
was done according to the speed the teacher is pacing depending on his evaluation of learners’ performance. For example, to pace at 20 p/h, the tap would be every 3 minutes (60 minutes divided by 20 p/h = 3 minutes). As the learners finished reading the last page in the chapter they were referred to the multiple-choice comprehension questions to answer, again without referring back to the reading text. A sheet with the key answers and the procedure for calculating the adjusted reading speed scores would be provided for participants once they would be over with responding to the questions so as to check and mark their responses.

4.2.4.3 Adjusted Reading Speed Calculation

This was an optional step which was left for learners to do during the TBI session because it was time consuming. Nevertheless, learners were advised to do these calculations out of the lecture time and to keep records of their own performances. It was noted that some learners in both of the institutions (MTIC and SU) did those calculations and kept their own records of performances. Because of the different number of pages and number of multiple-choice questions for each chapter in the reading story, the researcher chose to provide the learners with the help they needed to do those calculations on the key answers sheet for each chapter. Below, is an example of the type of help provided for the participants:

Example:

To calculate your adjusted reading speed depending on the actual time you spent to finish reading the six-pages of Chapter 2, (say 20 minutes), and the reading speed score you obtained (say 24 out of 30), follow the example below:

1. Calculate your reading speed in pages/hour (the number of pages X 60 (minutes in 1 hour) divided by the time you spent to read the text. i.e., 20 X 60 ÷ 20 = 18 p/h

2. Calculate your reading comprehension accuracy score out of hundred (the number of correct scores you obtained times 100 divided by the number of comprehension questions; i.e., 24 X 100 ÷ 30 = 80%.

3. Calculate your adjusted reading speed score (your raw reading speed in p/h times your comprehension accuracy score (n%); i.e., 18 X 80 ÷ 100 = 14.4p/h.
4.2.4.3 Cloze Tests

The cloze test activities which were prepared on the CALL program were used with the TBI of reading instruction. The course instructors were just printing copies of those activities and this activity was usually conducted as a last activity in the lecture or the one before the last (if there was enough time to do a summarizing activity). Each learner was given a work sheet of the cloze test, and they were instructed to work on it without referring to the reading text they covered in that lecture. As learners finished the task, the responses were discussed very briefly since learners were offered the key answers to check their work and mark it.

4.2.4.4 Summarizing

Similarly, as it was done in the CALL sessions, learners were asked to give a synopsis of the main events that took place in the chapter they read. As it would be so difficult to remember the complete contents of long texts, learners were given the chance to refer to the target chapter for summarization. To do this activity, learners were told to write up the most important events that took place in the target chapter in a way which could be enough for the reader of that summary to get a general idea of what took place in the chapter. This was a teacher marked activity, and so each learner was provided with written feedback on his/her work sheet.

4.3 Piloting the CALL Program “RapidReader”

The aim of the pilot study was to learn how learners would work during the CALL reading session using the program “RapidReader” and the kind of training they would need before starting using that program to learn reading, and to identify the problems that could appear during the reading course. It also aimed at piloting the pre-questionnaire of attitudes towards the CALL and the TBI methods, the reading materials and the reading achievement tests. In addition it aimed at investigating if the implementation of the CALL method would help the learners improve their reading ability.
As discussed in Chapter 3, Section 3.1.2.1, 25 freshman students enrolled in an English language study skills course for the second semester (2000) at the Sultan Qaboos University in the Sultanate of Oman, were chosen for conducting this pilot experiment.

More precisely, this pilot experiment was conducted to investigate the effects of implementing the CALL approach for reading instruction on learners' reading speed, reading comprehension and vocabulary learning. To attain this goal, this study attempted to answer the following questions:

1- Does the use of CALL in reading instruction significantly improve the reading speed of the freshman students at Sultan Qaboos University (SQU)?
2- Does the use of CALL in reading instruction significantly improve the reading comprehension skill of the freshman students at Sultan Qaboos University (SQU)?
3- Does the use of CALL in reading instruction significantly improve the vocabulary knowledge of the freshman students at Sultan Qaboos University (SQU)?

4.3.1. Results

To analyse the data relating to the reading speed, comprehension and vocabulary knowledge that the participants achieved on the Placement, the Final 1, and Final 2 achievement tests, the Paired Sample t Test was implemented. For each reading aspect, data testing was conducted on two levels; the first was to compare the difference between learners' scores on the Placement and the Final 1 test, and the second was to compare the difference between their scores on the Final 1 and Final 2 tests.

4.3.1.1 Reading Comprehension

Table 4-1 shows that the comprehension accuracy mean score on the Placement test was 31.77 (an increase of 7.32 scores) with the standard deviation of 7.21. Learners were able to improve their comprehension accuracy mean score to 39.09 points. This improvement was statistically significant since Table 4-2 shows that the value of p is greatly below 0.001.
Table 4-1
Paired Sample statistics for comprehension accuracy scores (Pilot)

<table>
<thead>
<tr>
<th>Pair</th>
<th>Reading Compr. Accuracy on Placement Test (Pilot)</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>31.77</td>
<td>25</td>
<td>7.21</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>39.09</td>
<td>25</td>
<td>8.22</td>
</tr>
<tr>
<td></td>
<td>Reading Compr. Accuracy on Final 1 Test (Pilot)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>39.09</td>
<td>25</td>
<td>8.22</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>49.85</td>
<td>25</td>
<td>13.38</td>
</tr>
<tr>
<td></td>
<td>Reading Compr. Accuracy on Final 2 Test (Pilot)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

However, learners' comprehension accuracy mean score increased from 39.09 up to 49.85 points on the Final 2 test of the second phase of the reading course (an increase of 10.76 scores). This increase was statistically significant as the value of \( p \) is also greatly below 0.001 as shown in Table 4-2.

Table 4-2
Paired Sample T-Test for comprehension accuracy scores (Pilot)

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading Compr.</td>
<td>-7.32</td>
<td>4.90</td>
<td>.98</td>
<td>-7.463</td>
<td>24</td>
<td>.000</td>
</tr>
<tr>
<td>Accuracy on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placement Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Pilot)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Reading Compr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 1 Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Pilot)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading Compr.</td>
<td>-10.76</td>
<td>7.06</td>
<td>1.41</td>
<td>-7.617</td>
<td>24</td>
<td>.000</td>
</tr>
<tr>
<td>Accuracy on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 1 Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Pilot)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Reading Compr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 2 Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Pilot)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3.1.2 Reading Speed

Learners' adjusted reading speed mean scores witnessed a significant increase, too. As shown in Table 4-3, their adjusted reading speed mean score increased from 4.77 p/h on the Placement test to 7.82 p/h on the Final one test, and this increase was statistically significant since the value of \( p \) is greatly below 0.001 as Table 4-4 shows.
Table 4-3

Paired Sample statistics for adjusted reading speed scores (Pilot)

<table>
<thead>
<tr>
<th>Pair</th>
<th>Description</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Placement Adj. reading speed scores /Pilot</td>
<td>4.7700</td>
<td>25</td>
<td>1.0730</td>
</tr>
<tr>
<td></td>
<td>Final 1 Adj. reading speed scores /Pilot</td>
<td>7.8160</td>
<td>25</td>
<td>1.6542</td>
</tr>
<tr>
<td>2</td>
<td>Final 1 Adj. reading speed scores /Pilot</td>
<td>7.8160</td>
<td>25</td>
<td>1.6542</td>
</tr>
<tr>
<td></td>
<td>Final 2 Adj. reading speed scores /Pilot</td>
<td>12.4600</td>
<td>25</td>
<td>3.3406</td>
</tr>
</tbody>
</table>

A statistically significant increase was also noted in learners’ adjusted reading speed scores due to the second phase of the reading course as shown in Table 4-4 ($p$ greatly below 0.001). Table 4-3 indicates that the adjusted reading speed mean score increased from 7.82 p/h on Final 1 test up to 12.46 p/h on the Final 2 test.
Table 4-4
Paired Sample T-Test for adjusted reading speed scores (Pilot)

<table>
<thead>
<tr>
<th>Pair</th>
<th>Paired Differences</th>
<th>Mean Deviation</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Placement Adj. reading speed scores /Pilot - Final 1 Adj. reading speed scores /Pilot</td>
<td>-3.0460</td>
<td>.9983</td>
<td>.1997</td>
<td>-15.256</td>
<td>24</td>
<td>.000</td>
</tr>
<tr>
<td>2</td>
<td>Final 1 Adj. reading speed scores /Pilot - Final 2 Adj. reading speed scores /Pilot</td>
<td>-4.6440</td>
<td>1.9883</td>
<td>.3977</td>
<td>-11.679</td>
<td>24</td>
<td>.000</td>
</tr>
</tbody>
</table>

4.3.1.3 Vocabulary Learning
Learners of the pilot experiment were able to improve their vocabulary knowledge. The mean score of their vocabulary knowledge upon entrance into the reading course was 3.00 points as shown in Table 4-5, whilst it increased up to 6.28 points on the Final 1 test: and this increase was statistically significant as p is greatly below 0.001 (Table 4-6).

On the Final 2 test the learners increased their vocabulary knowledge from 6.28 up to 7.72 (Table 4-5). The Paired Sample T-Test shown in Table 4-6 indicates that the increase in vocabulary knowledge on the second phase of the pilot experiment was also statistically significant since the value of p is greatly below 0.001.
Table 4-5
Paired Sample statistics for vocabulary knowledge scores (Pilot)

<table>
<thead>
<tr>
<th>Pair</th>
<th>Vocabulary Scores on</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Placement Test (Pilot)</td>
<td>3.00</td>
<td>25</td>
<td>1.38</td>
</tr>
<tr>
<td>2</td>
<td>Final 1 Test (Pilot)</td>
<td>6.28</td>
<td>25</td>
<td>2.34</td>
</tr>
<tr>
<td>3</td>
<td>Final 1 Test (Pilot)</td>
<td>6.28</td>
<td>25</td>
<td>2.34</td>
</tr>
<tr>
<td>4</td>
<td>Final 2 Test (Pilot)</td>
<td>7.72</td>
<td>25</td>
<td>2.69</td>
</tr>
</tbody>
</table>

Table 4-6
Paired Sample T-Test for Vocabulary knowledge scores (Pilot)

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>-3.28</td>
<td>2.01</td>
<td>.40</td>
<td>-8.156</td>
<td>24</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>-1.44</td>
<td>1.64</td>
<td>.33</td>
<td>-4.404</td>
<td>24</td>
<td>.000</td>
</tr>
</tbody>
</table>

4.3.1.4 Conclusion

Analysis of the data of the pilot experiment indicated very clearly that implementing the CALL method for reading instruction was effective. Due to the CALL reading course, the undergraduate freshman students at Sultan Qaboos University were able to improve their reading ability in the three target aspects of speed, comprehension and vocabulary knowledge. The improvement the learners were able to obtain was statistically significant in the three reading aspects as shown in Section 4.3.1.3 above. Figure 4.11 below shows
the improvement the learners achieved in the three reading aspects on the Final 1 and Final 2 tests if compared to their reading ability as measured on the Placement test.

It should also be pointed out that the conduction of this pilot experiment helped the researcher establish the reliability of the achievement tests and the appropriateness of the reading materials and learning activities which indeed looked interesting to the learners.

![Figure 4-11 Histogram for learners' reading ability across the three reading tests of the Pilot experiment](image)

Other important issues were noted for consideration when conducting the real experiments of the study:

1- It was noted that the increase in learners reading comprehension and reading speed was much more on the Final 2 test than it was in the Final 1 test, although the period allocated for the second phase of the study was one week less than it was for the first phase; i.e. while 5.5 weeks were allocated for the first phase, only 4.5 weeks were allocated for the second phase. A possible reason for this difference in achievement could be attributed to the fact that the learners became
more familiar and interested with the CALL program as they spent more time working on it. This indicated that more training on using the features of the CALL program as the learners enrolled on the course was needed.

2- The increase in learners’ vocabulary knowledge was not as much as it was for comprehension and speed, and could be attributed to the fact that building up ones’ personal dictionary on RapidReader was time consuming. It was noticed while carrying out the experiment that if learners were left on their own to build up their personal dictionaries, two thirds of the lecture would have been spent on that activity. So it was decided that the researcher himself build up the word list of the expected unfamiliar and interesting words and feed the computer program with those lists for learners to use while working on the program.

3- It was also noted that the RapidReader does not concentrate on teaching word parts although this knowledge is important for learning new words and understanding (Smith, 1984). So this issue was considered in the real experiments. It was decided that the teacher would discuss the issues related to word parts (prefixes, root words, and suffixes) on the board and on work sheets.

Finally it has been noted that the CALL approach for reading instruction using the software RapidReader looked effective, and so there would be the need to conduct experiments to investigate the effectiveness of this reading method in comparison to the TBI method. During this kind of investigation it would necessary to find out the features and characteristics of the method which would be the most effective, and to identify learners’ suggestions for improving that method.
Chapter 5  Analysis of Data for Experiment I: Learners’ Achievement

This chapter discusses analysis of the data relating to learners’ reading achievements which were obtained during the conduction of the first experiment in this study. As discussed in Chapter 1, part of the study aimed at answering the following questions:

1. Were there any significant differences in the reading ability achievements of the freshman students at Al Masanna’ Technical Industrial College (MTIC) in the Sultanate of Oman (SO) and Sharjah University (SU) in the United Arab Emirates (UAE) due to the instructional method (CALL vs. TBI)? Or

2. Were there any relationships between the reading ability achievements of the freshman students at MTIC and SU and their pre-instruction preferences for the CALL and the TBI methods of instruction?

Four hypotheses were proposed depending on these questions. Each of those hypotheses will be dealt with in the following sections.

As discussed in Chapter 3, Section 3.4.1, the non-parametric Mann-Whitney U Test was found more appropriate to implement for data analysis to test the first four hypotheses of the study. The researcher, however, chose also to discuss descriptive statistical measures like the means and standard deviations as these would shed some light on the learners’ results on the three reading tests.
5.1 Analysis of Findings Related to Reading Speed

This section aimed at finding out whether it was the CALL or the TBI method that helped the learners in Experiment I to achieve higher adjusted reading speed scores. To answer this question the following null hypothesis was tested:

"There were no statistically significant differences \( (p < 0.05) \) in the adjusted reading speed scores of the freshman learners at MTIC and at SU due to the instructional methods (CALL vs. TBI)."

Starting with the descriptive part of statistics, the means, and standard deviations of the adjusted reading speed scores for the groups belonging to the two sequences of instruction on the Placement, Final 1 and Final 2 tests were computed and displayed in Table 5-1.

<table>
<thead>
<tr>
<th>Sequence of Instructional Method</th>
<th>Placement Adjusted Reading Speed</th>
<th>Final 1 Adjusted Reading Speed</th>
<th>Final 2 Adjusted Reading Speed</th>
</tr>
</thead>
</table>

As the learners started the reading course, their adjusted reading speed scores were almost at the same level as shown in Table 5-1, respectively 6.70 p/h and 6.46 p/h for the CALL followed by TBI (Sequence 1) and the TBI followed by CALL (Sequence 2).

A remarkable increase took place on the Final 1 test. The group which was exposed to CALL instruction impressively increased their reading speed by 4.72 p/h (11.42-
6.70=4.72), whereas, the TBI group achieved an increase of only 2.64p/h (9.14-6.46=2.64), remarkably less than that of the CALL group.

Moving to the scores on the Final 2 test shown in Table 5-1, it can be seen that the CALL group of Sequence 2 was able to catch up with the other group which was exposed to the TBI method on the second phase of the experiment, and so the final adjusted speed score for both groups became nearly the same, 12.16p/h and 12.34p/h for the groups of Sequences 1 and 2 respectively. The slight difference in the adjusted reading speed scores of the two groups indicated that the sequence of the instructional methods did not affect the learners’ speed achievements. Sequence 2 group increased their speed by 3.70p/h due to CALL instruction, but Sequence 1 group increased theirs only 0.20p/h due to the TBI session.

This look at the mean scores indicated that the CALL method of instruction was more effective than the TBI method in improving learners’ reading speed, but would this be true if statistically tested using the Mann-Whitney tests of the hypothesis presented at the top of this section?

The output of applying the Mann-Whitney test for comparing the adjusted reading speed scores of the two groups on the Placement test is displayed in Tables 5-2 and 5-3. As shown in this table, the mean rank of the speed scores for the CALL group was 53.08 and it became 60.80, with an increase of 7.72 points, whereas it started with 47.92 on the Placement test for the TBI group and ended with 40.20 with a decrease of 7.72 points. Table 5-3 shows that there were no significant differences in the Placement adjusted reading speed scores of the two groups at the outset of the reading course as \( p \) is greater than 0.05. However, the result of applying the Mann-Whitney test on the Final 1 scores showed that there was a statistically significant difference between the two groups’ adjusted reading speed scores as \( p \) is greatly below 0.01 with the achievement of the CALL group being better than that of the TBI one.
Moving to learners' speed scores on the Final 2 test, the output of the Mann-Whitney test showed that there was no statistically significant difference in the adjusted reading speed scores of the groups belonging to the two sequences of the experiment after they swapped the methods of instruction, (that is, $p$ is greater than 0.05). This means that the Sequence 2 group who witnessed relatively low adjusted reading speed scores on the Final 1 test (after attending TBI) were able to compensate for that due to their exposure to the CALL method of instruction during the second phase of Experiment I, and the opposite took place in regard to the Sequence 2 group. Such a result indicated that the differences between the two groups of Sequence 1 and Sequence 2 on the Final 2 test disappeared because both groups whether in Sequences 1 or 2 were able to gain almost similar adjusted reading speed scores after their exposure to the two methods of reading instruction. And so, the sequence or order of the instructional methods of instruction (CALL, followed by TBI or the other way round) did not have a statistically significant effect on the final output reading speed gains of the participants of the study.

Table 5-2

<table>
<thead>
<tr>
<th>Sequence of Instructional Method</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement Adjusted Reading Speed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>50</td>
<td>53.08</td>
<td>2654.00</td>
</tr>
<tr>
<td>TBI, Followed by CALL</td>
<td>50</td>
<td>47.92</td>
<td>2396.00</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 1 Adjusted Reading Speed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>50</td>
<td>60.80</td>
<td>3040.00</td>
</tr>
<tr>
<td>TBI, Followed by CALL</td>
<td>50</td>
<td>40.20</td>
<td>2010.00</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 2 Adjusted Reading Speed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>50</td>
<td>50.08</td>
<td>2504.00</td>
</tr>
<tr>
<td>TBI, Followed by CALL</td>
<td>50</td>
<td>50.92</td>
<td>2546.00</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In conclusion, it could be said that the null hypothesis of having no significant differences in the reading speed achievements of the freshman learners at MTIC and SU due to the reading methods of instruction was rejected. The Mann-Whitney test showed that the achievement of the groups that attended the CALL method was significantly better than that which attended the TBI method. It was noticed that the CALL method of reading instruction helped learners improve their reading speed significantly better than the TBI method, although both methods were having their positive effects on improving learners’ reading speed abilities. Moreover, the design of the experiment showed that the sequence of the reading instructional methods did not harm one group at the expense of the other, because the reading speed achievements for both groups on the Final 2 test were almost equivalent.

**5.2 Analysis of Findings Related to Reading Comprehension**

The second question in the study asked about the effects of applying the CALL and the TBI methods of reading instruction on learners’ reading comprehension achievements. To answer this question the following null hypothesis was tested:

“There were no statistically significant differences ($p < 0.05$) in the reading comprehension scores of the freshman learners at MTIC and at SU due to the instructional methods (CALL vs. TBI)."
To begin with the descriptive part of analysis, Table 5-4 shows the means and standard deviations of the comprehension accuracy scores obtained by the two groups in the two sequences. This table shows that the comprehension accuracy scores on the Placement test for Sequences 1 and 2 were close to each other; i.e., scores of 44.40 and 43.24 respectively. On the Final 1 test, however, the Sequence 1 group who was exposed to CALL instruction during the first phase of the experiment increased their comprehension accuracy score by 12.44 points at the raw reading speed of 20p/h. However, the Sequence 2 group who was exposed to TBI during the first phase were able to increase their comprehension accuracy score only by 1.60 points at the same raw reading speed. This means that the learners who were exposed to the CALL method were able to achieve better comprehension accuracy scores than those who were exposed to the TBI method.

Once the two groups of the experiment swapped the methods of reading instruction in the second phase of the experiment, their comprehension accuracy scores also dramatically changed. The group belonging to Sequence 2 increased their comprehension score by 3.20 points at the 25p/h raw reading speed. This could be described as a massive increase due to the CALL method especially when compared to the comprehension score that the Sequence 1 group obtained due to TBI at the same raw reading speed. In fact this group’s comprehension score witnessed a remarkable decrease by 8.40 points. This increase and the decrease in the comprehension scores that took place on the Final 2 test led to the
absence of the big difference in the final outcome of the comprehension scores that the two groups achieved.

To investigate if the CALL method statistically helped the learners improve their reading comprehension ability significantly more than the TBI method, the Mann-Whitney test was conducted and its output is displayed below in Tables 5-5 and 5-6. This test indicated that there was not a statistically significant difference in the comprehension scores on the Placement test of the two groups, as the value of $p$ was greatly above 0.05 as shown in Table 5-5. On the Final 1 test, however the differences we noticed in the comprehension scores for the two groups turned out to be statistically significant when tested by the Mann-Whitney test as the value of $p$ shown in Table 5-6 was well below 0.05. This means that the null hypothesis of the CALL and the TBI methods of instruction having no effects on learners’ comprehension scores was rejected at this level. On the Final 2 test, the output of the Mann-Whitney test showed that there were no statistically significant differences in the comprehension scores of the two groups although they started (on the Final 1 test) with significant differences. Thus the group exposed to the CALL method during Phase 2 was able to catch up with the other group whose comprehension scores due to the TBI method witnessed a decrease when they read the text at the speed of 25p/h. The increase in the comprehension scores that the CALL group gained on Final 2 test was nearly matched by a decrease in the comprehension scores of the TBI group and the result was the near disappearance of the big differences in the comprehension scores between the two groups.
Table 5-5

Ranks for the comprehension scores on the Placement, Final 1 and Final 2 tests

<table>
<thead>
<tr>
<th>Sequence of Instructional Method</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement Comprehension Accuracy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>50</td>
<td>52.92</td>
<td>2648.00</td>
</tr>
<tr>
<td>TBI, Followed by CALL</td>
<td>50</td>
<td>48.08</td>
<td>2404.00</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 1 Comprehension Accuracy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>50</td>
<td>60.76</td>
<td>3038.00</td>
</tr>
<tr>
<td>TBI, Followed by CALL</td>
<td>50</td>
<td>40.24</td>
<td>2012.00</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 2 Comprehension Accuracy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>50</td>
<td>60.00</td>
<td>2500.00</td>
</tr>
<tr>
<td>TBI, Followed by CALL</td>
<td>50</td>
<td>51.00</td>
<td>2550.00</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5-6

Mann-Whitney test comparing the comprehension scores of the two groups on Placement, Final 1 and Final 2 tests

<table>
<thead>
<tr>
<th>Test Statistics</th>
<th>Placement Comprehension Accuracy</th>
<th>Final 1 Comprehension Accuracy</th>
<th>Final 2 Comprehension Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>1129.000</td>
<td>737.000</td>
<td>1225.000</td>
</tr>
<tr>
<td>Z</td>
<td>-.838</td>
<td>-3.543</td>
<td>-.173</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.402</td>
<td>.000</td>
<td>.863</td>
</tr>
</tbody>
</table>

a. Grouping Variable: Sequence of Instructional Method

This result of the Mann-Whitney test means that both groups whether in Sequence 1 or Sequence 2 were able to gain similar reading comprehension accuracy results after their exposure to both the two methods of reading instruction. And so, the sequence of the methods of instruction (CALL, followed by TBI or the other way round) did not have a statistically significant effect on the learners’ final reading comprehension accuracy gains.

In conclusion, it could be said that the null hypothesis of having no significant differences in the reading comprehension accuracy scores of the freshman learners at
MTIC and SU due to the CALL and the TBI methods reading of instruction was rejected. The Mann-Whitney test showed that the comprehension achievement of the group that learnt through the CALL method was significantly better than that which attended the TBI method. It was also noted that the increase in the reading comprehension scores of the learners who attended CALL instruction was accompanied by an increase of the participants' reading raw speed, which increased up to 25p/h on Final 2 test.

5.3 Analysis of Findings Related to Vocabulary Learning

The third question in the study asked about the effects of applying the CALL and the TBI methods of reading instruction on learners' vocabulary learning achievements. To answer this question the following null hypothesis was tested:

"There were no statistically significant differences ($p < 0.05$) in the vocabulary learning scores of the freshman learners at MTIC and at SU due to the instructional methods (CALL vs. TBI)."

<table>
<thead>
<tr>
<th>Sequence of Instructional Method</th>
<th>Placement Vocabulary Score</th>
<th>Final 1 Vocabulary Score</th>
<th>Final 2 Vocabulary Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL, followed by TBI</td>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>5.72</td>
<td>9.62</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>2.03</td>
<td>2.35</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>5.38</td>
<td>7.42</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>2.39</td>
<td>2.36</td>
</tr>
</tbody>
</table>

As in the first two hypotheses, a look at the means and the frequency distributions of the vocabulary scores for the groups of the experiment would shed some light on the effects of implementing the CALL and the TBI methods on learners' vocabulary achievements.
In regard to vocabulary mean scores, Table 5-7 shows that those means on the Placement test were close to each other; they were 5.72 and 5.38 scores for Sequences 1 and 2, respectively. On the Final 1 test, the group exposed to CALL instruction increased their vocabulary knowledge score by 3.90. This increase, due to the CALL session, was remarkably more than the increase that the TBI group achieved which was only 2.14. After phase 2 the result of exposing the learners to the two methods of reading instruction helped the learners in the two groups to achieve nearly the same vocabulary scores on Final 2 test. In fact the Sequence 2 group was able to increase their vocabulary scores by 3.68 due to the CALL session they attended during the second phase instead of only 2.14 on the Final 1 test, and so this group managed to catch up with the other group who obtained the same level of increase that the other group scored due to TBI on the second phase. Regardless of the sequences of the instructional methods that the learners went through, their vocabulary knowledge scores on the Final 2 test were not far from each other; they were 11.76 and 11.68 for Sequences 1 and 2, respectively.

The initial description of the mean scores of vocabulary learning showed that both of the two methods of reading instruction had their positive effect on improving the learners' vocabulary knowledge. Still, it was also noticed that the CALL method of reading instruction had a remarkably more positive effect than the TBI one. Testing the data using the Mann-Whitney test would reveal if those more positive effects of the CALL method were statistically significant. This test would also tell if the sequence of the instructional methods had a significant effect on learners' vocabulary achievements.

The output of applying the Mann-Whitney test for investigating the effects of the CALL and the TBI methods of reading instruction on the learners' vocabulary knowledge scores on the Final 1 test that followed the first phase of the experiment is displayed in Tables 5-8 which shows the mean ranks of the two groups of the study and 5-9 which shows the significance values. The latter shows that there were no significant differences in the placement vocabulary knowledge scores of the two groups as \( p \) is greater than 0.05.
However, after the exposure to the two methods of reading instruction during the first phase of the study, a noticeable change in the mean ranks of the vocabulary learning scores of the two groups took place as displayed in Table 5-8. Consequently, as displayed in Table 5-9, the difference between the vocabulary learning scores on the Final 1 examination of the CALL and the TBI groups was statistically significant, as the value of $p$ is well below 0.01, with the achievement of the CALL group being much better than that of the TBI one.

Table 5-8
Ranks for the vocabulary scores on the Placement, Final 1 and Final 2 tests

<table>
<thead>
<tr>
<th></th>
<th>Sequence of Instructional Method</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement Vocabulary Score</td>
<td>CALL, followed by TBI</td>
<td>50</td>
<td>54.20</td>
<td>2710.00</td>
</tr>
<tr>
<td></td>
<td>TBI, followed by CALL</td>
<td>50</td>
<td>46.80</td>
<td>2340.00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 1 Vocabulary Score</td>
<td>CALL, followed by TBI</td>
<td>50</td>
<td>63.92</td>
<td>3196.00</td>
</tr>
<tr>
<td></td>
<td>TBI, followed by CALL</td>
<td>50</td>
<td>37.08</td>
<td>1854.00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 2 Vocabulary Score</td>
<td>CALL, followed by TBI</td>
<td>50</td>
<td>53.33</td>
<td>2666.50</td>
</tr>
<tr>
<td></td>
<td>TBI, followed by CALL</td>
<td>50</td>
<td>47.67</td>
<td>2383.50</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5-9
Mann-Whitney test comparing the vocabulary scores of the two groups on Placement, Final 1 and Final 2 tests

<table>
<thead>
<tr>
<th></th>
<th>Placement Vocabulary Score</th>
<th>Final 1 Vocabulary Score</th>
<th>Final 2 Vocabulary Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>1065.000</td>
<td>579.000</td>
<td>1108.500</td>
</tr>
<tr>
<td>Z</td>
<td>-1.297</td>
<td>-4.665</td>
<td>-.985</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.195</td>
<td>.000</td>
<td>.325</td>
</tr>
</tbody>
</table>

Concerning the second phase of the experiment, in which the two groups of the study swapped the methods of instruction, a noticeable change took place in the vocabulary scores of the two groups. The difference between the vocabulary scores for the same two groups, which was noticed on the Final 1 results, disappeared on the Final 2 test as shown
in Table 5-7. Table 5-8 also shows that the mean rank of the group that was exposed to the CALL method on the second phase became 47.21 on Final 2 test instead of 36.32 on the Final 1. The increase in this group's vocabulary scores was due to their exposure to the CALL method of instruction. Whereas, regarding the TBI group, a negative change was noticed. The mean rank of this group became 52.73 instead of 63.68 on the Final 1 test. And so the mean ranks of the two groups on Final 2 test witnessed a slight difference and Table 5-9 indicates that the difference was not statistically significant as the value of \( p \) was greatly more than 0.05.

In conclusion, it can be said that the null hypothesis of having no significant differences in the vocabulary learning achievements of the freshman learners at MTIC and SU due to the CALL and the TBI methods of reading instruction was rejected. The Mann-Whitney test suggested that the achievements of the learners due to their exposure to the CALL method of reading instruction were significantly better than the achievements of the same learners when they were exposed to the TBI method. This indicates that the CALL method of reading instruction can improve learners' vocabulary learning significantly better than the TBI method, although both methods can have their positive effects on improving learners' vocabulary learning abilities. Moreover, the Mann-Whitney test indicated that the sequence of the instructional reading methods did not affect the vocabulary achievements of the learners, because the vocabulary learning achievements for both groups were almost equivalent on the Final 2 test and there were no statistically significant differences between the scores of the two sequences on the Final 2 test.

5.4 Analysis of Findings Related to Students' Reading Achievement (Hypothesis 4)

This section tested the following fourth hypothesis:

"There were no statistically significant differences \( (p < 0.05) \) between the achievements of the freshman learners at MTIC and SU in the three reading aspects (speed,
comprehension, and vocabulary knowledge) due to their preferences for the CALL or the TBI methods of reading instruction as expressed on the pre-questionnaire.”

Since the findings of the results analysis for the first three hypotheses clearly indicated that it was the CALL method of reading instruction which had the most significant effect on improving learners’ reading ability, it has been decided to limit testing the effects of learners’ pre-instruction preferences for CALL and TBI methods on their reading achievements gained due to their exposure to the CALL sessions of reading instruction. To conduct this type of analysis, three variables were derived from the data collected via the three reading tests. To come up with the variables related to the three reading aspects investigated in the study, the researcher calculated the difference in the participants’ scores before and after attending the CALL sessions for both sequences of instruction to form three new variables corresponding to achievement in the three reading aspects. So, for each reading aspect there were two variables formed:

1. The output of deducting the scores of the CALL preference learners (as expressed on the pre-questionnaire of attitudes) before attending the CALL session from the scores they gained after attending that CALL session.
2. The output of deducting the scores of the TBI preference learners (as expressed on the pre-questionnaire of attitudes) before attending the CALL session from the scores they gained after attending that CALL session.

Tables showing the mean and standard deviation of the scores the learners achieved in each variable of the three-target reading aspects were produced and presented in the sections related, below. The corresponding histograms were also provided to show the distribution of the scores the learners achieved in the three reading aspects.

5.4.1 Reading Speed

Starting with the reading speed aspect, Table 5-10 shows that although the group who preferred the TBI method were able to increase their adjusted reading speed mean score
by 3.20p/h after attending the CALL session, the CALL preference group increased their adjusted reading speed mean score by 4.72p/h due to their attendance to their CALL session; i.e., 1.52p/h more than that of the former group. As indicated by the standard deviation values for the two groups, the spread of the adjusted reading speed scores relating to the TBI preference group was remarkably larger than that of the of CALL preference group.

Table 5-10

Means and standard deviations for reading speed scores with respect to pre-instruction preferences for CALL and TBI

<table>
<thead>
<tr>
<th>pre-questionnaire</th>
<th>The difference between subjects' adjusted reading speed scores before and after attending CALL sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBI</td>
<td>N: 50 Mean: 3.20 Std. Deviation: 5.40</td>
</tr>
<tr>
<td>CALL</td>
<td>N: 50 Mean: 4.72 Std. Deviation: 2.98</td>
</tr>
</tbody>
</table>

It might be worth pointing out that when referring to the actual data, it was noticed that the adjusted reading speed scores for a few TBI preference participants (7 learners) decreased due to their attendance to the CALL session of instruction; i.e., the difference in the scores was negative. However, the same data showed that there were a few learners who were able to gain greater levels of improvement in their reading speed than their counterparts in the CALL preference group did. The actual data collected in this experiment also showed that the decrease in the adjusted reading speed scores of those 7 learners took place on the Final 2 test at the raw reading speed of 25p/h which was really very demanding for some learners to cope with in a short training course of 8 weeks, not to forget that reading at 25p/h is equivalent to 166 words/minute (166w/m) which is a high level for foreign English readers, like the participants of the study, to achieve. Therefore it could be argued that those learners’ reading abilities were not yet up to the level to read 25p/h effectively at the time they sat the Final 2 test.
This description means that CALL instruction helped more learners, of those who showed preference for the CALL method on the pre-questionnaire of attitudes, obtain higher adjusted reading speed scores than those who showed preference for TBI. Consequently it could be said that learners' preference for CALL was associated with a higher increase in their adjusted reading speed scores after attending the CALL session, but this initial indication should be tested to check if these differences were statistically significant.

The output of the Mann-Whitney test (Tables 5-11 and 5-12) showed that the differences in the adjusted reading speed scores of the CALL and the TBI preference groups of learners after attending the CALL sessions were statistically significant as the value of $p (= 0.032)$ was below 0.05. This result led to rejecting Hypothesis 4 as far as the reading speed aspect was considered. Furthermore, depending on the mean scores displayed in Table 5-10, it can be said that the effects of learners' pre-instruction preferences for the CALL and the TBI methods on their reading speed gains were significant as learners' pre-instruction preference for the CALL method was associated with higher level of reading speed gains.

Table 5-11

<table>
<thead>
<tr>
<th>pre-questionnaire</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>The difference between</td>
<td>TBI</td>
<td>50</td>
<td>44.30</td>
</tr>
<tr>
<td>subjects' adjusted</td>
<td></td>
<td></td>
<td>2215.00</td>
</tr>
<tr>
<td>reading speed before</td>
<td>CALL</td>
<td>50</td>
<td>56.70</td>
</tr>
<tr>
<td>and after attending CALL</td>
<td></td>
<td></td>
<td>2835.00</td>
</tr>
<tr>
<td>sessions</td>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
Table 5-12

Mann-Whitney test comparing the adjusted reading speed scores obtained due to CALL instruction with respect to learners' pre-instruction preferences

<table>
<thead>
<tr>
<th>Test Statistics&lt;sup&gt;a&lt;/sup&gt;</th>
<th>The difference between subjects' adjusted reading speed before and after attending the CALL session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>940.000</td>
</tr>
<tr>
<td>Z</td>
<td>-2.144</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.032</td>
</tr>
</tbody>
</table>

<sup>a</sup> Grouping Variable: pre-questionnaire

5.4.2. Comprehension

As shown in Table 5-13, the CALL preference group of learners were able to increase their comprehension accuracy score 12.44 points as a result of their attendance to the CALL sessions. On the other hand, the increase that the TBI preference group were able to gain due to attending the same CALL sessions was only 3.20 points. Even the difference in the ranks of the reading comprehension accuracy scores of the two groups with respect to pre-instruction preferences was found to be big as shown in Table 6-14.

Table 5-13

Means and standard deviations for comprehension accuracy scores with respect to pre-instruction preferences for CALL and TBI

<table>
<thead>
<tr>
<th>pre-questionnaire</th>
<th>The difference between subjects' reading comprehension accuracy scores before and after attending CALL sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBI</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
</tr>
<tr>
<td>Mean</td>
<td>3.20</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>22.60</td>
</tr>
<tr>
<td>CALL</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
</tr>
<tr>
<td>Mean</td>
<td>12.44</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>15.87</td>
</tr>
</tbody>
</table>

Consequently, the Mann-Whitney test shown in Table 5-15 shows that there was a statistically significant difference (<i>p</i> is well below 0.05) in the increase of the
comprehension scores for the two groups depending on their preferences as expressed in the pre-questionnaire. This of course led to the rejection of the hypothesis that there were no statistically significant differences in learners’ reading comprehension achievements due to their attitudes towards the TBI and CALL methods of reading instruction.

Table 5-14
Ranks of the comprehension scores obtained due to CALL instruction with respect to learners' pre-enrolment preferences

<table>
<thead>
<tr>
<th>pre-questionnaire</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>The difference between subjects’ reading comprehension accuracy before and after attending CALL sessions</td>
<td>TBI</td>
<td>50</td>
<td>43.63</td>
</tr>
<tr>
<td></td>
<td>CALL</td>
<td>50</td>
<td>57.37</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5-15
Mann-Whitney test comparing the comprehension scores obtained due to CALL instruction with respect to learners' pre-instruction preferences

<table>
<thead>
<tr>
<th>Test Statisticsa</th>
<th>The difference between subjects' reading comprehension accuracy before and after attending CALL sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>906.500</td>
</tr>
<tr>
<td>Z</td>
<td>-2.369</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.018</td>
</tr>
</tbody>
</table>

a. Grouping Variable: pre-questionnaire

5.4.3 Vocabulary Learning

In regard to the third aspect of vocabulary learning, Table 5-16 shows that due to the CALL sessions, the CALL and TBI preference groups were able to increase their vocabulary knowledge score by 3.90 and 3.78 points, respectively. The two mean scores were very close to each other; still, it could be noticed that the CALL preference group
obtained a higher level of vocabulary knowledge scores than the scores that the TBI preference group obtained.

Table 5-16

Means and standard deviations for vocabulary scores with respect to pre-instruction preferences for CALL and TBI

<table>
<thead>
<tr>
<th>pre-questionnaire</th>
<th>The difference between subjects' vocabulary scores before and after attending CALL sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBI</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>3.78</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
</tr>
<tr>
<td></td>
<td>1.50</td>
</tr>
<tr>
<td>CALL</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>3.90</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
</tr>
<tr>
<td></td>
<td>1.34</td>
</tr>
</tbody>
</table>

The output of the Mann-Whitney test displayed in Tables 5-17 and 5-18 shows that the difference in the means scores of the vocabulary knowledge increase that the two groups belonging to the CALL and the TBI preferences obtained due to CALL instruction was not statistically significant as the value \( p \) is greatly above 0.05. Therefore, the fourth hypothesis was accepted in regard to the vocabulary aspect. This indicated that when learners attended the CALL sessions of reading instruction, their pre-enrolment preferences for CALL or to TBI methods did not significantly affect their vocabulary learning results, a result which differed from the results noted in regard to the first two aspects of speed and comprehension. Still, it has been seen that the CALL preference group gained slightly higher vocabulary learning scores than the scores gained by the TBI preference group.

Table 5-17

Ranks of the vocabulary scores obtained due to CALL instruction with respect to learners' pre-instruction preferences

<table>
<thead>
<tr>
<th>The difference between subjects' vocabulary scores before and after attending CALL sessions</th>
<th>pre-questionnaire</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBI</td>
<td>50</td>
<td>48.57</td>
<td>2428.50</td>
<td></td>
</tr>
<tr>
<td>CALL</td>
<td>50</td>
<td>52.43</td>
<td>2621.50</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
<td>2428.50 + 2621.50 = 5049.10</td>
</tr>
</tbody>
</table>
Table 5-18
Mann-Whitney test comparing the vocabulary scores obtained due to CALL instruction with respect to learners' pre-instruction preferences

<table>
<thead>
<tr>
<th>Test Statistics&lt;sup&gt;a&lt;/sup&gt;</th>
<th>The difference between subjects' vocabulary scores before and after attending CALL sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>1153.500</td>
</tr>
<tr>
<td>Z</td>
<td>-.682</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.495</td>
</tr>
</tbody>
</table>

<sup>a</sup> Grouping Variable: pre-questionnaire

In conclusion, data analysis with respect to the fourth hypothesis which hypothesised that there were no statistically significant differences in achievement scores of the freshman learners at MTIC and SU due to their pre-instruction preferences for the CALL and TBI methods was rejected in the cases of reading speed and comprehension aspects, but this hypothesis was accepted in regard to vocabulary learning. Learners’ preference for the CALL method of instruction was significantly associated with higher levels in their reading speed and comprehension achievements, but this significant association was not true for the vocabulary aspect. In this sequence, it is worth pointing out that the learners in this study were presented with their preferred option first (CALL or TBI methods as expressed on the pre-instruction questionnaire), and this might have affected their reading gains.

