

## Reading for Medical Purposes: Medical Knowledge and English Language Proficiency

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### Abstract

**Purpose** The present study seeks to explore the effects of general language proficiency, text readability, and medical knowledge on comprehending medical texts.

**Material and Method** 63 medical students in the second year of their study were randomly selected from the English language classes. They answered 100 multiple-choice questions on grammar and vocabulary to establish the level of language proficiency. Two texts were selected as content familiar (from medical language) and unfamiliar (from general language) based on the opinions of the lecturers of the university and the students enrolled in the fourth year of their study. The students themselves also measured the familiarity of the texts. The students read the texts and wrote a recall in their first language.

The texts were analysed based on Meyer's rhetorical structures. All the propositions were hierarchically organised and were

used as the coding templates. The propositions, which were in the recall, were cross-checked with the templates. Text readability was measured using Fry's graph.

While both texts were at the same level of text readability, the familiar medical text was better comprehended regardless of the level of language ability. Conversely, even those with high language proficiency had difficulties in comprehending the unfamiliar text.

**Conclusion** Texts related to the students' area of study are more comprehensible for both groups of low and high level of language ability. When it comes to selecting texts for language classes, the readability formulas may not indicate the level of the difficulty of a reading text. Prior knowledge of medicine is a better indicator for assessing the comprehensibility of a text for the students of medicine. It is suggested that the focus in university language classes should be on students' area of concern. The criteria for the selection of texts for university language

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classes and consequently the exam questions should be related to students' prior knowledge, in our case medicine. Texts not related to the students' area of study may disadvantage all students regardless of their language ability

**Key words:** Language proficiency, Prior knowledge, Medical Language, Readability, Comprehension

## Introduction

More than 85% of all materials regarding medicine are published in English (Maher 1996). Speakers of other languages also try to publish in English to have wider audience so much so that that English has become the international language of medicine. The problem that arises is that it would be a time-consuming and a costly exercise to translate this body of literature in order to make it available to those with little knowledge of English. Thus the curriculum of Medical training in such a setting contains English language courses specially designed for medical students to enable them to understand materials written in English. Consequently the main purpose of such courses is to improve the medical students reading ability in English.

All universities have compulsory English courses: one general and two specialised. The general English course is conducted over four and a half months for three hours a week (in some schools for four hours) and each specialised English course is over four and a half months for three hours. The General English Course book (Didari 1989) is specifically designed to deal with some general ideas in the students' subject area so that students in allied sciences (e.g. medicine, nursing, obstetric, etc.) can use the same book. All

the books are prepared, written, and published within Iran.

The two specialised English courses (Tahririan and Mehrabi 1994 Tahririan 1997, ) are highly technical and focus on the students' subject area. The materials for the students of medicine are different from those for nursing and obstetrics. These materials are usually designed by the teachers who are specialists in the field. The method of teaching English is based on pronunciation, vocabulary, grammar, translation and reading comprehension. Although all the subjects in the university are taught in Persian, most of the books the students need to read are in English, and teachers encourage the students to read their course books in English.

The selection of reading materials for the courses is based on graded readability and made using a variety of different topics. The assumption is that texts with higher readability (based on the readability charts) are easier to understand and variety of different topics provides the students with ample new vocabulary items for learning. One concern voiced with regard to text selection and assessment of language learning is whether the texts should be discipline specific and therefore have greater content familiarity or drawn from a much broader base of general texts which would have less content familiarity.

Recently the English language section in the PhD entrance examination held in the Ministry has changed from field specific language to general language following a study conducted by Ahmady (2001). Ahmady argues that since there are correlations between grades of general language and field specific language, there would be easier and more convenient to test the students on general language



rather than field specific language. However it should be noted that such positive correlation may be found among the grades of anatomy, physiology, biochemistry etc. This cannot dictate testing the students on one of the subjects only. By the way since the English language courses for BSc and MSc programs are mainly based on field specific language, it seems more plausible to test the students on what they are trained for. The dilemma of testing students on something they do not have much prior knowledge about is discussed in the present study

In the teaching of reading, a major assumption often made is that reading is a passive process, where the reader is a non-active recipient of text information and of the knowledge embedded in the text. What this does not take into account are the reader and his/her knowledge sources, such as reader's prior knowledge of medicine and reader's language proficiency. This study seeks to explore the effect of both language proficiency and prior knowledge, which have come to play important roles in comprehension, and their interactive effects of these variables on comprehension processes of EFL learners as readers is the subject for investigation.

