The Necessity of Morphological Awareness for Science Undergraduates

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Abstract - Vocabulary is one of the most essential components of language. Without an adequate vocabulary, some undergraduates who enter the faculties that use English medium instruction, struggle to achieve academic success.After analysing the undergraduates' performances at English examinations in the Faculty of Science, it was realized that the low proficiency students lack the threshold level of vocabulary to express their ideas, to write sentences using morphological and syntactic rules correctly.Consequently, this study was conducted with the objective of improving the vocabulary volume of low proficiency undergraduates in the Faculty of Science where the medium of instruction is English, in order for them to read, listen and write more effectively in English. This would help the undergraduates with their academic work as well as future goals. The theoretical framework of this study is morphological awareness, the ability to reflect on and manipulate morpheme - the smallest unit of meaning in words in developing English vocabulary. This was a quasi- experimental study with a quantitative, qualitative mixed method. The data samplein this research was randomly selected 60 low proficiency first year undergraduates. The sample was divided into two groups, the control group and the experimental group. A test was given as two items; a morpheme identification test and a morphological structure awareness test. It was administered before and after intervention. The intervention was carried out with the experimental group, and the control group only received the lesson material. Results indicated that morphological awareness had significantly improved the use of vocabulary among low proficiency undergraduates. Furthermore, the findings indicated that the morphological knowledge is helpful for the undergraduates to analyse words and write grammatically correct sentences. In conclusion, findings imply a need to give more emphasis to increase the morphological knowledge when preparing English for Academic Purposes lessons to the undergraduates who follow English medium instruction.

Keywords: English medium instruction, Morphemes, Morphological Awareness, Vocabulary

I. INTRODUCTION

English is the most widely used language in the today's globalised world. It has become the key medium of knowledge accumulation and dissemination especially in the field of higher education and vocabulary plays one of the most essential components of language. The undergraduates who come to English medium faculties of the universities and are linguistically underprivileged without an adequate vocabulary have to face a double challenge of improving English knowledge and learning academic content simultaneously and they struggle to achieve academic success.After analysing the undergraduates' performances at English Examinations in the Faculty of Science, it was realized that the low proficiency undergraduates lack the threshold level of vocabulary to express their ideas and makemany errors in forming sentences due to violation of the rules of morphology and syntax.Consequently, this study was conducted with the objective of improving the vocabulary volume of low proficiencyundergraduates in the Faculty of Science in order for them to read, listen and write more effectively in English. This wouldhelp the undergraduates with their academic work as well as future goals.

II. THEORETICAL FRAMEWORK

Linguistically, morphological level (morpheme), the lexical level (word order) and the syntactic level (sentence structure) are the principles in a language [1]. Since morphemes are the basis for complex words, undergraduates without knowing the understanding words they cannot steps forward into other levels. Therefore, the theoretical framework of this study is morphological awareness in developing English vocabulary. Morphological awareness is conscious awareness of the morphemic structure of words and ability to reflect on and manipulate that structure [2]. Further, morphological awareness refers to an important component of linguistic knowledge since "morphemes have semantic, phonological and syntactic properties that clearly express the role of a particular word in its linguistic context" [3]. According to [4], knowledge of the word-structure is one of the most effective ways of expanding vocabulary, and is of great use in inferring word-meaning. Moreover in his view, one of the most useful aspects of word-structure is the very common use of prefixes and suffixes in English. Thus teaching the word-structure to the students implies the teaching morphological awareness, the ability to identify or manipulate the smallest units of meaning in words.The usefulness of morphological analysis for college students wasinvestigated [5]. He argues that knowing which strategies work best for learning vocabulary

at this level is important as morphologically complex words are common in the university setting.

Science tex tbooks often contain many words that are derived from the same word parts and most of the root words are derived from Greek or Latin languages. For example, the Greek root "bio" meaning "life" appears with difference suffixes such as biosphere, biochemical, bio-fuel.The most common affixes in science texts according to Willis [6] are auto-, bi-, circum-,epi-, macro-, micro-,mono-, peri-, pres-, proto-, supra-, ante-, demi-, di-, hypo-, mal-, meta-, poly- ,retro-,-al, -ance, -ate, -ic, -ine, -itis, -ery.

III. MATERIALS AND METHOD

This research was a quasi-experimental research with a quantitative, qualitative and language data used in a mixed methods research design.This sample was constituent of 60 new intake undergraduates who scored below 40 marks at the Placement Test given by the Department of English Language Teachingfrom bothgenders of the Faculty of Science; University of Colombo. They were divided into control group and experimental group comprising of 30 undergraduates in each group. The data analyses using SPSS software package.

The main instruments used in this study were a Questionnaire,Morphological Structure Awareness Test and Morpheme Identification Test. The Morphological Structure Awareness Test was given to find out the productive degree of mastery in primary word classes of nouns, adjectives and adverbs. Four prompt words were selected and three contextualised sentences were given at the test and the undergraduates were asked to write the correct inflections and derivations of the words. The Morpheme Identification Test, wasdesigned to measure the participants' ability to analyse the smaller meaningful parts of a word. There were 35items divided in to four groups of Greek and Latin, roots, prefixes, suffixes and root identification. All items in the test were context–independent single words presented in a multiple choice format and the participants were asked to select the correct answer. The morphological word analysis lesson materials were provided to the experimental group and to the control group but it was taught to the experimental group only for ten days for one hour. In addition reflective notes based on classroom observations of undergraduates and semi structured interviews were carried out during the class time by the researcher during the treatment time for the treatment group.