5.5 Discussion

The results presented in Sections 5.1 – 5.4 revealed two findings. The first is that the CALL method of reading instruction was the most effective in improving learners' reading speed, comprehension and vocabulary knowledge. The second is that learners' pre-instruction attitudes to CALL and TBI methods of instruction were important determinants of their reading speed and comprehension achievements due to CALL sessions but those learners' vocabulary learning achievements were not significantly affected by their pre-instruction attitudes.
Table 5-19
Increase in learners' adjusted reading speed scores throughout Experiment I

<table>
<thead>
<tr>
<th>Starting Record in p/h</th>
<th>Starting Record in w/m</th>
<th>Method</th>
<th>Increase in p/h</th>
<th>Increase in w/m</th>
<th>Percentage of increase</th>
<th>Ending Record in p/h</th>
<th>Ending Record in w/m</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.58</td>
<td>43.87</td>
<td>CALL</td>
<td>3.96</td>
<td>26.4</td>
<td>0.70%</td>
<td>12.25</td>
<td>81.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TBI</td>
<td>1.71</td>
<td>11.4</td>
<td>0.30%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With regard to the reading speed aspect, Table 5-19 shows that the students increased their reading speed during the whole course from 6.58p/h up to 12.25p/h (an average of 43.87w/m to 81.70w/m). However, about 70% (3.96p/h ≈ 26.40w/m) of this increase was due to the CALL method of instruction, while 30% (1.71p/h ≈ 11.40w/m) of it was due to the TBI method although the period of time designated for each of the CALL and the TBI sessions was the same (8 weeks for each). It should be pointed out here that this finding is consistent with most of the research studies conducted in this area as discussed in Section 2.2.1 of the literature review in Chapter 2, but it is worth discussing the reading speed level that English foreign language learners should possess.

In general, the speed rate of 81.70w/m that the learners achieved due to the reading course which lasted 16 weeks with only eight weeks under the CALL session could be considered a great achievement, although it was argued that 250w/m is the appropriate speed for fair readers as cited by De Leeuw & De Leeuw (1965). This speed rate is for native speakers of English, and no one claims that a foreign language learner should reach this level, especially for the participants in this study because of many reasons. On the one hand, Segalowitz, Poulsen, and Komoda (1991) indicate that the second language (L2) reading rates of highly skilled bilingual readers are “30% or more slower than L1 reading rates,” (p.15); that is 175w/m or less. This is also supported by Weber (1991), who points out that even highly skilled bilinguals typically have a slower reading rate in a second language, and also by Jensen (1986: p.170) whose study showed that at the end of a reading course, the advanced ESL students read only 100w/m or less. So if that is the case for bilingual readers of English who have a greater chance to communicate, read and write using that language, the reading speed would logically be much less for Arab
learners of English who might use English mainly for academic purposes at specific times. It is also logical to expect Arab readers of English to have a slower reading speed than other non-native English language learners whose mother tongues share the English sound system and alphabets and the same left to right direction for reading and writing, a case which is completely different in the Arabic language. Another important reason that might have made it very difficult for the learners of this study to achieve higher rates of reading speed to approach the 175w/m fixed above can be referred to the fact that this study integrated the aspects of speed and comprehension together, and that is why the expression “adjusted reading speed” was used rather than only reading speed. Therefore, it was not possible to speak about a participant who chose to read at the raw speed of 25p/h, his/her reading speed was 25p/h (about 177w/m), but his/her actual reading speed was the adjustment of that raw speed with the percentage (comprehension accuracy) of the comprehension questions answered correctly.

This consideration of the comprehension aspect which was made clear to the learners as soon as they started the reading course could be one of the reasons that motivated them to make a balance between the two aspects of speed and comprehension and so to improve their reading comprehension ability together with their reading speed rates due to the CALL sessions of reading instruction. Therefore, with more chance for the learners to practise learning and working on the different types and numerous activities available on the CALL RapidReader system during the CALL sessions, they were able to achieve increased speed rates as shown in Table 5-20, and higher comprehension scores as shown in Table 5-21 below. It could be noticed in this table that the CALL sessions helped the learners increase their comprehension scores by 7.82% and this increase was accompanied by the increase in their reading speed displayed in Table 5-20.
Table 5-20
Increase in learners' comprehension accuracy scores throughout Experiment I

<table>
<thead>
<tr>
<th>Starting Record</th>
<th>Method</th>
<th>Increase</th>
<th>Percentage of contribution</th>
<th>Ending Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>43.82%</td>
<td>CALL</td>
<td>7.82%</td>
<td>159%</td>
<td>48.72%</td>
</tr>
<tr>
<td>TBI</td>
<td>-2.92%</td>
<td>-59%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

However, once the learners attended the TBI sessions, the slight increase they gained in their adjusted reading speed scores was accompanied with a decrease of 2.92% in their reading comprehension scores. Part of this decrease could be attributed to the fact that the learners did not have the same chance they had during the CALL sessions to practise more on the reading activities such as the cognizance, eye-movement, concentration, and cloze test activities. One other possible reason for this decrease in the comprehension scores of the group who attended the TBI method was that the learners were unable to cope with the raw reading speed fixed to them for reading the text on the Final 2 test. Therefore, it could be possible that they were not able to finish reading that text within the time limit given, or it could be that they were skipping important phrases or even sentences or lines while reading which in turn led to missing information needed to respond to the multiple-choice questions that followed the reading process. Added to that is the fact that RapidReader was offering the CALL group a large number of word activities that helped them not only learn more unfamiliar words but also learn them perhaps more profoundly due to the increased practice on using the words in sentences and on guessing word meanings through context. All of the above mentioned activities are related to the reading ability in general, although some of them are closer to one reading aspect more than the others. Still, as discussed in the theoretical background of the study, the three reading aspects are related to each other, the progress in one of them leads to progress in the others, (Eskey, 1986; Harris and Sipay, 1990). This relationship can easily be seen when comparing the scores on the three aspects due to the TBI and the CALL sessions. The increase in speed, comprehension and vocabulary in the case of CALL was 3.96, 7.82, and 3.84 respectively. However, after attending TBI sessions, all the scores in the three aspects were less, (although the score of comprehension was sharply less); they were respectively 1.71, -2.92, and 2.09.
As far as the vocabulary aspect is concerned, learners of the CALL and the TBI sessions were offered the printed lists of words expected to be unfamiliar and interesting for the learners, they were allocated fixed periods of time in each lecture to work on the word activities, and special slots of time in lectures in those sessions were designated to deal with prefixes, roots and suffixes and word derivations. But due to the fact that the learners in the CALL sessions were offered the privilege of not only choosing the type of the word activity they preferred but also choosing as many word activities as they could (of course within the time limits) from the large numbers available on the computer, a feature which was not possible in the TBI sessions, their vocabulary achievement scores due to CALL instruction were significantly better. The quality of the word activities on the CALL program were also more helpful for learning words since learners were provided with the definition of the word if the task asked them to fill the blanks with the correct words from a list given, or they were offered the word in context when the task asked them to choose the word which had the definition given in the task (Chapter 4: Section 4.1.1.4.5).

Table 5-21 shows that learners of the CALL sessions increased their vocabulary knowledge 19.2% (3.84 points out of 20); whereas, learners of the TBI sessions achieved an increase of 10.45% (2.09 points out of 20). Some other reasons might have led to this result like the availability of a greater number of word activities on the CALL program, the high-quality presentation of word activities on the computer screen and the helpful cues offered to learners while responding to the vocabulary questions, in addition to other CALL features like the immediate feedback facility. Due to these facilities, learners in the CALL sessions were able to improve their vocabulary more than the TBI session. These features of the CALL method helped the learners learn more vocabulary items during the CALL sessions, and this finding is consistent with many previous research findings such as Groot (2000). It is worth saying here that although the personal dictionary could be an effective and beneficial feature of the CALL program, it was time
consuming to make use of in the lecture time. Still, learners of the CALL sessions were interested in building up their own personal dictionaries.

Table 5-21
Increase in learners' vocabulary knowledge scores throughout Experiment 1

<table>
<thead>
<tr>
<th>Starting Record Score*</th>
<th>%</th>
<th>Method</th>
<th>Increase Score*</th>
<th>Percentage of Contribution</th>
<th>Output Record Score*</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.55</td>
<td>27.75</td>
<td>CALL</td>
<td>3.84</td>
<td>65%</td>
<td>11.48</td>
<td>57.4</td>
</tr>
<tr>
<td>TB!</td>
<td></td>
<td></td>
<td>2.09</td>
<td>35%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Full score is 20

The results of this experiment clearly pointed out the effectiveness of the CALL method of reading instruction for improving Arab EFL reading abilities in comparison to TB!. Comparing the results obtained in this current study to those of the previous studies discussed in the Literature Review in Chapter 2 it can be seen that there is an obvious consistency in the results if each aspect is taken separately.

With regard to the speed aspect, it can be seen that the results of this experiment are consistent with most of the research findings discussed in Chapter 2. The significant increase in the reading speed gains of the CALL group of reading instruction over the TBI group is consistent with the findings achieved in the studies of Arroyo, (1992), Culver, (1991), Lai (1993), Richard, (1982) and Tozcu, (1998).

The significant increase in the reading speed rates the CALL learners accomplished was amazingly accompanied with a significant increase in their reading comprehension scores; a case which was not noticed in the findings of the majority of the studies reviewed in Chapter 2. Numerous studies (Culver, 1991; Champeau de Lopez, 1993; Lai, 1993; Tillman, 1995) reported the positive effects of applying different reading instruction strategies and techniques on improving learners' reading speed but this increase was not associated with a comprehension improvement. On the contrary,
increase in reading speed was usually associated with a decrease in the comprehension ability, which has been referred to in Section 1.1 of the first chapter as the sacrifice of comprehension for the sake of speed. In such studies Singhal (1999) argues that the process of reading is viewed solely as a bottom-up process in which students are focused on aspects of the text itself such as individual words and sentence structure, but the process of reading as a skill that could be enhanced through different activities and more practice was neglected. Whereas, in this implementation of the CALL method of reading instruction using RapidReader, an integration of the bottom-up and top-down processes was attended to by exposing the learners to different language activities utilizing the two skills of skimming and scanning, accompanied by different activities such as the warm up, cloze test, summarization and word activities, in addition to the multiple-choice comprehension questions. This kind of implementation of CALL instruction helped the learners to significantly improve their reading comprehension ability and is consistent with what Greenlee-Moore and Smith (1996), Lomicka (1997) and Yagi (1999) reported in their earlier studies.

On the other hand, these results of the learners in this study are inconsistent with those findings that claim the failure of CALL method of reading instruction to improve learners' reading speed and comprehension simultaneously. For example, Tillman (1995) does not report significant comprehension gains due to the CALL method over the traditional method, and this could be attributed to different reasons. For example, the use of the computer for only one day a week during their nine-weeks course could be not sufficient to make the difference in the participants’ comprehension ability especially for the elementary school children who came from a low socio-economic area in New York, which could mean that the children lacked familiarity with computers in general, and so they might have needed more training on how to build up familiarity with computers before getting familiar with the CALL system used in the study.

Inconsistency in the findings of the current study and that of Spivery (1992) are also noticed. Again, there were the problems related to the sample of study in terms of its size
(19 participants) and the participants' abilities who were inmates, not to mention the length of the reading course in which the participants spent only one period a day during the two-week course using the CALL reading program.

Concerning the vocabulary learning aspect, it can be seen that the findings of this current study are compatible with the findings achieved by Laufer and Hill (2000), Groot (2000), and Tsou, Wang and Li (2002). Among the factors that could be argued as effective in helping the CALL group participants gain higher vocabulary scores was the integration of the incidental and the intentional approaches for vocabulary learning argued for by Groot (2000). Added to this factor, it could be said that the quality of the word activities presented on the computer and their great availability on the computer were more encouraging for the learners to practise more on them and so to achieve higher vocabulary scores.

This data analysis relating to first experiment of this study showed that the learners' positive attitudes towards using CALL packages in learning as expressed on the pre-questionnaire of attitudes were associated with significantly higher levels of speed and comprehension scores resulting from CALL instruction, although the achievements of both groups due to the CALL method of instruction were significantly better than the achievements they gained due to the TBI method. But despite the fact that there was a higher vocabulary learning score for the CALL preference group, this association was not statistically significant. A possible reason for the absence of this association in the case of the vocabulary aspect could be attributed to the fact that the learners were not happy to find that they were not given enough time as they preferred to build up their own personal dictionaries in its complete shape, or because they were not given the time they wanted to work on word activities.

This finding about the importance of learners' positive attitudes towards CALL instruction has also been pointed out by different researchers such as Levine, Ferenz, and Reves (2000), Towndrow (1997), Johnston (1996) and Sponder (1993). And so,
educators should try their best to convince learners to build up positive attitudes towards using computer systems in education because once those positive attitudes become true, educational gains would be better.

In regard to the differential impact of the CALL method of instruction on learners’ reading progress, Table 5-22 shows that when the learners were presented with the preferred option ‘CALL method’ first in the reading course, their reading achievements in the three reading aspects were the highest. The percentages of progress they gained in speed, comprehension and vocabulary on the Final 1 test were 70.44, 28.02, and 68.19, respectively. However, when the learners were exposed to CALL instruction on the second phase, although their preference was the CALL method, the percentages of progress they gained in speed, comprehension and vocabulary on the Final 2 test were 35.01, 6.98, and 50.94, respectively; these percentages were noticeably less than they were on the Final 1 test especially for the comprehension aspect. The immediate possible reason for this result is that this group’s pre-instruction preference was the TBI method and so it might be reasonable for them to gain less percentages of reading progress due to CALL instruction if compared to the CALL preference group. Therefore, future research should also consider investigating the impact on reading gains when learners whose preferred method is the TBI method are presented first with the CALL method of reading instruction.

The data presented in Table 5-22 also indicate that the proportion of progress gained on the Final 1 test was the highest for the reading speed aspect followed by the vocabulary aspect. On the Final 2 test the highest percentage of progress was seen in the vocabulary case followed by the speed aspect. Nevertheless, the percentage of progress was the lowest for the comprehension aspect on both tests.

One more issue that should be pointed out is relating to the design of the study which promoted more reliable results. In fact the same groups of learners were exposed to the two methods of reading instruction implemented in this study at two levels and statistical
analyses were conducted to compare the effects of each one of the two instructional methods on the reading achievements of each group. The sample size and the length of the reading course were also additional sources for the strength of the study.

Table 5.22

Differential impact of CALL on speed, comprehension and vocabulary gains

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Test</th>
<th>Pre-score (Placement)</th>
<th>Increase</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>F1</td>
<td>6.70</td>
<td>4.72</td>
<td>70.44%</td>
</tr>
<tr>
<td></td>
<td>F2</td>
<td>9.14</td>
<td>3.20</td>
<td>35.01%</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>7.92</td>
<td>3.96</td>
<td>52.73%</td>
</tr>
<tr>
<td>Comprehension</td>
<td>F1</td>
<td>44.40</td>
<td>12.44</td>
<td>28.02%</td>
</tr>
<tr>
<td></td>
<td>F2</td>
<td>45.84</td>
<td>3.20</td>
<td>6.98%</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>45.12</td>
<td>7.82</td>
<td>17.50%</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>F1</td>
<td>5.70</td>
<td>3.90</td>
<td>68.19%</td>
</tr>
<tr>
<td></td>
<td>F2</td>
<td>7.42</td>
<td>3.78</td>
<td>50.94%</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>6.56</td>
<td>3.84</td>
<td>59.57%</td>
</tr>
</tbody>
</table>

*Percentage of increase in relation to score before attending CALL sessions (increase X 100 + the score before attending session)*

In conclusion, attending the CALL sessions of reading instruction did have a significant positive impact on learners' reading achievements regardless of their initial attitudes toward that method of instruction. Within that effect, learners' preference for the CALL method of reading instruction was associated with a better increase in their reading speed and comprehension scores. However, this result did not stand true for the vocabulary learning aspect. This is an issue for consideration in future research where the time component could be treated more appropriately and then an investigation should be carried out to find out the effect of pre-instruction attitudes towards CALL and TBI on Arab EFL learners' vocabulary learning achievements.

Findings of this first experiment showed that CALL was significantly more effective than TBI for improving learners reading ability. This finding indicated that there were important variables that might have led to these findings of this first experiment. These
variables such as the features of CALL instruction in general and those of the RapidReader in particular, enjoyment, learner autonomy and teachers' role in the instructional process and other factors would be investigated in the second experiment which would occur in the following three Chapters (6, 7 and 8).
Chapter 6 Data Analysis Experiment II: Learners’ Achievement

As discussed in Chapter 3, an important main aim of Experiment II is to confirm the results found in Experiment I, and so to confirm the reliability of the findings of the study. This chapter deals with the quantitative data relating to learners’ reading achievements on the reading tests, and their preferences as expressed on the pre-questionnaire of attitudes which were collected through Experiment II.

More specifically, this part of data analysis relating to Experiment II aimed at testing the first four hypotheses which were dealt with in Experiment I, and so to test whether results of Experiment II would confirm those obtained in Experiment I.

As discussed in Sections 3.4.1 and 3.4.2 of Chapter 3, the Mann-Whitney U test was implemented for testing the data, as in the first experiment. Tracing the same procedure of analysis as applied in Experiment I, and before moving into the main process of testing the hypotheses using the Mann-Whitney U test, the means and the standard deviations of the scores each group of the learners gained in the three target reading aspects were computed to shed some light on the participants’ results on the three reading tests.

6.1 Analysis of Findings Related to Reading Speed

The first question in the study asked about the effects of applying the CALL and the TBI methods of reading instruction on learners’ adjusted reading speed scores. The following hypothesis was tested to answer this question:
There were no statistically significant differences (p < 0.05) in the adjusted reading speed scores of the freshman learners at MTIC and at SU due to the instructional methods (CALL vs. TBI).

Learners' adjusted reading speed scores on the Placement, Final 1 and Final 2 tests of the two sequences of the instructional methods are shown in Table 6-1. This table shows that the two groups in Sequences 1 and 2 started the reading course as measured on the Placement test with an almost comparable adjusted reading speed scores; i.e., 5.54p/h and 5.30p/h for the two groups respectively.

Table 6-1
Means and standard deviations of the adjusted reading speed scores for the two groups on Placement, Final 1, and Final 2 tests

<table>
<thead>
<tr>
<th>Sequence of Instructional Method</th>
<th>Placement</th>
<th>Final 1</th>
<th>Final 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>5.5371</td>
<td>12.5394</td>
<td>13.8455</td>
</tr>
<tr>
<td>N</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1.6979</td>
<td>2.7831</td>
<td>2.9325</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>5.2971</td>
<td>7.8424</td>
<td>14.4797</td>
</tr>
<tr>
<td>Mean</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1.4957</td>
<td>1.6064</td>
<td>3.6352</td>
</tr>
</tbody>
</table>

On the Final 1 test, the group who attended the CALL session were able to increase their adjusted reading speed score by 7p/h (12.54-5.54=7.00). But the other group who attended the TBI session managed to gain an increase of only 2.54p/h (7.84-5.30=2.54). This initial description of the two mean scores on the Final 1 test shows that the CALL method helped the learners to gain an impressive increase in their adjusted reading speed scores with a wider range of distribution for the scores.

On the Final 2 test which was conducted at the end of the second phase of the reading course at which the two groups swapped the two methods of instruction, learners' results changed dramatically. Table 6-1 shows that the CALL group learners on the second
phase (who were the TBI group on Phase 1) were able to increase their adjusted reading speed by 6.64p/h (14.48-7.84=6.64) to reach the rate of 14.48p/h as the outcome of the entire reading course. But the other group who attended the TBI session achieved an increase of only 1.31p/h (13.85-12.44=1.31). This way the Sequence 2 group who attended the CALL session during the second phase of Experiment II ended the experiment with very slightly higher adjusted reading speed scores than the Sequence 1 group with a difference of 0.63p/h (14.48 - 13.85=0.63).

This demonstration of the adjusted reading speed scores the learners achieved in both phases of the experiment showed that both of the CALL and the TBI methods of instruction helped the learners improve their reading speed rates. However, the former not only enabled the learners achieve a substantial increase in their reading speed scores, but also caused a wider distribution in the scores on both phases. On the Final 1 test, the standard deviation of the CALL group scores was 2.78 compared to 1.60 for the TBI group. The same thing was remarkably noted in regard to the Final 2 test; the standard deviations for the CALL and the TBI groups were 3.64 and 2.93, respectively. Thus denoting that attending the CALL sessions led to a greater range in learners' progress in their adjusted reading speed scores than with TBI.

In conclusion, this initial description of the mean scores of the adjusted reading speed shows that both of the two methods of reading instruction - the CALL and the TBI - had a positive effect on the participants' reading speed abilities. Nevertheless, it was also noticed that the CALL method of reading instruction had a greater positive effect than the TBI one on learners' reading speed abilities. To investigate whether the differences in the learners' reading speed achievements were significant and to test the first hypothesis relating to this investigation, the Mann-Whitney test was used for this purpose.

The output of the Mann-Whitney test is displayed in Tables 6-2 and 6-3. The first shows the mean ranks of the adjusted reading speed scores on the three reading tests for the two sequences followed in Experiment II. The second table shows the statistical significance
level. Testing whether there were statistically significant differences between the scores obtained by the two groups on the Placement test, would make it possible to attribute the significant difference, if testified, in the adjusted reading speed scores on Final 1 test to the implementation of one of the two methods of reading instruction implemented in this study. This test shows that there was no statistically significant difference between the adjusted reading speed scores of the two groups on the Placement test, as the value of $p$ is greatly above 0.05.

Table 6-2

<table>
<thead>
<tr>
<th>Sequence of Instructional Method</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement Adjusted Reading Speed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>75</td>
<td>77.57</td>
<td>5840.50</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>75</td>
<td>73.13</td>
<td>5484.50</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 1 Adjusted Reading Speed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>75</td>
<td>108.09</td>
<td>8107.00</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>75</td>
<td>42.91</td>
<td>3218.00</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 2 Adjusted Reading Speed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>75</td>
<td>71.69</td>
<td>5377.00</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>75</td>
<td>79.31</td>
<td>5948.00</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6-3

Mann-Whitney test comparing the adjusted reading speed scores of the two groups on the Placement, Final 1 and Final 2 tests

<table>
<thead>
<tr>
<th>Test Statisticsa</th>
<th>Placement Adjusted Reading Speed</th>
<th>Final 1 Adjusted Reading Speed</th>
<th>Final 2 Adjusted Reading Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>2634.500</td>
<td>368.000</td>
<td>2527.000</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>5484.500</td>
<td>3218.000</td>
<td>5377.000</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.501</td>
<td>.000</td>
<td>.282</td>
</tr>
</tbody>
</table>

a. Grouping Variable: Sequence of Instructional Method

However, the result of applying the Mann-Whitney test shows in the same tables that the difference in the adjusted reading speed scores between the CALL and the TBI groups on
the Final 1 test was statistically significant, as the value of $p$ is greatly below 0.05 with the achievement of the CALL group being much better than that of the TBI one as indicated by the mean scores for the two groups shown in Table 6-1.

Moving to learners’ speed scores on the Final 2 test, the output of the Mann-Whitney test displayed in Table 6-3 shows that there was no statistically significant difference in the adjusted reading speed scores of the groups belonging to the two sequences of the experiment after they swapped the methods of instruction because the value of $p$ is greater than 0.05. This meant that the Sequence 2 group who witnessed relatively low speed scores on the Final 1 test due to the TBI session were able to compensate for that low achievement they gained in Phase 1 due to their exposure to the CALL method of instruction during Phase 2 of the experiment, and the opposite took place in regard to the Sequence 1 group who was exposed to the TBI session during Phase 2 of the reading course. Such result indicated that the CALL method of reading instruction helped the learners achieve noticeable higher reading speed scores regardless of the sequence of implementation. This was also applicable to the TBI method which led to lower levels of reading speed scores in both sessions. Therefore it was noticed that the differences between the two groups of Sequences 1 and 2 on the Final 2 test disappeared because both groups were able to gain almost similar reading speed scores after their exposure to the two methods of reading instruction. And so, the sequence or order of the instructional methods (CALL, followed by TBI or the other way round) did not have a statistically significant effect on the final output reading speed gains of the participants of the study.

In conclusion, it could be said that the null hypothesis of having no significant differences in the reading speed achievements of the freshman learners at MTIC and SU due to the reading methods of instruction was rejected. Data analysis suggested that the achievement of the two groups was significantly better due to their exposure to the CALL method of reading instruction than their achievement due to exposure to the TBI method. It was found that the sequence of the reading instructional approaches did not harm one group at the expense of the other, because the result of applying the Mann-Whitney test
showed no significant differences in the reading speed achievements between the two groups on the Final 2 test. Moreover, this result confirmed the result obtained when the same hypothesis was tested with different participants in Experiment I. Furthermore, although the reading speed ability of the learners on the Placement test were more than 1p/h lower than it was for the learners in Experiment I, the adjusted reading speed progress achieved in Experiment II was more than 1p/h higher than the achievement of learners in Experiment I. Part of this effect could be attributed to the managerial component of the instructional process in which greater opportunity was offered for learners to work on the reading activities.

6.2 Analysis of Findings Related to Reading Comprehension

The second question in the study asked about the effects of applying the CALL and the TBI methods of reading instruction on learners’ reading comprehension achievements. To answer this question the following null hypothesis was tested using the same procedure as in Hypothesis 1:

“There were no statistically significant differences ($p < 0.05$) in the reading comprehension scores of the freshman learners at MTIC and at SU due to the instructional methods (CALL vs. TBI).”

The means and standard deviations of the comprehension accuracy scores on the Placement, Final 1 and Final 2 tests of the two groups in the two sequences of the instructional methods are shown in Table 6-4 below.
Table 6-4
Means and standard deviations of the comprehension scores for the two groups on Placement, Final 1, and Final 2 tests

<table>
<thead>
<tr>
<th>Sequence of Instructional Method</th>
<th>Placement Comprehension Accuracy</th>
<th>Final 1 Comprehension Accuracy</th>
<th>Final 2 Comprehension Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL, followed by TBI</td>
<td>Mean 36.9143</td>
<td>62.5970</td>
<td>55.3821</td>
</tr>
<tr>
<td></td>
<td>N 75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation 11.3196</td>
<td>13.9155</td>
<td>11.7299</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>Mean 35.3143</td>
<td>39.2121</td>
<td>57.9187</td>
</tr>
<tr>
<td></td>
<td>N 75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation 9.9712</td>
<td>8.0318</td>
<td>14.5410</td>
</tr>
</tbody>
</table>

The comprehension accuracy scores on the Placement test for the groups belonging to Sequences 1 and 2 were 36.91 and 35.31, respectively, which indicates that there was a slight difference in the two means of the comprehension scores for the two groups as they started the reading course. On the Final 1 test, however, the Sequence 1 group who was exposed to CALL instruction during the first phase of the experiment increased their comprehension accuracy score by 25.79 (62.70-36.91=25.79) points at the raw reading speed of 20p/h. At the same raw reading speed the TBI group of Sequence 2 managed to improve their comprehension accuracy score only by 3.90 (39.21-35.31=3.90) points, a remarkably low level of improvement compared to that improvement gained by the CALL group. This means that the CALL method helped the learners more than the TBI one to obtain better comprehension scores.

On the Final 2 test which followed Phase 2 in which the two groups of the experiment swapped the methods of instruction, their comprehension accuracy scores also dramatically changed as shown in Table 6-4 above. The group exposed to CALL instruction who belonged to Sequence 2 greatly increased their comprehension accuracy score by 18.71 (57.92-39.21=18.71) points at the 25p/h raw reading speed. However, the comprehension accuracy mean score for other group who learnt through the TBI method considerably decreased by 7.32 (55.38-62.70= -7.32) points at the same raw reading speed. And so, learners’ comprehension scores on the Final 1 and Final 2 tests clearly
showed that the same groups of learners were able to remarkably increase their comprehension accuracy scores on both sessions when they were exposed to the CALL method of instruction.

However, the TBI method seemed to have limitations because the comprehension scores of the learners decreased instead of increasing when they read the reading text on the Final 2 test at the raw speed of 25p/h. This systematic level of effect that each method had on learners’ gains led to almost very close comprehension accuracy scores for the two groups on the Final 2 test, and so this result could mean that the sequence of implementation of the instructional methods did not affect learners’ comprehension scores at the end of the course.

This initial description of the data showed that the CALL method was more effective than the TBI one for improving learners’ comprehension ability. The Mann-Whitney test was used to test the differences in comprehension gains and so the effectiveness of the two instructional methods.

Table 6-5 shows that the comprehension accuracy mean ranks of the two groups on the Placement test were close to each other; they were 77.87 and 73.13 for the first and second sequences, respectively. The output of the Mann-Whitney test shown in Table 6-6 indicates that there were statistically no significant differences in the comprehension accuracy scores for the two groups at the outset of the reading course since the value of \( p \) was greatly above 0.05.
Table 6-5
Ranks for the comprehension accuracy scores on the Placement, Final 1 and Final 2 tests

<table>
<thead>
<tr>
<th>Sequence of Instructional Method</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement Comprehension Accuracy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>75</td>
<td>77.87</td>
<td>5840.50</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>75</td>
<td>73.13</td>
<td>5484.50</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 1 Comprehension Accuracy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>75</td>
<td>108.09</td>
<td>8107.00</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>75</td>
<td>42.91</td>
<td>3218.00</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 2 Comprehension Accuracy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>75</td>
<td>71.69</td>
<td>5377.00</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>75</td>
<td>79.31</td>
<td>5948.00</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6-6
Mann-Whitney test comparing the comprehension scores of the two groups on Placement, Final 1 and Final 2 tests

<table>
<thead>
<tr>
<th>Test Statistics</th>
<th>Placement Comprehension Accuracy</th>
<th>Final 1 Comprehension Accuracy</th>
<th>Final 2 Comprehension Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>2634.500</td>
<td>368.000</td>
<td>2527.000</td>
</tr>
<tr>
<td>Z</td>
<td>-.672</td>
<td>-9.205</td>
<td>-1.075</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.501</td>
<td>.000</td>
<td>.282</td>
</tr>
</tbody>
</table>

a. Grouping Variable: Sequence of Instructional Method

On the Final 1 test, however, Table 6-5 indicates the mean rank of scores for the group who attended the CALL sessions was 108.09 and it was 42.91 for the group who attended the TBI session. Table 6-6 of the Mann-Whitney test shows that there were statistically significant differences in the comprehension mean scores of the two groups as the value of \( p \) was greatly below 0.05.

Concerning the second phase of the experiment, in which the two groups of the study swapped the methods of instruction, a big change took place in the reading comprehension accuracy scores of the two groups. The difference between the reading comprehension accuracy scores for the same two groups, which was noticed on the Final 1 results, disappeared on the Final 2 test results. As shown in Table 6-5, the mean rank of
the group who was exposed to the TBI method on Phase 2 jumped down to 71.69 on Final 2 test instead of 108.09 on Final 1. Whereas, the mean rank of the group who was exposed to the CALL method on Phase 2 jumped up to 79.31 on Final 2 test instead of 42.91 on Final 1.

Regarding the TBI group, a negative change was noticed. The reading comprehension accuracy mean rank of this group decreased from 108.09 to 71.69. As displayed in Table 6-6, the significant difference in the mean ranks of the comprehension accuracy scores for the two groups on Final 1 test disappeared as the learners moved to the Final 2 test because the Mann-Whitney test displayed in Table 6-6 shows no statistically significant differences in the mean ranks of the comprehension accuracy scores of the two groups since the value of $p$ was greater than 0.05 as shown in column 4.

This meant that while the comprehension achievement of the CALL group greatly increased, it noticeably decreased for the TBI group, and so the differences in their achievements on the Final 1 test vanished when the two groups were examined at the end of Phase 2. Therefore it could be argued that the CALL method of reading instruction had a significant better effect on improving the participants' reading comprehension achievements than the TBI method.

This result of the Mann-Whitney test indicated that both groups whether in Sequence 1 or Sequence 2 were able to gain almost similar reading comprehension accuracy scores after their exposure to the two methods of reading instruction on the two phases of the experiment. And so, the sequence of the methods of instruction (CALL, followed by TBI or the other way round) did not have a statistically significant effect on the final reading comprehension accuracy gains of the participants.

It was also noted that the increase in the reading comprehension scores was accompanied by an increase in the participants’ reading raw speed, which was 15p/h, 20p/h and 25p/h on the Placement, Final 1 and Final 2 tests, respectively. Results shown in Table 6-4 tell
us that although the raw reading speed for the CALL group increased 10p/h (5p/h as they moved to Final 1 test and another 5p/h as they moved to Final 2 test), their comprehension accuracy mean score also experienced an increase of 25.79 (62.70 - 36.91 = 25.79) and 18.71 (57.92 - 39.21 = 18.71) points on the two tests, respectively.

These results indicated that there were statistically significant differences in the reading comprehension accuracy scores of the freshman learners at MTIC and SU due to the CALL and the TBI methods of reading instruction (\( p \) is greatly below 0.05). The Mann-Whitney test testified that the achievement of the CALL group was greatly better than that of the TBI group. Therefore, the results of this second experiment regarding the comprehension aspect confirmed the results achieved in the first experiment, and emphasised the reliability of the findings of this study. Moreover, it was also noticed as shown in Table 5-7 of Chapter 5 and Table 6-4 in this chapter that the comprehension scores the learners achieved in the Experiment II were remarkably higher than those achieved in Experiment I. The results of the two experiments suggested that the CALL method of reading instruction can improve learners’ reading comprehension accuracy significantly better than the TBI method. Moreover, results of the Mann-Whitney test showed that the sequence of the reading instructional methods did not significantly affect the achievements of the learners, because the reading comprehension achievements for both groups were almost equivalent on the Final 2 test.

6.3 Analysis of Findings Related to Vocabulary Learning

The third question in the study asked about the effects of applying the CALL and the TBI methods of reading instruction on learners' vocabulary learning achievements. To answer this question the following null hypothesis was tested:

"There were no statistically significant differences (\( p < 0.05 \)) in the vocabulary learning scores of the freshman learners at MTIC and at SU due to the instructional methods (CALL vs. TBI)."
As shown in Table 6-7 the vocabulary knowledge mean scores for the two groups before enrolment in the reading course were close to each other. Out of 20 vocabulary items, the mean scores of the correct responses gained by the two groups were 5.52 and 5.32. However, on the Final 1 test, the mean scores of the CALL group witnessed a dramatic increase of 5.53 (11.05 − 5.52 = 5.53), but the TBI group scored an increase of only 2.64 (7.96 − 5.32 = 2.64) which looked remarkably less than the increase gained by the CALL group.

Table 6-7

Means and standard deviations of scores for the two groups on Placement, Final 1, and Final 2 vocabulary tests

<table>
<thead>
<tr>
<th>Sequence of Instructional Method</th>
<th>Placement Vocabulary Score</th>
<th>Final 1 Vocabulary Score</th>
<th>Final 2 Vocabulary Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL, followed by TBI</td>
<td>Mean: 5.52</td>
<td>11.05</td>
<td>11.37</td>
</tr>
<tr>
<td></td>
<td>N: 75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation: 1.80</td>
<td>2.78</td>
<td>2.46</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>Mean: 5.32</td>
<td>7.96</td>
<td>11.79</td>
</tr>
<tr>
<td></td>
<td>N: 75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation: 1.49</td>
<td>1.73</td>
<td>2.06</td>
</tr>
</tbody>
</table>

With regard to the Final 2 test, Table 6-7 indicates that the mean scores of the two groups again looked close to each other after swapping the instructional methods. This means that the group of Sequence 2 who attended the CALL session on the second phase were able to catch up with the Sequence 1 group who attended the TBI session. As shown in Table 6-7 the CALL group of Sequence 2 were able to increase their vocabulary knowledge mean score by 3.83, while the other TBI group witnessed a slight increase of only 0.32. This initial look through the vocabulary mean scores for the two groups of Experiment II again indicated that the CALL method of reading instruction led to an impressive increase in learners’ vocabulary learning ability compared to the TBI method.

Furthermore, it was noticed that the overall vocabulary knowledge mean scores of the two sequences on the Final 2 test were close to each other; i.e., 11.37 and 11.79 for Sequences 1 and 2, respectively.
This initial description of the mean scores of vocabulary learning showed that both of the two methods of reading instruction (CALL and TBI) had a positive effect on the participants' vocabulary learning abilities. Still, it was also noticed that the CALL method of reading instruction had an impressive positive effect on the participants' vocabulary learning achievements, an effect that was not noticed in the TBI method. Scores also denoted that the sequence of the instructional method led to some difference in the overall result. The output of the Mann-Whitney test would indicate whether these differences in achievements would be statistically significant.

As displayed in Table 6-8, the mean ranks of the vocabulary knowledge scores on the Placement test for the two groups were almost the same; they were 76.25 for the CALL group and 74.75 for the TBI one. This is confirmed in Table 6-9, which testifies that there were no significant differences in the placement vocabulary knowledge scores of the two groups as the value of $p$ was greatly above 0.05. However, after being exposed to the two methods of reading instruction during the first phase of the study, a remarkable change in the mean ranks of scores for the two groups took place as displayed in Table 6-8. Consequently, as displayed in Table 6-9, the difference between the vocabulary knowledge scores on the Final 1 test of the CALL and the TBI groups was found statistically significant, as the value of $p$ is greatly below 0.01, with the achievement of the CALL group being much better than that of the TBI one.

Concerning the second phase of the experiment, in which the two groups of the study swapped the two methods of instruction, a big change took place in the vocabulary knowledge scores of the two groups. The difference between the vocabulary scores for the same two groups, which was noticed on the Final 1 results, disappeared on the Final 2 test results. As shown in Table 6-8, the mean rank of the group that was exposed to CALL on phase 2 became 81.25 on the Final 2 test instead of 51.85 on Final 1; that is, a remarkable increase of 29.40 took place. This increase in this group's vocabulary learning score was due to its exposure to the CALL method of instruction. Whereas,
regarding the TBI group, the vocabulary knowledge mean rank of this group decreased 29.40 points (from 99.51 to 69.75). The output of the Mann-Whitney test relating to the second phase shows that there were no statistically significant differences in the vocabulary knowledge scores between the two groups of the experiment on the Final 2 test as \( p \) was well above 0.05. This indicated that the significant difference which was noted on Final 1 results disappeared on the Final 2 results due to the fact that the Sequence 2 group which attended CALL on Phase 2 was able to catch up with the other Sequence 1 TBI group.

Table 6-8

Ranks for the vocabulary scores on the Placement, Final 1 and Final 2 tests

<table>
<thead>
<tr>
<th>Sequence of Instructional Method</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement Vocabulary Score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>75</td>
<td>76.25</td>
<td>5718.50</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>75</td>
<td>74.75</td>
<td>5606.50</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 1 Vocabulary Score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>75</td>
<td>99.15</td>
<td>7436.00</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>75</td>
<td>51.85</td>
<td>3889.00</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final 2 Vocabulary Score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL, followed by TBI</td>
<td>75</td>
<td>69.75</td>
<td>5231.50</td>
</tr>
<tr>
<td>TBI, followed by CALL</td>
<td>75</td>
<td>81.25</td>
<td>6093.50</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6-9

Mann-Whitney test comparing the vocabulary scores of the two groups on the Placement, Final 1 and Final 2 tests

<table>
<thead>
<tr>
<th>Test Statistics&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Placement Vocabulary Score</th>
<th>Final 1 Vocabulary Score</th>
<th>Final 2 Vocabulary Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>2756.500</td>
<td>1039.000</td>
<td>2381.500</td>
</tr>
<tr>
<td>Z</td>
<td>-.217</td>
<td>-6.721</td>
<td>-1.634</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.828</td>
<td>.000</td>
<td>.102</td>
</tr>
</tbody>
</table>

<sup>a</sup> Grouping Variable: Sequence of Instructional Method

This result of the Mann-Whitney test means that both groups whether in Sequence 1 or Sequence 2 were able to gain almost similar vocabulary learning results after their exposure to the two methods of reading instruction. And so, as it happened with the first two aspects of reading speed and comprehension, the sequence of the instructional methods (CALL, followed by TBI or the other way round) did not have a statistically significant effect on the overall vocabulary learning gains for the two groups of the study.

The increase in the vocabulary learning scores that the CALL group scored over the TBI group on the Final 1 test disappeared on the Final 2 test as the participants moved to the second phase of the experiment when they were exposed to the TBI method of instruction. Whereas, the relatively low increase in the scores that the TBI group gained in Phase 1 was compensated for when the participants of this group were exposed to the CALL method on the second phase. And so, it had been noticed that the CALL method of reading instruction had the statistically significant positive effect of improving the participants’ vocabulary knowledge scores when compared to the TBI method.

In conclusion, the results of analysing the data relating to vocabulary learning on Experiment II echoes those achieved on Experiment I. The vocabulary scores the learners gained in both experiments were of the same level, except for slight differences. Again, the null hypothesis of having no significant differences in the vocabulary knowledge achievements of the freshman learners at MTIC and SU due to the CALL and the TBI methods reading of instruction was rejected. The Mann-Whitney test testified that the achievement of the group that attended the CALL method was significantly better than
that of the group who attended the TBI method. Moreover, it was found that the sequence of the instructional reading methods did not significantly affect the vocabulary achievements of the learners.

6.4 Analysis of Findings Related to Students' Reading Achievement (Hypothesis 4)

Stimulated by these findings obtained above, the researcher sought to investigate if there were relationships between those significant achievements the learners achieved due to CALL instruction and their pre-instruction preferences for CALL or TBI methods of instruction as expressed on the pre-questionnaire of preferences. To answer this question the following hypothesis was tested:

"There were no statistically significant differences ($p < 0.05$) between the achievements of the freshman learners at MTIC and SU in the three reading aspects (speed, comprehension, and vocabulary knowledge) due to their preferences for the CALL or the TBI methods of reading instruction as expressed on the pre-questionnaire."

Again, as was done in the first experiment, and because the findings of the first three hypotheses indicated that it was the CALL method of reading instruction which had the most significant effect on improving learners' reading ability, it was decided to limit testing the effects of learners' pre-instruction preferences for CALL and TBI methods on their reading achievements gained due to the exposure to the CALL sessions of reading instruction. To conduct this type of analysis, three variables were derived from the data collected via the three reading tests by calculating the difference in the participants' scores before and after attending the CALL sessions for both sequences of instruction. For more information on how the three target variables were derived, refer to Section 5.4 of Chapter 5, as the same procedure was followed.