### **The key variables of the study**

The following section outlines the key issues and studies conducted regarding prior knowledge and language proficiency

#### ***Prior knowledge***

Most studies report the positive influence of prior knowledge on reading comprehension (Langer and Nicolich 1981, Alderson and Urquhart 1985, Johnson 1981). The investigation of readers' prior knowledge has mainly been based on

three approaches: the manipulation of the reader, of the text or both the reader and text. In the first approach, the manipulation of the reader, subjects are selected and provided with certain information about the content of the reading text before reading (Lee 1986, Carrell 1983, Hudson 1988, for example). This knowledge is given to them either through showing them the main vocabulary items, pictures, or title, or giving them direct information about the reading text and then a comparison is made between the subjects who received instruction and the control group.

The second approach involves manipulating the texts not the reader. The texts are selected or manipulated so that one would be familiar and one unfamiliar for the same reader (Hammadou 1991 for example). Alvermann et al (1985) selected texts that were compatible and incompatible with the subjects' beliefs about world. They found out that when the subjects read an incompatible text, their previous knowledge and experiences could override conflicting textual information. Therefore they argue that prior knowledge may interfere with, rather than facilitate, comprehension under certain conditions. This view is in accordance with the studies that indicate the culturally unfamiliar texts are not well comprehended because of the interference of conflicting beliefs the reader has about the incoming information (Malik 1990, Lipson 1984, Pritchard 1990, Steffensen and Joag-Dev 1984). Lipson's view is that the problem is not just lack of prior knowledge, it is 'the failure to resolve conflicts between existing knowledge and new information' (Lipson 1982: 763).

A third approach is a crossover design, that is, both the text and reader are manipulated. In such a design two texts on two different topics are read by two groups. For each group, one text is familiar and the



other text unfamiliar. Koh (1985) followed the crossover design in his study when an engineering group read a text on engineering and one on economics, and a group studying economics read a text on economics and one on engineering. While texts on engineering were familiar for the engineers and unfamiliar for the economists, the texts which were familiar for the economists were unfamiliar for the engineers. The results indicated the strong effect of familiarity on reading comprehension.

### **Prior knowledge and readability**

There are different methods of assessing the readability of the texts such as the Fry readability graph, the Flesch Reading ease and the Coleman-Liau grade level. Most of these formulae are based on sentence length and vocabulary size and density of the text. Based on these formulae a text which has shorter sentences and a smaller vocabulary size is rated high on readability and the assumption is that readability is an inherent property of the text. However, Kintsch (1987:10) argues that 'readability is the result of text-reader interaction' and that much depends on the knowledge a reader brings to a reading text (Miller and Kintsch 1980, Kintsch and Miller 1984).

Research on prior knowledge has demonstrated that prior knowledge is much more important than the level of the readability of a text. Nunan (1985) set out to test the importance of prior knowledge in reading comprehension by giving two texts, one on a familiar topic, and one on an unfamiliar one, to his subjects. While the readability of the unfamiliar text was higher, the subjects performed significantly better in the familiar one. This suggests that background knowledge is a more

significant factor than the grammatical complexity of text.

Ulijn and Strother (1990) conducted research on 96 subjects in four groups: two in computer science and the other two in humanities, to investigate the effect of syntactic simplification of texts, background knowledge and language proficiency on reading comprehension both in the first language (L1) and the second language (L2). They changed and simplified certain structures, which were believed to reduce the readability of the texts (such as nominalisation, passive structures, etc.). They changed the syntactic register of a scientific text into that of everyday language. They found that syntactic simplification did not render a text more readable, while background knowledge and language proficiency significantly influenced comprehension.

### **The relationship between prior knowledge and language proficiency**

In most studies, which investigate the influence of prior knowledge, the language proficiency of the subjects has been considered too. Either language proficiency has been kept constant among all the subjects, that is, all the subjects are at the same level of language proficiency (Lee 1986, Carrell 1983b, Alderson and Urquhart 1984 for example) or it has been considered as one important variable (Hudson 1988, Hammadou 1991, and Fang 1994).

Hammadou's study indicates that the recall of the low language proficiency group reveals more inferences than that of the high language group, supporting the influence of familiarity and the compensatory mechanism of reading comprehension. Because the low



language proficiency group could not understand certain vocabulary items or syntactic structures, their interpretative processes were assumed to work on the incomplete information derived from text-based processing (Walczyk 1995). In order to make sense of the text, the reader tries to guess the missing information and connect parts of the text together. Inevitably, the number of inferences made by such a reader is greater than those of another reader with high language proficiency who does not encounter so many missing pieces of information. Naturally the reader relies on other knowledge sources to make appropriate inferences; in other words s/he resorts to a compensatory strategy. Hudson's study demonstrates that a low language proficiency group could perform well when reading a familiar text, indicating that induced schemata can override low language proficiency.

