Recall of general and medical vocabulary and text structure knowledge: An experimental study of English for Medical Purposes

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Abstract

Background and purpose: *A 3-unit course is dedicated to general language in medical universities and the vocabulary and text structure of the courses have usually no relation to medical language. We examine whether teaching general language will be as effective as medical language as assessed through recall of general and medical vocabulary and text structure knowledge.*

Methods: *an experimental study was designed, in that, the third year students who had participated in the 3-unit general language classes in the first year of their General Practitioner (GP) program were selected and sat for a 60 MCQ tests. The 60 MCQ tests consisted of 30 questions of general language, 25 vocabulary and 5 comprehension questions and also 30 questions of medical language, 25 technical and semi-technical vocabulary and 5 comprehension questions. In all, 145 medical students attended the exam which took 40 minutes to accomplish.*

Results: *The results of the study indicated that memory retention was significantly lower in general language than medical language. The technical and semi-technical vocabulary items were significantly better recalled and the medical text was significantly better understood by the participants.*

Conclusion: *A 3-unit course in general language may be a futile effort since the students will not be exposed to the same vocabulary and text structure knowledge in later years of their GP program. It is recommended that the focus of all the university English courses be on the medical language.*

Key words: Medical Vocabulary, English For Specific Purposes, ESP

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Introduction

The ability to read with comprehension is the most important skill to master in universities where English is regarded as a foreign language1,2. Improving the ability to read with comprehension necessitates learning the relevant vocabulary items and mastering text structure which are preliminary factors in developing the relevant reading skills such as guessing the meanings of unknown words, synthesizing and evaluating the information of the reading materials, and using appropriate meta-cognitive strategies 3,4,5. However, learning the relevant vocabulary has always been a matter of debate in EFL teaching and learning context. Considerable research suggest that learning vocabulary through association with what the learner already

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knows, or what he has enough prior knowledge about may facilitate recall and retention 6,7,8. Atay and Uzbulgan7 used various explicit instructions on vocabulary learning strategies in an English for Special Purposes (ESP) context to facilitate the recall and memory retention of vocabulary items. They found out that using various memory learning strategies in learning vocabulary items related to the students' field of study resulted in better recall and retention.

Many universities and research institutes provide a need analysis before developing or revising the English language curriculum. Read developed a diagnostic assessment technique to identify academic needs of the undergraduate university students in their first year of academic studies9. The diagnostic assessment technique was applied to classify students in various educational categories, all emphasizing on teaching academic materials to help students in their areas of academic literacy. Such emphasis on teaching the English for Special Purposes overrides teaching general English language. Certain universities have stepped a bit further than what Read proposes, and advocate content area teaching in English by teachers other than English teachers. Schleppegrell and de Oliveira proposed an integrated language and content curricular approach to teaching English to the students of history in the University of Michigan10. They believed English needs to be taught in the subject matter classroom even by the content area teachers in their own discipline. They argue that this not only provides students with structure and vocabularies of their own discipline in more situated and contextualized language teaching but also raises teachers' awareness about the structure of the content area and contributes to the development of content-area teachers' knowledge about language. Zwiers, in an action research study, developed an integrated academic language, thinking and content area learning scaffolding for non-native speakers in the middle grades11. The teaching approach

focused on thinking in the content area -as opposed to general language- prior knowledge about the topic and rhetorical structures which construct the relevant academic genre. According to Zwiers' study, such multimodal approach to teaching English to speakers of other languages motivated students to more participation in the program and consequently provided better performance.

Harwood claims that most current commercial textbook materials are not fundamentally suitable for English for Academic Purposes (EAP) and argues that the research studies supporting anti-textbook line most accurately describe the state of the EAP textbook market12. Harwood fuels the argument against EAP textbook market being more general academic books than specialized books and provides strong evidence for books tailored for special purposes. Garner and Borg, while supporting the idea of content-based teaching, argue that the books for EAP and ESP courses need to be selected from authentic materials written for English native speakers13. Tajino et al argue that materials for EAP courses should be prepared through collaboration among various concerned stakeholders, including EAP students, content-area teachers, and EAP teachers14. They develop a soft system methodology to facilitate the collaboration among the involved parties.

Considering the general literature on the need analysis, content area teaching and ESP/EAP material development, there are still courses in curricula of the Iranian medical universities called general English language which consists of three units being offered in the first year of undergraduate General Practitioner (GP) program. The materials are tailored for English language classes and are centered on general materials that can be taught to all the first year undergraduate students regardless of the discipline they are studying. The book in general language was titled "reading through interaction". Apart from the general English language, the students attend two courses, 6 units in

all, in English for Medical Purposes (EMP) during their GP program. There were two books taught in EMP courses called "English for medical purposes II" and "English for medical purposes III". However the objectives of the general language is not clearly defined in the Iranian context and little is known about how effective the general language is for the students. Since the general terms are not repeated for the students in the following years of study, there is the possibility of not recalling what they have learned in later years. This may preclude the efforts we have endured during teaching the general language.

Thus the purpose of the current study was to evaluate whether teaching general English language lead to a better retention and recall of vocabulary items and text comprehension. Furthermore, a comparison between the recall of the English medical and general terms and structures taught during the GP program was made to explore the issue in more details.