The mean and standard deviation of the scores the learners achieved in each variable of the three target reading aspects were produced and presented in their tables in the sections.
related, below. The corresponding histograms were also provided to show the distribution of the scores the learners achieved in the three reading aspects.

6.4.1 Reading Speed

Starting with the reading speed aspect, Table 6-10 shows that although the group who preferred the TBI method were able to increase their adjusted reading speed mean score by 6.64 after attending the CALL session, the CALL preference group increased their adjusted reading speed mean score by 7.00 due to their attendance of the CALL session; i.e., 0.36 more than that of the former group. This description of the data led to an initial sign that learners' preference for CALL was associated with a slightly higher increase in the adjusted reading speed scores of the learners after attending the CALL session.

<table>
<thead>
<tr>
<th>The difference between subjects' adjusted reading speed before and after attending the CALL session</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBI</td>
<td>75</td>
<td>6.6355</td>
<td>2.2533</td>
</tr>
<tr>
<td>CALL</td>
<td>75</td>
<td>7.0027</td>
<td>1.7004</td>
</tr>
</tbody>
</table>

However, the output of the Mann-Whitney test (Tables 6-11 and 6-12) indicated that there were no statistically significant differences in the adjusted reading speed scores for the two groups in relation to their preferences as expressed in the pre-questionnaire of attitudes as the value of $p$ was well above 0.05; and so Hypothesis 4 was accepted as far as the reading speed aspect was considered. This result was not consistent with that obtained in Experiment I, and one of the important reasons behind that could be that the TBI preference learners were, as they pointed out to the researcher, witnessing that their reading speed was increasingly improving with the CALL method and so they were motivated for more involvement to gain higher reading speed scores.
Table 6-11

Ranks of the adjusted reading speed scores obtained due to CALL instruction with respect to learners' pre-instruction preferences

<table>
<thead>
<tr>
<th>pre-questionnaire</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>The difference between</td>
<td>TBI</td>
<td>75</td>
<td>70.26</td>
</tr>
<tr>
<td>subjects' adjusted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>reading speed before</td>
<td>CALL</td>
<td>75</td>
<td>80.74</td>
</tr>
<tr>
<td>and after attending the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL session</td>
<td>Total</td>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>

Table 6-12

Mann-Whitney test comparing the adjusted reading speed scores obtained due to CALL instruction with respect to learners' pre-instruction preferences

<table>
<thead>
<tr>
<th>Test Statistics(a)</th>
<th>The difference between subjects' adjusted reading speed before and after attending the CALL session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>2419.50</td>
</tr>
<tr>
<td>Z</td>
<td>-1.477</td>
</tr>
<tr>
<td>Asymp. Slt. (2-tailed)</td>
<td>.140</td>
</tr>
</tbody>
</table>

\(a\). Grouping Variable: pre-questionnaire

6.4.2 Comprehension

Table 6-13 makes it clear that the group who showed preference for the CALL instructional method on the pre-questionnaire of attitudes achieved the reading comprehension mean score of 25.78, which was remarkably higher than that of the TBI preference group (18.70).
Table 6-13
Means and standard deviations for reading comprehension accuracy scores with respect to pre-instruction preferences for CALL and TBI

<table>
<thead>
<tr>
<th>pre-questionnaire</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The difference between subjects' reading comprehension accuracy scores before and after attending the CALL session</td>
<td>TBI</td>
<td>75</td>
<td>18.7067</td>
</tr>
<tr>
<td></td>
<td>CALL</td>
<td>75</td>
<td>25.7832</td>
</tr>
</tbody>
</table>

As can be noticed in Table 6-13 the difference in the mean scores for the two groups was noticeable, and consequently, the Mann-Whitney test shown in Tables 6-14 and 6-15 suggested that there was a statistically significant difference ($p$ was greatly below 0.05) in the increase of the comprehension scores for the two groups depending on their preferences as expressed in the pre-questionnaire of attitudes. This of course led to the rejection of the hypothesis that there was no difference in the reading comprehension scores of the learners due to their attitudes toward the CALL and TBI methods of instruction. The scores for the CALL preference group were significantly higher than the scores of the TBI preference group. This result, unlike the one related to the speed aspect, was found consistent with the result obtained in Experiment I which indicated that learners' pre-instruction preference for the CALL method was significantly associated with higher comprehension scores when learning took place through the CALL method.
Table 6-14
Ranks of the comprehension scores obtained due to CALL instruction with respect to learners' pre-enrolment preferences

<table>
<thead>
<tr>
<th>pre-questionnaire</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>The difference between</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>subjects' reading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>comprehension accuracy scores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>before and after attending the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL session</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TBI</td>
<td>75</td>
<td>56.69</td>
<td>4251.50</td>
</tr>
<tr>
<td>CALL</td>
<td>75</td>
<td>94.31</td>
<td>7073.50</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6-15
Mann-Whitney test comparing the comprehension scores obtained due to CALL instruction with respect to learners' pre-instruction preferences

<table>
<thead>
<tr>
<th>Test Statisticsa</th>
<th>The difference between subjects' reading comprehension accuracy scores before and after attending the CALL session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>1401.500</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>4251.500</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Grouping Variable: pre-questionnaire

6.4.3 Vocabulary Learning

The vocabulary scores obtained due to CALL instruction for the learners who preferred the CALL method were better than the scores of the learners who showed preference for TBI. Table 6-16 indicates that after attending the CALL sessions, the vocabulary mean score of the CALL preference group surpassed that of the TBI preference group by 1.5 (5.53 - 4.03 = 1.5). When comparing these results to their counterparts in Experiment I, it can be noticed that the scores of the Experiment II especially those of the CALL preference learners were better.
Similarly as it took place with the comprehension aspect, the Mann-Whitney test displayed in Table 6-18 shows a significant difference (p was greatly below 0.05) in the vocabulary learning achievements of the CALL and the TBI preference groups with a higher achievement for the CALL preference group as indicated in Tables 6-16 and 6-17. And this meant rejecting the hypothesis that there were no statistically significant differences in the vocabulary learning scores due to pre-instruction attitudes toward CALL and TBI. CALL preference learners gained higher vocabulary scores than the TBI preference learners after attending CALL instruction. But comparing this result to the result obtained in Experiment I, it could be noticed that they were inconsistent as the difference in that study was not statistically significant.
Table 6-18
Mann-Whitney test comparing the vocabulary scores obtained due to CALL instruction with respect to learners’ pre-instruction preferences

<table>
<thead>
<tr>
<th>Test Statisticsa</th>
<th>The difference between subjects’ vocabulary learning score before and after attending the CALL session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>1604.500</td>
</tr>
<tr>
<td>Z</td>
<td>-4.603</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.000</td>
</tr>
</tbody>
</table>

In conclusion, the results of the Mann-Whitney test regarding the fourth hypothesis showed that learners’ pre-instruction preference for the CALL method was associated with statistically significant higher scores in reading comprehension and vocabulary knowledge, but the difference in achievement (although existing for the sake of the CALL preference group) was not statistically significant with regard to the speed aspect. Generally speaking, results of the study indicated that attending the CALL sessions of reading instruction did have a significant positive impact on learners’ reading achievements regardless of their attitudes towards that two target method of instruction. More precisely, learners’ preference for the CALL method was associated with a higher increase in their reading speed and comprehension results in Experiment I on the one hand and with a higher increase in their reading comprehension and vocabulary learning results in Experiment II on the other hand. However, this association did not stand true for the aspects of vocabulary learning and reading speed in Experiments I and 2, respectively. Thus it can be concluded that whilst preference for CALL is a component in the greater achievement of learners using CALL, this is only reliably seen in the comprehension aspect.

6.5 Discussion

The findings of this second experiment indicated that the CALL method of reading instruction was the most effective for improving learners’ reading speed, comprehension and vocabulary knowledge. They also indicated that learners’ pre-instruction preferences
for CALL and TBI methods of instruction were important predictors of their reading comprehension and vocabulary knowledge achievements resulted from the CALL sessions. But this did not apply to their reading speed achievements as the difference between the speed scores of the two groups was not statistically significant, although the speed achievement of the CALL preference group was slightly better.

Regarding the first aspect of reading speed, Table 6-19 shows that the participants increased their reading speed during the entire course from 5.42p/h up to 14.16p/h (an average of 36.13w/m to 94.40w/m). However, about 78% (6.82p/h ≈ 45.47w/m) of this increase was due to the CALL method of instruction, while 22% (1.93p/h ≈ 12.87w/m) of it was due to the TBI method. This finding confirms the finding obtained in Experiment I that the CALL method was more effective for improving learners’ reading speed ability. And this means that the findings of the two experiments with regard to the reading speed aspect are consistent with the findings achieved in the studies of Arroyo (1992), Culver (1991), Lai (1993), Greenlee-Moore and Smith (1996), Hong (1997), McKane and Greene (1996) and Tozcu (1998) who reported significant increases in reading speed gains of the CALL group of reading instruction over the TBI group.

When comparing the learners’ adjusted reading speed gains in the two experiments, it has been noticed that those Experiment II gains were remarkably better than those gains the learners achieved in Experiment I. Although learners’ adjusted reading speed mean score on the Placement test of Experiment II was noticeably less than it was for the learners’ of Experiment I (5.42p/h and 6.56p/h, respectively), the output mean scores on the Final 2 test of Experiment II was remarkably higher, i.e., it was 14.16p/h for Experiment II and 12.25p/h for Experiment I. And as displayed in Table 6-19, the contribution of the CALL method in this achievement was 78%, while it was 70% in the Experiment I as shown in Table 5.20.
Table 6-19
Increase in learners’ adjusted reading speed scores throughout Experiment II

<table>
<thead>
<tr>
<th>Starting Record in p/h</th>
<th>Starting Record in w/m</th>
<th>Method</th>
<th>Increase in p/h</th>
<th>Increase in w/m</th>
<th>Percentage of increase</th>
<th>Ending Record in p/h</th>
<th>Ending Record in w/m</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.42</td>
<td>36.13</td>
<td>CALL</td>
<td>6.82</td>
<td>45.47</td>
<td>78%</td>
<td>14.16</td>
<td>94.40</td>
</tr>
<tr>
<td>TBI</td>
<td></td>
<td>1.93</td>
<td>12.87</td>
<td>22%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One other important observation that is worth pointing out is that there was a wider range in learners’ reading speed achievements due to the CALL method than their achievements due to the TBI method as shown in the frequency histograms shown in Figures 6-2 and 6-3. This wider distribution of the scores indicates that there might have been some circumstances and features in the CALL instructional processes that led to differentiated effects on the learners’ reading speed gains. These circumstances and features responded to learners’ individual differences and interests, and so helped those who had special abilities accomplish higher gains. Their circumstances and features are of different types and some of them are related to the time each individual practiced working on the warm up activities, the type of warm up activities each individual concentrated on, the type of reading practice (timed, paced, or free) the learner used to work on, the level of tension the individual had had while working on the different activities, the reading materials available on the software program, learners’ interest and enjoyment in the techniques and features available.

This increase in the adjusted reading speed scores the learners achieved due to their exposure to CALL method on Experiment II was substantial because it was accompanied by a significant comprehension improvement. Therefore, it can be noticed in Table 6-20 that the CALL sessions helped the learners significantly increase their comprehension mean scores by 22.24% on the Final 1 and Final 2 tests at the raw reading speed of 20p/h and 25p/h, respectively. However, as it happened in Experiment I, once the learners attended the TBI sessions of Experiment II, the slight increase they gained in their adjusted reading speed scores was accompanied with a decrease of 1.71% points in their reading comprehension scores as shown in Table 6-20. This decrease could be attributed
to different reasons. The first could be because the TBI learners did not have the same chance they had during the CALL sessions to practise more on the reading activities such as the cognizance, eye-movement, concentration, and cloze test activities. Added to that is the fact that RapidReader was offering them a big number of word activities that helped them not only learn more unfamiliar words but also learn them perhaps more profoundly due to more practice on using the words in sentences and on deducing word meanings through context, and this affected their comprehension ability in return.

Another possible reason could be that the learners who attended the TBI lessons during the second session of the course were unable to cope with the raw reading speed fixed to them for reading the text on the Final 2 test (25p/h). Therefore, it could be possible that they were not able to finish reading that text within the time limit given, or it could be that they were skipping important phrases or even sentences or lines while reading which in turn led to missing information needed to respond to the multiple-choice questions that followed the reading process. Therefore, learners’ inability to cope with the reading speed fixed for them by the teacher needs further investigation in future research.

Table 6-20
Increase in learners’ comprehension accuracy scores throughout Experiment II

<table>
<thead>
<tr>
<th>Starting Record</th>
<th>Method</th>
<th>Increase</th>
<th>Percentage of contribution</th>
<th>Ending Record %</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.11 CALL</td>
<td>22.24%</td>
<td>108.5%</td>
<td></td>
<td>56.65</td>
</tr>
<tr>
<td>TBI -1.71%</td>
<td></td>
<td>-8.5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Experiment II findings with respect to the comprehension aspect are also consistent with those findings of Experiment I, and results of the two experiments agree with those of Arroyo (1992), Culver (1991), Greenlee-Moore and Smith (1996), Lomicka (1997) and Yagi (1998). However, the findings of this current study disagree with the findings of Spivery (1992), Johnston (1996) and Tillman (1995) who found that implementing CALL reading programs did not help learners increase their reading ability significantly more than conventional reading instruction. On the contrary, the increase in reading speed
which was reported in these studies and many others was usually associated with a decrease in the comprehension ability.

The CALL method of reading instruction was also the most effective in increasing the participants' vocabulary knowledge scores. Table 6-21 shows a comparison between the levels of vocabulary increase that each of the two methods of instruction caused. It shows that the CALL method helped the learners increased their vocabulary scores by 4.68 out of 20 and the contribution of this method was 70% of the progress in vocabulary knowledge achieved due to the whole reading course. On the other hand the contribution of the TBI method was only 30% of that progress. Depending on this result it has been noticed that the findings of Experiments I and II are consistent, and they are also consistent with the findings of Laufer and Hill (2000), Groot (2000) and Tsou, Wang and Li (2002) who pointed out that CALL programs are more effective for helping students learn unfamiliar words. Even the contribution percentage of each of the two methods was nearly equivalent, although it was a bit higher for the CALL method in the second experiment.

Table 6-21

<table>
<thead>
<tr>
<th>Starting Record</th>
<th>Method</th>
<th>Increase (Score*)</th>
<th>Percentage of Contribution</th>
<th>Output Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score* %</td>
<td></td>
<td>Score* %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.42 27.1 CALL</td>
<td>4.68</td>
<td>76%</td>
<td>11.58 57.9</td>
<td></td>
</tr>
<tr>
<td>TBI</td>
<td>1.48</td>
<td>24%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Full score is 20

As discussed in Chapter 5, Section 5.5, one of the important factors that has been reported to help the CALL group participants effectively gain higher vocabulary scores was the integration of the incidental and the intentional approaches for vocabulary learning argued for by Groot (2000). This integration through the CALL program helped the learners get a greater chance to practice learning new words through a large number of different types of word activities. These word activities included the concentration, the
“use words in context” and the “definition” word activities with all the facilities offered by the CALL program like providing the participant with the definition of the word when the task asked for filling the blank space with the correct word, or by showing target words used in context when the task asked for the definition of words and other features discussed in Chapter 4, Section 4.1.1.4.5. It could also be argued that the learners were given a better chance to work on the cloze activities in the CALL sessions, and such practice helped them learn more vocabulary items, not to forget the importance of this kind of activity for improving learners’ reading ability in general. Related to these factors, was that the quality of the word activities and their great availability on the computer which were more encouraging for the learners to practise more on them and so to achieve higher vocabulary scores, especially as they were given the opportunity to choose the activity they liked more, of course within the type of activities the teachers suggested for achieving a learning objective. Activities like these in addition to many others as pointed out in Section 1.2 of Chapter 1, are reported to be more effective through CALL instruction (Kennedy, 1989) and an investigation of their importance to learners’ point of view is tackled in Chapters 7, 8 and 9.

The results of this experiment clearly pointed out the effectiveness of the CALL method of reading instruction for improving the reading abilities of EFL learners in comparison to TBI. Comparing the results obtained in this current study to those of the relating previous studies discussed in Chapter 2 of the Literature Review, it should be noticed that there is an obvious consistency in the results if each aspect is dealt with separately. Findings of this second experiment confirmed the findings achieved in the first experiment with regard to the three target reading aspects. CALL instruction helped the learners improve their reading speed ability significantly more than TBI, and this finding is compatible with the findings achieved by Arroyo (1992), Culver (1991), Lai (1993), Richard (1982) and Tozcu (1998). CALL also helped the learners in both experiments increase their comprehension ability significantly compared to TBI and this is consistent with the findings achieved by (Culver, 1991; Champeau de Lopez, 1993; Lai, 1993; Tillman, 1995). The same positive findings of CALL instruction in both experiments
were also achieved with respect to vocabulary learning, and results are consistent with the findings of Laufer and Hill (2000), Groot (2000) and Tsou, Wang and Li (2002).

As shown in the literature review in Chapter 2, very few studies were conducted to investigate the effects of CALL instruction on improving learners' reading ability in the three reading aspects included in this study. But when integrating these three aspects or two of them together in one reading course as it was done by Spivery (1992), Johnston (1996) and Tillman (1995), it was found that the increase in the reading speed that learners obtained was accompanied with a decrease in comprehension scores. And so the findings of these previously conducted studies are inconsistent with the findings of this current study as the latter pointed out that the three target reading aspects were significantly improved due to CALL instruction. And this finding achieved in the two experiments is also compatible with the theory of reading as discussed in Chapter 1, Section 1.1 and in Chapter 2, which argues that the three reading aspects targeted in this study are dependent on each other and closely related (Harris and Hodges, 1981; LaBerge and Samuels, 1985; Eskey, 1986; Hegelheimer and Chapelle, 2000).

This important finding of the current study that CALL enhanced learners' reading abilities in the three aspects targeted has its logical reasons. The different sorts of the reading activities made available in greater numbers on the computer for learners to use and the greater opportunity for them to do more practice on those activities led to the significant progress in the three reading aspects of speed, comprehension and vocabulary knowledge rather than a progress in only one or two of them. Those reading activities available on the CALL program are related to the reading skill in general, although some of them are closer to one of the aspects more than the others. Still, as discussed in the theoretical background of the study, the three reading aspects are related to each other, and the progress in one of them leads to progress in the others, (Eskey, 1986; Harris and Sipay, 1990). This relationship can easily be seen when comparing the scores on the three aspects due to the TBI and the CALL sessions. The increase in speed, comprehension and vocabulary in the case of CALL was 6.82, 22.24, and 4.68 respectively. However, after
attending TBI sessions, all the scores in the three aspects were less (the score in the comprehension aspect was sharply less); they were respectively 1.93, -1.71 and 1.48.

On the other hand, analysis of data collected through the post-questionnaire of attitudes and the personal interviews which appears in Chapters (7, 8, and 9) tackles the different reasons that led to the substantial progress in learners’ reading ability in detail.

In regard to the fourth hypothesis, findings of this second experiment indicated that the learners significantly improved their reading ability in the three reading aspects after attending the CALL reading sessions regardless of their preferences for the CALL and the TBI methods as expressed on the pre-questionnaire of attitudes. Nevertheless, it was found that there was a significant association between those preferences for the CALL and TBI methods and learners’ reading comprehension and vocabulary knowledge scores (but not in the case of the speed aspect) obtained due to the CALL sessions. This finding indicated that on the reading tests that followed the CALL sessions, the learners who showed preference for the CALL method on the pre-questionnaire of preferences tended to achieve significantly better reading comprehension and vocabulary knowledge scores than those who showed preference for the TBI method. This result has been found consistent with previous research findings. For example, Levine, Ferenz, and Reves (2000), AlKahtani (1999), Yagi (1999), Towndrow (1997), Johnston (1996) and Sponder (1993) noted that learners’ attitudes towards CALL programs play an important role in their learning performance and language learning abilities.

When comparing the results of this second experiment with those of the first one regarding the same issue of preferences, it was noticed that learners’ preferences were significantly associated with higher reading speed scores in the first experiment, but this association was not statistically significant in the second experiment. A possible reason behind this could be that the learners in the second experiment were able to witness a greater increase in their adjusted reading speed than that which took place in the first experiment. In the first experiment the average adjusted reading speed increase due to
CALL instruction that the learners achieved was 3.96p/h (Table 5-1), while it was 4.72p/h for the second experiment (Table 6-1). This higher level of effectiveness or usefulness, which was found by other researchers like Stevens (1991), and Yi and Hwang (2003) to correlate positively with better learning performance, motivated the learners of this current study regardless of their pre-enrolment preferences for work harder and to be more involved in the learning process. And so the result was that the CALL and the TBI preference learners were able to increase their reading speed significantly with a slightly better achievement by the CALL preference group.

In the same sequence it was found that learners’ vocabulary knowledge scores obtained through the CALL sessions of Experiment I were not significantly affected by their preferences for the CALL or the TBI methods as expressed on the pre-questionnaire of attitudes. A possible reason for this result was that the learners spent more time on building up their personal dictionaries during the lecture time. Although it was noticed during the pilot study that this component was time consuming, the teachers of the course preferred not to be very strict and to limit students’ willingness to work on building up their dictionaries especially as they were anxious to do it. But this kind of practice reduced the time the learners spent on actual reading and learning of words through the different word activities, and so it was decided to stop their access to this component at the beginning of the fifth week of the first session reading course. The learners of the second group who attended the CALL session on the second phase of the course received the same treatment.

This process might have led the CALL preference learners to feel unsatisfied with this part of the CALL reading course, and so many of them could have become less enthusiastic about working on the vocabulary items. This issue was dealt with more appropriately in Experiment II. It was explained to the learners that building up a personal dictionary would consume a long portion of time in each lecture and so affect their learning negatively. The learners were informed that since they had access to the list of the words which was prepared by the researcher in advance, they were given the
chance to work on the different word activities depending on the words appearing on the list. Still, all learners were advised to practise for a short time building personal dictionaries of their own just as a kind of training and motivation. This was done for 15 to 20 minutes in each lecture during the first two weeks of the sessions, and the learners were told that once an individual was done with an assigned task or activity like responding to the comprehension questions (s)he was free - if willing to - to work on that component until moving to something else.

Learners' achievements in the three reading aspects were noticeably better on the second experiment than they were on the first one. This could have happened because more time in the second experiment, especially as the time for building personal dictionaries was greatly reduced, was allocated for actual reading activities and for more practice on the different CALL activities, and specifically on activities the learners thought would be more effective like the eye-movement, skimming and scanning activities. Here it could be appropriate to point out the importance of the managerial role of the teacher in CALL instruction. The presence of the teacher, who monitors, responds to queries and questions, helps and checks learners' performance would be able to assess learners' performance and so plan the learning processes depending on their needs and interests.

An additional reason for that could be that Experiment II was carried out during the second semester of the academic year 2001/2002 while the first experiment was carried out during the first semester of the same academic year. This meant that the participants of Experiment II were having the privilege of being familiar with the university or college system and so their concentration must have been more on learning rather than customising themselves to a new way of life and making new friends, a situation which the participants of Experiment I must have faced.

As far as the impact of CALL on learners' gains on the three reading aspects targeted in this study, Table 6-22 shows that the proportion of progress due to CALL instruction was the highest in the case of the reading speed aspect (105.53%) followed by the vocabulary
aspect (74.17%), and at the end came the comprehension aspect. This result echoes the result found in Experiment I (Table 5.22). In Experiment II Table 6-22 also shows that when the learners were presented with their preferred option ‘CALL method’ first in the reading course, their reading achievements in the three reading aspects were the highest. The percentages of progress they gained in speed, comprehension and vocabulary on the Final 1 test were 126.35%, 69.85%, and 100.18%, respectively. However, when learners were exposed to CALL instruction in the second phase, the percentages of progress they gained in speed, comprehension and vocabulary on the Final 2 test were 84.70%, 47.72%, and 48.16%, respectively; these percentages were noticeably less than they were on the Final 1 test especially for the comprehension aspect. The immediate possible reason for this result is that this group’s pre-instruction preference was for the TBI method and so it is reasonable for them to gain less percentages of reading progress due to CALL instruction if compared to the CALL preference group.

Table 6-22
Differential impact of CALL on speed, comprehension and vocabulary gains

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Test</th>
<th>Pre-score (Placement)</th>
<th>Increase</th>
<th>Percentage*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>F1</td>
<td>5.54</td>
<td>7.00</td>
<td>126.35%</td>
</tr>
<tr>
<td></td>
<td>F2</td>
<td>7.84</td>
<td>6.64</td>
<td>84.70%</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>6.69</td>
<td>6.82</td>
<td>105.53%</td>
</tr>
<tr>
<td>Comprehension</td>
<td>F1</td>
<td>36.91</td>
<td>25.78</td>
<td>69.85%</td>
</tr>
<tr>
<td></td>
<td>F2</td>
<td>39.21</td>
<td>18.71</td>
<td>47.72%</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>37.56</td>
<td>22.25</td>
<td>58.79%</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>F1</td>
<td>5.52</td>
<td>5.53</td>
<td>100.18%</td>
</tr>
<tr>
<td></td>
<td>F2</td>
<td>7.96</td>
<td>3.83</td>
<td>48.16%</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>6.74</td>
<td>4.68</td>
<td>74.17%</td>
</tr>
</tbody>
</table>

* Percentage of increase in relation to score before attending CALL sessions (Increase X 100 ÷ the score before attending session)

This consistency of findings found in the two experiments carried out in this study emphasises the need for further research to address the impact on reading gains when learners whose preferred method is the TBI method are presented first with the CALL method of reading instruction.
Chapter 7  Analysis of Data for Experiment II: Post-Questionnaire Survey

7.1 Introduction

Through descriptive and analytic statistics of the learners' responses to the post-questionnaire items, this chapter investigates learners' opinions towards the two instructional methods they experienced in the reading course. It aims to uncover the relationships between learners' preferences for the CALL and the TBI methods of reading instruction and their responses to the post-questionnaire items. These relationships will help identify learners' reasons for preferring one of the instructional methods over the other. More precisely, this chapter aims at answering the following two questions:

1. As expressed on the post-questionnaire, what method of reading instruction did the learners believe to have the most positive effect on their reading abilities?
2. As expressed on the post-questionnaire, what were the reasons for learners' preferences for the CALL or the TBI methods of reading instruction?

7.2. Analysis of the Data Related to Learners' Perceptions Towards TBI and CALL (Question One)

This section discusses results addressing the first question above which asked about the most effective method of reading instruction according to the learners' point of view.

As a first step in this analysis, the medians of the learners' responses for each item included in the post-questionnaire (a copy is given in Appendix 5) were calculated and presented in Table 7-1.
Going through this process of analysis revealed that the vast majority of the participants, who were exposed to both of the target methods of reading instruction in the course, preferred the CALL method. Concerning the responses related to this CALL method, the median score for all the questionnaire items (except for Items 8 and 17 which was 4) was 5 which stood for the opinion “I strongly agree” that this method of instruction had a positive effect on the participants’ reading achievements or it had a good and effective feature. Their responses to the same items when talking about the TBI method clearly reflected that they were not happy with this method compared to the CALL one because it did not help them improve their reading speed, comprehension and vocabulary knowledge as much as the CALL method did.
Table 7-1

Table of medians for the learners' responses to post-questionnaire items with respect to the CALL and the TBI methods

<table>
<thead>
<tr>
<th>Questionnaire Statements</th>
<th>Medians</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Word activities helped me learn words quickly</td>
<td>CALL 5</td>
</tr>
<tr>
<td>2  Word activities helped me become able to use the new words in real life situations</td>
<td>CALL 5</td>
</tr>
<tr>
<td>3  I was able to deal with a large number of word activities</td>
<td>CALL 5</td>
</tr>
<tr>
<td>4  I received the teacher’s attention in the classroom on one-to-one basis during the course</td>
<td>CALL 5</td>
</tr>
<tr>
<td>5  The ‘eye movement’ activity helped me improve my reading speed</td>
<td>CALL 5</td>
</tr>
<tr>
<td>6  The cognizance activity helped me recognize words quickly</td>
<td>CALL 5</td>
</tr>
<tr>
<td>7  The concentration activity helped me improve my understanding of words under the pressures of speed-reading</td>
<td>CALL 5</td>
</tr>
<tr>
<td>8  During the course, I practised speed reading, while reading for other participants, while doing leisure reading in Arabic and English alike</td>
<td>CALL 4</td>
</tr>
<tr>
<td>9  I liked to answer the comprehension questions due to the way they were presented to me</td>
<td>CALL 5</td>
</tr>
<tr>
<td>10 I received immediate feedback as I responded to the different activities and the comprehension questions</td>
<td>CALL 5</td>
</tr>
<tr>
<td>11 I was able to fix the speed I liked before I started doing an exercise during the reading course</td>
<td>CALL 5</td>
</tr>
<tr>
<td>12 It was easy for me to record my performance on the activities I managed to do during the course/CALL</td>
<td>CALL 5</td>
</tr>
<tr>
<td>13 All through the course, I was able to see the improvement in my reading abilities by referring to the results of the exercises I did</td>
<td>CALL 5</td>
</tr>
<tr>
<td>14 My reading speed increased a lot as a result of this method of reading instruction</td>
<td>CALL 5</td>
</tr>
<tr>
<td>15 My ability to understand what I read improved a lot as a result of this method of reading instruction</td>
<td>CALL 5</td>
</tr>
<tr>
<td>16 I have become more able to read longer texts as a result of this method of reading instruction</td>
<td>CALL 5</td>
</tr>
<tr>
<td>17 I learnt a large number of vocabulary items as a result of this method of instruction</td>
<td>CALL 5</td>
</tr>
<tr>
<td>18 This method of instruction enabled me to ask about the things I did not understand without other students hearing me having to ask</td>
<td>CALL 5</td>
</tr>
<tr>
<td>19 I recommend that other students follow this method of reading instruction to improve their reading abilities</td>
<td>CALL 5</td>
</tr>
<tr>
<td>20 I like this method of reading instruction</td>
<td>CALL 5</td>
</tr>
</tbody>
</table>

* N = 150

To elucidate this result the data related to the three target reading aspects is discussed in the following sections.
7.2.1 Reading Speed

Table 7-1 shows that the medians for the learners' responses to the questionnaire item 14 "My reading speed increased a lot as a result of this method of reading instruction" was 5. This means that most of the participants strongly agreed that their reading speed increased significantly due to their attendance to the CALL sessions. The actual data clearly show that among the 150 students, 128 of the participants strongly agreed and 20 others agreed that the CALL course improved their reading speed significantly. Only two of the participants were uncertain if the CALL method had increased their reading speed significantly.

When talking about the TBI method, results changed dramatically. The median for their responses was 2 as stated in Table 7-1; i.e., they disagreed that their reading speed improved significantly as a result of attending the TBI method of instruction. Although 19 students felt the TBI method had increased their reading speed significantly, and the same number of students was uncertain of its effect on their reading speed, it was noticed that the majority (112 participants: 3 of them strongly disagreed and 109 disagreed) did not notice improvement in their reading speed due to that method. This of course indicated that a few students believed that their reading speed had increased a lot due to the TBI method. Still, it is clear that all the students were satisfied with the reading speed results they gained due to the CALL method except the two who expressed their uncertainty about whether their reading speed had increased significantly due to the CALL method.

7.2.2 Reading Comprehension

The post-questionnaire data regarding reading comprehension did not show a big difference from those of the reading speed aspect. Responses to Item 15 showed that most of the participants strongly agreed that their ability to understand what they read improved a lot because of the CALL method as the median rank was 5 as shown in Table 7-1. The actual data state that the same number of 148 participants, as in the case of
reading speed aspect (119 chose rank 5, and 29 chose rank 4), strongly agreed or agreed that the CALL method helped them significantly improve their reading comprehension ability. More precisely, the data show that none of the students disagreed with this statement, although two of them were uncertain whether the CALL method had the positive effect on their comprehension achievements.

Learners’ responses to Item 15 with regard to the TBI method were somewhat different from those of the reading speed. The median for their responses to Item 15 was 3, which shows that the majority of the participants tended to express their uncertainty of whether the TBI method had the positive or negative effect on improving their comprehension ability. In terms of the actual responses, it was noticed that 60 students believed in the positive effect of this TBI method but 40 others did not agree that this TBI method helped them improve their reading ability. On the other hand, the other 50 participants were uncertain about the effect of the TBI method on their comprehension ability.

7.2.3 Vocabulary Learning

Learners’ responses to Item 18 (I learnt a large number of vocabulary items as a result of this method of instruction) tended to be consistent with their responses to Item 15 of the reading comprehension aspect above. As presented in Table 7-1, the median rank of their responses to Item 18 in regard to the CALL method was 5. And as displayed in Figure 7-3 most of them (148: 41 agreed and 107 strongly agreed) believed the CALL method helped them learn a large number of vocabulary items. One of the students did not agree with this statement, a case that was not noticed in the previous two reading aspects, and another student was uncertain about that effect.

When the learners spoke about their vocabulary learning via the TBI method, Table 7-1 shows that the median for their responses was 3, and this means that a good majority of them were unable to decide whether that method of instruction really helped them learn a large number of vocabulary items. In fact it was noticed that although 54 participants agreed that they learnt a large number of vocabulary items as a result of the TBI course,
and 63 were unable to decide, but 31 participants were in disagreement with this questionnaire statement. Consequently, this result especially when compared to the one related to the CALL method clearly shows that the learners were very much less satisfied with the TBI method of instruction if compared to the CALL one for vocabulary learning. It continues to emphasise that the learners preferred the CALL method of instruction for vocabulary learning.

7.2.4 Learners’ Attitudes toward the Two Instructional Methods

Not only did the participants of the study confirm the positive effects that the CALL method of instruction had on their reading speed, reading comprehension, and vocabulary learning, but they also emphasised their satisfaction with this CALL method of instruction in general when they responded to the post-questionnaire items. In addition to describing their responses to Items 20 and 21, which reflect learners’ straightforward attitudes toward the two target instructional methods of reading, a description of their responses to the other items of the post-questionnaire is presented below for the purpose of elucidating the attitudes revealed in Items 20 and 21.

In this sequence, Item 20 aimed at showing the learners’ general attitudes towards the two methods of reading instruction as expressed in their responses to the statement “I prefer this method of reading instruction.”

Regarding the CALL method, Table 7-1, shows that most of the learners strongly agreed with the statement “I prefer this method of reading instruction” as the median rank of their responses was 5, a very strong preference for the CALL method of reading instruction. It might be important to point out that none of the learners chose ranks 1 or 2 to show their disagreement with this statement of the survey regarding the CALL method. On the contrary 147 learners did prefer this method (130 of them strongly liked it), and the three left were undecided. However, the median rank of the learners’ responses to this Item was 3 in regard to the TBI method, which means that when comparing the two methods the learners experienced, they were unable to decide whether they preferred this
method of reading instruction or not. The data showed that while 74 learners were unable to decide whether they preferred the TBI method or not, 72 others responded they did not prefer it, and only 4 of the learners preferred it. The raw data also showed that three of the four learners who preferred the TBI method of reading instruction appeared not to understand the question as they had also indicated that they preferred the CALL method and the third learner was undecided.

The comparison between the CALL and the TBI methods of instruction indicated that most of the learners preferred the CALL method but very few of them preferred the TBI one. This result was also re-emphasised in the learners’ responses to the last item of the post-questionnaire: “I recommend that other students follow this method of reading instruction to improve their reading abilities”.

Learners’ responses to this item were more precisely directed toward the CALL method of instruction. They, as shown in Table 7-1, clearly advised on not using the TBI method of reading instruction for improving the three reading aspects targeted (median = 2), but on the contrary, they advised on using the CALL method for that purpose (median = 5).

For the rest of the post-questionnaire items, a comparison between learners’ responses to those items with respect to the two methods of instruction would help us learn more about their attitudes towards the two methods in general and towards each of the different features characterising each method and the effects they had on their reading abilities in particular.

As for Item 8 (During the course, I practised speed reading, while reading for other participants, and while doing leisure reading in Arabic and English alike): the responses of the learners to this item should be highlighted as the medians in both cases, (the CALL and the TBI), were the same (4). This of course implied that the learners had practised speed reading when reading other materials or reading for leisure regardless of the reading instruction session they were involved in (the CALL or the TBI). Despite
similarity of the medians for the responses of the learners to this item as displayed in Table 7-1, it was noticed through the actual data that the number of the learners who practised extra speed reading while attending the CALL course (149 learners) was greater than that who practised it while attending the TBI course (99 learners). Here, it could be argued that although the two target methods of reading instruction motivated the learners to practise speed reading in real life situations, the CALL method was much more motivating and effective in this area.

Concerning the rest of the post-questionnaire items, the responses of the learners appeared to have the same sequence noticed for Items 19 and 20 with slight differences here or there. Below is a summary description of learners’ responses to the rest of the post-questionnaire items and the display of the responses for these items took the same pattern. It should be pointed out that whenever there is a mention of a median in the rest of this section, the reference is to Table 7-1 of Section 7.2.

Item 1 (Word activities helped me learn words quickly): The median was 5 for CALL, and it was 2 for TBI. Data showed that 149 learners preferred the CALL method as it helped them learn words quickly. When talking about the TBI method, only five learners agreed that this method helped them learn words quickly, while most of them (111 learners) were against this statement.

Item 2 (Word activities helped me become able to use the new words in real life situations): The medians were 5 and 2 for the CALL and the TBI methods, respectively. Talking about the CALL method, 148 of the learners preferred this method. But only seven of the learners agreed with this statement in regard to the TBI method.

Item 3 (I was able to deal with a large number of word activities): Medians were 5 and 2 for the CALL and the TBI methods, respectively. The descriptive statistics showed that 149 of the learners expressed that they were able to deal with a large number of word
activities during the CALL sessions, but only 22 learners expressed that they were able to
do that during the TBI sessions.

Item 4 (I received the teacher's attention in the classroom on one-to-one basis during the
course): Medians were 5 and 2 for the CALL and the TBI methods, respectively. Data
showed that 149 learners believed that they received the teacher's attention in the
classroom on one-to-one basis during the CALL sessions. However, only nine learners
had the same belief when they were attending the TBI sessions.

Item 5 (The 'eye movement' activity helped me improve my reading speed): Medians
were 5 and 3 for the CALL and the TBI methods, respectively. Data showed that 147
learners felt that the 'eye movement' activity they experienced in the CALL sessions
helped them improve their reading speed, but only five learners had the same feeling
regarding the TBI sessions.

Item 6 (The cognizance activity helped me recognize words quickly): Medians were 5
and 2 for the CALL and the TBI methods, respectively. Data showed that 146 learners
felt that the cognizance activity they met in the CALL sessions helped them recognize
words quickly, while only 11 learners had the same feeling with the TBI sessions.

Item 7 (The concentration activity helped me improve my understanding of words under
the pressures of speed-reading): Medians were 5 and 2 for the CALL and the TBI
methods, respectively. Data showed that 147 learners felt that the CALL concentration
activities helped them improve their understanding of words under the pressures of
speed-reading. In regard to the TBI sessions, relatively a bigger number of the learners
(46 learners) had the same feeling; still, this number was very much less than in the case
of the CALL method.

Item 9 (I liked to answer the comprehension questions due to the way they were
presented to me): Medians were 5 and 2 for the CALL and the TBI methods,
respectively. All the learners (150) liked to answer the comprehension questions due to
the way they were presented on the computer screen. However, only two of the learners
liked the way they were presented on paper.

Item 10 (I received immediate feedback as I responded to the different activities and the
comprehension questions): Medians were 5 and 2 for the CALL and the TBI methods,
respectively. Data showed that 144 learners said that they received immediate feedback
as they responded to the different activities and the comprehension questions when
working on the CALL programme, while only two learners received it in the TBI
sessions.

Item 11 (I was able to fix the speed I liked before I started doing an exercise during the
reading course): Medians were 5 and 1 for the CALL and the TBI methods, respectively.
All the 150 learners said that they were able to fix their reading speeds during the CALL
sessions. However, one learner said the same thing about the TBI sessions.

Item 12 (It was easy for me to record my performance on the activities I managed to do during
the course): Medians were 5 and 1 for the CALL and the TBI methods, respectively. Data
showed that 144 learners felt that it was easy for them to record all results of the
exercises they did during the CALL course, but only two of them had the same feeling
towards the TBI course.

Item 13 (All through the course, I was able to see the improvement in my reading
abilities by referring to the results of the exercises I did): Medians were 5 and 2 for the
CALL and the TBI methods, respectively. Data showed that 146 learners expressed that
they were able to see the improvement in their reading abilities all through the CALL
sessions. For the TBI method, four learners were able to do that according to their
responses to this item.
Item 16 (I have become more able to read longer texts as a result of this method of reading instruction): Medians were 5 and 2 for the CALL and the TBI methods, respectively and 148 learners felt that they became more able to read longer texts because of CALL instruction. However, 16 learners had the same feeling in the case of the TBI method.

Item 18 (This method of instruction enabled me to ask about the things I did not understand without other students hearing me having to ask): Medians were 5 and 2 for the CALL and the TBI methods, respectively. One hundred and forty nine learners felt that the CALL method offered them a kind of personal privacy in their learning process as it was possible for them to make their own individual inquiries away from their classmates. On the other hand, only two learners had the same feeling with the TBI method.

7.2.5 Discussion

Almost all of the participants in the post-questionnaire of attitudes expressed their belief that the CALL method of reading instruction was greatly more effective than the TBI method for improving their reading speed, reading comprehension, and vocabulary knowledge. This result is consistent with learners' achievements in the three target reading aspects discussed in Experiment II, and in Experiment I. These results are also consistent with findings reported by others like Towndrow, 1997, Venkatesh and Speier, 2000, and Njagi, Smith & Isbell 2003. In fact, learners' responses showed that the vast majority of the participants (148 out of 150) were remarkably satisfied with the reading speed, comprehension and vocabulary learning achievements they gained due to the CALL method of instruction, and this kind of satisfaction corresponded to the greater gains the learners achieved in their reading speed, comprehension and vocabulary learning abilities due to attending the CALL sessions.

