

Original Article

Anxiety Effect: A Case of Text Modification and the Effect of High and Low Anxiety Levels on Medical Students' Comprehension Performance

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Abstract

Introduction: The current study sought to investigate the impact of text modifications (lexically and grammatically modified) on reading comprehension ability of medical students with high and low levels of anxiety.

Materials and Methods: To pursue the purpose of this study, 150 male and female medical students from Shahid Beheshti University of Medical Sciences participated in the study. The participants did not take a language proficiency test to ensure homogeneity, as pretesting might affect the internal and external validity of the study due to the interaction effect of pretesting [1]. The framework proposed by [2]. Moreover, a questionnaire developed by [3] entitled "Foreign Language Reading Anxiety Scale (FLRAS)" on a five-point Likert scale with 20 items served as an instrument. MANOVA was run to analyze the data.

Results: The findings revealed that there was a significant difference between the reading comprehension ability of medical students with high and low levels of anxiety exposed to lexically modified ($p < 0.01$), grammatically modified ($p < 0.01$), lexically and grammatically modified ($p < 0.01$), and unmodified passages ($p < 0.01$).

Conclusion: It is hoped that the findings from this study will guide researchers into new directions so that they may go on to discover profound insights about text simplification for medical students in Iran and all over the world.

Keywords: Anxiety, Grammatical Modification, Lexical Modification, Medical Students Reading Medical Passages

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1. Introduction

A considerable number of second and foreign language studies have investigated different aspects of input comprehension. Thus written input, or commonly called reading, is one of the most important sources of input in EFL contexts. Reading is also essential in obtaining academic excellence in all areas one cares to imagine. More specifically, most universities require

the applicants to demonstrate a considerable command of reading comprehension, should they obtain their entry. Therefore, the ways through which learners can improve their comprehension of texts have become the spotlight of many studies [4, 5, 6].

Some researchers and theoreticians believe that input should be comprehensible if it is to facilitate the process of SLA [7]. Specifically, many second/foreign language

studies have focused on input comprehension, motivated by the hypothesis that the learner must comprehend the input if it is to assist the acquisition process [8, 9, 10]. [11] suggested two ways to make input comprehensible; first, the use of context by the learner and second the use of modified input by the teacher, which is the focus of the present study. Texts modified for L2 readers come in a variety of forms. They can be adapted or abridged versions of original texts, or texts written for the teaching of specific grammar or linguistic forms. Recently, there has been a call for texts which are written directly for the L2 target audience and are more natural but still control the lexical and grammatical content [12]. However, all modified texts share the same goal; that is, increased comprehensibility and reduced cognitive load. The primary methods of attaining comprehensibility are in the modification of the lexicon and syntax.

The other variable of focus in this study was reading anxiety. Anxiety is commonly described as “a state which involves cognitive, emotional, behavioral, and bodily responses” [13] (p. 931). [14] as cited in [15] defined anxiety as an instant, short-lived emotional reaction with immediate cognitive outcomes that is accompanied by feelings of worry, fear, and tension in reaction to a specific situation (in this case, reading contexts). Researchers in the field of EFL/ESL teaching divide individual differences into three categories. The first category relates to cognitive factors and consists of intelligence, language aptitude, language learning strategies, and previous language learning and experience. The second category concerns affective factors and comprises attitudes, motivation, language anxiety, and self-confidence about language, personality, and learning style. The third classification is associated with factors such as age and socio-cultural experience [16]. Teachers who are involved in teaching the reading skill employ

different approaches in their classes. However, by paying attention to fruitful approaches, they can enhance their students’ comprehension of the input they receive and thus, alleviate the problem of low-quality instruction of reading. However, as some studies have demonstrated [17, 18], the modification of written input may appear to act contrariwise. That is, if texts are deprived of all that is new and unknown, they may act as input for comprehension only, but not as input for learning. As [19] pointed out, anxiety about reading “may not be a function of reading itself, but a function of oral or written reading comprehension jobs” (p.76). However, the review of the literature shows that most studies on anxiety have addressed its effect in listening, speaking, and writing [20, 21, 22, 23], and very little attention has been paid to the role of anxiety in the reading skill. Therefore, this study aimed to bridge the gap and explore the role of anxiety in the comprehension of medical texts via reading.