Of all these studies Salagar-Meyer's study (1994) is noteworthy. She investigates the influence of structure variables on readers' construction of meaning from expository texts across different levels of background knowledge, text familiarity and L2 linguistic competence. As she points out, there are few studies carried out on passage topics that use expository prose. The subjects in her study were intermediate and advanced and she argues that they are above the threshold level. Her findings indicate that advanced subjects significantly outperformed the intermediate group on a relatively unfamiliar topic but not on a familiar topic. The gap between the scores obtained in the familiar text as compared with those obtained in the less familiar one is much higher for the intermediate group than in the advanced group. This suggests that the advanced group could take advantage of their linguistic ability to construct the meaning of the less familiar

text and decrease the gap between their scores obtained from familiar and less familiar topics, while the intermediate group could not. In general the findings indicate that both L2 competence and text familiarity yield significant effects on reading performance, and that there was not a significant difference across two levels of language proficiency when reading a familiar text. Based on these findings Salagar-Meyer suggests that:

'L2 readers from varying background knowledge have, once a certain linguistic threshold has been reached, attained a similar level of proficiency with respect to overall reading comprehension when reading familiar material' (Salagar-Meyer 1994: 133).

The intermediate subjects showed significant differences in their performance on the 'scrambled' text in a less familiar context, than in a familiar context. As Salagar-Meyer points out, the scrambled text was considered as a 'double-obstacle' e.g. it was not only a less familiar topic but was also structurally difficult, since it was scrambled. However the advanced group were not disadvantaged by the scrambled text. Apparently their strength in L2 competence could account for the deficiency in structure. The study strongly supports the influence of language proficiency in the construction of meaning and argues that such obstacles as levels of familiarity and differences in structure do not significantly affect the reading performance of high language proficiency subjects.

However, it should be noted that in all studies that deal with prior knowledge and language proficiency, the interaction between these two variables on the component skills has not been investigated. An approach that takes both



text-based components and knowledge-based components in one design is Bernhardt's study (1991a) which investigates the interaction between language proficiency and the components, but does not take prior knowledge as a separate variable being manipulated. In the present study, the interactive effects of prior knowledge and language proficiency on comprehension processes is looked at.

### **The study**

This research was conducted in the medical school of Shahid Beheshti University of Medical Sciences and Health Services in Tehran. Over 300 students from various parts of Iran enter this school each year on the basis of a highly competitive entrance examination. It should be noted that speed of understanding and production is very important in the university entrance exam, and one important skill which is tested indirectly is fast reading with understanding. The students who are faster, with better comprehension and hence are good readers get the higher grades and enter the medical schools. Therefore the general assumption is that the medical students are good first language (L1) readers since they have already proved their competence at the university entrance exam.

### **The sample**

The sample consists of 63 second year medical students. They read two texts: the Coombs' test text which was expected to be familiar and the Panels text which was expected to be unfamiliar and they wrote a recall of each reading text. After reading each text they answered the multiple choice question indicating their level of content familiarity with the reading text.

### **Measuring the variables of the study**

There are four variables in the present study. The three independent variables are the readers' language proficiency; prior knowledge (as gauged by their familiarity with the text); and the readability and structure of the reading texts. The dependent variable is the readers' comprehension of the reading texts.

### **Measuring reading comprehension**

The assessment of reading comprehension is rarely a straightforward task since reading comprehension itself is a complex cognitive process which is not easily observable and therefore not open to direct assessment. The comprehension processes are often inferred or explored indirectly through the assessment of the performance of the subjects on certain tasks. The extent to which the researcher's judgements about these processes are valid and correct is closely related to the strengths and limitations of the method.

The method, which was found to be most appropriate for the study, was the unplanned immediate, free written recall task in mother tongue (UIFWRT in L1).

**Recall.** Recall is a task in which the reader writes down whatever s/he has comprehended after reading the text. The purpose of this task is mainly to demonstrate an overall comprehension of text. The theoretical assumption underlying the use of the technique is that comprehension is the process of relating the incoming information from text to the information already stored in the mind (Bernhardt 1991a).