All the reading speed, comprehension and vocabulary activities the learners encountered on the CALL program were given a higher rank of preference by the learners. One could argue here that these highly ranked preferences for some of the activities like the eye-movement, cognizance and word activities had their positive and strong impacts on
learners' preference for the CALL method of instruction in general, and this is discussed in Section 7.3 and in Chapter 8.

However, a more detailed look at those numbers gives a clearer image of learners' preferences among the three reading aspects. Starting with Item 14 related to the reading speed aspect, Figure 7-1 shows that learners' satisfaction with the CALL method of instruction was the strongest among the three reading aspects. There were 128 learners who strongly agreed that their reading speed increased a lot as a result of the CALL sessions (Item 14) and another 20 learners who agreed with that statement. In addition to the contributions of the 'eye movement' (Item 5) and the cognizance (Item 6) activities which could have enhanced establishing this great satisfaction, it can be argued that learners' ability to see the progress they were gaining while learning through the CALL method was of important effect. Being able to see their gains might have increased their motivation to learn reading through the CALL program, and this motivation is known to be highly correlated with better learning (Davies and Crowther, 1995).

For the reading comprehension aspect, Figure 7-2 again testifies that the participants showed a strong satisfaction with the CALL method as it significantly helped them improve their comprehension accuracy. Still, this level of satisfaction was relatively less than it was for the reading speed aspect. The participants who chose rank 5 were 119 (i.e. 9 preferences less than it was for the speed aspect) and those who chose rank 4 were 29 (9 preferences more). A possible reason for this slight decrease in learners' preference for the CALL method if compared to that in the case of the speed aspect could be that whenever the learners tried to fix a reading speed target on the program for themselves to achieve, they were able to catch up with the time specified for reading each page displayed on screen, but when things came to their comprehension scores, they felt that their adjusted reading speed scores appearing on the screen were always lessened because of their wrong responses to the comprehension questions. Therefore, some learners thought it was the comprehension aspect that negatively affected their adjusted reading speed gains, although the comprehension improvement they gained which was associated
with great speed gains due to the CALL method was statistically significant, and above that it did not take place with the TBI method.

With regard to the vocabulary aspect, it was noticed that although the learners gave a stronger preference for the CALL method of instruction rather than the TBI one for improving their vocabulary knowledge, this preference was not as strong as it was in the previous two cases of speed and comprehension. Increased levels of satisfaction with the effectiveness of the TBI method for learning vocabulary in comparison to the other two aspects could be attributed to learners’ feeling that the differences between the TBI and the CALL methods with regard to vocabulary learning were the least if compared to the speed and comprehension aspects. Learners in both of the TBI and the CALL sessions were trained on using suffixes, prefixes and word derivations, and the list of the unfamiliar words (word glossary) was also provided to the learners when attending the TBI sessions. These conditions made the differences at their lowest levels regarding the vocabulary aspect, except for the number of the word activities available on the CALL program and their qualitative features, not to forget the limited experience the learners met while working on the personal dictionary component. However, these differences had their value to the learners, and so they showed they preferred the CALL method remarkably more than the TBI one especially as the former helped them significantly learn more words.

Although there were preferences for the TBI method in some cases, learners’ responses showed that these preferences were greatly less than they were for the CALL method, and the raw data showed that although some learners were strongly preferring CALL regarding some items (Rank 5), they also positively responded to the same items in the case of TBI, but to a lower level of preference (Rank 4). Still, it was also noticed that the learners who showed satisfaction with the TBI method as it helped them improve their comprehension and vocabulary learning abilities were noticeably greater if compared to the number of learners who showed that kind of satisfaction with this method in the case of the reading speed aspect. This could be attributed to the fact that learners’ responses to
the comprehension multiple-choice questions were discussed now and then as the time permitted in each lecture. Those discussions usually included mental processes needed to learn how to understand or comprehend a reading text, and these processes which Irwin (1986) called metacognitive processes have their positive effects on improving comprehension. Because these discussions rarely took place in the CALL lectures where concentration was more on evaluating comprehension gained through practice, it was noticed that more learners felt that TBI instruction was also effective. The same condition also applies to the vocabulary learning aspect, and so more learners expressed their satisfaction with the TBI method for learning vocabulary.

Here it might be worth pointing out that the learners' opinions about the CALL and the TBI methods as expressed on the post-questionnaire Items 14, 15, and 18 were consistent with their reading speed, comprehension and vocabulary learning achievements as displayed earlier in Chapter 6. Furthermore, learners' responses to the post-questionnaire items may indicate that there would be significant relationships between the effectiveness of the CALL method and the instructional processes the learners met during the CALL sessions and the features of the CALL software that boosted the gains in learners' reading ability. According to the learners' point of view,

- CALL led to significant improvement in learners' reading abilities,
- CALL offered learners immediate feedback,
- CALL was featured by the quality and quantity of its activities,
- CALL enhanced learner autonomy,
- CALL kept performance records,
- CALL enhanced learner privacy and contacting teacher in private, and above all,
- CALL enhanced learner motivation to learn due to the above mentioned features and processes.

Issues relating to the relationships between these features and learners' preferences for the CALL method of instruction will be investigated in the following Section (7.3) and in Chapters 8 and 9.
7.3 Analysis of the Data Related to the Reasons for Learners' Preferences for TBI or CALL (Question Two)

This part of analysis attempts to answer the following question:
As expressed on the post-questionnaire and according to the learners' point of view what were the reasons for their preferences for the CALL or the TBI methods of reading instruction?

To answer this question, learners' responses to each item appearing in the post-questionnaire were tested to find out the associations between learners' liking of the two methods of instruction "Item 20: I like this method of reading instruction" and their responses to the rest of the items. However, because the distribution of responses were so skewed on both variables, statistical measures of association (e.g., Chi Square) were invalid as discussed in Chapter 3, Section 3.4.2. Therefore, comments concerning correlation and association are based on the frequency distributions. In light of learners' responses to the questionnaire items crosstabulations were produced (as described in Section 3.10) to investigate the levels of associations between the learners' responses to Item 20 on the one hand and the rest of the items on the other. The crosstabulations for all items are displayed in Appendices 7a and 7b and the selection that indicate strong associations are presented below in the form of clustered bar charts.

7.3.1 Vocabulary

To start with the vocabulary aspect, Items 1, 2, 3, &17 were aimed at collecting the data related to this aspect. The charts in Figures 7-1, 7-2, 7-3, & 7-4 show that liking the CALL method (Item 20) is remarkably associated with: Item 1 "Word Activities helped me learn words quickly/CALL", Item 2 "Word activities helped me become able to use the new words in real life situations/CALL", Item 3 "I was able to deal with a large number of word activities/CALL", and Item 17 "I learnt a large number of vocabulary items as a result of this method of instruction/CALL". As an example of this consistent association, Figure 7-1 shows that more than 120 students reported both that they strongly agreed that word activities during
the CALL session helped them learn words quickly and that they strongly agreed that they like the CALL method.

![Histogram for the association between learners' responses to Items 20 & 2](image1)

**Figure 7-1** Histogram for the association between learners' responses to Items 20 & 2

This level of association has been found almost the same with regard to Items 2, and 17 as shown in Figures 7-2 & 7-3, respectively. This means that learners' opinion that they like CALL is consistently associated with their strong agreement with the perceptions that through CALL: word activities helped them become able to use new words in real life situation and that they were able to learn a large number of vocabulary items due to CALL instruction.

![Histogram for the association between learners' responses to Items 20 & 2](image2)

**Figure 7-2** Histogram for the association between learners' responses to Items 20 & 2

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However, although most of the learners strongly agree that CALL enabled them to deal with a large number of word activities as displayed in Figure 7-4, some group of learners (17 learners) showed that they disagree with this perception but they also pointed out they strongly like CALL.

In the case of the TBI method, however, it has been noticed that there were no consistent associations between learners' attitude toward this method and their responses to the same items of the questionnaire. The chart in Figure 7-5 is given as an example to show this lack of association in the case of the TBI method.
17 I learnt a large number of vocabulary items as a result of this method of instruction/TBI

These associations lead to the argument that the learners felt that the CALL method of instruction was much more helpful in developing their vocabulary learning aspect than the TBI method. Still, it should be remembered that the TBI method of instruction was also helpful to some extent in this enterprise, especially in the case of becoming able to learn new vocabulary words outside the class time.

Consequently, the results of this section indicate that the learners had their own reasons for liking the CALL method of reading instruction. So, learners' preference for the CALL method of instruction with respect to the aspect of vocabulary learning was associated with the following reasons:

1. They were able to deal with a large number of word activities on the computer.
2. Word activities presented on the computer helped them learn words quickly.
3. They learnt a large number of vocabulary items as a result of the CALL method of instruction.
4. Word activities helped them become able to use the new words in real life situations.
7.3.2 Reading Speed

Moving to the association between learners' responses to Item 20 and those related to the reading speed aspect, it is also clearly shown in the crosstabulations of Items 5, 6, 8, 11, and 14 (Appendices 7a and 7b) with Item 20 that the vast majority of the students report they strongly like CALL and this is consistently associated with their responses to these items. The following five charts related to the reading speed items mentioned above show the levels of association.

The chart shown in Figure 7-6 shows that there is a consistent association between learners' responses to Items 5 & 20 as the vast majority of the students strongly agree that they like CALL and they also strongly agree that the 'eye movement' activity helped them improve their reading speed. However, no consistent association is found between the two items with learners' responses related to the TBI method.

This level of association is also clearly seen between Items 6 and 20. As displayed in Figure 7-7, the vast majority of the respondents strongly like CALL and they also strongly agree that the cognizance activity on computer helped them recognize words quickly. In the TBI situation, however, no consistent association was found.
Consistent association (although clearly less than in the previous items) between Items 20 and 8 is also noticed in Figure 7-8. In this case more than half of the respondents strongly agree and about 50 others agree with the statement that during the course, they practised speed reading, while reading for other subjects, and while doing leisure reading in Arabic and English alike and at the same time they strongly like CALL. In the case of TBI, this level of association was not discovered.

Again, a consistent association is also found between Items 20 and 11. Figure 7-9 shows that the vast majority of the learners, who strongly agree they like CALL, also strongly agree with the perception that they were able to fix the speed they liked before they started doing an exercise during the reading course. Similar to the other items, no
consistent association is found between the responses to the two items in the TBI situation.

In regard to the last item related to the reading speed aspect, Figure 7-10 clearly indicates the existence of a consistent association between Items 20 and 14. This chart tells that the vast majority of the learners strongly agree with the perception that their reading speed increased a lot as a result of CALL, and they also strongly agree they like this method of reading instruction. However, no consistent association is noticed in the TBI case.

These consistent associations between learners' (strong) agreement with the items related to the reading speed aspect in the case of CALL instruction and with the perception that they like the CALL method indicate that there is a strong relationship between the
In conclusion, these consistent associations helped us identify some of the reasons that affected learners' preference for the CALL method of reading instruction. These reasons can be summed up as follows:

1. Learners were able to see that their reading speed increased a lot as a result of the CALL method of reading instruction.
2. The 'eye movement' activity on the computer helped the learners improve their reading speed.
3. The cognizance activity on the computer helped the learners recognize words quickly.
4. The CALL method offered the learners the ability to fix the speed each individual liked before he/she started doing an exercise during the reading course.

7.3.3 Comprehension

Four items in the post-questionnaire (7, 9, 15, and 16) were closely related to the aspect of reading comprehension.

Learners' responses to Item 20 "I like this method of reading instruction" in the CALL case were found to be consistently associated with their responses to: Item 7 "The concentration activity helped me improve my understanding of words under the pressures of speed-reading", Item 9 "I liked to answer the comprehension questions due to the way they were presented to me", Item 15 "My ability to understand what I read improved a lot as a result of this method of reading instruction" and Item 16 "I have become more able to read longer texts as a result of this method of instruction". Respectively, Figures 7-11, 7-12, 7-13 and 7-14 display the charts related to the associations between these items and Item 20, and in all cases, except that of Item 16, it is seen that the vast majority of the students strongly agree that they like the CALL method of reading instruction and the
same time strongly agree with the perceptions included in those four items. However, in the case of Item 16 the level of association between it and Item 20 is clearly less than it is for the other three items. However, in the case of the TBI method, learners' responses do not seem to show the consistent associations between Item 20 on the one hand and the other four items related to the comprehension aspect.

Figure 7-11 Histogram for the association between learners' responses to Items 20 & 7

Figure 7-12 Histogram for the association between learners' responses to Items 20 & 9
And so, it could be argued that the comprehension activities on the computer and the way the those activities were presented on screen, the CALL concentration activities, and learners' belief that CALL enabled them to read longer texts in addition to the significant increase in their comprehension scores played an important role in boosting learners' preferences for the CALL method of instruction. Learners' preferences for the CALL method with respect to the comprehension aspect appear to be associated with the following circumstances:

1. They liked to answer the comprehension questions due to the way they were presented on the screen.
2. They believed that their comprehension ability improved a lot due to the CALL method.
3. The concentration activity on the computer helped them improve their understanding of words under the pressures of speed-reading.
4. The CALL method helped them become more able to read longer texts; the potential effect of this factor was the least among the four items because the level of association between it and Item 20 was comparatively less clear than it was for the other items.

7.3.4 General Items

As discussed earlier, there were some items (Items 4, 10, 12, 13, and 18) in the post-questionnaire that were aimed at collecting data from the learners about their attitudes toward the instructional techniques and circumstances that might have affected their learning achievements and satisfaction with the instructional methods implemented in this study. The crosstabulations presented in Appendices 7a and 7b and represented by the charts displayed below give a clear idea about the level of associations between each one of these items and Item 20 which reflects learners' agreement that they strongly like CALL.

![Figure 7-15 Histogram for the association between learners' responses to Items 20 & 4](image-url)
Figure 7-15 shows that the vast majority of the students strongly agree that during the CALL course they received the teacher's attention in classroom on one-to-one basis and those students also strongly agree that they like CALL. This association between the learners' responses to the two items is seen consistent in the CALL case and not in the TBI one as displayed in Figure 7-16.

![Figure 7-16 Histogram for the association between learners' responses to Items 20 & 4](image)

The same result applies to Item 10 as shown in Figure 7-17. The vast majority of the respondents strongly agree that they received immediate feedback as they responded to the different activities and the comprehension questions and that they also strongly like CALL. As in all previous cases, this consistent association noticed in the CALL situation has not been found in the TBI.

Also consistent associations are found between learners' responses to Item 20 on the one hand and the perceptions that CALL made it easy for the students to record their scores and results (Item 12; Figure 7-18) on the other hand. It enabled them to see the improvement in their reading abilities all through the CALL reading course (Item 13; Figure 7-18), and it allowed them to make inquiries and ask their teachers about what they did not understand in private (Item 18; Figure 7-19). For all items above, consistent associations were not indicated between these items and Item 20 in the TBI case.
10 I received immediate feedback as I responded to the different activities and the comprehension questions/CALL

Figure 7-17 Histogram for the association between learners' responses to Items 20 & 10

12 It was easy for me to record all results of the exercises I did during the course/CALL

Figure 7-18 Histogram for the association between learners' responses to Items 20 & 12

13 All through the course, I was able to see the improvement in my reading abilities by referring to the results of the exercises I did/CALL

Figure 7-19 Histogram for the association between learners' responses to Items 20 & 13

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18 This method of Instruction allowed me to ask about something I do not understand without other students hearing me having to ask/CALL

1. Learners believed that CALL enabled them to receive their teacher’s attention in the classroom on one-to-one basis during the course.

2. They believed that through CALL they were able to received immediate feedback as they responded to the different activities and the comprehension questions.

3. They believed that CALL made it easy for them to record their performance and achievements.

4. They believed that CALL enabled them to see the improvements of their reading abilities all through the reading course.

5. They believed that CALL enabled them to make their inquiries and to ask about the things they did not understand without other students hearing them.

7.3.5 Discussion

The analysis of the post-questionnaire data showed that there were significant and consistent associations found between the perceptions measured by the post-
questionnaire items concerning aspects of the software and the instructional techniques used and the perception that the students like the CALL method. However, such consistent associations were not indicated in the equivalent TBI method of instruction. This indicated that learners’ preferences for the CALL method of instruction were highly associated with the effective activities and features of the CALL method, a case which did not occur in the TBI method.

These results clearly indicated the straightforward preference for the CALL method which depends on reading from screen rather than the TBI method that depends on reading from paper. This result is consistent with the findings of Egan et al (1989), who found that the participants of their study preferred dealing with statistics texts presented on computer rather than those texts presented on paper. The results of Muter and Mautretto (1991) are also consistent with the results of this study, although their study was conducted more than 10 years ago before the great improvements in CALL designs and screen production. Above all, learners’ preference for the CALL method of instruction and its consistent association with the perceptions that the CALL method helped them increase their reading speed significantly, as well as their comprehension and vocabulary abilities, is a key factor that needs further investigation into the relationship between these perceptions. Such an investigation was carried out through personal interviews with the students of the second experiment, and the results are presented in Chapters 8 and 9.

Here, for example, it was noted that there is a strong association between the perception that the learners strongly agree they like CALL and the item that CALL provides learners with immediate feedback which allows each student to see his/her developing mastery or progress. This is consistent with Davies and Crowther's (1995) argument that the key factor in generating positive student attitudes toward CALL is to ensure that learning through CALL is “intellectually stimulating and leaves students confident that they have improved or made good use of their developing mastery of the language,” (p.4).
There were other less important but still effective features in learners' preferences for the CALL method such as recording performance easily on computer (a feature related to the key factor of learner awareness of progress mentioned above), the concentration activities, learner's ability to fix his/her reading speed before reading, asking the teacher in private, using words in real life situations, motivating participants to learn words outside lecture time, and improvement in learners' reading comprehension and vocabulary learning abilities.

These results also indicate that CALL instruction encourages learner autonomy, and this can be seen in learners' responses to Item 11 concerning the learner's ability to control the reading speed which were strongly associated with their preference for CALL as expressed in Item 20. These responses showed that the students like to fix their reading speed for themselves rather than having the teacher doing that for the whole group as one unit and this is consistent with Wishart's (1990) theory on the importance of a perception of control to learning from a computer.

Responses to Item 4 showed that the learners also like to receive teacher's attention on one-to-one basis. Moreover, it was noted that CALL instruction takes into consideration learner's privacy through providing the learner with private feedback that can be recorded safely for future reference to be accessed by the individual and the teacher. This feature of learner privacy had been emphasized by the learners themselves when most of them agreed that the CALL course enabled them to make private contact with the teacher on one-to-one basis and confirms findings by Schoepp and Erogul (2001) and Underwood and Brown (1997) that using computers enables each individual to introduce his/her questions to teachers without being heard by other learners.

Having shown that all the perceptions included in the post-questionnaire are strongly and consistently associated with learners' liking the CALL method, could indicate that there is a kind of cause and effect relationship between these two aspects, Chapters 8 and 9 of the qualitative data analysis will be investigating the reasons for enhanced learners'
preference for the CALL method of reading instruction over the TBI method. In these two chapters, the relationships between the CALL features like immediate feedback, privacy, learner autonomy, continuous improvement and the way material is presented on screen, which are strongly associated here with learners' preference for CALL, are explored further
Chapter 8 Data Analysis for Personal Interviews (I)

8.1 Introduction

Analysis of the data collected through the personal interviews with a random sample of 36 learners (see Section 3.2.2.3 of Chapter 3) of those who attended the reading course of Experiment II will lead to answers to the following questions:

1. As expressed in the personal interviews, did the learners believe that their reading speed, reading comprehension, and vocabulary knowledge increased significantly as a result of the reading course they attended?

   - For the learners who responded with “Yes”, was it the teacher- or the computer-based method of instruction that caused the significant increase in their reading speed, reading comprehension, and vocabulary knowledge? And what were the reasons for that increase according to those learners?

   - For the learners who responded with “No”, what were their reasons?

2. As expressed in the personal interviews, what were the features and functions that characterised the instructional method the learners believed to have caused the significant improvement in the three target reading aspects?

3. As expressed in the personal interviews, what were the changes suggested for improving the instructional method that caused the significant increase in learners’ reading abilities?

Part II of the post-interview schedule (see Appendix 6) included the main questions of the interview. In this part, each question including its sub-questions dealt with one of the
three target reading aspects. In fact, the interviewees’ responses to the first two sub-items of question one of the surveys which asked whether they believed their reading abilities improved significantly or not and about the instructional method that helped them achieve that improvement were predictable from the responses of the same participants to the post-questionnaire items tackled in Chapter 7.

However, the presence of these two items in the survey was important for technical purposes which mainly aimed at establishing a logical sequence in the flow of the questions to lead the interviewees to talk about the target aspects of the reasons after the improvement that took place in their reading abilities. It also aimed at helping the learners talk about the good features and factors that characterised the instructional methods they experienced in the reading course, and finally to talk about the changes and modifications they would like to suggest for improving the instructional method that caused the significant improvement in their reading abilities.

As the process of interviewing the target learners finished, the researcher treated the data as described in Section 3.2.2.3 of Chapter 3.

Concerning the first two sub-questions that asked whether the learners believed that their reading ability improved or not, and if improved, which reading method contributed most to that improvement, the responses were very straightforward as the interviewees were to respond with ‘Yes’ or ‘No’ for the first part, and the ‘CALL’ or the ‘TBI’ methods for the second part.

8.2 Increases in Reading Ability (Question One)

Since each question of the three that appeared in Part II of the interviews survey dealt with the three aspects of reading speed, reading comprehension, and vocabulary learning, this qualitative analysis of the interviews data will follow the same sequence of the interview survey; i.e. participants’ responses to each question will be dealt with in regard to the three target reading aspects.
8.2.1 Did learners believe their reading abilities increased significantly?

When the participants were asked the question, "Has your reading speed increased significantly as a result of the reading course you attended?" 34 of the 36 interviewees answered "Yes," and only two of them answered "No". The same responses were also noticed when the learners were asked the questions with regard to the comprehension and vocabulary learning aspects. These responses to such direct questions showed that most of the learners were aware of the significant increase or improvement that took place in their reading speed, reading comprehension, and vocabulary knowledge, and so their responses were very explicit and definite. For example, some of the interviewees not only answered with "Yes", but they also emphasised their positive responses by saying: 'Definitely. Yes', 'Certainly. Yes', 'Yes, for sure' or 'There is no doubt in that'.

On the other hand, it has been noticed in the interview data for this question that only two respondents expressed that they did not notice a significant improvement in their abilities in the three target reading aspects. The same two respondents responded to the three questions with "No", or sometimes with "No, I have not noticed that remarkable increase", or "No real progress happened".

8.2.2 Responses for learners who did not notice significant improvement in their reading abilities

Interviewees' responses showed that only two of them made the comment that they did not notice a significant improvement in their reading ability after attending any of the two reading courses. And so, there was no need to ask them about the instructional method that contributed most to the improvement of the reading ability. When asked the second part of the question about the reasons for being unable to improve their reading abilities, one of those two participants answered, "There is no use of reading without understanding, I could not fully understand what I read."
On the other hand, the other response of the second interviewee looked interesting. He said that reading is boring for him, and so it can be argued that his attitude toward this language skill prevented him from real involvement in the reading course. This lack of motivation for reading is vital for learning achievements as argued for by researchers (such as Prince, 1996; Davis, Bagozzi and Warshaw, 1992) and therefore this learner's reading achievements could have been seriously affected by this lack of motivation factor. However, this learner described the cognizance activity as an interesting one especially if done on the computer. This implies that this learner needs special care in order to achieve some kind of change in his motivation and attitude towards learning to read, and perhaps in his evaluation of his competencies and abilities or what is called self-efficacy, which is argued to have its own effect on learners’ willingness to learn (Yi and Hwang, 2003).

This second respondent pointed out another reason closely related to motivation. He said that he did not like reading the novel. This indicates that different types of reading texts should be offered for learners so that it would be possible for individual learners to choose the text that attracts their interest. This issue will receive further clarification in Chapter 10.

The last reason this respondent gave was that he was not given enough training on using the CALL program. Although only this learner pointed out this reason, still it would be important to identify the areas that need more training so that teachers and designers could pay special attention to the training component before the real start of a CALL session. This part will also be discussed in detail while dealing with learners’ suggestions for improving the instructional methods in Chapter 10.

8.2.3 Which instructional method contributed most to the significant improvement in the three reading aspects?

In response to this question, data showed that all the 34 respondents to the questions of the interview expressed it was the CALL method of instruction that contributed most to
the significant improvement in their reading speed, reading comprehension and vocabulary knowledge abilities. In fact, none of those 34 learners attributed the significant improvement to the TBI method of instruction.

This result as indicated at the beginning of this chapter was expected, and it is consistent with learners' responses to the post-questionnaire of attitudes which were tackled in Chapter 7. Therefore the next step is to investigate the reasons behind the learners' belief that it was the CALL method of instruction that contributed most to the significant increase or improvement in their reading ability in the three reading aspects.

8.2.4 Why CALL was chosen as contributing most to reading improvement

Before going into details, it is worth indicating that the tables dealing with the themes coded from the data collected through the personal interviews are laid out in the same format in this chapter and this also applies to the corresponding tables of Chapters 9 and 10. The first column presents the id numbers of the themes, and then the themes proper appear in the second column. The number of the interviewees who reported each theme is shown in the third column under the heading "Frequency".

8.2.4.1 Reading Speed

Table 8-1 below shows the reasons the learners gave and the number of learners pointing out each reason, starting from the highest level of frequency (22) and ending with the lowest level (3). As shown in this table, the 34 interviewees gave eight reasons in response to the question why the CALL method was chosen as contributing most to learners' reading speed improvement.

Table 8-1 shows that 22 of the interviewees said that their reading speed increased much more with the CALL session than it did with TBI one and so the significant increase in their reading speed was due to the CALL method of instruction. This was the most frequent comment but only made up 24% of the total number of comments made.
Table 8-1

Learners' reasons for choosing CALL as the most effective for improving their reading speed

<table>
<thead>
<tr>
<th>No.</th>
<th>Theme</th>
<th>Frequency of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My reading speed was increasing much more with the CALL session than it did with TBI one</td>
<td>22</td>
</tr>
<tr>
<td>2</td>
<td>I enjoyed working on the different reading speed activities of the CALL program</td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td>I was able to see the continuous increase in my reading speed during the CALL session through immediate feedback</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>Learning through the CALL program gave me the chance to work on my own pace and to be more independent (autonomy)</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>I like learning through computers</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>It was possible for me in the CALL session to get the help of the teacher in a more relaxed and private situation</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>The reading speed activities of the CALL program made it easier for me to increase my reading speed level</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Working on the warm up activities on the CALL program was fun because it was just like playing games</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>93</td>
</tr>
</tbody>
</table>

The second most frequent reason cited 19 times, which made up 20% of the total number of the reasons made, was that the interviewees enjoyed working on the different reading speed activities of the CALL program.

The third reason given by 14 respondents was that each learner was able to see the continuous increase in her/his reading speed during the CALL session through the immediate feedback offered by the computer; this reason made up 15.1% of the total number of the reasons. Reason 4 had the same frequency level as Reason 3. Fourteen of the interviewees believed that learning through the CALL program gave each individual the chance to work on their own pace and to be more independent.

The other less frequent reasons were as follows: eight of the respondents felt that they in general liked learning through computers and so they were able to increase their reading speed much more with the CALL method; seven of the respondents pointed out the reason that it was possible for each individual in the CALL session to get teacher's help.
in a more relaxed and private situation; six of them made the comment that the reading speed activities of the CALL program made it easier for them to increase their reading speed level; and as a last minor comment, three of the respondents felt that working on the CALL warm up activities was fun and just like playing games.

### 8.2.4.2 Reading Comprehension

Concerning the reading comprehension aspect, and following the same procedure as in Section 8.2.4.1, Table 8-2 below displays the reasons that the learners pointed out.

<table>
<thead>
<tr>
<th>No.</th>
<th>Theme</th>
<th>Frequency of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>There was a continuous increase in my reading comprehension scores all through the reading course due to the CALL session</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>I liked the comprehension exercises available on the CALL program</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>I liked the way the comprehension questions were presented on the computer screen</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Correcting my wrong answers to the comprehension questions was very helpful in creating a better understanding of the reading texts</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>The immediate feedback to my answers to the comprehension questions was very helpful in creating a better understanding of the reading texts</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>I like learning through computers</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>The CALL session was fun and I enjoyed it</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>The CALL program made it easier for me to tackle the comprehension questions</td>
<td>4</td>
</tr>
</tbody>
</table>

When the 34 interviewees were asked about their reasons for claiming that it was the CALL method of instruction that helped them improve their reading comprehension ability significantly, Table 8-2 shows that they gave eight reasons. The first reason as 18 participants pointed out was because all through the CALL sessions they were made aware of the continuous increase in their reading comprehension scores.
Other reasons frequently given were as follows: 11 interviewees liked the comprehension exercises available on the CALL program; ten interviewees liked the way the comprehension questions were presented on the computer screen; also ten interviewees felt that the correction of their wrong answers to the comprehension questions by the CALL program was very helpful in creating better understanding of the reading texts; and nine interviewees said that the immediate feedback to their answers for the comprehension questions was also very helpful in creating better comprehension. A good number of interviewees (seven) made the comment that they in general like learning through computers.

Moreover, a few interviewees (four) made the comment that the CALL session was very interesting and they enjoyed it; and the last comment made by the same number of interviewees was that the CALL program made it easier for them to tackle the comprehension questions.

### 8.2.4.3 Vocabulary Learning

As far as vocabulary learning is concerned, the interviewees mentioned six reasons to the question of why they thought the CALL method of instruction helped them improve their vocabulary knowledge significantly.

<table>
<thead>
<tr>
<th>No</th>
<th>Theme</th>
<th>Frequency of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I was learning more vocabulary items during the CALL session</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>I enjoyed working on the word activities available on the CALL program</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>The enormous availability of the word activities on the CALL program offered me a greater chance to work on those activities</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>I like learning through computers</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>I liked the way the word activities were presented on the screen</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Working on the word activities on the CALL program was fun</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>82</strong></td>
</tr>
</tbody>
</table>
As shown in Table 8-3, 25 interviewees said that it was the CALL method of instruction that contributed most to the significant improvement in their vocabulary knowledge because they felt they learnt more vocabulary items during the CALL session. This was the most frequent comment and made up 29% of the total number of comments. Other comments were frequently made. Comment 2 was made by 18 of the interviewees and it was related to the enjoyment of working on the word activities available on the CALL program. Also 16 interviewees made the comment that they were provided with a wide range of word activities by the CALL program and that made it possible for them to practise more on those activities.

Other less frequent but interesting comments were made by the learners. As shown in Table 8-3, nine interviewees made the comment that they in general enjoyed learning through computers. Seven learners also said that they liked the way the word activities were presented on the screen. Another interesting comment made by seven interviewees was that working on the word activities on the CALL program was fun because it was just like playing games.

However, it was noticed that none of the interviewees mentioned the ability to make their own personal dictionaries as being helpful. Although the presence of this facility on CALL programs is an important one, the interviewees did not mention it perhaps because they were not given the right time to work on it appropriately since it was a time consuming task as mentioned in Chapter 4, and in the discussion sections of Chapters 5 and 6.

8.2.4.4 Summary of Reasons

Learners’ belief that it was the CALL method of reading instruction which significantly helped them improve the three target reading abilities was attributed to many reasons as summarised in Table 8-4. This Table shows that there were some common reasons for the three reading aspects, or for two aspects, and there were some other reasons which were applicable to only one aspect of the three.
Initially, it has been noticed that eight reasons were pointed out in regard to the speed and the comprehension aspects, while six reasons were given in the case of the vocabulary aspect (Tables 8-1, 8-2 and 8-3). Table 8-4 also shows that while some of the themes (5, 6, 7 and 9) were pointed out in only one reading aspect, the rest were pointed out in two or three of the reading aspects, but with different frequency levels in most of the cases.
<table>
<thead>
<tr>
<th>Reason</th>
<th>Speed</th>
<th>Comprehension</th>
<th>Vocabulary</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. %</td>
<td>No. %</td>
<td>No. %</td>
<td>No. %</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuous improvement in reading ability</td>
<td>Continuous Improvement was taking place</td>
<td>22</td>
<td>23.7</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>See improvement via immediate feedback</td>
<td>14</td>
<td>15.1</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working on the reading activities on computer was enjoyable and fun</td>
<td>Enjoyment</td>
<td>19</td>
<td>20.4</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Fun</td>
<td>3</td>
<td>3.2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>22</td>
<td>23.6</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Preference for learn through computers in general (positive attitude)</td>
<td>8</td>
<td>8.6</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Well presentation of activities</td>
<td>10</td>
<td>13.7</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>Availability of wide range of activities on the CALL program offered a greater chance for more practice</td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>6</td>
<td>Learning independently</td>
<td>14</td>
<td>15.1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Correcting wrong responses</td>
<td>0.0</td>
<td>0.0</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>The &quot;ease of use&quot; of the reading activities on the CALL program made it easier for improving the reading ability</td>
<td>6</td>
<td>6.5</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Getting teachers' help in a relaxed and private situation</td>
<td>7</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>93</td>
<td>100.0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 8-4
Summary of learners' reasons for choosing CALL as the most effective for reading instruction.
Table 8-4 shows that the most frequently mentioned theme was about the continuous improvement in the three reading aspects that was taking place while the learners were attending the CALL session. This theme was expressed in two different ways. The first refers to the continuous improvement that the learners were witnessing in their reading ability, and it made up an average of 26.3% of the all the comments made. The second theme (although much less frequent than the first: 9.1% of the comments made) echoed the first one, but with more emphasis on immediate feedback as a feature of the CALL program that enabled the learners to witness that continuous improvement. This compound theme or reason formed an average of 34.1% of the entire themes made. Moreover, the frequency of occurrence for this theme was higher for speed and comprehension (38.9% and 37.0%, respectively) than for vocabulary (30.5%).

The other comment that appeared as an important reason in the three reading aspects was related to learner enjoyment when learning through the CALL method on one hand, and to the feeling that it was fun to work on the CALL program because it looked as if they were involved in sort of a language game, on the other hand. As shown in Table 8-4, this reason also made up about a quarter (24.9%) of the whole comments the learners pointed out. Although the frequency of occurrence of the enjoyment factor was high in the three reading aspects, learners’ comments indicated that they enjoyed working on the word activities (30.5%) more than working on the speed (23.6%) and the comprehension (20.6%) ones. Enjoyment to work on the speed activities was also noted more than it was with the comprehension ones.

The third comment of the respondents was concerned with their general preference for learn through computers. This comment was noted in the three reading aspects but with slight levels of differences. While the frequency level was the highest in the vocabulary aspect (11.0%), it was a little bit higher in the comprehension aspect (9.6%) than in the speed one (8.6%).
The next reason the interviewees pointed out was that they thought the word activities and comprehension questions were presented well. This comment constituted 7.4% of the whole number of comments as shown in Table 8-4. While this comment was not mentioned in the case of the speed aspect, its frequency of occurrence was higher in the comprehension aspect (13.7%) than it was for the vocabulary one (8.5%).

The wide range of the word activities available on the CALL program was the next reason that represented 6.5% of the total number of reasons pointed out. Learner autonomy was the next reason that appeared in some responses of the interviewees. The respondents felt that the reading speed activities on the CALL program helped them improve their ability to learn independently. This comment (Item 6) formed about 5% of the total number of comments made in this section as shown in Table 8-4.

Table 8-4 also shows that the learners pointed out other reasons which made the CALL method contribute most to the progress in their reading ability. Although these reasons looked less important in terms of the level of frequency, they continue to be interesting. The first of these was that the CALL program was correcting learners' wrong comprehension responses (Item 7), a reason which is closely related to the first reason of the immediate feedback that the program offered for the learners. Nothing related to this comment was made in the cases of the speed and the vocabulary aspects. This comment made up 4.6% of the whole comments made. In the next comment (Item 8) the participants commented on the importance of the ease-of-use factor (with respect to the speed and the comprehension activities) on the CALL program for improving learners' reading ability. This comment made up 4% of all the comments made.

The last reason noted to affect interviewees' belief that the CALL method of reading instruction was much more effective for improving their reading ability was that it helped them get teachers' help in a relaxed and private situation (Item 9). This reason represented only 2.7% of the total number of comments made.
All the themes demonstrated in this section, which are clearly shown in Table 8-4, were coded only from the interviewees’ responses to Question 1 that aimed at identifying the reasons for the learners’ belief that the CALL method contributed most to the improvement in their reading ability. Many of these themes will be seen again in the Section 8.3, which is specified for identifying the features characterising CALL instruction.

**8.2.4.5 Discussion**

Going through the interviewees’ responses it could be noticed that a high percentage of their comments were related to what could be called the usefulness of the CALL method of reading instruction; that is to say the CALL method contributed most to the significant improvement in the learners’ reading abilities in regard to speed, comprehension, and vocabulary.

As demonstrated in Section 8.2.2.4, it has been noticed that there were some comments, which not only were common between the participants’ responses to the interview questions across the three target reading aspects, but also were relatively more frequently mentioned by the interviewees.

Item 1 was one of those common comments as shown in Table 8-4. The theme in this item tackles the factor of the remarkable continuous improvement in learners’ reading ability (across the three aspects) that the CALL method of instruction caused. The frequency of this reason or comment formed 35.4% of reasons or comments made to show why the learners felt that the CALL method was more effective for reading instruction than the TBI method. The importance of this theme lies in the fact that the learners expressed that through the CALL program they were continuously made aware of the progress they were gaining through the immediate feedback they received by the CALL program while working on the reading activities. Interestingly, this factor of the enhanced visibility of the learners’ achievements which were always in progress has not been pointed out so obviously in previous research. As discussed earlier in Chapters 1 and 2, three of the most common factors that have been argued for as determinants of the
effectiveness of educational software programs are learner control of the program, availability of challenge and complexity on the software program (Wishart, 1990; Underwood and Underwood, 1990). Results of this current study shed light on this fourth factor of learner awareness of the progress being achieved due to the enhanced visibility of their achievements on the CALL program.

Learners' comments regarding the immediate feedback are closely related to their comment about the enhanced visibility of their achievements which made their awareness of progress clearer to them. The learners expressed that this immediate feedback via the CALL program helped them to improve their reading speed and comprehension remarkably. They believed that the immediate feedback feature of the CALL program was one of the features that emphasises the effectiveness of the CALL method for reading instruction. This point of view of the participants is consistent with the findings of different research studies such as Gordijn and Nijhof (2002) and Kulik and Kulik (1988) which emphasise the effectiveness of immediate feedback in the process of learning. The results are also compatible with what Gordijn and Nijhof (2002) reported about Linden's (1998) argument that "the application of immediate feedback is preferable ......[and it is] an important function of computer-based instruction." (p. 198).

The fact the CALL program was correcting learners' wrong responses (Item 7, Table 8-4), which was pointed out as a theme by ten interviewees (Table 8-2) in the case of reading comprehension was also consistent with other research indications. It might be reasonable to add it to the first compound theme that indicated how much important was it for the learners to be aware of the continuous improvement they were achieving in their reading ability, an awareness that was made possible through the program's immediate feedback to the learner. Bangert-Downs, Kulik, Kulik and Morgan, (1991) and Rosenshine (1995) argue that this immediate correction helps them create better learning outcomes of target materials. To the interviewees of this current study, immediate correction of wrong responses was noted as more important for the comprehension aspect, as they only pointed it out in the case of the comprehension aspect. The learners
felt that when the computer immediately corrected any wrong response for the comprehension questions they fed it with; it helped them create better understanding of the reading material.

Further related to the effectiveness of the CALL method of instruction, were also the comments that talked about the issue of enjoyment. When talking about the three reading aspects the interviewees used different ways to reflect that their enjoyment of the CALL session in general, or to some one or more characteristics of it made the CALL method of reading instruction contribute most to the improvement in their reading ability. In this regard, many themes were noted as being related to this learner enjoyment of the CALL method:

1. I enjoyed working on the different reading speed activities of the CALL program (19 respondents, Speed: Table 8-1).
2. I like learning through computers (eight respondents, Speed: Table 8-1), (seven respondents, Comprehension: Table 8-2) and (nine respondents, Vocabulary: Table 8-3).
3. Working on the warm up activities on the CALL program was fun because it was just like playing games (three respondents, Speed: Table 8-1).
4. I liked the comprehension exercises available on the CALL program (11 respondents, Comprehension: Table 8-2).
5. I liked the way the comprehension questions were presented on the computer screen (10 respondents, Comprehension: Table 8-2).
6. The CALL session was very interesting and I enjoyed it (four respondents, Comprehension: Table 8-2).
7. I enjoyed working on the word activities available on the CALL program (18 respondents, Vocabulary: Table 8-3).
8. I liked the way the word activities were presented on the screen (seven respondents, Vocabulary: Table 8-3).
9. Working on the word activities on the CALL program was fun (seven respondents, Vocabulary: Table 8-3).

As demonstrated above in the list of themes from 1 to 9, it can be noticed that the learners directly expressed their enjoyment of some CALL activities in five themes, and an indirect enjoyment related to CALL learning was expressed in the other four themes. However, the interviewees' responses showed that they enjoyed the working on the word activities and the speed activities more than they did on the comprehension ones. This positive effect of enjoyment in learning through CALL on learners' reading gains as expressed in learners' responses indicates the relationship between "enjoyableness" and "effectiveness" of the CALL method of instruction which has been argued for by Stevens (1991) and Yi & Hwang (2003).

Therefore, it could be argued that learners' preference for the presentation of the word activities and the comprehension questions on the screen had its impact on their involvement with the CALL reading program, which might have its own impact on learning gains in turn.