Methods

An experimental study was designed and conducted, in that, 145 medical students in their third year of study were selected. All students had participated in 3 units of general English language classes and 6 units in EMP courses conducted in the medical school of Shahid Beheshti University (M.C.) during the years 2005 and 2006. Most chapters in general English were related to non medical fields. The same students were approached in the early 2008 to examine the recall and retention of the medical and non medical vocabularies and text structures.

Twenty five non-medical terms and one comprehension passage with five questions were selected from the general language book and put into a 30 multiple choice question (MCQ) tests. Twenty five medical and semi-technical terms and a comprehension passage with five questions were

selected from EMP books and put into 30 MCQ tests. Thus, there were 60 MCQ tests in all. The questions were all selected from the question data bank and reviewed for proper sampling of the text books in general and medical courses to ensure the content validity of the study.

The tests were piloted on 5 students and further changes were made to improve the reliability of the tests. The tests were given in normal classes and took 40 minutes to accomplish. To avoid cross interferences, half of the students performed the general English tests followed by the medical tests and the other half visa versa.

SPSS statistical software was used to attest the reliability of the scores. The Alpha-Cronbach was $r = 0.97$ which was satisfactory15. The students who were interested to know about the purpose of the exam were briefed after the exam and voluntarily participated in an interview about the approach taken towards general English.

The data management was conducted using sign test, since the students who had performed the 30 non-medical tests also performed the 30 medical tests. Hatch & Lazaraton argue that when there are only two levels of one independent variable to compare; when it is a repeated measure design; a random selection of the sample; and normal distribution; sign test should be run between the variables 16.

Results

To find out the differences in the recall scores between the general English and medical English, the sign test was performed. The results of the analysis are shown in table1. As table 1 indicates there were significant differences between the recall scores of the medical terms and general terms, in that, the students could recall the medical terms significantly better than non medical vocabularies.

Table 1. The comparison between the recall scores of medical and general vocabularies. (MV stands for medical vocabulary, GV for general vocabulary)

N	MV <GV	MV>GV	MV = GV	Z	2-tailed p
145	00	145	00	7.81	.00

The analysis of the recall of semi-technical vocabulary and general vocabulary indicate that semi technical vocabulary is recalled significantly better than general vocabulary (Table 2).

Table 2. The comparison between the recall scores of semi-technical and general vocabularies. (ST stands for semi-technical vocabulary, GV for general vocabulary)

N	ST <GV	ST >GV	ST = GV	Z	2-tailed p
145	02	128	15	3.07	.00

The results of the analysis between the recall scores of medical and general text comprehension are presented in table 3. As table 3 indicates, the students comprehended medical text significantly better than non medical text.

Table 3. The comparison between the recall scores of medical and general text comprehension. (MC stands for medical comprehension, GC for comprehension)

N	MC <GC	MC >GC	MC = GC	Z	2-tailed p
145	02	138	05	5.06	.00

The mean score of the general language was 12.01 while the mean score for medical vocabulary was 28.06. The mean score of comprehension of general language was 1.83 and comprehension of medical text was 4.6. In both cases, the differences were significant, that is, medical vocabulary and text comprehension were significantly better recalled than general English.

The students who voluntarily participated in an interview believed that general language was not related to their field of study and they had forgotten most vocabulary items they had learned in general language course during the first year of study. They believed that the low level recall was mostly due to low frequency of such vocabulary items.

Discussion

According to the findings of the current study, the general vocabulary items were not significantly recalled as compared with medical vocabulary. There are several possible reasons for the low level of recall and retention of general language vocabulary items. The general vocabulary items have lower frequency in medical language than medical and semi-technical vocabularies. The students are possibly more motivated to learn and memorize medical terminology since it is of pivotal importance in their academic literacy. On the other hand the repetition of the medical vocabulary items in the other medical materials the students encounter during normal content area education improves memory retention and recall.

The comprehension of medical materials was also significantly better than the comprehension of general language, suggesting that the medical text structure is better recalled than general language structure. This is also due to several possible factors in strengthening the retention and recall of medical text structure such as higher frequency of

such structures in their normal medical readings, repetition, medical vocabulary knowledge and more motivation in reading and learning medical texts. Wang et al, while addressing the importance of repetition in memory retention have developed a corpus-based lexical study of most frequently used medical terminology17.

Another possible reason for low recall of general vocabulary is that the students probably have never read other general texts after finishing the course on general language and now after two or three years, they have forgotten what the lecturers tried hard to teach them. The results provide strong evidence for a number of studies arguing on teaching content area materials, selecting authentic EAP materials, developing a multi-approach attitude toward text selection and teaching EAP courses 6,7,8,9. Harwood argues that EAP materials should be developed in such to ensure that research findings are operationalized in textbooks and avoid generaizations12.

The current study also provides strong evidence for the studies arguing the importance of prior knowledge in reading and understanding scientific language. The students do not have much knowledge about the general reading materials as they have in their own content area. This probably adds to the low level of recall and retention in general language. Gorsuch argues that teaching EAP courses should follow a combination approach of academic departments and English department 18.

According to the results of the current study, the author suggests changing the general English into medical English for EMP courses. This not only motivates students to further study and learning medical English but also facilitates content area learning and through repetition and higher frequency of such vocabulary items and text structures strengthen recall and memory retention. The nine units in three courses in medical schools need to be more centered around structures and medical

and semi-medical vocabularies to improve better comprehension and communication in medical armamentarium.

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