Recall has been used extensively in L2/FL particularly for investigating the interaction between prior knowledge and language proficiency (Lee 1986, Lund 1991, Wells 1986 Carrell 1984, Bernhardt 1983, 1991a and b, Bernhardt and James 1987, Barnitz 1990).

Recall matches the conceptual framework of reading process in that reading is defined as a silent, active and private process (Davis 1995).

In general recall has been performed in L2 only when subjects have different L1 background or the subjects' L1 is different from that of the teacher or researcher.

### **Measuring language proficiency**

Language proficiency is normally referred to as the knowledge of the vocabulary and grammar of the target language without considering the speaking, writing or comprehension ability of the subjects (Bernhardt and Kamil 1995). This knowledge is either measured through standardised tests such as the English Language Battery Test (ELBA) or through tests which are piloted in the context of the research and are used as language tests. In the present study, language proficiency was measured based on the ELBA test, which consisted the answering of 120 multiple-choice questions. Only the first hundred questions were selected since the rest were assessing reading comprehension in that the subjects were supposed to read four texts and answer twenty comprehension questions. The first hundred questions are composed of 50 grammar tests and 50 vocabulary tests. Although the validity of using multiple choice questions for measuring reading comprehension has been subjected to a certain amount of questioning, they have been successfully used for other purposes

such as assessing language proficiency by many researchers (Strother and Ulijn 1987, Barnett 1986).

### **Measuring the students' familiarity with the text**

The readers' degree of familiarity with the content of the reading text was assessed by the asking of a single multiple choice question. The question was written at the end of the reading text in the readers' mother tongue. The backtranslation of the question is as follow:

How much of the content of the text was familiar to you before you read the text?

- a. Completely Familiar
- b. Above 50% familiar
- c. Less than 50% familiar
- d. Completely unfamiliar

The answers (b) and (c) were taken to indicate semi-familiarity with the text and the answers to (a) and (d) to indicate familiarity and unfamiliarity respectively. However there were two other criteria used to estimate the degree of familiarity with the content which were used in the selection of the text for the study which will be defined in the following section.

### **Measuring readability of the texts**

Readability refers to the level of text difficulty which is normally measured by the number of vocabulary items and the length of sentences. In text selection, it is assumed that texts which have shorter sentences with fewer syllables in each word are easier than the others. Thus, in order to reduce the possible interference of text difficulty care was taken to select the texts of the study which were at the same level of text difficulty.



There are a number of different readability formulae. Fry's readability graph was used in this study for many reasons. First it can be compared with other studies since it is very popular second as Harrison (1980) argues Fry's graph is straightforward in obtaining a readability index.

As Table 1 indicates the two texts are at the same grade level of readability.

### ***The procedures taken to select the three texts of the study***

Based on the discourse structure and Fry's readability graph, 30 expository texts were selected: 15 texts from the content areas the students are supposed to read during the first two years of their study, and 15 were from other disciplines not familiar to medical students. Two out of the 30 texts were needed for the study: one familiar and one unfamiliar to the students. Three methods were employed to assess this degree of familiarity to help select the three texts from the pool of 30.

In the first measure of familiarity, five students in their third year of study estimated the degree of familiarity of the first year and the second year students with the selected texts. By this procedure, the texts that did not receive a consensus on familiarity from the five students were discarded.

The second procedure was to cross-check the students' judgement of familiarity with those of the lecturers in the department responsible for teaching those topics.

The third method of assessing the scale of familiarity with the content of the text was to add a multiple choice question at the bottom of each selected text. As noted above, the question was written in Persian, asking for the degree of familiarity with the text and the students were asked to respond immediately after reading the text.

### ***The features of the selected reading texts***

All of the three selected texts are complete with a beginning and a closing, each providing a complete definition of their topics and the top-level rhetorical structure of the texts are the same. Table 1 shows the number of words and the sentences in the selected texts and the grades of the texts based on Fry's graph.

### ***The design***

three phases: the ELBA test, The data collected from the sample is designed based on repeated-measures where the comparison is within the same group of students e.g. each student has read both texts and written a recall for each of the texts and the scores for each text belong to the same student.

Table 1 The information related to the selected texts and the Fry grade levels

Text	Words	Sentences	Sentences in 100 words	Syllables in 100 words	Fry grade level
Panels text (unfamiliar)	203	11	5.3	154	10
Coombs' test (semi-familiar and familiar)	174	10	5	153	10



### **Data collection**

The data were collected in the usual English classes and the lecturers stayed to help the researcher. The data collection consisted of reading the material and answering the multiple choice question of familiarity, and writing a recall for each reading texts

Time allocated for vocabulary and grammar was 15 minutes for each, and for reading the texts and writing recall and translation was not limited. The total time spent in collecting the data was roughly two hours.