These comments of the interviewees also lead to the argument that the presentation of the comprehension questions and the word activities on the screen was something the learners liked compared to their presentation during the TBI sessions. As far as the effect of the presentation of the activities on the computer screen, Table 8-4 shows that the learners allocated more influence to the presentation of the word activities than that of the comprehension questions, but the presentation of the speed activities or the warm up ones was not reported by the interviewees to have an effect. When the interviewees pointed out this reason they could have, for example, enjoyed the dynamic expressions that they saw on the screen while dealing with those activities. During the TBI sessions, those activities were presented on papers or on the board, as demonstrated in Chapter 3, and the learners were to respond by writing the target response on their papers or orally. During the CALL session, however, the stimulus was presented in an attractive way on the
screen and the learner was to click the target response using the mouse or by typing it and this was followed by an instant feedback and the next item to be tackled in the case of the warm up activities. The learners also experienced those dynamic expressions when they were dealing with the word activities on the computer through the highlighting of the sentence where the target word occurred when the learner put the cursor on it or vice versa. Malone (1980) (in Wishart 1990) called such highlighting indicators and the similar dynamic expressions or colour graphics (which could also be animated) the "complexity" of the software program. This complexity feature of the CALL program stirred up learner curiosity and so led to higher level of involvement in the learning process as it was also found by Wishart (1990).

Learners' preference for learn through computers had its own effect on enhancing the effectiveness of the CALL method of reading instruction. This reason appears as the third most important theme in Table 8-4 and it represented 9.3% of the total occurrences of the themes. This reason confirms previous research results about the positive relationship between learners' attitudes towards CALL instruction and their learning gains (Davis et al, 1992; Fujieda & Matsuura, 1999; Levine, Ferenz, & Reves, 2000; Yi & Hwang, 2003).

The interviewees also spoke about the well-presented comprehension questions on the screen, which also had its impact on their motivation to learn to read through the CALL method of instruction. Away from the immediate feedback for the learner when working on those comprehension questions, the complexity factor (colourful presentation of the screen, the stimuli, and the feedback) also had its positive effect on learner motivation and curiosity. These comments related to the well-presented word and warm up activities are found consistent with the result of Wishart's (1990) study. Graphic or visual complexity of the CALL program leads to higher learner curiosity; that is to say high motivation and deeper involvement with computer learning programs. To the interviewees of this study, this was one important reason that strengthened their belief.
that the CALL method of instruction helped them significantly improve their reading ability.

Learner autonomy (ability to work independently on the CALL program) especially in the reading speed aspect which appeared in Item 6 of Table 8-4 was another important reason for the learners to believe that CALL was more effective in reading instruction. This of course reflects that attending the CALL course helped the learners gain a sense of responsibility toward their own learning, which is a good habit to improve (Brajcich, 2000; Ying, 2002). The comments the interviewees mentioned in this sequence are of course corresponding to the needs of the learners who find themselves surrounded by all devices of technology and who prefer to have more learner autonomy and independency (Yagi, 1999; Little, 2002). Those comments are also consistent with the argument of Underwood and Underwood (1990, p.167) in the sense that when learners are able to pace their reading speed, that is to say, they have a sense of mastering the program and the learning "environment", or having control over it as Wishart (1990) refers to it, and this resulted in a higher level of motivation for learning. Again, pacing one's reading speed could be considered one important component of what Wishart (1990, p.149) referred to as the "challenge" factor in the CALL program which is an important feature of intrinsic motivation. So the learners of this current study felt that being able to fix a goal for themselves (by fixing the number of pages to read per hour) to achieve was something motivating and it led to more involvement with the CALL program of instruction and to higher levels of learning.

Learners of this study expressed that the greater availability of the learning materials on the CALL program has been considered as a determinant for the effectiveness of the CALL method. This is compatible with Kennedy's (1989) finding that there has been a growing interest in the use of the computer in language learning because of its capacity to handle a much wider range of activities than other educational aids. Therefore, this could be the reason why 16 of the interviewees made the comment that the wide availability of the word activities on the CALL program offered them a greater chance to work on such
activities (Table 8-3) and so improve their vocabulary knowledge. It might be important to note that the interviewees made this comment about the wide range of the activities available on the software only when the vocabulary aspect was tackled. This comment, surprisingly, was not made in the cases of reading speed and reading comprehension, although there was also the same range of activities related to those two aspects of reading.

Ease of use was another important reason that the participants thought made the CALL method more effective than the TBI one. It has been noted in Tables 8-1, 8-2 and 8-4 that a good number of interviewees (six and four learners respectively) made the comments that the CALL program made it easier for them to tackle the reading speed activities and the comprehension exercises but none of the interviewees mentioned this comment about vocabulary learning. This implies that working on the comprehension questions on the computer was easier for the learners than doing it during the TBI session. It also implies that dealing with the different reading speed activities was easier as well, because of different possible reasons. For example, the learners might have found it difficult during the TBI course to time their reading, to control the fixation time of the eye when reading and scrolling the reading text, to pace their reading, to record their learning performances and to maintain concentration and full attention to the teacher while working on the warm up reading speed activities. This theme of the ease of use that some of the interviewees pointed out as an important factor that helped them achieve better reading speed and comprehension rates has also been noted by previous research as a determinant of the usefulness of educational software packages (Venkatesh and Davis, 1996; Venkatesh and Davis, 2000).

Finally, there were the social and psychological reasons related to learners' understanding of the role of the teacher in the classroom. Seven the interviewees commented that the CALL method helped them to get the teacher's help in a more relaxed and private atmosphere. This comment was pointed while the interviewees were talking about the reading speed aspect, but nothing similar was noted in the cases of reading.
comprehension or the vocabulary learning aspects. In this sequence, Ryan, Gheen and Midgley, (1998) argue that avoidance of help seeking was related negatively to students' academic efficacy. This relationship between achievement and reluctance to ask questions or to ask teachers for help could imply that some learners do not want to ask for teachers' help so that other colleagues will not look on them as low achievers. Nevertheless, once the teacher attends to the learner's social and emotional needs (Ryan, et al, 1998) in a one-to-one basis of interaction, the learner becomes less reluctant to speak to the teacher and to ask him/her for help.

Therefore, it seems that the respondents were really having their own reasons which led them to believe that the CALL method of reading instruction was the method which helped them improve their reading ability significantly and so was more effective and useful for reading instruction than the TBI one. The next chapter identifies the features that characterise the CALL method of reading instruction from the learners' point of view. Some of the themes seen in this chapter appear again in the next chapter.
Chapter 9 Data Analysis for Personal Interviews (II):
Features that characterised the CALL method

9.1 Introduction: CALL Features

This chapter reports the results from questions in the personal interviews that aimed to identify the features that characterised the CALL instructional method as it was reported to be the most effective method for improving the reading abilities of 34 out of the 36 students interviewed. Identifying these features would support the factors pointed out in Chapter 8 with other important features and reasons that could justify why the CALL method of reading instruction was more effective and why it helped the learners of this study improve their reading abilities significantly more than the TBI method. In other words, this analysis of data aimed to answer the following question and discuss the responses the interviewees had given.

“As expressed in the personal interviews, and according to the learners’ point of view, what were the features and functions that characterised the instructional method they believed to have caused the significant increase in the three target reading aspects?”

This question has been introduced in the interviews three times, each of which dealt with one of the three target reading aspects separately to identify the features and factors that characterised the CALL method of reading instruction. The following sections in this chapter report the analysis of the collected data and the resulting themes that were coded with respect to the three target reading aspects. A discussion of the results follows in the last section.
9.2 Reading Speed

Going through the raw responses of the 34 interviewees to the question of the features and factors that characterised the CALL method of instruction and the CALL program concerning the reading speed aspect, 11 content themes were coded as shown in Table 9-1.

Table 9-1
CALL features and factors with respect to reading speed

<table>
<thead>
<tr>
<th>No.</th>
<th>Features/Factors (Speed)</th>
<th>Frequency of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The CALL program made it always possible to see my reading speed improvement</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>The CALL program was pacing my reading speed</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>The warm up activities on the CALL program were of great help for improving my reading speed</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>The CALL program enabled me to choose the page and the font sizes before starting reading a text</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>The 'reading without regression' feature on the CALL program had a positive effect on improving my reading speed</td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>Due to the nature of the reading speed activities on the CALL program, my ability to learn independently has improved a lot</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>The CALL program was notifying me of my adjusted reading speed as I finished doing a reading activity</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>The CALL program was designed in a way to provide me with plenty of the reading speed exercises</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>The CALL program made it possible for me to do more practice on the warm up activities</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>The CALL program made it possible for me to choose the reading speed I preferred before starting a reading activity</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>Although reading speed was highly considered while learning through the CALL program, comprehension and vocabulary were not overlooked</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>144</td>
</tr>
</tbody>
</table>

The first and second features appearing in Table 9-1 were the most frequent ones. A majority of 30 students pointed out each one of these features. Although all the features mentioned were interesting, the most important feature among them appeared to be the learners' belief that the CALL program made it always possible for them to see their speed reading improvement as they worked on the reading speed activities.
The same number of interviewees (30 students) pointed out the feature that the CALL program was pacing learners’ reading speed. This feature appeared to be considered as important as the first feature since both of them had the same frequency of occurrence. The next most frequently mentioned feature of the CALL method (by 22 participants making up 15.3% of the total number of comments) was that the warm up activities of the CALL program were of great help for improving the learners’ reading speed.

Table 9-1 also shows that there were other two features frequently pointed out by the interviewees. In those features (Items 4 and 5, pointed out 19 and 15 times respectively) the learners reported that the CALL program enabled them to choose the page size and the font of the reading text, and the positive effect of the ‘read without regression’ activity on improving the speed aspect.

Other less frequent but interesting comments or features were also pointed out by the interviewees. In Item 6, the respondents reported that the CALL program had the feature of encouraging them to improve their ability to learn independently, i.e., learner autonomy. Item 7, closely related to the first feature of being aware of improvement, dealt with the importance of having the CALL program notifying the learners of their adjusting reading speed as they finished a reading activity. The other two features (8 and 9) were directed towards the great availability of the reading speed and warm up activities, and the greater opportunity offered by the CALL program for learners to work on the warm up activities. And the last two items (10 and 11) were interesting features although only few interviewees pointed them out. For Item 10, four students reported that the CALL program offered them the chance to work independently by choosing the reading speed they preferred before starting any reading activity; a theme which is closely related to the sixth theme of learner autonomy. In the last feature, which is an important feature of the RapidReader that led to choosing it for the experiment, two interviewees said that although the reading speed aspect was highly considered in the CALL program, comprehension accuracy and vocabulary learning were not overlooked.
9.3 Reading Comprehension

Concerning the comprehension aspect, Table 9-2 shows that the 34 interviewees pointed out eight features and factors of the CALL method of instruction, and the total number of comments made was 104.

Table 9-2
CALL Features and Factors of with respect to reading comprehension

<table>
<thead>
<tr>
<th>No.</th>
<th>Features/Factors (Comprehension)</th>
<th>Frequency of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The CALL program provided me with immediate feedback on my answers to the comprehension questions</td>
<td>26</td>
</tr>
<tr>
<td>2</td>
<td>The CALL program corrected my wrong answers to the comprehension questions</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>The CALL program kept a record of my reading comprehension scores</td>
<td>17</td>
</tr>
<tr>
<td>4</td>
<td>The comprehension exercises were presented well on the screen</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>The CALL method made it more possible for me to work more independently</td>
<td>11</td>
</tr>
<tr>
<td>6</td>
<td>The CALL method made it possible to some extent to keep my privacy undisturbed as I was able to communicate with the teacher on one-to-one basis</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>The 'reading without regression' feature on the CALL program enabled me to read with more concentration and so with more comprehension</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>The CALL method made it possible for me to work continuously with very little interruption</td>
<td>4</td>
</tr>
</tbody>
</table>

Total 104

Twenty six interviewees noted that the CALL program had the feature of providing them with immediate feedback on their responses to the comprehension questions and this feature made up one quarter of the total number of comments. The second most frequent feature that made up 19.2% of the total comments was closely related to the first one on provision of immediate feedback. Twenty students said that the CALL program had the feature of correcting their wrong answers to the comprehension questions.
The other comments made frequently were: the CALL program kept a record of the learners’ comprehension scores (made by 17 interviewees); the comprehension exercises were presented well on the screen (made by 15 interviewees); and the CALL method made it more possible for the learners to work more independently (made by 11 interviewees).

There were other features of the CALL method, in relation to the comprehension aspect, which were interesting although only a few interviewees pointed them out as shown in Table 9-2. To a few interviewees, the CALL method enabled learners to some extent to keep their privacy undisturbed. Also the reading activity of “read without regression” was pointed out by a few interviewees as an important feature of the CALL program which they believed enabled them to read with more concentration and so with more comprehension. For a fewer number of interviewees, the CALL method made it possible for them to work continuously with very little interruption.

9.4 Vocabulary knowledge

For the vocabulary learning aspect, Table 9-3 shows that the 34 interviewees pointed out eight features and factors that characterised the CALL method of instruction they experienced, and the total number of comments made was 134.

Concerning the vocabulary learning aspect, keeping records of vocabulary scores achieved was the most important and most frequently cited feature of the CALL program as shown in Table 9-3. This feature was mentioned by 31 participants and it formed 23.1% of the total number of comments pointing out features. The second most frequent feature mentioned by 29 participants was that the CALL program offered the learners a large number of word activities to work on. Twenty-four interviewees also said that the CALL program had the feature of giving immediate feedback on their answers to the word activities.
Table 9-3
CALL Features and Factors of with respect to vocabulary learning

<table>
<thead>
<tr>
<th>No</th>
<th>Features/Factors (Vocabulary)</th>
<th>Frequency of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The CALL program was keeping a record of my vocabulary learning scores</td>
<td>31</td>
</tr>
<tr>
<td>2</td>
<td>The CALL program offered me a big number of word activities to work on</td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td>The CALL program had the feature of giving immediate feedback on my answers to the word activities</td>
<td>24</td>
</tr>
<tr>
<td>4</td>
<td>The CALL program had the feature of providing me with the correct answers when my responses were wrong</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>The CALL program made it possible for me to maintain some kind of personal privacy</td>
<td>11</td>
</tr>
<tr>
<td>6</td>
<td>Word activities were presented well on the screen</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>The CALL program made it easier and enjoyable to work on the word activities</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>The CALL session offered me the chance to work more independently</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>134</strong></td>
</tr>
</tbody>
</table>

Other features were also referred to frequently. Closely related to the previous feature of immediate feedback, 14 respondents pointed out that the CALL program had the feature of providing the learners with the correct answers when their responses were wrong. To 11 students, the CALL program was also offering the opportunity for the learners to maintain some kind of personal privacy. In the sixth item, a group of 10 participants believed that the CALL program had the feature of presenting the word activities well on the screen.

Although fewer numbers of participants mentioned the last two features, they looked interesting. Eight students reported that the CALL program made it easier and enjoyable to work on the word activities. Also seven of the interviewees said that this program offered them the chance to work more independently.
9.5 Summary of the Features

Table 9-4 below summarizes all the themes relating to the features of the CALL method of reading instruction as expressed by the interviewees. It shows that the interviewees identified 15 features of the CALL method that contributed toward its effectiveness. Two of these features were common between the three reading aspects but with different frequency levels. These were the ability of seeing improvement through immediate feedback (Item 1) and the enhancement of independent learning (Item 6). Some were common between two of the three reading aspect like items 2, 3, 5, 8 and 10. The rest were only applicable to one of the three aspects. Moreover, it has been noticed that the respondents pointed out 10 features of the CALL method concerning the reading speed aspect. However, eight features were pointed out in the cases of the reading comprehension and vocabulary learning aspects.

Table 9-4 shows that the most frequently reported theme was about learners' awareness of the progress taking place during the CALL sessions in their reading abilities. This theme represented 35.1% of the total number of comments the respondents made. A majority of the respondents (30, 26 and 24 students concerning speed, comprehension and vocabulary, respectively) pointed out that the CALL program enabled them to see the improvement they were achieving in the three reading aspects during the CALL sessions through immediate feedback. In the same sequence, 31 and 17 learners reported that the personal records on the CALL program enabled them to see the improvement they were achieving, respectively in the vocabulary and comprehension aspects. This theme has not been reported in the case of the reading speed aspect although speed records were also available for learners on the CALL program. Nevertheless, the respondents pointed out something related that characterizes only the speed aspect. Six learners mentioned that the CALL program had the feature of notifying the learner with their adjusted reading speed score as they finish a reading task. Overall, the interviewees believed that this compound feature of learner awareness of the progress in their reading ability made the CALL method more effective than the TBI method of reading instruction.
Table 9-4
Summary of CALL features with respect to the three reading aspects

<table>
<thead>
<tr>
<th>Feature</th>
<th>Speed</th>
<th>Comprehension</th>
<th>Vocabulary</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>1  Awareness of Improvement in the reading ability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeing improvement through the computer</td>
<td>30</td>
<td>20.8</td>
<td>26</td>
<td>25.0</td>
</tr>
<tr>
<td>Immediate feedback</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeing improvement through the computer records of performance</td>
<td>17</td>
<td>16.3</td>
<td>31</td>
<td>23.1</td>
</tr>
<tr>
<td>instant notification of the adjusted reading speed score after finishing a reading task</td>
<td>6</td>
<td>4.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>25.0</td>
<td>43</td>
<td>41.3</td>
</tr>
<tr>
<td>2  The CALL program instantly corrects learners' wrong responses</td>
<td>5</td>
<td>3.5</td>
<td>20</td>
<td>19.2</td>
</tr>
<tr>
<td>3  Availability of a wide range of activities on the CALL program offered a greater chance for more practice</td>
<td>30</td>
<td>20.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4  The CALL program paces learner's reading speed depending on performance</td>
<td>15</td>
<td>19.2</td>
<td>10</td>
<td>10.4</td>
</tr>
<tr>
<td>5  Language activities are well presented on the CALL program</td>
<td>11</td>
<td>10.6</td>
<td>7</td>
<td>5.2</td>
</tr>
<tr>
<td>6  CALL enhances independent learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7  CALL warm up activities are of great help for improving learner's reading speed</td>
<td>22</td>
<td>15.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8  The CALL activity 'read with no regression' enhances the reading ability</td>
<td>15</td>
<td>10.4</td>
<td>5</td>
<td>4.8</td>
</tr>
<tr>
<td>9  CALL enables learners to choose the page and the font sizes before starting reading</td>
<td>19</td>
<td>13.2</td>
<td>6</td>
<td>5.8</td>
</tr>
<tr>
<td>10 CALL caters for learner privacy</td>
<td></td>
<td></td>
<td>8</td>
<td>6.0</td>
</tr>
<tr>
<td>11 It is fun and enjoyable to work on the CALL reading activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 CALL enables learners to fix reading speed before reading</td>
<td>4</td>
<td>2.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 CALL enables learners to work continuously with very little interruption</td>
<td>4</td>
<td>3.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 CALL enables learners to do more practice on the reading activities</td>
<td>4</td>
<td>2.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 The three target reading aspects are integrated on the CALL program</td>
<td>2</td>
<td>1.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>144</td>
<td>100.00</td>
<td>104</td>
<td>100.00</td>
</tr>
</tbody>
</table>

255
A theme closely related to awareness of progress and immediate feedback was the CALL feature of correcting learners’ wrong responses to the comprehension and vocabulary word activities. As Item 2 shows in Table 9-4, 20 and 14 respondents for the comprehension and the vocabulary aspects, respectively, believed that it was good to receive instant correction of learners’ wrong responses by the CALL program.

Table 9-4 also shows that a good majority of the participants believed that there was a wide range of vocabulary activities available on the CALL program, and this was an important feature of the CALL method as seen in the third item.

The following important feature of the CALL program was pacing the reading speed for each individual depending on their performance. This feature was pointed out by the majority of the participants. However, it should not be understood that the RapidReader forces the reader to fix himself to the speed suggested by the program, but this could be considered as a good feature to catering for the individual differences between the learners. In fact the program leaves the decision to the learner to choose the suggested speed or to choose the speed s/he prefers, and this theme was mentioned by a group of 30 learners.

The high-quality presentation of the comprehension and the vocabulary activities was also reported as an important feature of the CALL program. Although this feature was not mentioned for the reading speed activities, 15 and 10 interviewees pointed it out for the comprehension and the vocabulary activities respectively, as shown in the fifth item.

The following important feature of the CALL instructional method was that it enhanced independent learning and learner autonomy. Although this feature formed only 6.5% of the total number of the features pointed out, it has appeared, as shown in Table 9-4: Item 6, as a feature that characterized the CALL program with regard to all three reading aspects.
The seventh feature of CALL comprised 5.8% of the total number of the features reported. Twenty-two learners said that the CALL reading instruction was featured by the warm-up activities on the computer which were very important for the progress in learners’ reading speed ability. The activity of “read without regression” on the computer was also viewed as an important CALL feature for 15 participants. The next most frequent CALL feature noted was that it enabled learners to choose the page and the font sizes of any reading text before starting to read it. This feature formed about 5% of the total number of the features pointed out. For the tenth feature that formed 4.5% of the total number of the features mentioned, a total of 16 interviewees mentioned that learner privacy was noticeably maintained during the CALL sessions.

For the rest of the features, which appeared less frequently than the previous ones, Table 9-4 shows that each of these was applicable to only one of the three reading aspects. Eight respondents pointed out that working on the CALL vocabulary activities was fun and enjoyable (Item 11). Four respondents mentioned the feature (Item 12) that the CALL program enabled each learner to fix the reading speed s/he preferred before starting the reading activity. For the thirteenth feature, four respondents mentioned that CALL enabled them to work continuously on the reading comprehension activity with very little interruption. The last two features were pointed out for the reading speed aspect. Four and two respondents respectively believed that CALL had the features of enabling learners to do more practice on the reading speed activities, and it integrated the target reading aspect so that learners could work on improving them together using one CALL program.

All of these themes were coded from the interviewees’ responses to the question about the features that characterized the CALL method of reading instruction. It has been noticed that there were some of the themes like those of learner awareness of the progress in the reading ability, the wide range of activities available on the program, the immediate feedback and correction of wrong responses, learner autonomy, and others were mentioned as both as reasons for and features that led to the effectiveness of the
CALL method of reading instruction. In many cases, it has also been noticed that some themes were common to the three reading aspects. Some others were applicable to two or even to only one of the three reading aspects investigated in this study as expressed by the interviewees.

9.6 Discussion

From the interviewees' point of view, the CALL method of reading instruction using the program RapidReader (RR) had many features and factors that made this method contribute most to the improvement in their reading ability. Those features and factors were recognised by the interviewees as major characteristics of the CALL method of reading instruction that the TBI method did not have up to the same level. Of course, some of the characteristics that the interviewees mentioned here could be applicable to the TBI method but the interviewees viewed them as more effective and useful in the case of the CALL method. Moreover, most of the features identified in this study are consistent with most of the features reported in previous research work; therefore, their appearance in this study confirms what has been indicated previously in this sequence.

The most important finding in this sequence of analysing learners' responses to the question relating to the features characterising the CALL method of reading instruction was the appearance of an additional factor as an important determinant of the effectiveness of this CALL method which has not appeared to be so dominant in previous research. This factor (Item 1) which is a compound feature appearing in Table 9-4 was the learner awareness of the improvement or progress in his/her reading ability. This awareness of improvement was attained through the immediate feedback the program offered about learner performance, through the confidential records that the computer keeps for each individual learner, and through the instant notification of learners' adjusted reading speed as s/he finished a reading activity. The fact that the program was instantly correcting learners' wrong responses (Item 2) could also be added to those means of helping learners be aware of their learning progress.
This CALL feature of learner awareness of progress through the computer facilities was the most important factor that determined the effectiveness of CALL over TBI in the reading sessions as expressed by the interviewees. As displayed in Table 9-4, this feature made up 35.1% of all the comments on features pointed out by the participants. On dealing with each reading aspect separately, it was noticed that the most frequent appearance of this feature of CALL was in the case of vocabulary learning, then in reading comprehension followed by the reading speed aspect.

Table 9-4 shows that it was important for the learners to see their performance records during the reading course kept on the computer as this helped them always to be aware of the learning progress achieved. This importance of keeping learners' performance records on the computer lies in the fact that learners found it easier to record their performances on the computer rather than using pencil and paper, and above that, those records enabled them to easily go through the details, which revealed all the events that took place on the software including the dates, the achievement scores, and the sorts of activities tackled by each individual. These records were viewed as important to learners since they could motivate them to keep working in order to accomplish better achievement. Learners' responses indicated that awareness of the learning progress through the performance records saved on the computer is related to the effectiveness of the CALL method of instruction; this theme was pointed out 48 times (12.6% of all the themes pointed out) (17 times for comprehension, and 31 times for vocabulary) by the interviewees of this current study. Such finding is consistent with Lin's (2003) study where Lin reports that the responses of the participants interviewed indicated that they liked to save their learning gains on the computer and that this was motivating for them.

Concerning learner awareness of progress through immediate feedback, the figures in Table 9-4 indicated that this feature was the most important determinant for the effectiveness of the CALL program in general because it represented 21% of the frequency level of the total number of the themes pointed out. It is also noticed that this theme was very important (with slight differences in the levels of importance) for the
three reading aspects. The importance of this theme was the highest for the reading speed aspect (mentioned 31 times), in the second position came the comprehension aspect (repeated 26 times), and finally it was for the vocabulary learning aspect (mentioned 24 times). In previous research it has been argued that immediate feedback is an important function of computer-based instruction because of its potential benefit (Gordijn and Nijhof, 2002) but the kind of potential benefit was not specified. However, learners' responses to the post-questionnaire items in this current study indicated that the importance of the immediate feedback of the CALL program lies in the fact that it enabled them to recognise and be aware that they were continuously achieving some progress in their reading ability. This continuous progress was due to the nature of the reading activities provided which were not too difficult or too easy; and so not allowing learners to get frustrated or bored. This indication was not directly and clearly reported in previous research studies.

Moreover, as shown in Table 9-4, the learner awareness of progress through instant notification of the adjusted reading speed for each user as s/he finished a reading activity was another important feature pointed out 6 times in the case of the speed aspect. Since this feature tackled the issue of reading speed, it is worth pointing out the last feature shown in Table 9-4 which indicated that two learners were interested in seeing the integration of the three target reading aspects while attending CALL sessions. This means that those two learners were aware of the fact that there was no use in reading very fast if the comprehension accuracy was not taken into consideration. Pointing out this CALL feature of the integration of reading comprehension and reading speed through the automatic calculation of the adjusted reading speed done by the RR software again supports the need to consider these two interrelated reading aspects together in any reading course. What makes this feature of the CALL program more important is that the learners themselves were aware of the fact that the two reading aspects of speed and comprehension are closely related to each other, and there is no use in improving one of them for the sake of the other, and this is consistent with the reading theory reported by Eskey (1986) and Hegelheimer and Chapelle (2000). Perhaps it deserves reminding the
reader here that during the TBI instruction, the integration of these two reading aspects was also considered, but after completing the reading activity, the learners themselves did the process of calculating their reading adjusted speeds, a process which the researcher noticed they did not like. That process of calculation was also time consuming and it occasionally lacked accuracy.

Table 9-4 also shows that there was one more theme related to learner awareness of progress through immediate feedback. In Item 2 the learners pointed out that the CALL program had the feature of instantly correcting (i.e. providing the learner with the correct answer) any wrong response to a question in a comprehension or word activity. Although this feature was more important for the comprehension aspect than it was for the vocabulary learning one as expressed by the participants, it did not seem to have that level of importance in the reading speed aspect according to the learners. Despite the fact that the respondents did not mention anything related to ‘awareness of learning progress’ in this theme, this meaning was implied there because logically speaking, once the computer was alerting the learner that the response given for a question was wrong, and the correct answer was X, it meant that this learner was made aware of their learning status and so of their learning progress. Learners’ point of view in this study is inconsistent to some extent with what Lewis (1995) indicated in the study of the effectiveness of implementing Integrated Learning Systems (ILS) in schools. In her study, Lewis found that children’s great consciousness of their results, especially about wrong responses had a negative effect on their learning. This inconsistency of findings relating to this current study and that of Lewis could have been affected by the learners’ age and their maturity. Lewis’s participants were young children at primary schools and her finding was more applicable to children with emotional and behavioural difficulties. Moreover, because the computer program in Lewis’s study was not giving the children the correct answers in the cases of being fed with wrong ones, children tended to make random responses, a learning process that she argued was de-motivating and led to frustration. However, in this current study, the CALL program gave instant correction for
the wrong responses, and so this could be the reason why the learners liked this factor of correcting wrong responses.

This study showed that the learners preferred to receive immediate feedback to their responses to the different reading activities, and to receive instant corrections to their wrong responses in that process. They also preferred to see the score they gained instantly as they finished working on an activity as this helped them take the appropriate decision regarding the next reading enterprise. In addition to that, they preferred to have the computer keep a record of their learning performances and their scores so that they can refer to those records and reflect upon their learning achievements and strategies. Consequently, from the learners' point of view, this study showed that learner awareness of their learning progress through the immediate feedback, the correction of wrong responses, the notification of reading adjusted speed scores achieved, and the performance records on computer, were all important features of the CALL method of instruction.

The interviewees of this study pointed out many other important features which were consistent with the previous research findings. However, this study tried to identify the importance of each of those features in relation to the three target reading aspects.

As shown in Table 9-4, the interviewees viewed the huge availability of more vocabulary and speed activities in the CALL instructional method as an important determinant of its usefulness. Consequently, it could be argued that the availability of the word and warm up or speed activities on the CALL program was an important feature of the CALL method of instruction. This finding supports the previous research findings of the effectiveness of CALL instruction as it offers learners the chance to handle a wider range of activities than the TBI methods of instruction (Kennedy, 1989). And once learners are given the chance to work more on those activities their performance becomes better and better since practice makes perfect (Underwood and Brown, 1997). Added to the feature related to the large number of the language activities available on the computer, some of
the interviewees described those language activities, and especially the warm up ones, as more effective than those of the TBI instruction in terms of quality and quantity. Although the learners in the TBI session were exposed to all of those types of activities as demonstrated in Chapter 3, it was not possible for the teacher in the TBI lectures to offer these activities to the learners in the same way as was done during the CALL sessions because of many logistical reasons, such as the time component. In the CALL case, once the instructor prepares the learning material, it will be saved on the computer to be used by different cohorts in different times and terms.

The CALL method of instruction was also characterised by two other features related to the availability of activities as reported by the interviewees. The first additional activity that characterised the CALL method in the reading speed aspect only according to more than half of the interviewees was that it offered the learners the chance to 'read without regression'. When choosing to do this activity, the learner read a text without being given the chance and the time to refer back to the text to reread some word(s), phrase(s) or sentence(s) covered before, and this was a difficult activity to carry out in the TBI sessions. Readers usually do this regression action to reconfirm their understanding of a text they have read or part of it, or to obtain an understanding that has not been achieved. A good number of learners believed that practising this reading without regression activity had a positive effect on improving their reading speed since it enabled them to concentrate more while reading and so to achieve better comprehension. This point of view of the participant is consistent with Buzan's (1988) argument that reducing the habit of reading regression enhances reader's speed levels because to him this reading habit is known to hinder reading speed as well as comprehension.

As shown in Table 9-4 (Item 4), 30 interviewees reported that the CALL program had the feature of pacing the reading speed for each individual; and this feature occurred only in the case of the reading speed aspect. This feature of the CALL program means that the software determined the reading speed goal for the learner depending on their previous achievement calculated from the two aspects of speed and comprehension accuracy. In
the TBI sessions, it was the teacher who determined the reading speed goal for the whole class as a unit depending on their average reading speed achievement, and while reading the teacher made the indication that the learners were to move to the next page. However, during the CALL session, the CALL program was giving the learners the opportunity to learn according to their own individual styles, reading abilities and preferences, and this factor has been identified by researchers (such as Schoepf and Erogul, 2001 and Benson and Voller, 1997) as a basic feature for making instruction successful. Even when a learner wanted to fix the reading speed goal on his/her own regardless of the previous gains, the program was responsive to this wish, and that could be the reason for a few of the interviewees to point out this characteristic as an important feature of the CALL method of reading instruction (Table 9-4). They said in Item 10 “The CALL program made it possible for me to choose the reading speed I preferred before starting a reading activity.” In fact previous research argued for the importance of this factor as it gives learners the chance to control their learning by choosing the reading speed level they prefer so to be more involved in the learning process (Wishart, 1990; Underwood and Underwood, 1990).

Closely related to the feature of being able to control one’s own learning and to choose among different options was that CALL instruction encouraged learner autonomy and independent learning. More than two thirds of the interviewees reported that CALL instruction helped them improve their ability to learn more independently depending on the interactive environment between each learner and the computer, which has also been indicated by Lim and Chan (2004). This feature was reported by the same number of learners (seven interviewees) in both of the speed and the vocabulary aspects, but it received more importance in the comprehension aspect as 11 of the interviewees reported it. Consequently and as discussed in Chapter 1, when learners take the responsibility for their learning they become more independent and more autonomous learners and so achieve better learning gains (Brajcich, 2000; Ying, 2002).
Under the same theme of independency, 17 interviewees mentioned that the CALL method of instruction had the feature of maintaining some kind of learner privacy. This might be an important feature as it is related to the affective domain, which is known to make a difference for language learners and to be an important determinant of achieving learning goals (Schoepp and Erogul, 2001; Underwood and Brown, 1997). Underwood and Brown (1997) for example, found that students mentioned the enjoyment of working at their own pace and in private when investigating pupils’ motivations to use an Integrated Learning System. In fact, this feature of the CALL instructional method using the RR was expected to be pointed out especially by the learners who did not like their mistakes and achievement scores to be noticed by their peers, or for those who felt shy to ask about something unclear to them. Therefore, it was noted that, among the themes that some of the learners mentioned, the reason for preferring the CALL method of reading instruction was that it enabled them to contact their teacher on a one-to-one basis.

The CALL feature of learner independency was supported by the fact that CALL made it possible for learners to work continuously with very little interruption. Although only four interviewees made this comment when talking about the comprehension aspect, it is important because being able to work continuously could have a more direct effect on reading speed. This point of view is compatible with the argument that reading interruptions disrupt the smooth flow of reading and concentration, and hence impair comprehension (Dyson and Haselgrove, 2001). This disruption could at least happen because of the inefficiency of eye movements and the struggle to turn back to the point where the eyes moved to give attention to something else interrupting the reading sequence.

Research has shown that learning materials could be effectively presented on CALL programs (Kang, 1995; Son, 2001; Wu and Yuan, 2003). In the current survey, 15 interviewees in the case of the comprehension aspect and ten interviewees in the vocabulary aspect pointed out this characteristic of presenting the instructional materials well as an effective feature of the CALL program. Presenting the instructional materials
well could include highlighting using colours and blinking visuals (Wu and Yuan, 2003) like pictures (Tsou, Wang and Li, 2002), and the screen layout that includes page size, font, and line length (Dyson and Haselgrave, 2001; Dyson and Kipping, 1998). The implemented software RapidReader includes all of these aspects (except pictures) as discussed in Chapter 3. The interviewees also liked the feature that the CALL program enabled them to choose the page size of the reading text. When talking about the ability of choosing the page size, this implied that the learners were also able to choose the font and the line length as well. For example, when choosing to read a text presented on the pocket-book page size, the font would be 12pts and the line length would be about 55 to 60 characters by default. So this means that the learners were happy that the CALL program, unlike the TBI method, was offering them the chance to choose among these different presentations of the reading materials again showing the importance of offering the learners control. They were also happy with the high-quality presentation of the other different activities on the screen.

The last feature mentioned by a few interviewees was that the CALL program made it easier and enjoyable for them to work on the word activities. The interviewees said many times earlier (in Chapter 9) that the CALL method was more effective because it was more interesting and they enjoyed it. Still, when saying that working on the word activities presented on the computer was enjoyable and easier to work on than doing that during the TBI sessions, it means that CALL instruction positively affected learners’ attitudes toward learning vocabulary, and such positive attitudes lead to better language acquisition (Prince, 1996).

In conclusion, it has been noticed that the interviewees pointed out many important features of the CALL method of reading instruction and the RapidReader software. Most of the features they mentioned were compatible with the findings of the other research presented in Chapter 2. More interestingly, the most important feature which looked novel was learner awareness of progress through the different facilities of immediate feedback in general and for the adjusted reading speed score in particular, instant
correcting of wrong responses, and records of performance on computer. This feature enhanced the effectiveness of the CALL method and it established sources of challenge for the learner to work on, and so to be better involved and finally to gain more progress in the three target reading aspects. Moreover, when the participants pointed out the RapidReader feature of notifying them with the adjusted reading speed scores, they emphasised the importance of integrating the speed and comprehension aspects together in the learning process as argued for by LaBerge and Samuels (1985), Eskey (1986) and Hegelheimer and Chapelle (2000).

The participants pointed out other important features that emphasised the effectiveness of using the CALL method of reading instruction especially when the software RR was employed in the experiment. Moreover, the learners liked the fact that the CALL program tailored for their privacy and individual needs. It also made learning to read enjoyable through fun, ease of use and through the high-quality presentation of the materials on the screen. CALL instruction was also described as a useful method of reading instruction that promoted high learner motivation and learner autonomy which are the dominant educational logos of this age. And above all, the learners showed that they had the potential to improve their reading abilities so that they can cope with an increasing range of sources of reading materials. The learners showed that they liked and enjoyed working on the different language activities while learning through the CALL program.

However, nothing could be completely convenient for learners unless their views are taken into consideration. Their views, ideas and suggestions for improving the CALL method of reading instruction and the software “RapidReader” will be of great value if catered for, as this will make the CALL method of reading instruction more effective and useful for future learners in the same context as the learners of this study. The following chapter presents these suggestions.
Chapter 10  Data Analysis for Personal Interviews (III): Suggestions for improving the CALL method

10.1 Introduction

This chapter reports the changes and adaptations that the 36 interviewees suggested for improving the CALL method of reading instruction using the program RapidReader. Therefore, it addresses the following question:

As expressed in the personal interviews what were the changes suggested for improving the instructional method that caused the significant increase in learners' reading abilities?

Themes for learners’ suggestions were coded, and as followed in Chapters 8 and 9, tables are used to display the themes with the number of times each one appeared in the data.

10.2 Reading Speed

As far as the reading speed aspect is concerned, seven content themes appeared in the interviewees’ suggestions for improving the CALL method of reading instruction. These themes and their frequency of occurrence are displayed in Table 10-1.

The 36 interviewees made 25 comments in response to the question about their suggestions for improving the CALL method in regard to the reading speed aspect. With regard to the most frequent suggestion, eight interviewees said that sparing more time in the lecture for learners to work on the warm up activities would be of a great benefit for the learners. In the second most frequent comment, seven interviewees suggested that learners should be given access to the CALL program outside the lecture time so that they can practise more on the reading speed activities.
The third suggestion was closely related to the first and second suggestions. Four of the interviewees suggested that the CALL session should last for longer time so that they can get more training and to practise more on the different activities available on the program. Only one or two of the interviewees as shown in Table 10-1 pointed out the rest of the four suggestions. Still they brought up important points such as the issue of eyestrain occurring with excess computer use and the potential of the CALL program to offer a choice of texts.

Table 10-1

<table>
<thead>
<tr>
<th>No.</th>
<th>Suggestions (Speed)</th>
<th>Frequency of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>It would be of a great benefit to spare more time in lectures for the practice on the warm up activities</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>Learners should have access to the CALL program outside the lecture time for more practice on the reading speed activities</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>The CALL session could have been of greater benefit if it lasted a longer time</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>The computer screen should become safer for readers' eyes</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>More training should be offered for learners on using the CALL program</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>A more interesting and easier story should be chosen for the learners to read</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Different types of reading texts should be provided to the learner so that he/she could choose the text that satisfies his/her abilities and interests</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

10.3 Reading Comprehension

Concerning the reading comprehension aspect, the 36 interviewees pointed out six suggestions with the total number of frequencies reaching 51 as displayed in Table 10-2.

Table 10-2 shows that 20 of the interviewees suggested that the CALL session should last for longer time. For the second suggestion, eight of the interviewees pointed out that different types of reading materials should be available for learners so that each
individual can choose the text he/she prefers. The same number of interviewees (eight) suggested that learners should receive more training and drilling on tackling the 'cloze' and the 'summarisation' comprehension activities. Each of the three remaining suggestions was pointed out by five interviewees. All of these three suggestions looked interesting. Suggestions 4 and 5 spoke again about the need for more time to spare for working on the reading activities inside and outside lectures and this is a confirmation of the same suggestions arising from reading speed aspect. Finally, the last suggestion spoke about presenting the multiple choice comprehension questions in such a way as to tally with the sequence of the incidents taking place in the reading text or chapter.

<table>
<thead>
<tr>
<th>No.</th>
<th>Suggestions (Comprehension)</th>
<th>Frequency of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The CALL session should last for a longer time</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Different types of reading texts should be available for the learners so that each individual can choose the text he/she prefers</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Learners should receive more training and drilling on tackling the 'cloze' and the 'summarisation' comprehension activities</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Learners should have access to the CALL program beyond the lecture time</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>More time should be spared in the lecture for the learners to answer the comprehension tasks</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>The multiple-choice questions for each chapter in the story should follow the same sequence/order of the incidents taking place in the target chapter</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>51</strong></td>
</tr>
</tbody>
</table>

### 10.4 Vocabulary Knowledge

Concerning the vocabulary learning aspect, the 36 interviewees pointed out 5 suggestions with the total number of their frequencies reaching 72 as displayed in Table 10-3.
Table 10-3 shows that 21 of the interviewees suggested that, in addition to word meanings, pictures should be used on the CALL program to make it easier for learners to learn new vocabulary words. The second most frequent suggestion was that the CALL session should continue for a longer time and was pointed out by 19 students. A good number, 17 interviewees, suggested making it possible for the learners to have access to the CALL program beyond the lecture time.

<table>
<thead>
<tr>
<th>No.</th>
<th>Suggestions (Vocabulary)</th>
<th>Frequency of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Using pictures in addition to word meanings could make it easier for learners to learn new words</td>
<td>21</td>
</tr>
<tr>
<td>2</td>
<td>The CALL session should continue for a longer time</td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td>Learners should have access beyond the lecture time to the CALL program to work more on the word activities</td>
<td>17</td>
</tr>
<tr>
<td>4</td>
<td>Learners should receive more training on using the component of the CALL program 'Personal Dictionary'</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>The equivalent word meaning in Arabic should be added when dealing with the new word meanings</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>72</strong></td>
</tr>
</tbody>
</table>

The next most frequently mentioned suggestion was that learners should receive more training on using the CALL program component ‘Personal Dictionary’; it was mentioned by nine interviewees. The last suggestion was pointed out by six interviewees who suggested adding the Arabic equivalent word meaning to the CALL program.