The results of the current study can contribute to the development of the quality of ESP courses in general and can solve the problems among Iranian medical students in particular. Also, this study can contribute to our understanding of the medical students’ reading problems and evaluate their progress as they go through the ESP programs. Reading anxiety might be an undamaging issue for some people; however, it can be severe when it causes high levels of anxiety and academic failure in learners. A review of the studies on anxiety shows that research findings have aimed to provide an explanation of the essence of anxiety. For example, [15] discovered that language anxiety is a type of situational anxiety, and study on language anxiety should utilize actions of anxiety encountered in certain L2 situations. He conceptualized language anxiety as “the stress and negative mental reaction triggered when learning or implementing a second language” (p. 27). [28] referred to

foreign language anxiety as a “distinctive complex of self-perceptions, values, emotions, and behaviors associated with classroom language learning stemming from the uniqueness of the language learning process” (p. 31). Later, [21] provided a more developed definition of foreign language anxiety as a collection of “ideas, beliefs, and anxious feelings that comes with unfavorable mental responses and intellectual disturbance characteristic of poor adjusting at intrapersonal and social levels, which usually comes from the impression that one is not able to fulfill one’s objectives and observed environmental requirements” (p. 26). As a whole, the present study aimed to answer whether there was any statistically significant difference between the reading comprehension ability of medical students with high and low levels of anxiety exposed to lexically modified, grammatically modified, lexically and grammatically modified, and unmodified passages. The following question was formulated to address the objectives of this study:

RQ1. Do medical students with high and low levels of anxiety perform differently on lexically modified, grammatically modified, lexically and grammatically modified, and unmodified reading comprehension passages?

2. Materials and Methods

2.1. Materials

The participants in the present study were 150 medical students who came from Shahid Beheshti University of Medical Sciences. It is worth mentioning that this study used medical texts as the source of input in four varieties: lexically simplified input, grammatically simplified input, lexically and grammatically simplified input, and unmodified input. The main instruments employed for this study are as follows:

2.2. Medical Passages

As mentioned, some medical passages from the syllabus of Shahid Beheshti

University of Medical Sciences were randomly selected. Each of the passages was followed by some multiple-choice comprehension questions to assess the participants’ grasp of different versions of the passages. The researchers did the simplifications of the passages, both at grammatical and lexical levels. In so doing, the framework proposed by [2] was adopted. In short, simplified input in this study refers to all types of modifications made to render the texts more comprehensible. Moreover, The KR-21 indices for the grammatically, lexically and grammatically, lexically modified, and no modification reading tests were 0.83, 0.73, 0.72, and 0.81 respectively.

2.3. Anxiety Questionnaire

Concerning the second variable of this study, the questionnaire developed by [3] Foreign Language Reading Anxiety Scale (FLRAS) on a five-point Likert scale was used. The scale was reported to have a construct validity established by factor analysis and reliability was found to be 0.82.

After choosing the main participants, the appropriacy, clarity, relevance, and content validity of the passages was verified. Then, the participants took the anxiety questionnaire once before reading the text and once after reading them. In four successive sessions, the participants read 12 medical passages (four passages each session) and answered the proceeding comprehension questions. It is worth mentioning that it was impossible to complete the task in one single session. Data analysis was conducted through SPSS software using descriptive statistics and a MANOVA test.

3. Results

In order to test the null hypothesis “whether there is any statistically significant difference between the reading comprehension ability of medical students with high and low levels of anxiety who are exposed to lexically modified,

grammatically modified, lexically and grammatically modified, and unmodified passages or not” First, the descriptive statistics were computed. Table 1 shows the descriptive statistics concerning anxiety in each type of the texts. As the table depicts, the texts which were lexically and grammatically simplified had the highest mean (24.71), and the unmodified texts had the lowest mean (16.17).

As the p-value in all types of texts indicates, there is no statistically significant difference between the reading comprehension ability of medical students with high and low levels of anxiety who are exposed to lexically modified, grammatically modified, lexically and grammatically modified, and unmodified passages, thus the null hypothesis of this study is rejected.