### **Recall Scoring System (quantitative analysis)**

The first step in scoring a recall protocol is to describe what is in the reading text. In order to find out what information is presented in the text, the text needs to be analysed. An analysis of the content information shows how a text is bound together and why some ideas are central and the others peripheral to the overall message of the text. Secondly it shows how many idea units or information units are present in the reading text.

Meyer's system (1975, 1985, 1991) was selected for the purposes of this study. In this system, as opposed to most of the other systems used for coding recall, the information is mainly recognised through the rhetorical relations (such as comparison/contrast, problem/solution, description and so on) that serve to organise the text as a whole (Meyer 1975, Meyer and McConkie 1973, Meyer and Rice 1982). For this very reason, Meyer's system, not only can be used for coding purposes, but also can help in the selection of texts with roughly the same rhetorical

structure in order to avoid the possible interference of this variable in the results of the present study.

Meyer's analysis provides a hierarchical representation of the information of a text which is called content structure in which the unit of information is called a proposition. Content structure is composed of three levels of analysis: top-level structure, macropropositional level and micropropositional level. Top-level structure and macropropositional level form the superordinate structure. The prepositions located at the top level are coded more than the prepositions at the lower levels.

Each proposition correctly recalled is coded as present and the number of the propositions present at each level forms the score at that level. Since each text consists of a number of levels, each student is given a score for each level (level 1, level 2, level 3 ..). The final recall score is the sum of the score of each level multiplied by the number of that level.

$$\text{Final Recall Score} = L1 \times 1 + L2 \times 2 + L3 \times 3 + L4 \times 4 + L5 \times 5 + L6 \times 6$$

Therefore if three propositions are recalled at level five, the score at that level will be:  $3 \times 5 = 15$ .

The statistical procedures are: t test, sign test and the Mann-Whitney test (Hatch & Lazaraton 1991). Hatch and Lazaraton indicate that to run such an analysis between the variables the following assumptions must be met:

- There must be only two levels of one independent variable to compare.



- The Mann-Whitney test needs to be used when each student is assigned to one group e.g. between group design. The sign test needs to be used when it is a repeated measure design.
- There must be a random selection of the sample.
- There needs to be a normal distribution if parametric procedures are used.

### The findings

Sign test was performed between the two degrees of familiarity and final recall scores. The descriptive statistics are shown in Table 2. As the table indicates all students had higher scores in the familiar text. Thus familiar text was significantly better understood by the same subject.

To test the influence of language proficiency in comprehending a text the same procedures were used with language proficiency as independent variable and Final Recall Scores as the dependent variable. There are two degrees of language proficiency (low and high) and the statistical analysis compares the mean recall scores of these levels in each text the familiar and the unfamiliar. The results of the Mann Whitney test comparing the two language proficiency groups in reading a content unfamiliar text are shown in Table 3:

The results indicate that there is no significant difference between low and high language proficiency groups reading the content unfamiliar text. The same procedures were followed to examine the performance of the two language proficiency groups when reading the content familiar text: (Table 4)

To look at the interaction between the two variables language proficiency and familiarity, Figure 1 is plotted showing the location of the mean scores of the students for two degrees of language proficiency and two levels of familiarity. To draw the lines, at first the mean scores of recall for the content familiar text for low and high groups were located and a line connected the two points together. This line is labelled 'F'. Then the locations of the mean recall scores for low and high groups for the content unfamiliar text were plotted and a line connected the two points together labelled 'U' line.

As figure 1 indicates there is no interaction between the recall scores of the familiar and unfamiliar texts across two levels of language proficiency.

The findings of the quantitative analysis of the recall protocols indicate that:

- the recall scores for the familiar text are significantly higher than the scores of the unfamiliar text.
- high language proficiency groups significantly outperformed low language proficiency groups.
- there are no significant differences in recall test scores between the low and high language proficiency groups when reading unfamiliar text.
- there is a significant difference in recall test scores between the low and high language proficiency groups reading a familiar text..
- there is no interaction effect between familiarity and language proficiency in recall scores.



Table 2. Comprehension of the familiar and content unfamiliar texts. [U stands for final recall score of the content unfamiliar text, F for final recall score of the content familiar text]

N	F < U	F > U	F = U	Z	2-tailed p
63	00	63	00	7.81	.00

Table 3. Language proficiency and the content unfamiliar text.