**10.5 Summary of Suggestions**

The themes related to the interviewees’ suggestions for improving the CALL method of reading instruction are summarized in Table 10-4 below. It shows that the interviewees recommended seven suggestions for this purpose.

Two of the suggestions as shown in Table 10-4 were common between the three reading aspects but with different frequency levels. The first was related to learners’ request for
more opportunity to work on the CALL program (Item 1). This could be the most important theme since it made up 57.4% of the total number of the themes pointed out. Although the majority of the interviewees pointed out this theme, still, it appeared that the learners wanted this improvement to the CALL method much more in the case of the vocabulary learning aspect since 36 participants pointed it out in this regard. This was also true for the comprehension aspect but with a slight decrease in the number of times it was suggested if compared to the vocabulary aspect (six times less). The importance of this suggestion was also noticed in the case of the speed aspect, but it was much less than in the other two aspects as the total of 19 learners only pointed it out. To have a better chance for more practice on the CALL activities, the interviewees also suggested a practical solution. They believed that learners should have access to work on the CALL program once they have the appetite to do that beyond the lecture time.

In the suggestion (Item 3), which was also common between the three aspects, the interviewees suggested exposing learners for more training on using some of the components of the CALL program like the ‘personal dictionary’ feature on the one hand, and the ‘cloze’ and the ‘summarization’ reading activities on the other hand. Table 10-4 shows that more learners in the cases of vocabulary learning and comprehension (nine and eight interviewees, respectively) wanted this suggestion to be considered for improving the CALL method of instruction. However, only two of the interviewees mentioned this suggestion in the case of the speed aspect.

In the fourth item of Table 10-4, the participants suggested that there should be different reading texts with different difficulty levels available on the CALL program to help learners choose to read the text which best suits individual interests and abilities. This suggestion was common between the speed and the comprehension aspects, but with a higher level of frequency in the case of the comprehension aspect.

Each individual suggestion of the ones remaining (Items 2, 5, 6 and 7) referred to one of the three reading aspects in particular rather than to the three or even to two of them.
Items 2 and 5 dealt with learners' suggestions for improving the vocabulary learning techniques through the CALL program. In Item 2, 21 interviewees suggested using pictures in addition to word meanings as this could help them learn word meanings more easily. Using learners' native language to give the 'equivalent' meanings of new words was also suggested by six interviewees as shown in Item 5.

Some interviewees believed that the sequence of the comprehension questions should tally with the sequence of incidents taking place in the reading text (i.e. follow the plot of the story). Five participants suggested this theme as seen in Item 6 because, according to them, this could help enhancing better understanding of the story though worryingly suggests that this small group are relying on memory rather than comprehension. The last suggestion (Item 7) which was pointed out by two learners tackled the importance of producing high quality computer screens to minimise eyestrain due to excess computer use.
<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Occurrence of Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Speed</td>
</tr>
<tr>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>1 Learners should have extra time for more practice on the CALL program</td>
<td></td>
</tr>
<tr>
<td>Call session should last longer</td>
<td>4</td>
</tr>
<tr>
<td>Access to program outside lectures</td>
<td>7</td>
</tr>
<tr>
<td>More time to work on activities in lecture time</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
</tr>
<tr>
<td>2 In addition to word meanings, pictures should be used to make learning</td>
<td></td>
</tr>
<tr>
<td>of new words easier</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
</tr>
<tr>
<td>3 Learners should receive more training on using the component of the CALL</td>
<td></td>
</tr>
<tr>
<td>program</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
</tr>
<tr>
<td>4 Different reading texts with different levels of difficulty should be</td>
<td>2</td>
</tr>
<tr>
<td>used on the program</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
</tr>
<tr>
<td>5 The equivalent word meaning in Arabic should be available on the program</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
</tr>
<tr>
<td>6 The appearance of the comprehension questions should tally with the</td>
<td>5</td>
</tr>
<tr>
<td>sequence of the plot of the story</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
</tr>
<tr>
<td>7 The computer screen should become safer for eyes</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>
10.6 Discussion

As displayed in the previous sections, the interviewees pointed out a number of suggestions to improve the CALL method of instruction depending on their experience with it during the CALL instructional sessions. Some of those suggestions were closely related to each other simply because the interviewees repeated mentioning those suggestions when they were talking about the three target reading aspects as shown in Tables 10-1, 10-2, 10-3 & 10-4. Some suggestions also looked more important than others due to the number of the interviewees who pointed them out.

A good majority of the interviewees suggested that the CALL session should last for a longer time so that learners could use it more in their learning and so could achieve more improvement in their reading speed, reading comprehension, and vocabulary knowledge. As far as reading speed and comprehension accuracy are concerned, Table 6-2 in Chapter 6 shows that the average adjusted reading speed the learners achieved at the end of the reading course of Experiment II in the current study was about 14.2 p/h (i.e., 94.4 w/m) when the participants read at the 25 p/h (about 167 w/m) reading speed rate. This reading speed gain looks very close to the "100 w/m or less speed" rate the advanced ESL readers achieved as reported by Jensen (1986, p. 170). However, it could also be argued that this reading speed rate was clearly well below the 175 w/m rate recommended by Segalowitz, Poulsen and Komoda (1991) as discussed in Section 5.4.3 of Chapter 5, and so this should justify the need to expose such learners to a longer reading course in terms of time duration. Therefore, the interviewees' suggestion is of high credibility.

This need for the extension of the reading course length was also emphasized in many different situations among the interviewees' suggestions for improving the CALL method of reading instruction. It was noticed that a good number of the interviewees suggested sparing more time in lectures for the learners to work on the warm up activities (Item 1, Table 10-1). Working on those warm up activities helps the learners improve their reading speed because as demonstrated in Chapter 3 those activities are designed to
improve readers’ ability to recognize letters, words, and phrases, to read with ease, faster eye movements, and shorter fixations, and to activate their memorization ability (Buzan, 1988; Nuttall, 1996). Once again, learners’ comprehension ability could be improved if they are offered enough time to practice those warm up activities because as discussed in Chapter 1, reading comprehension and reading speed are correlated, and the good reader reads fast as Eskey (1986) argues. Moreover, some of the interviewees (Item 5, Table 10-2) suggested giving enough time in the lecture to work on answering the comprehension questions. These suggestions cannot be achieved unless the time component of the reading course is appropriately considered.

Related to the time issue, there were some suggestions talking about training learners on using some components of the CALL software effectively. Training learners to efficiently use any of the technology devices and their components that they will be exposed to in the learning process is known to have its sound effect on users’ interest and motivation to learn, and consequently on their achievement of the learning goals (Jones, 1991). It seems that some of the learners felt that the training they received to use some of the software components efficiently was not enough. Therefore, a good number of the interviewees made three related suggestions. Nine of them suggested that learners should receive more training on using the component “Personal Dictionary” (Item 4, Table 8-9). However, it could be said that the restricted use of this RapidReader component was not mainly caused by learners’ inability to use or work on it, but the main reason for that feeling could be because building up the personal dictionary was time consuming and so it was not possible to let the learners go through that process during the lecture time. Still, learners’ suggestions with respect to this component indicated a high level of interest in using it in their learning. It should also be borne in mind that building up one’s personal dictionary means tailoring for individual differences between the learners, because a word could be new and important for one learner, but familiar to another, and therefore utilising this component in the learning process could be argued for as a vital need. Consequently, in response to the participants’ suggestion learners should receive the appropriate training to use the “personal dictionary” component effectively, and giving
learners access to use the program beyond lecture time as they also suggested would solve the time problem if this building up of the personal dictionaries is done beyond lecture time.

Under the same issue of training, a good number of participants suggested exposing learners to more training and drilling in general and on tackling the "cloze" and the "summarization" comprehension activities in particular. Since these two activities were more demanding, the learners felt that they should have received more training on tackling them, especially in the case of the cloze activity which required learners' ability to fix how often words should be deleted from a target text (every n\textsuperscript{th} word), especially as it was the individuals who designed their own cloze activities. In light of these learners' requirements in regard to more training needs, and more time to practice working on the different activities, it would not be possible to do all that effectively in a reading course that continues for eight weeks only.

As if the interviewees were experts who expected to hear objections for implementing their suggestion to increase the duration of the reading course, or who realized the difficulty of expanding the duration time of the CALL course, they tried to find some other more practical solutions. A good majority of the interviewees then suggested that the reading course with the CALL method should last for a longer time, and learners should be offered access to work on the CALL program beyond the lecture time as shown in Table 10-4 (Item 1 and its sub items). This way the learners thought that they would have the opportunity to work freely more on the different CALL components and particularly on the reading speed and the warm up activities. These suggestions are important ones as they confirm the argument that CALL instruction helps develop learner autonomy and independence as well as the growth of self-access language learning (Schoepp and Erogul, 2001). They are also consistent with the research findings that computer-assisted learning enhances learner autonomy and learners' willingness to control his/her learning (Wishart, 1990; Yagi, 1999; Little, 2002).
Another group of 21 interviewees suggested that pictures should be used to make it easier for students to learn meanings of new words. Although research results indicated that using pictures for vocabulary instruction has a positive effect on learning new words (Chun & Plass, 1996a; Chun & Plass, 1996b; Son, 2001), it was not expected to be given that importance by the participants of this study who were freshman students at the college and university level. Still, this suggestion is worth considering even for learners at this age especially when words could be very difficult for them to understand through verbal explanations, and so pictures could make understanding of some words easier, or it could at least consolidate the meanings of some new words. Some interviewees even suggested the use of the Arabic equivalent word meanings to make it easier for them to learn new words. This could be a reasonable suggestion from Arab students who rarely use English outside educational institutions. However, we should not forget that it is not always possible to find the equivalent Arabic meaning for an English word, and doing so might sometimes lead to some inaccurate word meaning or understanding of a word, which in turn leads to misusing that new word. Therefore, as indicated by Kang (1995) word activities on the RR software were designed in a way that concentrated more on presenting words in context for the learners to learn their meanings and usage.

An important suggestion related to the reading materials on the CALL program was made by a few interviewees. As indicated in Chapter 8, Section 8.2.2 the learners who did not notice any significant improvement in their reading ability made the comment that the reading material should be more interesting and within the level of learners' language abilities. This idea appeared in two different situations in this section. In the first place, the interviewees (Table 10.4: Item 4) said that there should be different types of reading material inputs on the CALL program to make it possible for the learners to choose the reading text that satisfies each one's interest and language ability. This suggestion has been stated by many researchers who argue that the reading text should be interesting for learners and not very much above the level of the learner (Harris and Sipay, 1983; Krashen, 1989; AlKahtani, 1999; Berberich, 1996; Chen, 1996). This suggestion also indicated that each learner prefers to choose the reading text that suits his
or her interest and ability, and so it looked compatible with Wishart’s (1990) argument that once a learner is given the chance to choose among different choices in the learning environment this learner perceives that he/she is in the position to control the software, and this makes learning more successful. This suggestion of making different reading texts with different difficulty levels available on the CALL program is consistent with the theory of reading instruction, which emphasises the relationship between learner motivation and interest to read a text and the reading competency (Harris and Sipay, 1983). Therefore once there are reading texts of different interests and difficulty levels entered into the CALL program, learners would have the chance to choose the text that satisfies their interests and abilities.

Moreover, a few interviewees suggested that the comprehension multiple-choice questions should be presented to the learner in the right order that follows the same sequence of the events and incidents taking place in the reading text or chapter. However, by default those questions were shuffled by the CALL program on purpose. As discussed in Chapter 3, the RapidReader has the feature of presenting the comprehension multiple-choice questions and the four choices for each question in different orders on the different machines just to make it difficult for the learners to copy the answers from each other and so to help the learner be more dependent on their own abilities.

The last suggestion that two of the interviewees made was that the screen should be made safer for learners’ eyes. Of course this could be a valuable suggestion for manufacturers to consider especially for learners who face the risk of eyestrain due to excess computer use. Nevertheless, it should be pointed out that the Cathode Ray Tube type of screen which the learners believed may cause eyestrain is no longer produced. The new and safer Liquid Crystal Display type of screens is used nowadays.

These suggestions for improving the CALL method of instruction, which proved to be more effective in enhancing learners’ reading abilities, must be of a high credibility as they came from learners who experienced learning to read through CALL method of
instruction. They are also of high credibility because they came from learners who witnessed the significant improvement in their reading speed, reading comprehension accuracy, and vocabulary knowledge due to their exposure to that instructional method. Therefore, their suggestions should be considered highly by educators and CALL systems designers.
Chapter 11 General Discussion, Conclusions and Recommendations

11.1 General Discussion

It has become clear from the findings reported in the previous chapters and the discussions of those findings conducted in Chapters 5-10 that the CALL method of reading instruction was more effective than the TBI method. This effectiveness was made clear in terms of the large significant progress the learners achieved in their reading abilities in the speed, comprehension and vocabulary learning aspects, and in terms of enhancing factors found to influence learning to read like motivation, enjoyment, individualisation and autonomy of learning.

This study asked different questions and introduced four hypotheses to be tested as explained in Sections 1.3 and 1.4, of Chapter 1, respectively (pp.16-19). The triangulation method followed in this study in terms of collecting data using the achievement tests administered before and after the experimental learning sessions, the post-questionnaire of attitudes and the personal interviews ensured the validity and reliability of the findings of this study (Cohen, Manion and Morrison, 2000, p.112). These three methods of data collection were carried out in two main experiments in addition to the pilot one. Results showed that learners' achievements in the three target reading aspects due to the CALL method of instruction were significantly better than their achievements due to the TBI method. These results were confirmed by the participants' responses to the post-questionnaire items and the personal interview questions which indicated that the learners believed the CALL method helped them remarkably better in achieving the progress in their reading ability.

The first hypothesis that there were no statistically significant differences in the adjusted reading speed achievements of the freshman learners at MTIC and SU due to their
exposure to the CALL and TBI methods of reading instruction was rejected. Data collected from 100 students in Experiment I showed that the CALL method led to greater gains in learners’ reading speed scores. The same result was found in Experiment II with a further 150 students from a different cohort, and this emphasised the reliability of this finding. Learners’ responses to the post-instruction questionnaire items and the interview questions were consistent with the reading speed results they obtained. They reported that the CALL method contributed most to the progress in the reading speed they obtained. Their reasons and the CALL features that enhanced in particular this reading speed progress were: a) Learners were able to see that their reading speed increased a lot as a result of the CALL method of reading instruction; b) The warm up cognizance, concentration and eye-movement CALL activities helped the learners increase their reading speed ability, and c) The CALL method offered the learners the ability to fix the speed each individual liked before he/she started doing an exercise during the reading course

A similar result was noticed for the second hypothesis which hypothesised that there would be no statistically significant differences in the comprehension accuracy achievements of the freshman learners at MTIC and SU due to their exposure to the CALL and TBI methods of reading instruction. This hypothesis was also strongly rejected because learners’ reading comprehension scores in both experiments were improved significantly due to the CALL sessions rather than the TBI sessions, and thus reliability of findings was assured.

In fact, learners’ comprehension scores witnessed a decrease after attending the TBI sessions during the second phases in both experiments at the raw reading speed of 25p/h. The possible reason for this decrease as discussed in Chapters 5 and 6 was that the learners could not cope with the reading speed fixed for them to read the text on the Final 2 tests, and so they were not able to respond correctly to the multiple choice comprehension questions that appeared in the post-test. It was argued here that if the learners in the TBI sessions had access to the same reading activities (in terms of quantity
and quality) they experienced on the CALL program different results could have been achieved, because as Kennedy (1989) argued and as the learners themselves expressed the quantity and quality of the CALL activities were important factors that made the CALL method more effective and useful.

Learners' responses to the questions in the interviews and the items of the post-instruction questionnaire were consistent with the results they obtained on the comprehension part of the achievement tests. They reported that the CALL method contributed most to the progress in their comprehension accuracy they obtained and this also emphasised the reliability of findings related to the comprehension aspect. As noted in Chapters 7, 8 and 9, the reasons and the CALL features that enhanced this reading comprehension accuracy in particular, were: a) Learners liked to answer the comprehension questions due to the high quality of their presentation on the computer screen; b) The concentration activity on the computer helped them improve their understanding of words under the pressures of speed-reading, and c) The CALL method helped them become more able to read longer texts.

The third hypothesis that there were no statistically significant differences in the vocabulary learning scores of the freshman learners at MTIC and SU due to their exposure to the CALL and TBI methods of reading instruction was strongly rejected. Again, rejection of this hypothesis in both experiments conducted in this study assured the reliability of the finding of this study that the CALL method helped the learners obtain significantly higher levels of vocabulary scores than the TBI method. This reliability was also confirmed as the learners' responses to the post-instruction questionnaire items and interview questions were consistent with the results they obtained. They reported that the CALL method contributed most to the progress in their vocabulary knowledge. The reasons and the CALL features that enhanced this progress in their vocabulary knowledge in particular were: a) Learners were able to deal with a large number of word activities on the computer and this is consistent with Kennedy's argument (1989); b) Word activities presented on the computer helped them learn words
quickly because they believed it was fun to work on those word activities on the computer and due to the high quality of their presentation on the screen and the wide range of those word activities available on the computer; c) CALL word activities helped them become able to use the new words in real life situations, i.e., when they speak English socially and at university; and d) The CALL method of instruction encouraged them more than the TBI method to learn the new vocabulary words outside the lecture time.

The interesting thing in these findings is that the CALL method helped the learners improve their reading ability in the three reading aspects targeted together rather than leading to a progress in one aspect while a drawback occurs in others. Previous research which reported CALL effectiveness (such as Wepner, Freely and Wilde, 1989) found that CALL was effective in improving learners’ reading speed rates but such progress was usually associated with a decrease in the comprehension ability. However, in both experiments conducted in this study, the progress in learners’ reading ability took place in the three aspects of speed, comprehension and vocabulary knowledge, although differentiated levels of progress were noticed in the three aspects.

Tables 5-22 and 6-22 presented in Chapters 5 and 6 showed that the progress the learners achieved in the comprehension aspect due to the CALL sessions in Experiments I and II was comparatively the least among the three aspects targeted in this study. The increase in progress achieved in Experiments I and II were respectively 17.50% and 58.79% of their comprehension scores at the outset of the study. The greatest progress the students achieved in Experiment I was in the vocabulary aspect achieving an increase of 74.17% of their original vocabulary score.. For Experiment II on the other hand, the greatest progress was in the reading speed aspect; it was 105.53% of their score achieved when they started the CALL sessions. Nevertheless, the progress obtained in all three aspects was remarkably larger in Experiment II. This main reason for this progress emphasised the managerial role of the instructors. They had decided from their experiences during the first experiment to allow more time for the learners to work on the different reading
activities in the second experiment rather than working on building up their 'personal
dictionary', as mentioned in Chapter 4. It was clear that the teacher, who monitors,
responds to queries and questions, helps and checks learners’ performance, enables
him/her to assess their performance and so plan the learning processes depending on their
needs and interest plays an important managerial role in CALL instruction. An additional
reason for the increased progress in Experiment II was that it was carried out in the
second semester of the academic year 2001/2002 while the first experiment was carried
out in the first semester of the same academic year. This meant that the participants of
Experiment II were having the privilege of being familiar with the university or college
system and life, and so their concentration may have been more on learning rather than
familiarising themselves to a new way of life and on making new friends, a situation
which the participants of Experiment I must have faced.

When comparing the level of contribution of both CALL and TBI to the progress that
took place with respect to the individual aspects of reading investigated, it was noticed
that the contribution of CALL was substantially higher in the comprehension aspect,
followed by the speed aspect and on the third level came the vocabulary aspect. These
levels of contribution followed the same sequence in both experiments (see Tables 5-19,
5-20 and 5-21 in Section 5.5 of Chapter 5 and Tables 6-19, 6-20 and 6-21 in Section 6.5
of Chapter 6).

In addition to the reasons mentioned above with regard to the individual reading aspects
that enhanced the significant progress in learners’ reading abilities and the effectiveness
of the CALL method there were other important reasons common to all three reading
aspects as found through the analysis of the post-questionnaire and the interview data.
The most important reason which was not indicated clearly in previous research was that
the CALL program made the learner’s progress visible to them throughout the learning
process. This visibility of progress was available to learners through the immediate
feedback they received which indicated whether they had responded correctly to the
items, and in case of a wrong response the program could show the correct response to
the learner. This progress was also made clear to learners through the immediate display on the computer screen of the total score achieved when he/she was done with an activity. Learner’s level of progress was also possible to watch and follow through the records of performance that the program continuously keeps. A more important issue in learners’ responses to the questionnaire items and the interview questions was that they were always making progress in their performance and so seeing that their learning through the CALL program was always fruitful. Therefore it enhanced their motivation towards learning to read using this CALL program. This motivation is known to be highly correlated with better learning (Davies and Crowther, 1995) and so it led to higher levels of learner involvement in the process of learning which in return led to more progress. Therefore, motivation to use the CALL program in learning to read was the core reason that led to better achievement.

This learner motivation to learn reading through the CALL method, as indicated in the data collected through the post-questionnaire and the interview questions was enhanced by many other different features that characterised that method and by the actual instructional processes they experienced in the CALL sessions:

Although the program suggests for the learner the speed for the next reading activity depending on his/her level of achievement, learners pointed out their ability to fix the raw reading speed for themselves before starting a reading activity; i.e., they believed that ability to pace their reading speed was an important feature of the CALL program. This of course indicates that the learners were happy to be given that chance to fix for themselves a speed target to work on achieving, and this target was a kind of challenge for them to work on. In TBI this reading speed target or challenge as called by Malone (1981) was also attended to, but it was done by the teacher for the whole group of learners. It should also be pointed out that while the learners in the TBI were offered limited activities to work on, all at the same time, each learner in the CALL sessions was able to choose from the large number of activities available within each type to work on activities different from those chosen by classmates. The CALL program also made it
possible for each individual to choose the page and font size he/she preferred, and this has been known as the “graphical complexity” of the program (Malone, 1981). Learner awareness of these features and showing them as good components of the CALL method emphasised Wishart’s (1990) and Malone’s (1981) argument that when the program provides the learners with control through choice, challenge and complexity, their involvement with it increases.

The above mentioned features of the CALL method (control, challenge, and complexity) emphasised the argument that CALL instruction enhances independent learning, a CALL feature which was clearly pointed out in learners’ responses to the interview questions dealing with the reasons and the features of the CALL program that enhanced the usefulness and effectiveness of the CALL method as shown in Tables 8-4 and 9-4 of Chapters 8 and 9. The fact that CALL enhances independent learning was also seen in learners’ responses to the interview question about their suggestions for improving the CALL method. As shown in Table 10-4 of Chapter 10, a good number of learners suggested that learners should have access to the program beyond the lecture time so that they can use it to learn on their own. This way it was seen that CALL encourages learners to pace their learning and to be more independent and this echoes what is known in the literature as “learner autonomy”. Autonomy of learning in the sense that learners were in control of the CALL program by pacing their reading and choosing the activities they preferred to work on was a useful learning strategy for the learners to attain and the CALL sessions helped them practise that strategy which, to many researchers (such as Underwood and Underwood 1990; Wishart, 1990; Yagi, 1999; Brajcich, 2000; Schoepp and Erogul, 2001; Little, 2002; Ying, 2002), enhances motivation to learn and learning outcomes as well.

Learners’ responses to the post-instruction surveys showed that the CALL method helped them communicate with teachers individually, receive their attention during lectures on one-to-one basis and to ask their questions in private. Their responses indicated that the CALL method helped them work on the learning activities in private and this is
consistent with Underwood and Brown (1997) who found that students enjoy working in private on computer based learning activities and this enhances their motivation to use Integrated Learning Systems.

Learners' responses to the post-instruction surveys showed that they enjoyed learning to read through the CALL method, and this enjoyment increased their motivation to use the CALL program. More interestingly is that the learners themselves pointed out that enjoyment of working on the CALL program was a reason that caused the CALL method to be more effective and this is compatible with the findings of Stevens (1991), Underwood and Brown (1997) and Yi and Hwang (2003).

Learners also considered the greater availability of the CALL learning materials in terms of their quantity, and in terms of the high quality of presentation on the computer screen as a determinant for the effectiveness of the CALL method. This is consistent with Kennedy's (1989) finding that there has been a growing interest in the use of the computer in language learning because of its capacity to handle a much wider range of activities than other educational aids.

Moving to the fourth hypothesis that there would be no statistically significant differences in the achievement scores of the freshman learners at MTIC and SU due to their pre-instruction preferences for the CALL and TBI methods results show some differences. Here it should be pointed out that the comparisons were conducted between learners' reading achievement scores obtained after attending the CALL sessions only because it was found that the CALL method was significantly more effective in enhancing the progress in the three reading aspects targeted. Learners' responses to the post-instruction survey also strongly emphasised these findings. Therefore the differences in learners' achievements after attending the TBI sessions due to their pre-instruction preferences were not analysed.
In Experiment I it was found that learners' pre-instruction preference for the CALL method was associated with statistically significant higher scores in reading speed and comprehension, but the difference in achievement (although found) was not statistically significant with regard to the vocabulary knowledge aspect. However, in Experiment II it was found that learners' pre-instruction preference for the CALL method was associated with statistically significant higher scores in reading comprehension and vocabulary knowledge, but the difference in achievement (although found) was not statistically significant with regard to the speed aspect. So, findings of the two experiments were consistent with regard to the comprehension aspect, but further research should investigate the reasons and circumstances that caused the differences between learners' reading gains due to their pre-instruction preferences after attending CALL instruction. Nevertheless, findings of this study indicated that whilst preference for CALL is a component in the greater achievement of learners using CALL, this is only reliably seen in the comprehension aspect.

The overall findings, however, indicated the importance of learners' positive attitudes towards CALL instruction (at least in the case of the comprehension aspect) which promotes better reading achievements and this is compatible with other research findings such as Levine, Ferenz, and Reves (2000), Towndrow (1997), Johnston (1996) and Sponder (1993). Therefore, efforts should be exerted to convince learners of the usefulness of the CALL method of instruction and so to build up positive attitudes towards using computer systems in education.

Related to learners preferences for the TBI and the CALL methods of instruction as expressed on the pre-questionnaire of attitudes, it should be borne in mind that in both experiments there were two sequences of instruction in terms of the learner exposure to the two methods of instruction. In one of the sequences the first session was CALL and the second was TBI, while the other started by TBI followed by CALL. Although the outcome results showed that in both sequences there were no statistically significant differences in the obtained scores relating to the three reading aspects, still, it might have
been possible that achievements gained were affected by the fact that learners were presented with their preferred option first (CALL or TBI methods as expressed on the pre-instruction questionnaire). Therefore further investigation should be done to learn the effects of allocating learners randomly to the two different sequences and also when learners are presented with the option they do not prefer first.

Depending on the learning process and the learners’ experience with the CALL method, this study found that there are areas that should be considered for improving the CALL method of reading instruction. As discussed in Chapter 10, it was found that the learners pointed out important suggestions for that improvement.

The most important area for improvement was directed towards increasing the opportunity for the learners to use the CALL program, and this suggestion reflects the positive effect of CALL on learners’ motivation to learn to read. As shown in Table 10-4, the participants suggested that the CALL session should continue for a longer time (i.e., more than eight weeks), and they also suggested increasing the time set aside for working on the word activities. Such suggestions indicate that the learners enjoyed this method of instruction because it was more effective and they were aware of the continuous progress in their reading abilities which enhanced their motivation to use the CALL program in learning to read. Such a suggestion emphasises the reliability of the finding related to enhanced enjoyment and motivation to learning using CALL. The learners’ suggestion for having access to the CALL program beyond lecture time is also consistent with the finding that CALL instruction encourages autonomy of learning and learner independency, and this is as discussed earlier consistent with other research findings such as Lim and Chai (2004), Wishart (1990), Yagi (1999) and Little (2002).

In regard to the vocabulary aspect, a good number of learners suggested using pictures next to word meanings so that their meanings can be clearer to understand. This suggestion deserves consideration especially as previous research findings indicated that using pictures for vocabulary instruction have a positive effect on learning new words
(Chun & Plass, 1996a; Chun & Plass, 1996b; Son, 2001). The other suggestion of the learners in this area was that the equivalent word meaning in the Arabic (learners' native language) should also be given next to the unfamiliar words. The effect of using these words should be investigated especially as it is not always possible to find the equivalent Arabic meaning for an English word, and doing so sometimes leads to inaccurate word meaning or understanding of a word, which in turn leads to misusing the new word.

As discussed in Chapter 3, the time set aside for learners to build up their personal dictionaries was reduced to the minimum, especially in Experiment II because it was discovered that this task is time consuming. But the learners showed interest in it, and so suggestions were offered: to lengthen the duration of the course and to offer a free access to the CALL program and to train the learners on using this feature effectively. Still, the researcher believes that such a feature continues to be time consuming even with more training, and the best way to deal with it should be outside the lecture time, provided teachers offer learners the appropriate training in the lecture time. Some learners also felt that they needed more training to use the cloze test and summarisation components effectively in their learning.

The other important suggestion, although it was pointed out by only a few learners, was related to the reading materials on the CALL program. In this suggestion, learners wanted the reading material to be more interesting and within the level of their language abilities. These suggestions are compatible with researchers' arguments that reading texts should be interesting for learners and not very much above their level (Harris and Sipay, 1983; Krashen, 1989; AlKahtani, 1999; Berberich, 1996; Chen, 1996). This suggestion also indicated that each learner prefers to choose the reading text that suits his/her interest and ability, and so it is compatible with Wishart's (1990) argument in terms of giving opportunity for learners to choose among different choices in the learning environment so that each learner perceives that he/she is in the position to control the software. This suggestion of making different reading texts with different difficulty levels available on the CALL program is consistent with the theory of reading instruction, which emphasises
the relationship between learner motivation and interest to read a text and the reading competency (Harris and Sipay, 1983).

11.2 Conclusions

The study investigated the effectiveness of implementing the TBI and CALL methods of reading instruction in promoting higher levels of achievements in reading English as a foreign language for freshman Arab students at two higher education institutions. The three reading aspects targeted in this study were reading speed, reading comprehension and vocabulary learning. This study also investigated those learners' attitudes towards the two instructional methods, the features of the strategy that proved its effectiveness in improving learners' reading ability in the three identified aspects, and learners' suggestions for improving that instructional method.

The computer software implemented in the CALL method "RapidReader" has many different features and components directed towards the three reading aspects targeted in this study. In the TBI method, the instructional materials and activities were designed in a way to echo those used in the CALL method; but the number of the reading activities presented in the TBI method were relatively less in terms of quantity. Nevertheless, the reading text, and the word glossary were the same in both cases and each activity on the CALL program had an equivalent or nearly equivalent one in the TBI method.

Two experiments were conducted for the purpose of answering the questions of the study and testing its hypotheses, and the experimental pre-test/post-test treatment design was implemented. Each group of learners attended the TBI and CALL methods one after the other depending on the pre-instruction preference of the learner for one of the two methods. This exposure to the two methods, in addition to the fact that the experiment was repeated a second time with a different sample increased the reliability of the findings. The triangulation method of collecting data through the achievement tests, the post-questionnaire of attitudes and the personal interviews emphasised the validity and reliability of the findings.
The results of the study showed that the CALL method of reading instruction was the most effective for improving learners’ ability in the reading speed, the comprehension and the vocabulary knowledge aspects. It helped the learners significantly improve their reading abilities in all the three reading aspects rather than one of them for the sake of the others, and this finding was achieved in both experiments. This method was also the most effective regardless of the sequence in which it was presented, whether the first phase or the second. Although the TBI method helped the learners achieve a slight progress in their reading abilities, this was significantly less than that progress caused by the CALL method, and in both experiments learners’ reading comprehension under TBI witnessed a decrease on the Final 2 test at the 25p/h raw reading speed.

Results found through analysing data collected via the post-questionnaire of attitudes (Appendix 4) showed that the vast majority of learners expressed positive attitudes towards the CALL method, and they reported that CALL was greatly more useful than the TBI method. It was also found that all the items of the post-questionnaire (1-19) were related to learners’ preference for the CALL method (Item 20). The items which were most highly associated with learners’ preference for CALL were: 1) Word activities helped learners learn words quickly, 2) Learners were able to deal with a large number of word activities, 3) The ‘eye movement’ activity helped learners improve their reading speed, 4) The cognizance activity helped learners recognize words quickly, 5) Learners liked to answer the comprehension questions due to the way they were presented on computer screen, 6) Learners’ reading speed increased a lot as a result of CALL, and 7) Learners’ ability to understand what they read improved a lot as a result of this method of reading instruction. However, Table 7-1 appearing in Section 7.2 of Chapter 7 shows that the learners’ responses to all the 20 items of the post questionnaire of attitudes revealed that they were more satisfied with the CALL features and components if compared to the features and components of the TBI method.
The other important result achieved in this study was that learners enjoyed learning to read through the CALL method using RapidReader. They pointed out that the word and the warm up activities of the CALL program were very useful and enjoyable. This enjoyment is known to affect motivation and involvement with the CALL program; an attitude which is a target to achieve in itself for all instructional methods.

Even learners’ preference for the two methods of instruction dramatically changed. In Experiment II learners’ preferences for the TBI and the CALL methods at the outset of the reading course were equivalent (75 learners for TBI and other 75 for CALL), but at the end of the course 148 participants showed preference for the CALL method as represented by their experience with RapidReader. To the learners, the main reason for this preference for CALL was its remarkable effectiveness and usefulness as it helped them increase their reading abilities significantly more that the TBI method did. This method helped them read faster than they used to do, to achieve higher levels of comprehension accuracy and to significantly increase their vocabulary knowledge. It also helped them read longer reading texts, and to practise reading fast when reading for other academic participants and for enjoyment.

The dramatic change in learners’ preference for the CALL method had other important reasons. One of the most important reasons which has not been clearly emphasised in previous research was that the computer made the progress in learners’ achievements always visible for them. This visibility of progress was made possible through the immediate feedback upon learners’ performance, correcting wrong responses, and through the performance records kept on the computer. In addition to the features and the components of the CALL program, many other reasons were highlighted in this study. These are: 1) The large number of the different reading activities available on the CALL program, and these activities made it easier for the learners to improve their reading abilities, especially as some of them looked as if they were language games, 2) Learners felt they were controlling the program, 3) The program has the components of complexity and challenge, 4) The program enhances learner autonomy and independence, 5)
Learners were given the opportunity to pace their learning, 6) Learners were happy with the role of the teacher who in addition to his role as a monitor, helper and advisor, was responding to their inquiries on one-to-one basis and in private, 7) The quality of presenting the activities on the computer screen was high, and 8) Learners felt that it was easy to work on some CALL activities.

Depending on their learning practice and their experience with the CALL method the learners suggested some points for improving the CALL method. The most frequent suggestion was directed towards increasing the length of the CALL reading course, and increasing the time allocated for them to work on the different CALL activities. They also suggested offering them access to the program beyond the lecture time. A group of learners also suggested conducting more training sessions on how to use the cloze and summarization activities effectively to improve their comprehension ability, and to train them well on using the CALL “personal dictionary” feature. A very interesting suggestion was pointed out by the learners; they suggested that there should be different reading texts ready for learners to choose from for reading depending on their reading interests and levels of reading competency. There was also a suggestion for using pictures to assist understanding of unfamiliar words, and another suggestion was to use learners’ native language to make meanings of unfamiliar words easier to understand. Other less frequent suggestions were related to the reading comprehension multiple-choice questions which should appear in the correct sequence of the incidents as they appear in the text, and the last suggestion is related to producing safer computer screens to reduce the negative effects on users’ eyes.

11.3 Recommendations

The results suggest that CALL was more effective than TBI for teaching and learning EFL reading to undergraduate Arab students and that consideration might therefore be given to its adoption by higher education institutions. It would be necessary not only to convince lecturers of the effectiveness of CALL in reading instruction but also to train them to use this method in their classrooms. This method has potential, following
necessary modification, for use in a wide range of educational institutions. Hence, several recommendations can be made for future research based on the findings of the present study.

11.3.1 Recommendations to Higher Education Institutions and Software Designers

The CALL method of reading instruction could be widely used in the Arab higher education institutions in order to help students at these institutions improve their reading abilities in the aspects of speed, comprehension and vocabulary knowledge and to change their attitudes positively towards learning to read.

Developers and designers of reading software programs should bear in mind that the findings of this study emphasised that CALL reading programs can tackle more than one reading aspect effectively. This is because the findings of this study showed due to the use of the program RapidReader which dealt with the three reading aspects, the CALL sessions helped the learners achieve significant progress in the three of the reading aspects of speed, comprehension and vocabulary knowledge.

CALL reading programs should have reading texts of different types rather than only narratives so that learners can choose the reading text that satisfies their interest and suits their language abilities.

CALL reading programs should make learner progress continuously visible to them. They should provide learners with immediate feedback, correct their wrong responses, and keep confidential records of their performance. Learners' responses to the post-questionnaire and the structured interviews showed that they liked to interact with the computer through the immediate feedback they received in terms of correct and wrong responses, achievement scores, and the reading speed the program suggested for them for next exercises. This had its reflection on their learning process. For example they were able to choose the reading speed they preferred and they had the chance to pace their
reading according to their scores, they were also able to change the page size and consequently the line length of the reading text. Moreover, the CALL program enabled the learners to choose depending on their interest as many exercises as they wanted, and not fix themselves to one type of exercise. Learning circumstances as such indicate that the interaction between the CALL program and the learner can be one of the reasons that led the learners to report that CALL helped the control their learning and so encouraged learner autonomy.

Thus CALL reading programs should make it possible for the learner to pace his/her learning, and the learner should feel s/he is in control of the program. The features of challenge and complexity should also characterise these CALL programs.

The reading activities, especially the warm up and word activities should also be available in large numbers and of different types on CALL reading programs.

CALL reading activities should be attractive in terms of the way they are presented on the computer screen. It was observed that learners liked to see different colours used when they were working on the different activities. Though, whilst colour was used to indicate the correct and incorrect answers, to highlight the definition of words or the words when the curser hits them, and to highlight the groups of words when reading to help the learner move his/her eyes across the lines, and for other purposes in the different activities, it should be pointed out that the CALL program implemented in this study does not use the audio, pictorial and the animation features which are known to play an important role in vocabulary acquisition and in overall text comprehension (Chun and Plass, 1996a). Therefore, these features should be considered in designing CALL programs and using them in classroom situations.

Learners should receive adequate training on how to use effectively the different components of CALL reading programs, and in the case of RapidReader, the component of “personal dictionary” needs more training. This component was reported to be time
consuming so it might be appropriate to let learners build up their own dictionaries outside the lecture time, provided enough training is offered for learners.

A reading course using the CALL method should continue for at least a complete academic semester in order to achieve higher levels of progress in the reading abilities targeted. Also to obtain better gains learners should have access to the CALL program beyond the lecture time.

To make vocabulary learning more effective while attending CALL reading courses, the incidental and intentional strategies of vocabulary instruction should be attended to. That is, a word list should be used and this can be achieved through the “personal dictionary” component or some similar component and through word activities that encourage deduction of meaning through context. Using pictures next to unfamiliar words can also make it easier for learners to learn their meanings.

Teachers should always have a vital role in the process of reading instruction so that this process can be effective. However, this role should not always be limited to the traditional role of lecturing and asking questions. In CALL instruction, the teacher is a monitor and a manager of the learning process, and s/he is to train, help, and respond to learners inquiries taking into consideration their personal emotions and needs. And above all s/he should consider learner autonomy in his instruction.

Lastly, with the development of the Flat Panel Display (FPD) which has overcome many of the disadvantages of using the Cathode Ray Tube (CRT) for computer display screens, screen manufacturers have produced a Liquid Crystal Display (LCD) screen which has significantly reduced deficiencies of the screens that may cause eyestrain or fatigue. Therefore, it is advised that all computer labs, especially those used for CALL purposes replace CRTs with LCDs (Shieh, 2000).
11.3.2 Recommendations for Further Research

It should be noted that the conclusions of this study reported in Section 11.2 arise from investigative work carried out with a limited sample of freshmen at two Arab Universities using one particular computer program. Further research would show whether these conclusions could be generalised to include other populations or other software.

This study should be conducted with different age groups. The 18-20 year old learners, the population to whom the sample of this study belonged, have their own language and cognitive abilities and stage of development which are different from those of at the age of 7, 10, 12, or 15 years, and variables like these have their effect on students' learning achievements and even their attitudes and preferences.

The sample of this study was chosen from two educational institutions in the Gulf region where the standard of economy is remarkably higher than it is in the other Arab countries. This might have its implications on the standard of living and the availability of computers in schools, higher education institutions and in homes. It would be important to conduct similar studies in different Arab countries to learn if the same findings as this study will be obtained.

Further research should also be conducted using other CALL reading programs, and comparative studies should also be undertaken to investigate the effectiveness of different CALL reading programs available in order to take wise decisions to choose software that may suit this level of learners who live and learn under some specific circumstances.

Depending on some learners' suggestion for adding the Arabic equivalent meanings next to unfamiliar words appearing in the word lists and because there is no consistency in previous research findings about the effectiveness of this approach, a study should be carried out to investigate the usefulness of using bilingual word lists (English and Arabic) in vocabulary learning.
Since the narrative type of reading texts was used in this study, further research is needed to investigate the effectiveness of CALL reading instruction using other types of reading texts like academic, scientific, descriptive, and others.

Further research is also needed to study the reasons that caused the wide range of the distribution of scores in learners' achievements due to CALL instruction in the three reading aspects targeted. Such research could be related to the level of learner involvement with the learning process using the CALL program, learners' enjoyment of working on some activities more than others and differences in attractiveness of those activities, the time allocated for practicing the different activities, learners' language and reading abilities before attending the experimental course, and/or learners' feeling that some activities are more important than others.

Although the findings of this study showed that learners' pre-instruction preference for CALL was associated with better reading comprehension gains due to CALL instruction in both experiments, findings varied in regard to the speed and vocabulary gains in both experiments. Therefore, further studies are needed to negate or ascertain this kind of association in the cases of the speed and vocabulary learning aspects.