Table 1. Descriptive Statistics for High and Low Anxiety Groups Across Text Types

Exam Category	Anxiety Level	Mean	Std. Deviation	N
Lexically & Grammatically Simplified	low	21.52	3.909	67
	high	27.28	1.876	83
	Total	24.71	4.117	150
Grammatically Simplified	low	12.03	3.516	67
	high	20.33	4.698	83
	Total	16.62	5.895	150
Lexically Simplified	low	18.13	3.411	67
	high	25.23	2.601	83
	Total	22.06	4.626	150
Unmodified	low	11.58	3.525	67
	high	19.87	4.765	83
	Total	16.17	5.923	150

Table 2. MANOVA Results for High Anxiety and Low Anxiety Groups across Four Text Types

Source of Variation	Sum of Squares	df	Mean Squares	F	p-value
Lexically and Grammatically Simplified	1227.75	1	1227.75	140.06	<0.00
Error	1297.34	148	8.77		
Total	2525.09	149			
Grammatically Simplified	2551.18	1	2551.18	143.77	<0.00
Error	2626.16	148	17.74		
Total	5177.34	149			
Lexically Simplified	1866.01	1	1866.01	208.83	<0.00
Error	1322.44	148	8.93		
Total	3188.46	149			
Unmodified	2544.99	1	2544.99	140.44	<0.00
Error	2681.84	148	18.12		
Total	5226.83	149			

4. Discussion

To date, a considerable body of foreign and second language research has focused on input comprehension, under the influence of the hypotheses that assume a relationship between the comprehension of the input and its contribution to the acquisition process [5, 25]. Written input through reading materials is one, if not the most important, source of input in EFL situations. The written world surrounds us daily; therefore, the ways through which learners can promote their comprehension

of written texts have become the focus of interest of many researchers, including the researchers of the present study. As demonstrated by analyzing the data above, high anxiety participants outperformed the low anxiety ones in all the four versions of the passages. In this regard, [26] has discussed the impact of foreign language anxiety on the foreign language learning process. As put by him, there are two types of anxiety, namely, debilitating and facilitating. "Debilitating" anxiety refers to cases in which levels of anxiety one experiences in the language classroom

hampers his/her learning process. While, “facilitating” anxiety occurs when the difficulty level of the task sparks just the right amount of anxiety. Still, despite the fact that a specific level of anxiety might be helpful, excessive anxiety can cause a debilitating impact, which might result in a reduction of work or ineffective work performance [27].

Some studies [28, 29] have similarly reported the facilitating impact of anxiety on overall language learning. Thus, it should be stated that, for the participants in this study, anxiety turned out to be more of a “facilitative factor” and could enhance comprehension. The results of this study are also corroborated by what [30] reported in their study. Using the same instrument to measure anxiety as it was in the present study, they concluded that anxiety could have a positive impact on L2 learning process; listening and reading in their case. However, the results of this study are in contrast with [31] who concluded that there was no correlation between test anxiety and performance on reading comprehension tests in the context of English for General Purposes (EGP), which could account for the difference. [32] believed that the three essential interrelated aspects of anxiety are physiological, behavioral, and cognitive, but it is the cognitive aspect which has received the most attention in recent studies. Anxiety may be either “facilitating”; in a sense that it affects learning and performance positively, or “debilitating” which hinders learning and performance [33]. Facilitative anxiety stimulates the student to fight the new learning task, and debilitating anxiety, on the other hand, motivates the student to adopt avoidance behavior [34]. It can, then, be concluded that, in case of the medical passages administered in this study, anxiety has acted as an enhancing factor thereby facilitating the medical students’ reading comprehension. This finding appears consistent with cognitive models of anxiety. Reading comprehension and communicating in a foreign language can be

fear-inducing and challenge learners’ views of themselves as intelligent and skillful communicators [35, 36]. When learning a new language, the otherwise mundane task of engaging in basic texts becomes a challenge [36].

5. Conclusion

Regarding the implications of this research, the current study has added a drop to the pool of knowledge. Over time, the inclusive knowledge gained will accumulate and lead to more understanding of what is helpful for ESP students. It is hoped that the findings from this study will guide researchers into new directions so that they may go on to discover profound insights about text simplification for medical students in Iran and all over the world. This study can propose a number of research initiatives for future studies. Researchers believe that there are different types of anxiety which are associated with different situations. They can be classified as trait, state, and situation anxiety. According to [37], the most suitable measures for foreign language anxiety would be the situation-specific measures.

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Conflict of Interest

The authors declare no conflict of interest.

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