Language Proficiency	N	Mean ranks	Z	2-tailed p
Low Language Proficiency	31	28.11	-1.65	.09
High Language Proficiency	32	35.77		

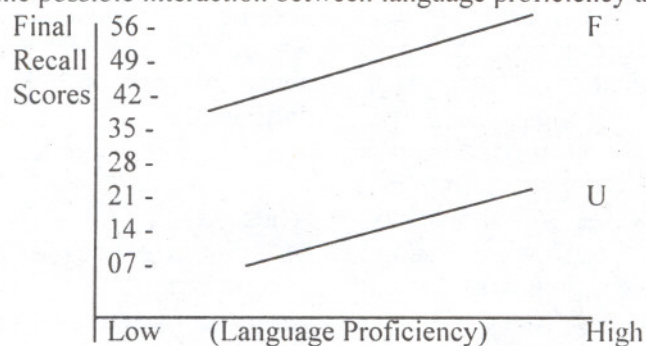
Table 4. Language proficiency and the content familiar text.

Language Proficiency	N	Mean ranks	Z	2-tailed p
Low Language Proficiency	31	25.42	-2.80	.00
High Language Proficiency	32	38.38		

Table 5. The mean recall scores of both levels of language proficiency and familiarity.

Familiarity	Language Proficiency	N	Mean scores	Std
Familiar	Low	31	45.38	20.23
	High	32	58.81	18.07
Unfamiliar	Low	31	16.51	12.69
	High	32	24.31	17.61

Figure 1. Plot to examine possible interaction between language proficiency and familiarity.





## Conclusion

The results of Table 4 and 5 indicate that the high language proficiency group appears to comprehend the content familiar text significantly better than the low language proficiency group.

As it was mentioned earlier, the interpretation of the findings should take place in the light of the interaction. Therefore in order to examine the interaction between the familiarity and language proficiency the plot of the distribution of the mean scores are presented.

What the above findings reveal is that reading in EFL is influenced by the level of language proficiency and, equally importantly, also by the availability of prior knowledge. High language proficiency students outperformed low language proficiency students, and the content familiar text was significantly better comprehended than the content unfamiliar text. The above findings are consistent with Hudson's findings (1982), in that induced schemata overrides low competence in language. There was also an interaction between language proficiency and content familiarity in that it was only in the unfamiliar text condition that there were no significant differences between the low language proficiency group and the high language proficiency group. In fact both low language proficiency and high language proficiency groups could not comprehend the unfamiliar text and that was the reason there were no differences between them. However it should be pointed out that the low language proficiency group could significant perform better in the familiar text than unfamiliar text suggesting that familiarity compensated for low language proficiency. This provides more support for Hudson's

findings (1988). The above results are also consistent with Salagar-Meyer's study (1994) demonstrating that the gap between intermediate group and advance group narrows with the familiar topic.

Despite the fact that the two texts were at the same level of text difficulty, there still were significant differences in the comprehension of the two texts. This suggests that there are other factors, such as reader's knowledge sources in terms of language proficiency and content familiarity, which also contribute to the readability of a text rather than mere text difficulty. The above results supports Nunan's findings (1985) which demonstrated that a content familiar text with low readability was comprehended significantly better than a content unfamiliar text with high readability. The results are also consistent with other studies reported which demonstrate that readability is not a characteristic of the text but it is the characteristic of the reader (Ulijn and Strother 1990, Kintsch 1987).

Since it is presumed that all the students in the present study are good L1 readers, their poor reading ability in EFL cannot be attributed to their poor reading ability in L1, as suggested by the advocates of transference of skills from L1 to L2 (Rigg 1988, Devine 1988, Sarig 1987, Alderson 1984). Other explanations for the variations in the reading performance were therefore sought in factors such as language proficiency, content familiarity and FL reading proficiency.

Thus based on the results of the present study, it is suggested that the texts used for the language course books should be selected from those that are familiar for the students. Selecting texts that are from articles published in foreign journals may not be comprehensible for such students



since such texts demand high level of content knowledge regarding medicine. For sure students in the first and second year of their study who have never read articles in English or even in Persian may encounter great difficulty understanding those texts. Therefore they may resort to just lower level processing skills, that is just focussing on vocabulary and grammar rather than focussing on the information.

By the way since many students are of low language proficiency, content familiar texts might act as a compensatory factor for the low competence in language ability.

Further research is recommended on the component skills of reading comprehension and language proficiency and medical knowledge.

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