Since the learners were allocated to the two groups of the study in both experiments depending on their pre-instruction preferences for TBI and CALL methods, and because learners in both experiments were presented in the first session of the reading course with the method they preferred, the need to study this variable in different arrangements will be necessary. In such research further investigation should be done to learn the effects of allocating learners randomly to the two instructional sequences (CALL followed by TBI or the other way round) and also when learners are presented with the option they do not prefer first.

And the last recommendation is related to the way the comprehension aspect was tested in this study. The multiple choice questions which mainly tested the surface meaning of
the reading texts could be argued as testing learners’ retention ability although their retention could be better for being dependent on understanding or comprehension. However, to make the findings related to comprehension more valid, further similar research should be undertaken but with the comprehension tests including more questions covering the deep meaning of the reading text such as open-ended questions, cloze and summarisation questions similar to those used in RapidReader.

Finally, this study should serve as a support for educators in all educational sectors. Furthermore, it should be borne in mind that in this age of technology, the youth especially in the Arab world are looking forward to seeing real utilization of the computer technology in their lives within which learning is an important part.
Bibliography


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<http://lilt.msu.edu/vol4num1/groot/default.html>. [accessed 13.1.03].


TELL Consortium. *REAL Reading in English.*


Klein-Braley, C., 1984. “A Cloze is a Cloze is a Question”. In: John Oller, ed. *Issues in language testing research,* pp.218-228.


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<http://www.teflweb-j.org/v1n1/schoepp_erogul.html>. [accessed 17.11.03].


TELL Consortium. REAL Reading in English.

<Tell Consortium> [accessed 20.12.04].

Tillman, G., 1995. Will implementing reading computer assisted instruction compared to traditional reading instruction produce more effective comprehension at the elementary school level? ERIC Document Reproduction Service No. ED392025.


Towndrow, P., 1997. Students’ reaction to CALL in the Gulf. CALL-EJ [online], 2(1). <http://www.clec.ritsumei.ac.jp/English/callejonline/>. [accessed 22.3.2].


<http://www.nflrc.hawai.edu/NetWorks/NW01/NW01.html>. [accessed 3.6.04].


Appendix 1 Placement Test

English Language Exam
English Language Department

Instructions for the students

At the speed of 15 pages/hour and within the time limit of 16 minutes, read the short story entitled, "Ever Such a Nice Boy" by William Flower, then answer the comprehension questions on it and answer the vocabulary questions that follow.

1. Login to RapidReader with your own Username and Password. This information is extremely important because it will appear on your official answer booklet that the computer will produce at the conclusion of the exam.
2. From the Activity menu, choose Exam.
3. Now you should get the Comprehension Test Type dialogue box. Choose the first option: As multiple-choice questions.
4. Set your speed at 15 pages/hour, and your reading mode at timed, then choose your story by pressing the Read Passage button, then scrolling all the way down to the bottom, choosing the last title: The Nice Boy, and pressing the Read button.
5. Now you should be able to read The Nice Boy on the computer screen, but Do Not do so until the teacher tells you to start.
6. When you are told to start, you should press the Play button.
7. When you have completed reading the story, you will be presented with the multiple-choice comprehension and vocabulary questions. As usual, you need to choose the correct response for every question and to click the box next to it until you finish all the questions.
8. Do Not close the Multiple Choice Questions when they have been completed. Save your answers first by pressing Save button, then naming it by your FirstAndLastName.txt.
You want to know how I first met Freddy? Oh, it's quite a long story. No, we don't come from the same place at all. You see, my home's near Gloucester. I was in service there with Major and Mrs. Trumbull Dykes. Mrs. Dykes was ever such a nice lady, she was just like a mother to me and writes to me every Christmas, not that I haven't got a real mother, because of course I have, and she's always been good to me too, I couldn't wish for a better. Well, the Major used to suffer from rheumatism something terrible, he was always carrying on and saying the house was damp, though it was as dry as a biscuit. He wouldn't rest but they must move to Devonshire, nagging away all the time.

Well of course Mrs. Dykes wanted me to go with them, but I didn't like the idea seeing that I hadn't never been more than a few miles away from home. It was Mum that persuaded me. 'You've got a good home with them,' she said, 'you'd better go with them.' Of course, most of the things was sent off by train, and we was to follow by car, but there was a lot of luggage all the same, just like gypsies we were, all packed in with a kettle and I don't know what else. Of course, I hadn't never driven so far before and the Major drove ever so fast and it quite turned me up, what with the bumps in the road. 'Stop, Gilbert,' said Mrs. Dykes, 'Edith wants to be sick.' 'I don't want to be,' I said. 'I've got to be.' Oh, I was ashamed. 'Never mind, Edith,' said Mrs. Dykes, 'you'll feel better now.' 'You'll never make a sailor, Edith,' said the Major. Oh, if I was on the sea I think I'd die.

Of course, it was ever such a nice house that they had, just outside Paignton, everything easy to keep clean and the kitchen all white. The reason I didn't want to go away was I was afraid I would be home sick. It's funny, isn't it, when you get homesick. You see, I was only a kid and me never having been away from home before I just cried and cried. "Why, happy Edith," said Mrs. Dykes, "whatever's the matter? You're not homesick, are you? Aren't you happy with us?" And, of course, when she spoke to me so gentle that just made me cry all the more. "If you're so unhappy," she said, "maybe it would be better for you to go home at the end of the month."

Mind you, the Major was always a worry to her, you never knew what he'd be getting up to. I do believe there was nothing between them and hadn't been for a long time, though I dare say the Major wished there was, so of course they always had separate bedrooms. Well, one afternoon about tea time, yes, it must have been about tea-time because I was making the toast, the Major must always have his hot buttered toast for tea, there I was making the toast and the Major come into the kitchen. Of course I didn't take no notice until he come up and caught hold of me. I asked him to let go and stop his games but he wouldn't, so I hit at his hands with the toasting-fork to make him leave go of me. He had ever such big veins in his hands, they stood right out. 'Oh, you little vixen! You little spitfire!' he said. 'Well, you had no call to lay hands on me,' I said, 'whatever would Mrs. Dykes say?' And as he wouldn't stop his tricks I said 'Give over,
will you!' and hit him again over the knuckles with the toasting-fork. 'Damn it, damn it,' he said, and then he run out. Just as I was getting tea ready to take into the drawing-room Mrs. Dykes come in, she'd been out shopping, and 'Oh, Edith,' she said, 'I'll just take the Major's tea up to him. He's ever so upset,' she said, 'he's hurt his hands something dreadful, he's resting in his room. He caught them in the mowing machine and they're all swollen up.' Of course I didn't say anything, but you should have seen the state his hands were in. Of course, I didn't mean to hurt him like that, but it was his own fault in a way, wasn't it?

My homesickness didn't get any better. I seemed to be always moping, so Mrs. Dykes said I'd better go home at the end of the month. Well, only a couple of days before the end of the month I was cleaning the windows. It was a lovely morning, and when I was doing the window of the spare room I couldn't help noticing that there was a boy painting the roof of a shed in the garden next door, and when I was looking at him he looked up and saw me and he grinned and waved his hand. That's ever such a nice boy, I thought. Of course it was Freddy, though I didn't know at the time. I was ever so pleased. I didn't like to be too forward, but I waved back at him. Then I run downstairs to Mrs. Dykes and I asked her if I could stay with her instead of going home at the end of the month. 'Why, Edith, of course we should be very pleased,' she said, 'but whatever's made you change your mind so sudden?' Well, I knew I could tell her everything, so I said 'I've just seen ever such a nice boy painting the roof of the shed next door, and he waved to me while I was doing the spare room window.' With that she run upstairs with me and looked out and when Freddy saw two of us he didn't know what to think. 'Yes, Edith,' said Mrs. Dykes, 'you're quite right, he is a nice boy.' So I didn't go away at the end of the month, and I just waited, hoping I'd see him again. I'd forgotten all about being homesick.

Next thing a note came to the house, addressed to 'Miss Edith'. Just like that, 'Miss Edith'. Of course it was from Freddy, asking me if I'd meet him at the corner on my evening out so we could go to the pictures. Oh, I was excited. I run and showed it to Mrs. Dykes and 'Of course, Edith,' she said, 'you'll have to go, but I wish we knew something about him. Isn't there anybody we could ask?' Well, next time the butcher's boy come round I said, 'Do you know anything about a fellow round here called Fred Carter?' 'Fred Carter?' he said. 'No, I can't say I do. What sort of work does he do?' 'I believe he's something in the building line,' I said. 'The only Fred I can think of,' he said, 'that's in the building line is Fred Baines, him that was painting that shed next door.' And what sort of a fellow is he?' I said. 'Oh, he's all right,' he said, 'but what do you want to know for? Has he been round here after you?' 'Don't be so nosey,' I said, but what I couldn't make out was if his name was Baines why did he call himself Carter, but it turned out that his stepfather name was Baines so everybody used to call him Baines's boy though his name was really Carter.

So off I went to meet him, and 'Do be careful Edith,' said Mrs. Dykes, 'don't let him take no liberties,' she said, 'until you're sure of him.' Oh, and you know, he was late. Oh, I was that worried could have cried, I thought he was just making game of me. Oh. I was upset, I thought I'd have done better to go back home after all. But just then he come
up, all smiles, and we went off to the pictures, and we did have a lovely time. Of course after that everything was all right, but Mrs. Dykes said he must come to the house so she could see him for herself, and of course everybody liked him, you know how it is, people always do seem to take to Freddy, and after that he was always coming round, every night he used to come round, Mrs. Dykes was ever so kind, and the Major liked him too.

Then one evening, late it was, Mrs. Dykes come running down to the kitchen, screaming blue murder, 'Edith! Edith! Freddy!! Freddy!! Come quick, there's a man in my room!' Well of course we run upstairs and Freddy grabbed the poker and when we got up to her room there was nobody there but the Major. Do you know he'd got in through the window, thinking to surprise her, she wouldn't let him set foot in her room at all in the ordinary way. 'What on earth's all this?' he said when he see us. 'Why, Gilbert, it's only you!' said Mrs. Dykes. 'What do you mean by giving us all such a fright, creeping in at my window like that? Why, I thought it was a man!' At that Freddy and me couldn't help giving a laugh. Soon after that I left to get married, and I was sorry to leave in some ways; Mrs. Dykes cried when I went away, ever so good she was. Poor soul, I can't help thinking of her sometimes, with that Major of hers.
1. Has the narrator got a real mother?
   Yes
   No
   It is not clear from the story
   She had a mother but she died

2. Who are Major and Mrs. Trumbull Dykes to the narrator?
   Her employers
   Her friends
   Her neighbours
   Her relatives

3. What disease did the Major suffer from?
   Rheumatism
   Heart problems
   Dermatitis
   Tuberculosis

4. Why did the narrator get her luggage moved by the train?
   To move with the Dykes to another town
   To move the Dykes to another town
   To visit with the Dykes another town
   To run away from the old town

5. What is the name of the narrator?
   Edith
   Freddy
   Mrs. Dykes
   The Major

6. Why does the narrator not make a good sailor?
   She would get sea-sick
   She would get sick
   She would not like to travel by sea
   She would need to be a man

7. What does 'homesickness' mean?
   Longing for home and family while absent from them
   Longing for home and family while being with them
   Sickness that results from being at home all the time
   Sickness that results from never being home

8. Why was the narrator crying when she and the Dykes moved to another town?
   She was homesick
   She was unhappy with them
   She was sad for having to be a neighbour to Freddy
   She was sick all the time

9. Did the Major and Mrs. Dykes sleep in the same bedroom?
   No
   Yes
   Not stated in the story
   Sometimes they slept in the same bedroom
10. Why did the narrator hit the Major when they were in the kitchen?
   He caught hold of her
   He hit her first
   He called her 'little spitfire'
   He stepped on her toe

11. What did the narrator hit the Major with?
    The toast-er-fork
    The toaster
    A fork
    A spoon

12. How many times did the narrator hit the Major?
    Twice
    Once
    Three times
    She did not hit him

13. What parts of the Major's body were hurt?
    His hands and knuckles
    His head
    His hands and legs
    His back

14. Who took the tea to the Major?
    Mrs. Dykes
    The narrator
    The Major himself
    Mrs. Dykes took him coffee instead

15. How was the swelling in the Major's hands explained to Mrs. Dykes?
    The Major told her that he caught his hands in the mowing machine
    The narrator told her that the Major caught his hands in the mowing machine
    The Major told her that the narrator hit him on his hands
    The narrator told her that she hit the Major on his hands

16. A couple of days before the end of the month when the narrator was going home, something happened that made her change her mind. What was it?
    She saw a boy painting next door
    She met Freddy
    Mrs. Dykes needed her to stay there
    Mrs. Dykes told her to meet the boy next door

17. What did the boy do when the narrator was looking at him?
    He grinned and waved his hand
    He grinned and looked down
    He waved his hands
    He grinned

18. What made the narrator ask Mrs. Dykes if she could stay with her instead of going home?
    Seeing the boy next door
    Talking to the boy next door
Going out with the boy next door
The fact that the boy started visiting them often

19. What did Mrs. Dykes think of the boy?
   That he was a nice boy
   That he was not a nice boy
   That she should not go out with strangers
   That nice girls do not go out with boys

20. What did Mrs. Dykes do when the narrator told her about the boy next door?
   She ran upstairs and looked out at him
   She ran upstairs and waved her hand at him
   She frowned and told her off
   She told her it was rude to look at boys

21. What did the note that came to the house address the narrator as?
   Miss Edith
   Neighbour Edith
   Edith
   Sister Edith

22. What did the note suggest to the narrator?
   Meeting Freddy at the corner and going to the pictures
   Meeting Freddy at home and looking at some pictures
   Meeting Freddy at the corner and looking at some pictures
   Going to the pictures then meeting Freddy at the corner

23. Did Mrs. Dykes give permission to the narrator to go out with Freddy?
   Yes
   No
   Mrs. Dykes told her that she was free to do what she pleased
   The narrator never asked for permission

24. What did Mrs. Dykes suggest to be done before the narrator went out with Freddy?
   That she found out something about him before going out with him
   That she washed up and wore nice clothes before she went out with him
   That Freddy asked for the narrator's hand in marriage before she went out with him
   That the Dykes met him before the girl went out with him

25. Who did the narrator ask about Freddy?
   The butcher's boy
   A neighbour's boy
   The Major
   The butcher

26. What was Freddy's full name?
   Fred Baines
   Fred Carter
   Freddy Butcher
   Freddy Dykes

27. What sort of work did Freddy do?
   Work in the building line
Painting
Building
Studying

28. Why did Freddy have two different last names?
He called himself by his own last name, but people called him by his step-father's name.
Freddy was a nicer name than Fred.
Freddy changed his own last name to something he liked.

29. Why could the narrator have cried when Freddy was late to the appointment?
She thought he was just making game of her.
She thought something wrong might have happened to him.
She thought he must have been playing a football game.
She thought he must have forgotten about the appointment.

30. How frequently did Freddy start visiting the Dykes' house?
Every night.
Once a week.
Whenever he wanted to take the narrator out.
He started living with them.

31. Who was the man that went into Mrs. Dykes' room?
The Major.
Freddy.
The butcher's boy.
A thief.

32. What caused Mrs. Dykes to run down the kitchen and scream blue murder?
She saw a man in her bedroom.
Her husband was about to murder her.
She was hallucinating.
She thought there was a ghost in her bedroom.

33. How did the man get into Mrs. Dykes' room?
He came through the window.
He came through the door.
He pushed her aside and forced his way through.
She invited him in.

34. Why did the man go into Mrs. Dyke's room?
To surprise her because she would not let him set foot in her room in the ordinary way.
To sleep in her bedroom because Edith would not let him set foot in his own room.
To rob her.
To make her love him.

35. Why could the narrator and Freddy not help laughing when Mrs. Dykes said, "I thought it was a man"?
Because what she said implied that the Major was NOT a man.
Because what she said implied that Freddy was NOT a man.
Because they were rude.
Because the Major was actually a woman
Vocabulary

1. Mrs. Ross, our teacher, has told us we've got to write a very detailed account of how we spent our holidays. The word "account" means:
   - description
   - trip
   - bank notes
   - responsibility
2. I shuddered. It was too awful, too hideous even for me to cope with. The word "cope" means:
   - manage
   - cover
   - establish
   - lose
3. Jill's coming round to discuss our bike ride for Saturday. The phrase "coming round" means:
   - pay an informal visit
   - burst
   - shouting
   - appealing
4. I felt depressed walking home with my flat tire that afternoon. The word "depressed" means:
   - miserable
   - daring
   - detour
   - fantastic
5. And Joe says he won't deduct tax, so I'm bound to be rich soon. The word "bound" means:
   - certain
   - deduct
   - pester
   - doubtful
6. She's the sort of girl who'd treat me like a corpse at a school social. The word "corpse" means:
   - a dead body
   - dirt
   - nasty
   - tilt
7. Kate patted me on the shoulder. The word "pat" means:
   - to tap gently with the open hand or with something flat.
   - to hit with a sharp blow of the fist
   - to bite strongly
   - to push lightly
8. She looked completely loopy. The word "loopy" means:
   - crazy
10. Oh, come off it! You're like my dad. Too serious. The phrase "come off it" is:
   an expression used to tell others that what they are saying is stupid
   an expression of anger
   an expression to tell others what they are saying is lovely
   an expression of happiness

10. Then I remembered one task I had to do before I flaked. The word "flaked" means:
   to fall asleep or collapse from fatigue or exhaustion
   to leave a place hurriedly
   to start taking responsibility
   to take a quick meal

11. Now, I've always prided myself on being ...........
   flexible
   nasty
   whiff
   breakdown

12. She turned and looked at me, a huge ........ on her face.
   grin
   champion
   roll
   skid

13. I still had to sit in the back seat, so I had a better view of these ........ fast drivers
   than Mum had.
   frustrated
   navigator
   bonnet
   launch

14. I must now ........ to you, my closest friend, a terrible doubt that is in my mind.
   confess
   yowl
   slink
   distress

15. But I had to keep my resolution ........ here, as I knew I had Mum right where I
   wanted her.
   in sight
   ponytail
   wretched
   blush

16. She said she didn't ........ open her eyes or else they'd go red too.
   dare
   hassle
   sink
   sprint
17. We had soybean loaf for tea. It was really ..........
   disgusting
   pretending
   inherited
   confidence

18. I'm taking my .......... scarf and putting it in her cupboard.
   ridiculous
   irrational
   horror
   poison

19. My major .......... for the next two weeks was choosing the right opportunity to hand
the folk dancing records over to Mrs. Matthews.
   occupation
   bin
   sculpture
   caution

20. The school has its own access road and is built into a .......... overlooking Auckland
harbour.
   cliff
   crisis
   paw
   dumb
Appendix 2 Final 1 Test

Midterm English Language Exam
English Language Department

Instructions for the students

At the speed of 20 pages/hour and within the time limit of 13.5 minutes, read the short story entitled, “BELLFLOWER1” by Guy de Maupassant, then answer the comprehension questions on it and answer the vocabulary questions that follow.

1. Login to RapidReader with your own Username and Password. This information is extremely important because it will appear on your official answer booklet that the computer will produce at the conclusion of the exam.
2. From the Activity menu, choose Exam.
3. Now you should get the Comprehension Test Type dialogue box. Choose the first option: As multiple-choice questions.
4. Set your speed at 20 pages/hour, and your reading mode at timed, then choose your story by pressing the Read Passage button, then scrolling all the way down to the bottom, choosing the last title: Bellflower, and pressing the Read button.
5. Now you should be able to read Bellflower on the computer screen, but Do Not do so until the teacher tells you to start.
6. When you are told to start, you should press the Play button.
7. When you have completed reading the story, you will be presented with the multiple-choice comprehension and vocabulary questions. As usual, you need to choose the correct response for every question and to click the box next to it until you finish all the questions.
8. Do Not close the Multiple Choice Questions when they have been completed. Save your answers first by pressing Save button, then naming it by your FirstAndLastName.txt.
How strange are those old recollections, which haunt us, without our being able to get rid of them!

This one is so very old that I cannot understand how it has clung so vividly and tenaciously to my memory. Since then I have seen so many sinister things, either affecting or terrible, that I am astonished at not being able to pass a single day without the face of Mother Bellflower recurring to my mind's eye, just as I knew her formerly, long, long ago, when I was ten or twelve years old.

She was an old seamstress who came to my parents' house once a week, every Thursday, to mend the linen. My parents lived in one of those country houses called châteaux, which are merely old houses with pointed roofs, to which are attached three or four adjacent farms.

The village, a large village, almost a small market town, was a few hundred yards off, and nestled round the church, a red brick church, which had become black with age.

Well, every Thursday Mother Bellflower came between half past six and seven in the morning, and went immediately into the linen-room and began to work. She was a tall, thin, bearded or rather hairy woman, for she had a beard all over her face, a surprising, an unexpected beard, growing in improbable tufts, in curly bunches which looked as if they had been sown by a madman over that great face, the face of a policeman in petticoats. She had them on her nose, under her nose, round her nose, on her chin, on her cheeks; and her eyebrows, which were extraordinarily thick and long, and quite grey, bushy and bristling, looked exactly like a pair of moustaches stuck on there by mistake.

She limped, but not like lame people generally do, but like a ship pitching. When she planted her great, bony, vibrant body on her sound leg, she seemed to be preparing to mount some enormous wave, and then suddenly she dipped as if to disappear in an abyss, and buried herself in the ground. Her walk reminded one of a ship in a storm, and her head, which was always covered with an enormous white cap, whose ribbons fluttered down her back, seemed to traverse the horizon from North to South and from South to North, at each limp.

I adored Mother Bellflower. As soon as I was up I used to go into the linen-room, where I found her installed at work, with a foot-warmer under her feet. As soon as I arrived, she made me take the foot-warmer and sit upon it, so that I might not catch cold in that large, chilly room under the roof.

"That draws the blood from your head," she would say to me.
She told me stories, while mending the linen with her long, crooked, nimble fingers; behind her magnifying spectacles, for age had impaired her sight, her eyes appeared enormous to me, strangely profound, double.

As far as I can remember from the things, which she told me and by which my childish heart was moved, she had the large heart of a poor woman. She told me what had happened in the village, how a cow had escaped from the cow house and had been found the next morning in front of Prosper Malet's mill, looking at the sails turning, or about a hen's egg which had been found in the church belfry without anyone being able to understand what creature had been there to lay it, or the queer story of Jean Pilâ's dog, who had gone ten leagues to bring back his master's breeches which a tramp had stolen while they were hanging up to dry out of doors, after he had been caught in the rain. She told me these simple adventures in such a manner that in my mind they assumed the proportions of never-to-be-forgotten dramas, of grand and mysterious poems; and the ingenious stories invented by the poets, which my mother told me in the evening, had none of the flavour, none of the fullness or of the vigour of the peasant woman's narratives.

Well, one Thursday when I had spent all the morning in listening to Mother Bellflower, I wanted to go upstairs to her again during the day, after picking hazelnuts with the manservant in the wood behind the farm. I remember it all as clearly as what happened only yesterday.

On opening the door of the linen-room, I saw the old seamstress lying on the floor by the side of her chair, her face turned down and her arms stretched out, but still holding her needle in one hand and one of my shirts in the other. One of her legs in a blue stocking, the longer one no doubt, was extended under her chair, and her spectacles glistened by the wall, where they had rolled away from her.

I ran away uttering shrill cries. They all came running, and in a few minutes I was told that Mother Bellflower was dead.

I cannot describe the profound, poignant, terrible emotion which stirred my childish heart. I went slowly down into the drawing-room and hid myself in a dark corner, in the depths of a great, old arm-chair, where I knelt and wept. I remained there for a long time no doubt, for night came on. Suddenly some one came in with a lamp -- without seeing me, however -- and I heard my father and mother talking with the medical man, whose voice I recognized.

He had been sent for immediately, and he was explaining the cause of the accident, of which I understood nothing, however. Then he sat down and had a glass of liqueur and a biscuit,

He went on talking, and what he then said will remain engraved on my mind until I die! I think that I can give the exact words which he used.
"Ah!" said he, "the poor woman! she broke her leg the day of my arrival here. I had not even had time to wash my hands after getting off the diligence before I was sent for in all haste, for it was a bad case, very bad.

"She was seventeen, and a pretty girl, very pretty! Would anyone believe it? I have never told her story before, in fact no one but myself and one other person, who is no longer living in this part of the country, ever knew it. Now that she is dead, I may be less discreet.

"A young assistant teacher had just come to live in the village; he was good-looking and had the bearing of a soldier. All the girls ran after him, but he was disdainful. Besides that, he was very much afraid of his superior, the schoolmaster, old Grabu, who occasionally got out of bed the wrong foot first.

"Old Grabu already employed pretty Bellflower, who has just died here, and who was afterward nicknamed Clochette. The assistant master singled out the pretty young girl, who was no doubt flattered at being chosen by this disdainful conqueror; at any rate, she fell in love with him, and he succeeded in persuading her to give him a first meeting in the hayloft behind the school, at night, after she had done her day's sewing.

"She pretended to go home, but instead of going downstairs when she left the Grabus', she went upstairs and hid among the hay, to wait for her lover. He soon joined her, and he was beginning to say pretty things to her, when the door of the hayloft opened and the schoolmaster appeared, and asked: 'What are you doing up there, Assistant Teacher?' Feeling sure that he would be caught, the young assistant teacher lost his presence of mind and replied stupidly: 'I came up here to rest a little among the bundles of hay, Monsieur Grabu.'

"The loft was very large and absolutely dark. The assistant teacher pushed the frightened girl to the further end and said: 'Go there and hide yourself. I shall lose my position, so get away and hide yourself.'

"When the schoolmaster heard the whispering, he continued: 'Why, you are not by yourself?'

"'Yes I am, Monsieur Grabu!'

"'But you are not, for you are talking.'

"'I swear I am, Monsieur Grabu.'

"'I will soon find out,' the old man replied, and double-locking the door, he went down to get a light.
"Then the young man, who was a coward such as one sometimes meets, lost his head, and he repeated, having grown furious all of a sudden: 'Hide yourself, so that he may not find you. You will deprive me of my bread for my whole life; you will ruin my whole career! Do hide yourself!'

"They could hear the key turning in the lock again, and Bellflower ran to the window which looked out on to the street, opened it quickly, and then in a low and determined voice said: 'You will come and pick me up when he is gone,' and she jumped out.

"Old Grabu found nobody, and went down again in great surprise. A quarter of an hour later, the assistant teacher came to me and related his adventure. The girl had remained at the foot of the wall unable to get up, as she had fallen from the second story, and I went with him to fetch her. It was raining in torrents, and I brought the unfortunate girl home with me, for the right leg was broken in three places, and the bones had come out through the flesh. She did not complain, and merely said, with admirable resignation: 'I am punished, well punished!'

"I sent for assistance and for the workgirl's friends and told them a made-up story of a runaway carriage which had knocked her down and lamed her, outside my door. They believed me, and the policemen for a whole month tried in vain to find the author of this accident.

"That is all! Now I say that this woman was a heroine, and had the fiber of those who accomplish the grandest deeds in history.

"That was her only love affair, and she died a virgin. She was a martyr, a noble soul, a sublimely devoted woman! And if I did not absolutely admire her, I should not have told you this story, which I would never tell anyone during her life: you understand why."

The doctor ceased; mamma cried and papa said some words which I did not catch; then they left the room, and I remained on my knees in the armchair and sobbed, while I heard a strange noise of heavy footsteps and something knocking against the side of the staircase.

They were carrying away Bellflower's body.
1. According to the narrator, what aren't we able to get rid of?
   - Old recollections
   - Sinister things
   - Childish hearts
   - Terrible emotions

2. Whose face is daily recurring to the writer's mind's eye?
   - Mother Bellflower's face
   - Jean Pila's face
   - The young Assistant Teacher's face
   - Old Grabu's face

3. How did the narrator come to know Mother Bellflower?
   - He knew her through her work at his parents' house.
   - He saw her accidentally in the hayloft.
   - He saw her sitting strangely in the church.
   - He knew her through her work at the school by his parents' house.

4. How often did Mother Bellflower come to work at the parents' house?
   - Once a week
   - Once a fortnight
   - Twice a week
   - Twice a month

5. How old was the narrator when he came to know Bellflower?
   - Ten years
   - Five years
   - Fifteen years
   - Two years

6. What type of house did the narrator's family live in?
   - A château, an old large house with a pointed roof
   - A château, a new small house with a pointed roof
   - A new big house in the city
   - A new small house on a farm

7. What were the houses of the village nestled round?
   - A church
   - A small market
   - A small school
   - A hayloft

8. Where did Bellflower used to go as soon as she arrived at the family's house?
   - To the linen-room
   - To the drawing-room
   - To the narrator's room
   - To the kitchen

9. How did Bellflower look?
   - A tall, thin, bearded or rather hairy woman
   - A tall, thin, healthy looking woman
   - A tall, thin, beautiful woman
   - A tall, fat, bearded or rather hairy young woman
10. What was the most surprising feature Bellflower had?
    All of these
    Improbable tufts of hair that appeared in curly bunches on her face
    Hairs on her chin and on her cheeks
    Hairs on her nose, under her nose, and round her nose.

11. Did Bellflower have an ordinary walk?
    No, she limped like a ship pitching.
    No, she hopped like a kangaroo.
    Yes, she did when she was imitating someone.
    Only when she got tired that she would limp and hop.

12. How did the narrator feel towards Bellflower when he was young?
    He adored her.
    He was afraid of her.
    He always complained of her.
    He was disgusted of her.

13. What did the narrator do as soon as he used to get up?
    He went into the linen-room where Bellflower worked
    He argued with Bellflower about waking him up so early
    He helped his mother prepare breakfast
    He went to his mother to tell her about his dreams and nightmare

14. What did Bellflower usually do when the narrator sat with her in the linen-room?
    She made him take her foot-warmer and sit on it.
    She told him pleasant stories about her past.
    She asked him to help her while she would be telling him pleasant stories about
    her past.
    She asked him to take the foot-warmer and leave her alone.

15. What effect did the magnifying spectacles have on Bellflower?
    They impaired her sight
    They made her look very attractive
    They had no effect on her
    They impaired her sight but made her look very attractive

16. What did the narrator think of Bellflower as a result of what she had told him?
    That she was a poor woman with a large heart
    That she was a rich woman who did not look it
    That she was a wicked-hearted woman
    That she was a superficial silly woman

17. What about were the stories that Bellflower told the narrator when he was young?
    Stories of what had happened in their village
    Stories about her aspirations and dreams of the future
    Ingenious stories that were of a folkloric nature
    Romantic stories of the type only mothers tell to their children

18. What about was Bellflower's story 'Jean Pila's dog'?
    A dog, which had gone ten leagues to bring back its master's breeches
    A dog, which had escaped from the cow house to bring back its master's hens
    The hen's egg, which had been found in the church
The hen, which got lost in the bush

19. Who, beside the narrator, was picking hazelnuts in the wood behind the farm?
   The manservant
   The narrator's mother
   A woman who worked for the neighbours
   Bellflower

20. After picking hazelnuts in the wood, what did the narrator see as he opened the door of the linen-room?
   The old seamstress, Bellflower, lying on the floor
   The old seamstress, Bellflower, trying to kill herself
   The Old Grabu speaking to Bellflower
   The old seamstress lying on the floor with a puddle of blood around her

21. Why was Bellflower lying on the floor in the linen-room the last time the narrator saw her?
   She was dead.
   She was taking a nap.
   Old Grabu had pushed her rather strongly.
   She had slipped on the floor.

22. What did Bellflower have in her hands when the narrator saw her lying on the floor?
   A needle in one hand and the narrator's shirt in the other
   A needle
   A needle in one hand and the gendarme's petticoats in the other
   Her spectacles

23. What was the narrator's reaction when he saw the woman in the linen-room?
   Ran away uttering shrill cries
   Ran away shouting, 'Help! Help!'
   Ran away shouting, 'Daddy! Daddy!'
   Was too sad to do or say anything

24. How did the narrator feel when he was told that Bellflower was dead?
   His heart was stirred by terrible emotions.
   He was sad but wished she had finished sewing his shirt.
   He was happy that this ugly woman had finally disappeared from his life.
   His heart was stirred by emotions that he could not comprehend.

25. Where did the narrator go when he was told about Bellflower's death?
   He hid himself in the drawing room for a long time.
   He hid himself under his bed for a long time.
   He disappeared from the house for a couple of days.
   He hid himself in a dark corner in the linen-room.

26. Who came in with a lamp while Bellflower was still lying in the linen-room?
   The medical man
   The neighbour
   Old Grabu
   Hortense

27. When did Bellflower break her leg?
   On the day the medical man had arrived at the village

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On the day the Assistant Teacher had arrived at the village
On the day Old Grabu had employed her
On the day she had started working for the narrator's family

28. How did Bellflower look when she was seventeen years old?
   She was a very pretty girl
   She had been a little different from how she was when she started working at the
   narrator's home
   She was a very ugly girl
   She looked exactly the same as when she worked at the narrator's home

29. Who came to live in the village when Bellflower was seventeen years old?
   A young assistant teacher
   An old schoolmaster
   Clochette
   Monsieur Grabu

30. Who knew Bellflower's incident at the hayloft?
   The medical man and a person who was no longer living in the village
   Only the medical man
   The medical man and the narrator's parents
   The narrator's father and a person who no longer lived in the village

31. Who was Old Grabu?
   The schoolmaster
   The young Assistant Teacher
   The narrator's father
   The medical man

32. Who was the young Assistant Teacher afraid of when he was at school?
   His superior, Old Grabu
   The villagers
   The medical man
   The narrator's father

33. Who employed Bellflower when she was seventeen years old?
   Old Grabu
   The narrator's father
   The young Assistant Teacher
   The medical man

34. When was Bellflower nicknamed 'Clochette'?
   After she worked at the school
   After her death
   As soon as she was born
   After she broke her leg at the hayloft

35. What was the hayloft like?
   Very large and absolutely dark
   Very large and roofless
   Small but very dark
   Very large and well-lit

36. What reason did the Assistant Teacher give to Old Grabu for being in the hayloft?
That he had gone to rest a little among the bundles of hay
That he had gone to see Bellflower among the bundles of hay
That he had gone to meet someone there
That he had gone to look for his spectacles

37. Who pushed the frightened girl to the further end of the loft?
   The Assistant Teacher, Sigisbert
   The schoolmaster, Old Grabu
   The medical man
   She was not pushed but went there by herself

38. Why did Old Grabu double-lock the door of the loft?
   So that no one would leave the loft until he came back with a light
   So that the Assistant Teacher would not be able to leave the loft
   It was his habit to double-lock the door of the loft
   So that he would keep the Assistant Teacher there all night as a punishment

39. How did Bellflower manage to help the Assistant Teacher out of trouble?
   She escaped from the loft by jumping out of the window.
   She covered herself with bundles of hay.
   The Assistant Teacher himself pushed her out of the loft window.
   She squeezed herself in a small box in the loft.

40. Who related the adventure at the hayloft to the medical man?
   The Assistant Teacher
   Monsieur Grabu
   The narrator's father
   The person who had left the village

41. What happened to Bellflower as she fell from the second storey?
   Her right leg broke in three places.
   Old Grabu heard the scream she had made and discovered her.
   Her head cracked at the concrete floor.
   Her arm broke as it impacted on the concrete floor.

42. Did Bellflower complain of any pain at all?
   No, she did not complain but said that she was punished.
   Yes, she complained of severe pain and said that she deserved that punishment.
   Yes, she complained of minor pain but said that she did not deserve that punishment.
   No, she did not complain but she told her friends what had happened.

43. Did the medical man tell Bellflower's friends what had really happened to her?
   No, he didn't. He told them a made-up story.
   No, he didn't. He told them the story of Jean Pila's dog.
   Yes, he told them but gave very little detail.
   Yes, he told them and in full detail.

44. What does the medical man think about Bellflower?
   She was a martyr.
   She was a foolish woman.
   She was guilty of sinful intentions.
   She deserved the punishment.
Vocabulary

1. I couldn’t tell you more. I was in agony. The word “agony” means:
   - extreme mental or physical suffering
   - deal with a situation effectively
   - needing or desiring very much
   - a young man
2. Who was racing around the room and up the curtains with a tangled mess of wool around his middle? The word “mess” means:
   - a confused, troubling condition
   - running around in a state of frenzy and desperation
   - a course of action determined or decided on
   - greatly upset or discomposed
3. Well, I guess it all started with my New Year’s Resolutions. The word “resolution” means:
   - an intention
   - quality or state of being true
   - passionate
   - narration, description
4. Mum was trying to alter my shorts. The word “alter” means:
   - to change or make different
   - to emerge, come forth, or arrive suddenly
   - to move a hard or sharp edge across a surface, to make smooth
   - to move in a stealthy or guilty manner
5. So I knew I just had to put up with it. The phrase “put up with” means:
   - endure, tolerate
   - speak abruptly or sharply
   - pay an informal visit
   - complain, grumble
6. She calls it making up for lost time, which shows how mad she is. The phrase “making up for lost time” means:
   - compensate
   - suitable for marriage
   - to shift the gaze usually quickly and continually
   - loose warm suit worn for exercising etc
7. Thank goodness not absolutely all of them could see her. The word “absolutely” means:
   - completely, utterly
   - extremely ruthless or cruel
   - tediously
   - showing enterprise, or being energetic
8. I decided to take the initiative. You really have to with Dad. The word “initiative” means:
   - power or right to begin
   - general talk, assertion, or hearsay of doubtful accuracy
make up one's mind; decide firmly
talk or utter unintelligibly or too fast
9. I'd just finished the hundredth mustn't in a column when a loud crack, like a pistol shot, exploded in my ears. The word “crack” means:
to cause to make a sharp, snapping sound
to snatch, pull, or remove in a sudden manner
to send with great vigor; thrust
jump out
10. I thought she'd cheered up after he'd gone. The phrase “cheer up” means:
brighten up
to become gradually fainter
to close or latch with a snapping sound
to wrap or pad in order to deaden the sound
11. Since then my dad has .......... his whole life to making money.
devoted
skipped
stretched out
leaned against
12. I'd done two for Gavin, and Mrs. Matthews told him they showed a .......... improvement.
vast
rattle
gorse
campaign
13. I .......... into the back garden, which was just big enough for the revolving clothesline. wandered
dopey
resolved
blushed
14. And I'll make .......... investments and get very rich, and Mum will be able to have expensive enthusiasms then, so long as they're quiet ones.
daring
gravel
mansion
pointless
15. I lay on the teddy bears most of the time, .......... my energy and talking to Spanzini.
conserving
pretending
agonizing
disgusting
16. Well, it's nearly midnight and the torch battery is .......... .
fading
upsetting
crouching
gasping
17. I have a plan, a plan that could result in the successful .......... of your NYR
   accomplishment
dripping
fair
foul
18. Irene had obviously .......... legal skills from his dad.
   inherited
nicked
reckoned
scribbled
19. She rattled her paper, then .......... it down.
   flung
spin
carved
grabbed
casts
rattles
tucks
yaps
Appendix 3 Final 2 Test

Final English Language Exam
English Language Department

Instructions for the students

At the speed of 25 pages/hour and within the time limit of 13.5 minutes, read the short story entitled, “Model Millionaire: A Note of Admiration” by Oscar Wilde, then answer the comprehension questions on it and answer the vocabulary questions that follow.

9. Login to RapidReader with your own Username and Password. This information is extremely important because it will appear on your official answer booklet that the computer will produce at the conclusion of the exam.
10. From the Activity menu, choose Exam.
11. Now you should get the Comprehension Test Type dialogue box. Choose the first option: As multiple-choice questions.
12. Set your speed at 25 pages/hour, and your reading mode at timed, then choose your story by pressing the Read Passage button, then scrolling all the way down to the bottom, choosing the last title: Millionaire and pressing the Read button.
13. Now you should be able to read Millionaire on the computer screen, but Do Not do so until the teacher tells you to start.
14. When you are told to start, you should press the Play button.
15. When you have completed reading the story, you will be presented with the multiple-choice comprehension and vocabulary questions. As usual, you need to choose the correct response for every question and to click the box next to it until you finish all the questions.
16. Do Not close the Multiple Choice Questions when they have been completed. Save your answers first by pressing Save button, then naming it by your FirstAndLastName.txt.
UNLESS one is wealthy, there is no use in being a charming fellow. Romance is the privilege of the rich, not the profession of the unemployed. The poor should be practical and prosaic (dull). It is better to have a permanent income than to be fascinating. These are the great truths of modern life, which Hughie Erskine never realised. Poor Hughie! Intellectually, we must admit, he was not of much importance. He never said a brilliant or even an ill-natured thing in his life. But then he was wonderfully good-looking, with his crisp, brown hair, his clear-cut profile, and his grey eyes. He was as popular with men as he was with women, and he had every accomplishment except that of making money. His father had bequeathed (passed on) him his cavalry sword and a History of the Peninsular War in fifteen volumes. Hughie hung the first over his looking-glass, put the second on a shelf between Ruff’s Guide and Bailey’s Magazine, and lived on two hundred a year that an old aunt allowed him. He had tried everything. He had gone on the Stock Exchange for six months; but what was a butterfly to do among bulls and bears? He had been a tea-merchant for a little longer, but had soon tired of pekoe and souchong (types of black tea). Then he had tried selling dry sherry (wine). That did not answer; the sherry was a little too dry. Ultimately he became nothing, a delightful, ineffectual young man with a perfect profile and no profession.

To make matters worse, he was in love. The girl he loved was Laura Merton, the daughter of a retired Colonel who had lost his temper and his digestion in India, and had never found either of them again. Laura adored him, and he was ready to kiss her shoe-strings. They were the handsomest couple in London, and had not a penny-piece between them. The Colonel was very fond of Hughie but would not hear of any engagement.

"Come to me, my boy, when you have got ten thousand pounds of your own, and we will see about it," he used to say; and Hughie looked very glum in those days, and had to go, to Laura for consolation.