IV. RESULTS AND DISCUSSION

There were two questionsinthe question naire tofindout what they find most difficult to learn in English vocabulary and what they do when they come across a new word, to get background information. The results of the first question in "Fig.1"show that 61% of theun dergraduates find it difficult to pronounce the words.
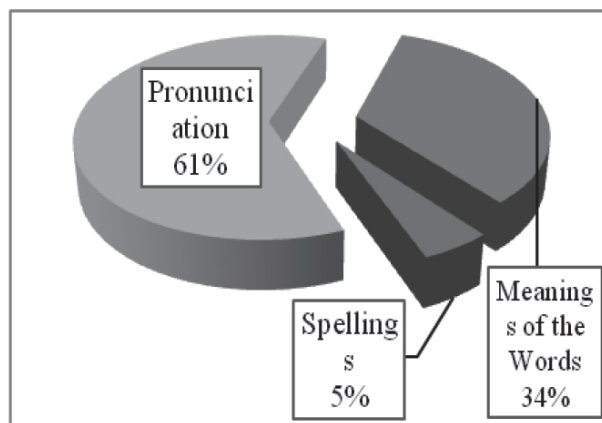

Figure 1: What the low proficiency students find most difficult to learn in English words

According to the data of the second question mos tofthe lowproficiency students(89%) find themeaning bylooking at the dictionary and only 3%analyse the word to find the meaning.Fig.2 depicts the findings.
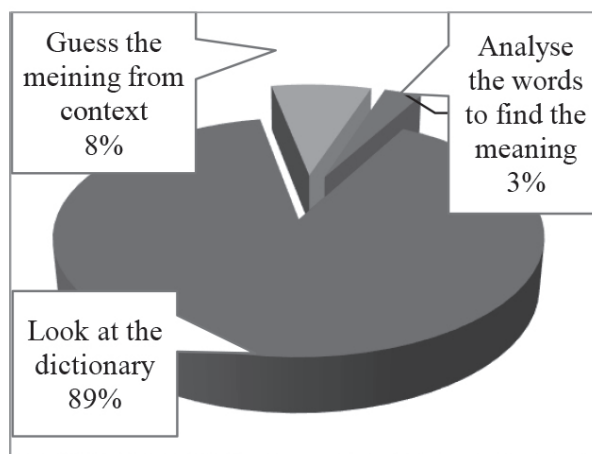

Figure 2:
How the low proficiency students find the meaning of a new word

The Morphological Structure Awareness Test and the Morpheme Identification Test were administered to the undergraduates to test their knowledge of managing of morphemes. According to the data of the morpheme identification pre-test, the mean value of the total correct answers for control groupis18.73andtheexperimentalgroup

is18.40.The difference between the two groups is 0.33. Therefore, there was no statistically significant difference between the control group and the experimental group. The same morphological awareness test was administered as the post-test to analyse the performances of the students after the intervention to experimental group.When comparing the data of pre and post mor pheme identification test for all the sections, there was a visible improvementin both experimental group and the control group though only the experimental group receive the proper treatment. The improvement of the control group can be justified as they were given the lessons and students were motivated to learn English for their survival in an English medium faculty.
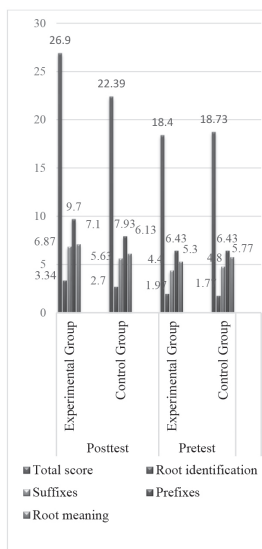

Figure3: Results of the Pre and Post Morpheme Identification Test

In the morphological structure awareness the sentences representing nouns were numbered as 1.1, 2.1, 3.1 and 4.1, adjectives were numbered as 1.2, 2.2, 3.2 and 4.2 and adverb were numbered as 1.3, 2.3, 3.3 and 4.3.The results of themorphological structure awareness pre-test and post-test were given below. According to the data the experimental group has scored better results in the post test though the control group also has improved.
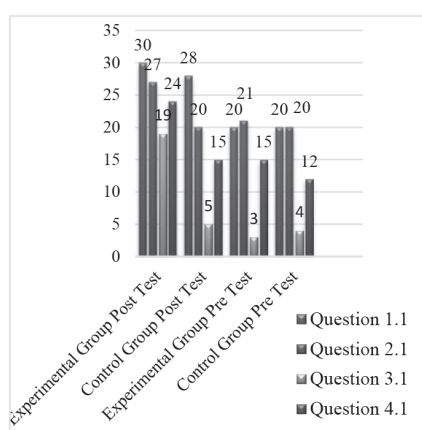

Figure 4: Numberof accurate answers for nouns for morphological structure awareness post –test and pre-test.
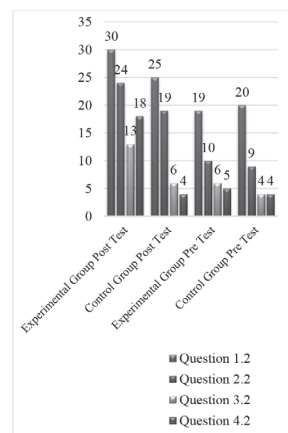Figure 5: Number of accurate answers for adjectives for morphological structure awareness post-test and pre-test

Figure 6: Number of accurate answers for adverbs for morphological structure awareness post-test and pretest

V. CONCLUSIONS

The findings imply a need to give more emphasis to increase the morphological knowledge of the students because it is helpful for theundergraduates to analysis words and also to write grammatically correct sentences especially when preparing English for Academic Purposes lessons to the undergraduates who follow English medium instruction. Moreover, it is recommended to teach morphological skills because the undergraduates cannot acquire the inflection and derivative forms of a word family without explicit instruction. In addition, morphological awareness will help the undergraduates to learn pronunciation and spelling that they find most difficult to learn in English vocabulary when they come across a new word.

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