One morning, as he was on his way to Holland Park, where the Mertons lived, he dropped in to see a great friend of his, Alan Trevor. Trevor was a painter. Indeed, few people escape that nowadays. But he was also an artist, and artists are rather rare. Personally he was a strange rough fellow, with a freckled face and a red, ragged beard. However, when he took up the brush he was a real master, and his pictures were eagerly sought after. He had been very much attracted by Hughie at first, it must be acknowledged, entirely on account of his personal charm. "The only people a painter should know," he used to say, "are people who are bele (stupid) and beautiful, people who are an artistic pleasure to look at and an intellectual repose (inactivity) to talk to. Men who are dandies (ladies' men) and women who are darlings rule the world, at least they should do so." However, after he got to know Hughie better, he liked him quite as
much for his bright, buoyant spirits and his generous, reckless nature, and had given him the permanent entree to his studio.

When Hughie came in, he found Trevor putting the finishing touches to a wonderful life-size picture of a beggar-man. The beggar himself was standing on a raised platform in a corner of the studio. He was a wizened old man, with a face like wrinkled parchment, and a most piteous expression. Over his shoulder was flung a coarse brown cloak; all tears and tatters (torn clothes); his thick boots were patched and cobbled, and with one hand he leant on a rough stick, while with the other he held out his battered hat for alms (donations).

"What an amazing model?" whispered Hughie, as he shook hands with his friend.

"An amazing model?" shouted Trevor at the top of his voice.

"I should think so! Such beggars as he are not to be met with every day. A trouvaille, mon cher, discovery my friend, a living Velasquez! My stars! What an etching Rembrandt would have made of him!"

"Poor old chap!" said Hughie, "how miserable he looks! But I suppose, to you painters, his face is his fortune?"

"Certainly," replied Trevor, "you don't want a beggar to look happy, do you?"

"How much does a model get for sitting?" asked Hughie, as he found himself a comfortable seat on a divan.

"A shilling an hour."

"And how much do you get for your picture, Alan? Oh, for this I get two thousand!"

"Pounds?"

"Guineas (gold coins). Painters, poets, and physicians always get guineas."

"Well, I think the model should have a percentage," cried Hughie, laughing; "they work quite as hard as you do."

"Nonsense, nonsense! Why, look at the trouble of laying on the paint alone, and standing all day long at one's easel! It's all very well, Hughie for you to talk, but I assure you that there are moments when Art almost attains to the dignity of manual labour. But you mustn't chatter; I'm very busy. Smoke a cigarette, and keep quiet."

After some time, the servant came in and told Trevor that the frame maker wanted to speak to him.
"Don't run away, Hughie," he said, as he went out, "I will be back in a moment."

The old beggar man took advantage of Trevor's absence to rest for a moment on a wooden bench that was behind him. He looked so forlorn (sad) and wretched (miserable) that Hughie could not help pitying him, and felt in his pockets to see what money he had. All he could find was a sovereign (gold coin) and some coppers (bronze coins). "Poor old fellow," he thought to himself, "he wants it more than I do, but it means no hansoms (carriages) for a fortnight"; and he walked across the studio and slipped the sovereign into the beggar's hand.

The old man started, and a faint smile flitted across his withered (dried up) lips. "Thank you, sir," he said, "thank you."

Then Trevor arrived, and Hughie took his leave, blushing a little at what he had done. He spent the day with Laura, got a charming scolding for his extravagance, and had to walk home.

That night he strolled into the Palette Club about eleven o'clock, and found Trevor sitting by himself in the smoking-room drinking hock (wine) and seltzer (soda water).

"Well, Alan, did you get the picture finished all right?" he said, as he lit his cigarette.

"Finished and framed, my boy!" answered Trevor; "and, by the bye, you have made a conquest. That old model you saw is quite devoted to you. I had to tell him all about you-who you are, where you live. What your income is, what prospects you have-"

"My dear Alan," cried Hughie, "I shall probably find him waiting for me when I go home. But, of course, you are only joking. Poor wretch! I wish I could do something for him. I think it is dreadful that anyone should be so miserable. I have got heaps of old clothes at home--do you think he would care for any of them? Why, his rags were falling to bits."

"But he looks splendid in them," said Trevor, "I wouldn't Paint him in a frock coat for anything. What you call rags I call romance. What seems poverty to you is picturesque-ness to me (worthy of being photographed). However, I'll tell him of your offer."

"Alan," said Hughie seriously, "you painters are a heartless lot."

"An artist's heart is his head," replied Trevor; "and besides, our business is to realise the world as we see it, not to reform it as we know it. A chacun son metier, every man to his trade. And now tell me how Laura is. The old model was quite interested in her."

"You don't mean to say you talked to him about her?" said Hughie.
"Certainly I did. He knows all about the relentless Colonel, the lovely Laura, and the 10,000 pounds."

"You told that old beggar all my private affairs?" cried Hughie, looking very red and angry.

"My dear boy," said Trevor, smiling, "that old beggar, as you call him, is one of the richest men in Europe. He could buy all London tomorrow without overdrawng his account. He has a house in every capital, dines off gold plate, and can prevent Russia going to war when he chooses."

"What on earth do you mean?" exclaimed Hughie.

"What I say," said Trevor. "The old man you saw today in the studio was Baron Hausberg. He is a great friend of mine, buys all my pictures and that sort of thing, and gave me a commission a month ago to paint him as a beggar. What do you expect? It is the whim of a millionaire! And I must say he made a magnificent figure in his rags, or perhaps I should say in my rags; they are an old suit I got in Spain."

"Baron Hausberg!" cried Hughie. "Good heavens! I gave him a sovereign!" and he sank into an arm-chair, the picture of dismay.

"Gave him a sovereign! "shouted Trevor, and he burst into a roar of laughter. "My dear boy, you'll never see it again. His business is with other men's money."

"I think you might have told me, Alan," said Hughie sulkily, "and not have let me make such a fool of myself."

"Well, to begin with, Hughie," said Trevor, "it never entered my mind that you went about distributing alms in that reckless way. I can understand your kissing a pretty model, but your giving a sovereign to an ugly one--by Jove, no! Besides, the fact is that I really was not at home today to any one; and when you came in I didn't know whether Hausberg would like his name mentioned. You know he wasn't in full dress."

"What a duffer he must think me!" said Hughie.

"Not at all. He was in the highest spirits after you left; kept chuckling to himself and rubbing his old wrinkled hands together. I couldn't make out why he was so interested to know all about you; but I see it all now. He'll invest your sovereign for you, Hughie, pay you the interest every six months, and have a capital story to tell after dinner."

"I am an unlucky devil," growled Hughie. "The best thing I can do is to go to bed; and, my dear Alan, you mustn't tell any one. I shouldn't dare show my face in the Row."
"Nonsense! It reflects the highest credit on your philanthropic (generous) spirit, Hughie. And don't run away. Have another cigarette, and you can talk about Laura as much as you like."

However, Hughie wouldn't stop, but walked home, feeling very unhappy, and leaving Alan Trevor in fits of laughter.

The next morning, as he was at breakfast, the servant brought him up a card on which was written, Monsieur Gustave Naudin, on behalf of le Baron Hausberg. "I suppose he has come for an apology," said Hughie to himself; and he told the servant to show the visitor up.

An old gentleman with gold spectacles and grey hair came into the room, and said, in a slight French accent, "Have I the honour of addressing Monsieur Erskine?"

Hughie bowed.

"I have come from Baron Hausberg," he continued. "The Baron---"

"I beg, sir, that you will offer him my sincerest apologies," stammered Hughie.

"The Baron," said the old gentleman with a smile, "has commissioned me to bring you this letter and he extended a sealed envelope.

On the outside was written, "A wedding present to Hughie Erskine and Laura Merton, from an old beggar," and inside was a cheque for 10,000 pound.

When they were married, Alan Trevor was the best man, and the Baron made a speech at the wedding breakfast.

"Millionaire models," remarked Alan, are rare enough; but, by Jove, model millionaires are rarer still!"
1. According to the story, romance is the privilege of ....
   The rich
   Single men
   Single women
   Older people
2. Hughie Erskine was ............... .
   Not very smart, but good looking
   Very smart and good looking
   Very rich but bad looking
   Not very good looking or rich
3. Where from was Hughie receiving an income?
   An old aunt of his
   His father
   An old uncle of his
   His grandmother
4. One of the occupations Hughie tried to make money from was ................ .
   Tea merchant
   Banker
   Real estate agent
   Artist
5. Laura, the girl Hughie loved, was ........... .
   Very poor but fond of him
   Very poor and she disliked him
   Extremely rich and fond of him
   Extremely rich but she disliked him
6. Laura's father was a retired ............. .
   Colonel
   Shoemaker
   Artist
   Merchant who used to travel to India
7. How did Laura's father feel toward Hughie?
   Very fond of him
   Disliked him very much
   Respected Hughie but did not think he was worthy of his own daughter
   Did not know that Hughie was in love with his own daughter
8. According to the father, what did Hughie have to do before thinking of marrying Laura?
   Have ten thousand pounds of his own
   Be a college graduate
   Get a job
   Learn painting
9. What does "consolation" mean in: "Hughie looked very glum in those days, and had to go to Laura for consolation"?
   Condolence and comfort
   Money
10. Hughie's friend, Alan Trevor, was ........... .
   An artist
   A musician
   A model
   A millionaire

11. Alan Trevor believed that people of his profession should only know ........... .
   People who were an artistic pleasure to look at
   People who were wealthy
   People who were kind and merciful
   People who did not talk much but were very nice

12. Who did Alan Trevor believe should rule the world?
   Men who are dandies and women who are darlings
   Men who are poor and women who are dominant
   Men who are rich and women who are weak
   Men who are strong and rich

13. Alan Trevor was painting a ........... of a beggar man when Hughie visited him.
   Life-size picture
   Snap-shot picture
   Caricature
   Small-size portrait

14. What did the beggar look like?
   A wizened old man
   A wizened young man
   An ordinary tall man
   An ordinary short man

15. What did the beggar lean on?
   A rough stick
   A stool
   A young boy
   A table

16. What did the beggar have in the other hand?
   A hat
   A briefcase
   A piece of paper with a photo on it
   A box

17. What is the meaning of "alms"?
   Donations
   Mechanical tools
   Green grapes
   Needles

18. How much does a model beggar get for posing for painting?
   A shilling an hour
   A lot of money
A beggar does it for free
We are not told in the story

19. How much does Alan Trevor get for a painting of the beggar?
   Two thousand guineas
   Millions of pounds
   The painting may not be sold
   Nothing

20. What did Hughie do after Alan had momentarily gone out of the room where the model beggar was posing?
   Gave money to the beggar
   Cried in sympathy with the beggar
   Asked the beggar to demand more money from the painter
   Sat quietly back and thought about the beggar

21. What price did Hughie's sacrifice for the beggar cost him?
   Not being able to ride any hansoms for a fortnight
   Not being able to go out with his girlfriend for a fortnight
   Not having enough money for dinner that day
   Not having enough money for lunch that day

22. With whom did Hughie spend the rest of the day that he saw the beggar posing for painting?
   Laura
   His aunt
   His mother
   Alan, his painter friend

23. When they met in the Palette Club, Alan told Hughie that ...........
   The painting was finished and framed
   The painting was almost finished
   The painting was going to be finished the following week
   The painting was never going to be finished

24. When the beggar was given some personal information about him, Hughie said, ...
   "I shall probably find him waiting for me when I go home"
   "I shall probably have to give him money on a regular basis"
   "Why did you tell him such awful things about me?"
   "That is none of your business"

25. What did Hughie tell Alan that he could offer the beggar?
   Some of his old clothes
   Some more money
   A room in his house to sleep in
   A job to earn a living from

26. How different were Alan and Hughie's views on the beggar's clothes?
   Alan thought they were "romance", whilst Hughie thought they were "rags"
   falling to bits
   Alan thought they were "rags" but Hughie thought they were "romance"
   Alan would not paint a beggar dressed in rags
   Hughie thought the beggar should have posed in more respectable clothes
27. What did Hughie think of painters in general?
    Heartless
    Kind hearted
    Evildoers
    Brainless

28. What did Alan believe an artist's heart was?
    His head
    His guts
    His eyes
    His hands

29. What did Alan believe the job of artists was?
    To realise the world as they see it
    To realize their own dreams
    To paint pictures and not worry about their sale
    To be law-abiding citizens

30. What was the beggar model quite interested in when Alan told him about Hughie?
    Interested in Laura
    Interested in knowing where Hughie lived
    Interested in knowing how much debt Hughie had
    Interested in knowing the relationship between Alan and Hughie

31. When Hughie discovered that Alan had told the beggar all about his private affairs, he was very .......... .
    Red and angry
    Pale and worried
    Excited and happy
    Sad

32. What did the beggar know about Laura?
    Her father was a relentless colonel
    Her father was a money-centred man
    She was so beautiful that she could be a painting model too
    She was not a match for Hughie

33. According to Alan, the beggar was a very wealthy man who could ......... .
    Buy all London without overdrawning his account
    Buy all of Russia and prevent it from going to war
    Give gold plates to all the people of London
    Give gold plates to the people of Russia

34. What was the name of the beggar?
    Baron Hausberg
    Wolfgang
    Carlos Iglesias
    Le Monde

35. How did Alan come to paint a rich man the way he did?
    The rich man gave him a commission to paint him so
    The rich man became poor after he had lost his money
    Alan requested the rich man to accept to be painted so
The rich man's wife liked to see him painted so

36. How did Hughie react when he learned the truth about the beggar?
   With dismay
   With excitement
   With great happiness
   With determination never to be made fool of again

37. Why did Hughie think Alan should not tell anyone about the incident with the beggar?
   Because Hughie was embarrassed of being made fool of
   Because Hughie did not want other beggars to come to his house asking for money
   Because Hughie did not want other people to act like the beggar with him
   Because Hughie was a private person and he did not want to be the centre of attention

38. Why did the old gentleman with gold spectacles and grey hair come into the room where Hughie was?
   To tell him something from the beggar
   To tell him a message from Alan
   To take him to see the Baron
   To take permission to leave

39. What did the old gentleman bring Hughie from the Baron?
   A letter
   10,000 pounds in cash
   News about Hughie's wedding
   Nothing

40. What did the Baron do at Hughie's wedding breakfast?
   Gave a speech
   Gave him a gift of 10,000 pounds
   Brought the breakfast
   Told a big joke that made Hughie and his bride laugh and laugh

40. Who was the millionaire in this story?
   The beggar
   The artist
   Hughie
   Hughie's aunt
Vocabulary

1. But I kept sneaking looks at the contract. The word “sneaking” means
   - acting in a stealthy, furtive way
   - conveying a sense of pressing importance
   - causing horror and repugnance
2. A week after I'd posted the last letter to Lesley, I trapped Mum into a significant conversation while we were doing the dishes. The word “trap” means:
   - to catch in or as if in a trap; ensnare
   - to walk or move along haltingly or with difficulty
   - to serve the needs of
   - to look intently, searchingly, or with difficulty
3. You must be getting old enough to have your name on unsolicited mailing lists. The word “unsolicited” means:
   - not looked for or requested
   - impossible to estimate or compute
   - not occurring, not growing
   - very hot or stuffy almost to the point of being suffocating
4. "How could you afford it?" asked Mum, more threateningly, after she'd read the letter. The word “threaten” means:
   - to indicate danger or harm
   - to become red in the face, especially from embarrassment, or shame
   - to embrace amorously
   - to keep in mind
5. I'm totally uninterested in men now. I've seen the light. The phrase “seen the light” means:
   - finally understanding something after having thought about it for a long time
   - outmoded in design, style, or construction
   - characterized by rapid and disordered or nervous activity
   - a source of annoyance; a nuisance
6. It's stone cold and looks like a fried egg on top. Chuck it away. The phrase “chuck it away” means:
   - throw it out
   - eat it quickly
   - leave it
   - damage it irreparably
7. I blurted out as Mum came to a jerky stop on some gravel by a garage that was closed. The word “blurt” means:
   - to utter suddenly and impulsively
   - to turn pages, as in searching or browsing
   - to make someone feel very happy
   - to look intently, searchingly, or with difficulty
8. I will not be pushed around by some rude rich guy. The phrase “pushed around” means:
give orders in a rude and insulting way to try to make someone feel worthless
a brief, passing odor carried in the air
a typically sudden collapse in physical or mental health
of the highest or best kind or quality; first-rate

9. "Do you think they like each other?" I asked very casually. The word "casual" means:
showing little interest or concern
having curls
surly and peevish; cranky
to wish for something with expectation of its fulfilment

10. Go away for a few minutes while I recover. The word "recover" means:
to restore (oneself) to a normal state
to stroke lightly as a gesture of affection
to appeal earnestly
to utter suddenly and impulsively

11. But-I had so much to ..........: a rich dad, a secure inheritance, a computer, and a happier mum who didn't have to work.
gain
extrude
heel
rinse

12. I cleaned the jug till it .........., and I managed to get one huge bubble right across the top of it.
sparkled
queried
stunted
heeled

13. No, he's far too .........., but you just never know these days.
immature
pain
obsolete
venture

14. I got out of bed, where I'd buried myself with the horrible teddy bears, and went back to .......... Mum.
confront
hood
pack
storm

15. But, Dad, this new friend will think I'm .......... .
a drip
a scar
a plug
a bang

16. But I expect the Forest and Bird Lodge is far away from shops, so he'll be unshaven, and that may .......... your mum's interest.
stimulate
17. I was sure this wasn't Mum's area of interest, but she seemed .......... 
   fascinated
   gulp
   navigator
   leafed

18. I knew she must be feeling exhausted and maybe a little .......... 
   overwhelmed
   skidding
   illegible
   scrawl

19. I hadn't thought, when we were making our plans, that he might be .......... 
   stepfather, forcing me to get up early and go jogging!
   a bossy
   a kettle
   a stubble
   a puff

20. In the hospital Mr. Lacy spoke to the .......... and the nurse, found a wheelchair for Mum, and pushed it.
   receptionist
   perceptive
   eyelashes
   fracture
Appendix 4 Pre-Questionnaire of Attitudes

Dear Student

This questionnaire aims at collecting information about English language learners and about their attitudes towards using computers in their learning.

The researcher would be grateful if you complete this questionnaire and return it to your tutor.

Please, be sure that your answers will be dealt with very confidentially and used only for the purpose of the study.

1- Please, answer the following questions on the space given next to each one:

1. What is your name? _____________________________________________

2. What is your age? _____________________________________________

3. What is your gender? ___________________________________________

II- Please, tick YES or NO to answer the following questions:

<table>
<thead>
<tr>
<th>4. Has any of the schools you studied in got computers?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>If yes, did you use computers there?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>5. Have you or your family got a computer at home?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>If yes, do you use it?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>6. Have you attended any computer training courses?</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

If yes, write the name(s) of this/these course(s):

..............................................................................................................

..............................................................................................................

..............................................................................................................

..............................................................................................................

..............................................................................................................

........ see page 2
7. Please, tick each of the following that you have used a computer for:

<table>
<thead>
<tr>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playing electronic games</td>
</tr>
<tr>
<td>Listening to music or watching movies on CD-ROMs</td>
</tr>
<tr>
<td>Word-processing</td>
</tr>
<tr>
<td>Analysing and storing data</td>
</tr>
<tr>
<td>Learning purposes</td>
</tr>
<tr>
<td>Creating pictures and graphics</td>
</tr>
<tr>
<td>Surfing the internet</td>
</tr>
</tbody>
</table>

Kindly, write down what you use computers for if not mentioned above:

..............................................................................................................................................
..............................................................................................................................................

8. If given the chance to learn to improve your English language reading abilities by one of the following methods, which one will you choose? Please tick the box of your choice.

☐ A. Regular Teacher-Based Instruction

☐ B. Computer-based instruction

9. Please, write below the reason for your choice, feel free to use Arabic or English:

..............................................................................................................................................
..............................................................................................................................................
..............................................................................................................................................
..............................................................................................................................................
..............................................................................................................................................

THANK YOU
Appendix 5 Post-Questionnaire of Attitudes

Dear Student,

You have done the reading course this semester in two different ways: One with computers (the CALL method), and the other without computers (the TBI method).

This questionnaire aims at collecting information about your attitudes towards the two different ways of learning English.

Your answers will be dealt with very confidentially and used only for research purposes.

The researcher is grateful to you for your participation. Please complete this questionnaire and then return it to your tutor.

Part I: Please, write your answers to the following questions in the spaces provided.

1. What is your name? ...................................

2. What is the name of your college or university? ..............................................

3. Which of these two methods of reading instruction did you start the course with?
   Circle the right choice:
   CALL Method or TBI Method

Part II: This part is of two sections. Section A deals with your opinion about the computer-based method of instruction (CALL), and Section B deals with your opinion about the teacher-based method of instruction (non-CALL) that you attended in the reading course of this semester.

Please, put an X in the cell that represents how you feel about the statement on the left. The first item (with a star) is only an example.
## A: Reading on Computer (Computer-Assisted Language Learning: CALL)

<table>
<thead>
<tr>
<th></th>
<th>I like learning English</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Word activities helped me learn words quickly</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Word activities helped me become able to use the new words in real life situations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I was able to deal with a large number of word activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I received the teacher's attention in the classroom on one-to-one basis during the course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>The ‘eye movement’ activity helped me improve my reading speed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>The cognizance activity helped me recognize words quickly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>The concentration activity helped me improve my understanding of words under the pressures of speed-reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>During the course, I practiced speed reading, while reading for other subjects, and while doing leisure reading in Arabic and English alike</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I liked to answer the comprehension questions due to the way they were presented to me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I received immediate feedback as I responded to the different activities and the comprehension questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I was able to fix the speed I liked before I started doing an exercise during the reading course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>It was easy for me to record all results of the exercises I did during the course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>All through the course, I was able to see the improvement of my reading abilities by referring to the results of the exercises I did</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>My reading speed increased a lot as a result of this method of reading instruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>My ability to understand what I read improved a lot as a result of this method of reading instruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please, remember that in the following table, you will be responding to the same items, but in relation to the TBI method

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>I have become more able to read longer texts as a result of this method of reading instruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>I learnt a large number of vocabulary items as a result of this method of instruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>I don't like other students to hear me asking about something I don't understand</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I recommend that other students use this method of reading to improve their reading abilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I prefer this method of reading instruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B: Reading on Paper (Teacher-Based Instruction: TBI)

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Word activities helped me learn the new words quickly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Disagree</td>
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<td>Agree</td>
<td>Strongly Agree</td>
</tr>
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<td></td>
</tr>
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<td>19</td>
<td>I recommend that other students use follow this method of reading to improve their reading abilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I like this method of reading instruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Part III:

Please, write below in English or Arabic how you feel about using computers in the English classroom. You can also say your opinion about the reading material and activities, and the achievement tests.

.................................................................
.................................................................
.................................................................
.................................................................
.............

THANK YOU
Appendix 6 Post-Questionnaire: Personal Interviews of Attitudes

Dear Student,

You have done the reading course this semester in two different ways: One with computers (the CALL method), and the other without computers (the TBI method).

This interview aims at knowing your opinions and views about the reading instructional methods you were exposed to during the second semester, 2002.

Your answers will be dealt with very confidentially and used only for research purposes.

The researcher is grateful to you for your participation.

Please feel free to say in Arabic what you think and feel in response to my questions, and due to the nature of the research I would be recording your answers, if you do not mind.

PART ONE

This part is for managerial purposes, and so the interviewer makes a record of the respondent's:

• name or college/university ID,

• name of college or university.

PART TWO

The following questions refer separately to the 3 aspects of reading aspects of speed, comprehension and vocabulary knowledge.

Reading Speed

1. Has your reading speed increased remarkably as a result of the reading course you attended? If ‘No”, what was/were the reason(s)? If ‘Yes”, which method contributed most to this improvement - the teacher- or the computer-based method of instruction? And why?

2. What were the features or factors in the instructional method you were exposed to, that caused the remarkable increase in your reading speed?

3. What changes or modifications would you suggest for improving this method of reading instruction?
Reading Comprehension

1. Has your ability to comprehend reading texts improved remarkably as a result of the reading course you attended? If “No”, what was/were the reason(s)? If “Yes”, which method contributed most to this improvement - the teacher- or the computer-based method of instruction? And why?

2. What were the features or factors in the instructional method you were exposed to, that caused the remarkable improvement in your reading comprehension ability?

3. What changes or modifications would you suggest for improving this method of reading instruction?

Vocabulary Learning

1. Has your vocabulary knowledge improved remarkably as a result of the reading course you attended? If “No”, what was/were the reason(s)? If “Yes”, which method contributed most to this improvement - the teacher- or the computer-based method of instruction? And why?

2. What were the features or factors in the instructional method you were exposed to, that caused the remarkable improvement in your vocabulary knowledge?

3. What changes or modifications would you suggest for improving this method of reading instruction?

THANK YOU
Appendix 7-a: Tables of crosstabulation of Item 20 and the rest of the post-questionnaire Items for CALL

1 Word activities helped me learn words quickly/CALL * 20 I prefer this method of reading instruction/CALL Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I prefer this method of reading instruction/CALL</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Opinion</td>
<td>Agree</td>
<td>Strongly Agree</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>1 Word activities helped me learn words quickly/CALL</td>
<td>No Opinion</td>
<td>1</td>
<td>16</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>1</td>
<td>1</td>
<td>126</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>3</td>
<td>17</td>
<td>130</td>
<td>150</td>
</tr>
</tbody>
</table>

2 Word activities helped me become able to use the new words in real life situations/CALL * 20 I prefer this method of reading instruction/CALL Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I prefer this method of reading instruction/CALL</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Opinion</td>
<td>Agree</td>
<td>Strongly Agree</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>2 Word activities helped me become able to use the new words in real life situations/CALL</td>
<td>No Opinion</td>
<td>1</td>
<td>16</td>
<td>19</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>2</td>
<td>1</td>
<td>110</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>3</td>
<td>17</td>
<td>130</td>
<td>150</td>
</tr>
</tbody>
</table>

3 I was able to deal with a large number of word activities/CALL * 20 I prefer this method of reading instruction/CALL Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I prefer this method of reading instruction/CALL</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Opinion</td>
<td>Agree</td>
<td>Strongly Agree</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>3 I was able to deal with a large number of word activities/CALL</td>
<td>Disagree</td>
<td>1</td>
<td>16</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>2</td>
<td>1</td>
<td>128</td>
<td>130</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>3</td>
<td>17</td>
<td>130</td>
<td>150</td>
</tr>
</tbody>
</table>
4 I received the teacher's attention in the classroom on one-to-one basis during the course/CALL * 20 I prefer this method of reading Instruction/CALL Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I prefer this method of reading instruction/CALL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Opinion</td>
</tr>
<tr>
<td>4 I received the teacher's attention in the classroom on one-to-one basis during the course/CALL</td>
<td>No Opinion</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
</tr>
</tbody>
</table>

5 The 'eye movement' activity helped me improve my reading speed/CALL * 20 I prefer this method of reading instruction/CALL Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I prefer this method of reading instruction/CALL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Opinion</td>
</tr>
<tr>
<td>5 The 'eye movement' activity helped me improve my reading speed/CALL</td>
<td>No Opinion</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
</tr>
</tbody>
</table>

6 The cognizance activity helped me recognize words quickly/CALL * 20 I prefer this method of reading instruction/CALL Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I prefer this method of reading instruction/CALL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Opinion</td>
</tr>
<tr>
<td>6 The cognizance activity helped me recognize words quickly/CALL</td>
<td>No Opinion</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
</tr>
</tbody>
</table>
7 The concentration activity helped me improve my understanding of words under the pressures of speed-reading/CALL. 20 I prefer this method of reading instruction/CALL.

<table>
<thead>
<tr>
<th>Count</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Opinion</td>
</tr>
<tr>
<td>7 The concentration activity helped me improve my understanding of words under the pressures of speed-reading/CALL</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
</tr>
</tbody>
</table>

8 During the course, I practised speed reading, while reading for other subjects, and while doing leisure reading in Arabic and English alike/CALL. 20 I prefer this method of reading instruction/CALL.

<table>
<thead>
<tr>
<th>Count</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Opinion</td>
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<tr>
<td>8 During the course, I practised speed reading, while reading for other subjects, and while doing leisure reading in Arabic and English alike/CALL</td>
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</table>

9 I liked to answer the comprehension questions due to the way they were presented to me/CALL. 20 I prefer this method of reading instruction/CALL.

<table>
<thead>
<tr>
<th>Count</th>
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<tbody>
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<td>9 I liked to answer the comprehension questions due to the way they were presented to me/CALL</td>
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<tr>
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</table>
10 I received immediate feedback as I responded to the different activities and the comprehension questions/CALL. * 20 I prefer this method of reading instruction/CALL.

<table>
<thead>
<tr>
<th>Count</th>
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<tbody>
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<tr>
<td>10 I received immediate feedback as I responded to the different activities and the comprehension questions/CALL</td>
<td>No Opinion</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td></td>
<td>Total</td>
</tr>
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</table>

11 I was able to fix the speed I liked before I started doing an exercise during the reading course/CALL. * 20 I prefer this method of reading instruction/CALL.

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I prefer this method of reading instruction/CALL</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>No Opinion</td>
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<tr>
<td>11 I was able to fix the speed I liked before I started doing an exercise during the reading course/CALL</td>
<td>Agree</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td></td>
<td>Total</td>
</tr>
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</table>

12 It was easy for me to record all results of the exercises I did during the course/CALL. * 20 I prefer this method of reading instruction/CALL.

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I prefer this method of reading instruction/CALL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Opinion</td>
</tr>
<tr>
<td>12 It was easy for me to record all results of the exercises I did during the course/CALL</td>
<td>Agree</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td></td>
<td>Total</td>
</tr>
</tbody>
</table>
13 All through the course, I was able to see the improvements of my reading abilities by referring to the results of the exercises I did. * 20 I prefer this method of reading instruction/CALL Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I prefer this method of reading instruction/CALL</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
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<td>13 All through the course, I was able to see the improvements of my reading abilities by referring to the results of the exercises I did/CALL</td>
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<td>1</td>
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<tr>
<td></td>
<td></td>
<td>Agree</td>
<td>16</td>
<td>9</td>
<td>25</td>
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<td></td>
<td></td>
<td>Strongly Agree</td>
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<td>121</td>
<td></td>
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<td></td>
<td>Total</td>
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<td>17</td>
<td>130</td>
<td>150</td>
</tr>
</tbody>
</table>

14 My reading speed increased a lot as a result of this method of reading instruction/CALL. * 20 I prefer this method of reading instruction/CALL Crosstabulation

<table>
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<th>Strongly Agree</th>
<th>Total</th>
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</thead>
<tbody>
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<td>14 My reading speed increased a lot as a result of this method of reading instruction/CALL</td>
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<td></td>
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<td>17</td>
<td>20</td>
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<td></td>
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<td>Strongly Agree</td>
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<td>128</td>
<td></td>
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<tr>
<td></td>
<td>Total</td>
<td>3</td>
<td>17</td>
<td>130</td>
<td>150</td>
</tr>
</tbody>
</table>

15 My ability to understand what I read improved a lot as a result of this method of reading instruction/CALL. * 20 I prefer this method of reading instruction/CALL Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I prefer this method of reading instruction/CALL</th>
<th>No Opinion</th>
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<th>Strongly Agree</th>
<th>Total</th>
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</thead>
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<td>No Opinion</td>
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<td></td>
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<td>1</td>
<td>16</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strongly Agree</td>
<td>1</td>
<td>118</td>
<td>119</td>
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<td></td>
<td>Total</td>
<td>3</td>
<td>17</td>
<td>130</td>
<td>150</td>
</tr>
</tbody>
</table>
16 I have become more able to read longer texts as a result of this method of instruction/CALL. * 20 I prefer this method of reading instruction/CALL Crosstabulation

<table>
<thead>
<tr>
<th>20 I prefer this method of reading instruction/CALL</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>16 I have become more able to read longer texts as a result of this method of instruction/CALL</td>
<td>No Opinion</td>
<td>2</td>
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<td>2</td>
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<tr>
<td></td>
<td>Agree</td>
<td>1</td>
<td>17</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>102</td>
<td></td>
<td>102</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>3</td>
<td>17</td>
<td>130</td>
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</tbody>
</table>

7 During this reading course, I used to learn the new vocabulary words outside class time/CALL. * 20 I prefer this method of reading instruction/CALL Crosstabulation

<table>
<thead>
<tr>
<th>20 I prefer this method of reading instruction/CALL</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 During this reading course, I used to learn the new vocabulary words outside the class time/CALL</td>
<td>Disagree</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>No Opinion</td>
<td>1</td>
<td>14</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>3</td>
<td>71</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>51</td>
<td></td>
<td>51</td>
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<tr>
<td>Total</td>
<td></td>
<td>3</td>
<td>17</td>
<td>130</td>
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</tbody>
</table>

8 I learnt a large number of vocabulary items as a result of this method of instruction/CALL. * 20 I prefer this method of reading instruction/CALL Crosstabulation

<table>
<thead>
<tr>
<th>20 I prefer this method of reading instruction/CALL</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total</th>
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<tr>
<td>18 I learnt a large number of vocabulary items as a result of this method of instruction/CALL</td>
<td>Disagree</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No Opinion</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>1</td>
<td>17</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>107</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>3</td>
<td>17</td>
<td>130</td>
</tr>
</tbody>
</table>
19 This method of instruction allowed me to ask about something I do not understand without other students hearing me having to ask/CALL. 20 I prefer this method of reading instruction/CALL.

**Crosstabulation**

<table>
<thead>
<tr>
<th>20 I prefer this method of reading instruction/CALL</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 This method of instruction allowed me to ask about something I do not understand without other students hearing me having to ask/CALL</td>
<td>Disagree</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>3</td>
<td>16</td>
<td>32</td>
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<tr>
<td></td>
<td>Strongly Agree</td>
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<td>116</td>
<td>117</td>
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<tr>
<td>Total</td>
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<td>17</td>
<td>130</td>
<td>150</td>
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</table>
Appendix 7-b: Tables of crosstabulation of Item 20 and the rest of the post-questionnaire Items for TBI

1 Word activities helped me learn words quickly/TBI * 20 I like this method of reading instruction/TBI Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I like this method of reading instruction/TBI</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>9</td>
<td>6</td>
<td>4</td>
<td>19</td>
<td></td>
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<tr>
<td></td>
<td>Disagree</td>
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<td>24</td>
<td>58</td>
<td>92</td>
<td></td>
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<tr>
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<td>No Opinion</td>
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<tr>
<td></td>
<td>Agree</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td></td>
<td></td>
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<td>Total</td>
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<td>44</td>
<td>74</td>
<td>4</td>
<td>150</td>
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2 Word activities helped me become able to use the new words in real life situations/TBI * 20 I like this method of reading instruction/TBI Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I like this method of reading instruction/TBI</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>4</td>
<td>1</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disagree</td>
<td>16</td>
<td>17</td>
<td>27</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No Opinion</td>
<td>22</td>
<td>43</td>
<td>1</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td></td>
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<tr>
<td>Total</td>
<td>28</td>
<td>44</td>
<td>74</td>
<td>4</td>
<td>150</td>
<td></td>
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</tbody>
</table>

1 Word activities helped me learn words quickly/TBI * 20 I like this method of reading instruction/TBI Crosstabulation

<table>
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<tr>
<th>Count</th>
<th>20 I like this method of reading instruction/TBI</th>
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<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Total</th>
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</thead>
<tbody>
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<td>1 Word activities helped me learn words quickly/TBI</td>
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<td>4</td>
<td>19</td>
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<td>92</td>
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<tr>
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<td>9</td>
<td>14</td>
<td>9</td>
<td>34</td>
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<td>Agree</td>
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<td>2</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
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<td>44</td>
<td>74</td>
<td>4</td>
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372
2 Word activities helped me become able to use the new words in real life situations/TBI * 20
like this method of reading instruction/TBI Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
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<td>17</td>
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<td>60</td>
</tr>
<tr>
<td>Disagree</td>
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<td>43</td>
<td>1</td>
<td></td>
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<tr>
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<td>3</td>
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<td>7</td>
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<td>28</td>
<td>44</td>
<td>74</td>
<td>4</td>
<td>150</td>
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</table>

3 I was able to deal with a large number of word activities/TBI * 20 I like this method of reading instruction/TBI Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Total</th>
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<tbody>
<tr>
<td>3 I was able to deal with a large number of word activities/TBI</td>
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<td>6</td>
<td>10</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>Strongly Disagree</td>
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<td>27</td>
<td>47</td>
<td>1</td>
<td>87</td>
</tr>
<tr>
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<td>7</td>
<td>3</td>
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<tr>
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<td>3</td>
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<td>2</td>
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<tr>
<td>Total</td>
<td>28</td>
<td>44</td>
<td>74</td>
<td>4</td>
<td>150</td>
</tr>
</tbody>
</table>

4 I received the teacher's attention in the classroom on one-to-one basis during the course/TBI * 20 I like this method of reading instruction/TBI Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 I received the teacher's attention in the classroom on one-to-one basis during the course/TBI</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>16</td>
<td>29</td>
<td>49</td>
<td>2</td>
<td>96</td>
</tr>
<tr>
<td>Disagree</td>
<td>7</td>
<td>11</td>
<td>22</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>No Opinion</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>28</td>
<td>44</td>
<td>74</td>
<td>4</td>
<td>150</td>
</tr>
</tbody>
</table>
The 'eye movement' activity helped me improve my reading speed/TBI * 20 I like this method of reading instruction/TBI Crosstabulation

| Count | 20 I like this method of reading instruction/TBI |
| --- | --- | --- | --- | --- | --- |
| | Strongly Disagree | Disagree | No Opinion | Agree | Total |
| 5 The 'eye movement' activity helped me improve my reading speed/TBI | Strongly Disagree | 9 | 3 | 1 | 13 |
| | Disagree | 8 | 17 | 30 | 55 |
| | No Opinion | 11 | 24 | 41 | 77 |
| | Agree | 2 | 3 | 5 | 5 |
| Total | 28 | 44 | 74 | 4 | 150 |

The cognizance activity helped me recognize words quickly/TBI * 20 I like this method of reading instruction/TBI Crosstabulation

| Count | 20 I like this method of reading instruction/TBI |
| --- | --- | --- | --- | --- | --- |
| | Strongly Disagree | Disagree | No Opinion | Agree | Total |
| 6 The cognizance activity helped me recognize words quickly/TBI | Strongly Disagree | 9 | 4 | 1 | 13 |
| | Disagree | 8 | 28 | 38 | 74 |
| | No Opinion | 4 | 12 | 35 | 52 |
| | Agree | 7 | 1 | 3 | 11 |
| Total | 28 | 44 | 74 | 4 | 150 |

The concentration activity helped me improve my understanding of words under the pressures of speed-reading/TBI * 20 I like this method of reading instruction/TBI Crosstabulation

| Count | 20 I like this method of reading instruction/TBI |
| --- | --- | --- | --- | --- | --- |
| | Strongly Disagree | Disagree | No Opinion | Agree | Total |
| 7 The concentration activity helped me improve my understanding of words under the pressures of speed-reading/TBI | Strongly Disagree | 4 | 2 | 6 |
| | Disagree | 14 | 30 | 38 | 83 |
| | No Opinion | 1 | 3 | 11 | 15 |
| | Agree | 9 | 9 | 25 | 46 |
| Total | 28 | 44 | 74 | 4 | 150 |
During the course, I practised speed reading, while reading for other subjects, and while doing leisure reading in Arabic and English alike/TBI * 20 I like this method of reading Instruction/TBI Crosstabulation

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 During the course, I practised speed reading, while reading for other subjects, and while doing leisure reading in Arabic and English alike/TBI</td>
<td>11</td>
<td>15</td>
<td>2</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
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<td>28</td>
<td>44</td>
<td>74</td>
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</table>

I liked to answer the comprehension questions due to the way they were presented to me/TBI * 20 I like this method of reading Instruction/TBI Crosstabulation

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
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<td>28</td>
<td>44</td>
<td>74</td>
<td>4</td>
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</table>

I received immediate feedback as I responded to the different activities and the comprehension questions/TBI * 20 I like this method of reading Instruction/TBI Crosstabulation

<table>
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<th>Strongly Disagree</th>
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<td>28</td>
<td>44</td>
<td>74</td>
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11 I was able to fix the speed I liked before I started doing an exercise during the reading course/TBI. 20 I like this method of reading instruction/TBI

<table>
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<tr>
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<th>No Opinion</th>
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<td>Agree</td>
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<tr>
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<td>33</td>
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<td>Disagree</td>
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14 My reading speed increased a lot as a result of this method of reading instruction/TBI. I like this method of reading instruction/TBI. 

<table>
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<tr>
<th>Count</th>
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15 My ability to understand what I read improved a lot as a result of this method of reading instruction/TBI. I like this method of reading instruction/TBI. 

<table>
<thead>
<tr>
<th>Count</th>
<th>20 I like this method of reading instruction/TBI</th>
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<tr>
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6 I have become more able to read longer texts as a result of this method of instruction/TBI. I like this method of reading instruction/TBI. 

<table>
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<tr>
<th>Count</th>
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<tbody>
<tr>
<td></td>
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<td>16 I have become more able to read longer texts as a result of this method of instruction/TBI</td>
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</table>
17 During this reading course, I used to learn the new vocabulary words outside the class time/TBI * 20 I like this method of reading instruction/TBI Crosstabulation

<table>
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18 I learnt a large number of vocabulary items as a result of this method of instruction/TBI * 20 I like this method of reading instruction/TBI Crosstabulation

<table>
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This method of instruction allowed me to ask about something I do not understand without other students hearing me having to ask/TBI * 20 I like this method of reading instruction/TBI Crosstabulation

<table>
<thead>
<tr>
<th>Count</th>
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</table>
Appendix 8 Members of Jury Panel

- Dr. Sane Yagi, Sharjah University, UAE.
- Dr. Basem Badr, Teacher Training Colleges, Al-Rustaq, Sultanate of Oman.
- Dr. K. Sing, Al-Masanna Technical Industrial College, Sultanate of Oman.
- Mr. Yousuf Tahayneh, Al-Masanna Technical Industrial College, Sultanate of Oman.
- Mr. Khalil Jebara, Ministry of Education, Sultanate of Oman.
- Mr. Paul Silvera, Ministry of Education, Sultanate of Oman.
- Mr. Nabil Abu Hashish, Jordan University, Jordan.