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Improving Communication Skills of Undergraduate Engineering Students: A Special Emphasis on Reading Skills

Abstract

This paper deals with the needs for improving reading skills among the second year undergraduate Engineering students of Velalar College of Engineering and Technology, Erode, South India. The paper explored the problems faced by the students who come from rural background and studied schooling in their mother tongue while reading text books for their engineering programme.

The analysis was made based on basic fundamental components of seeking language learning. A target group of sixty students of Mechanical Engineering in the Third semester is considered for the analysis. A questionnaire survey type was given to them for this study. The outcome reveals that the reading skill is the major skill set which primarily helps them for

understanding their academics through core engineering concepts. It also revealed majority of them facing difficulty while using English for academic purpose. Hence, it is suggested an implemented a course on 'Effective English for Mechanical Engineers' which is tailor-made for satisfying the needs of second year undergraduate students to improve their reading skills and sub skills for reading their core and specialized subjects.

Keywords: Reading skills, Language learning, Academic purpose.

Introduction

English for academic purpose was the most important module for teaching of English for specific purpose from the year 1970. More researches have been carried out across the world in early 90s'. These types of programmes are offered in academic institutions of English-speaking countries such as USA, UK, Canada, Australia and New Zealand (Dudley-Evans & St. John, 1998). In addition, many developing countries prefer these programmes in their academic institutions to make the students as globally competent graduates.

Now a days' professionals of core engineering especially mechanical engineering should be competent in English because of the latest industrial developments happened globally. The process of producing competent engineers, technical workers and other related technical vocations begin at the college and university levels. The students should be well equipped with core subject knowledge and English language of their chosen fields during their period of study in their higher learning institutions.

English language needs analysis can determine the language needs of students in a specific field. The term 'analysis of needs' first appears in India in the 1920s. Michael West introduced the concept to cover two separate and potentially conflicting concepts of 'need' contributing to the surrender value' of learning: what learners will be required to do with the

English language in the Target Situation, and how learners might be the best master of the target language during the learning period. According to many writers, needs analysis is prerequisite for designing and developing a course, and the development of syllabuses and materials (Brown, 1995, Dudley-Evans & St John, 1998; Hutchinson & Waters, 1987, Munby, 1978; Robinson, 1991; West, 1994). This study attempts to examine the English language needs of the undergraduate students in reading skills in the field of Mechanical Engineering at Velalar College of Engineering and Technology, Erode, Tamil Nadu, a private self financing Autonomous Institution, Affiliated to Anna University, Chennai. The study specifically looks into the challenges faced by the students in reading in English language for academic purposes.

Need Analysis

Needs can be seen as the globally wide term that attracts many aspects, incorporating students' ambition and backgrounds, their language proficiencies, their reasons for choosing the course, their teaching and learning methods, and the situations they need to communicate in the work place . It will involve what the students know, don't know or want to know, and can be collected and analyzed in a variety of ways (Hyland, 2006). In the area of English for specific purposes, need analysis is required in order to know students' expectation pertaining to the learning process. It is seen as the motivating factor to design the whole component of teaching and learning process (Yundayani, Emzir & Rafli, 2017). The result of need analysis will employ the teachers to interpret the language requirement into linguistic and pedagogical terms which in turn make them to develop with their relevant curriculum and provide the effective guidance to the learning process (Nadzri, 2004). The result of need analysis helps the teachers in identifying the students' prospective professional needs, students' needs in

terms of language skills, including their lackuna in the area of language skills (Otilia, 2015).

Kaewpet (2009) stated that students' needs also involve themselves in some areas, like

- ✓ Teaching and learning styles in which the students are familiar;
- ✓ ineffective teaching and learning methods;
- ✓ Knowledge of specialized contents that teachers should have;
- ✓ relevant instructional materials and study location;

Components of Language Needs Analysis

In this study, the researchers wish to describe Present Situation Analysis (PSA) and Learning Situation Analysis (LSA). This is because the study is based on the two components of needs analysis.

Present Situation Analysis (PSA)

According to Robinson (1991, p.8), 'PSA (Present Situation Analysis) seeks to establish what the students are willing to start of their language learning, identifying their strengths and weaknesses'. Dudley-Evans & St. John (1998) stated that Present Situation Analysis refers to strengths and weaknesses in language, skills and learning experiences. They suggest that there are three basic sources of information: the students themselves, the language-teaching institution, and the 'user-institution', for example the students' place of work. For each of above, an English practitioner collects the information about the students' respective levels of ability, resources and their views on language teaching and learning. They also suggest that English practitioners might also study the surrounding society and culture: the attitude held towards English language and towards the learning and use of a foreign/second language (Richterich and Chancerel, 1980). By finding the students' background, we can realize the students' learning objective in the area of ESP teaching that

covers; (1) proficiency; (2) knowledge; (3) affective; and (4) transfer (Stern, 1992). The present situation analysis is an analysis of the present condition of teaching and learning situation covering aspects related to students' characteristics, staffing, materials, syllabus and academic records containing data about students' language learning (Gusti, 1999). Students' present situation analysis is a means to identify students' current skills and language use (Dudley-Evans, 2009), including the way of assessing students' specific needs. It will inform what can the students do with the language now (Hossain, 2013). Hyland (2006) stated that present situation analysis concerns with the information about students' current proficiencies and ambitions; what they can do and what they want at the beginning of the course; their skills and perceptions; their familiarity with the specialist subject; and what they know of its demands and genres. Present situation analysis can be analyzed to identify the lackuna in language proficiencies in the familiar subjects and it can be related with their current skills and performance. It is believed that the students in the second year have to construct good and strong academics in English language which help them to support them in their learning process at a higher level. Hamps Lyons (2001) stated that the English language skills of non-native English speaking academics will develop as the demand is getting higher. Besides Hamps Lyons, Liyanage and Birch (2001), believed that minimum attention can be given in academic purposes in regard with problems and toughness in English-speaking contexts. As a part of general academic purposes, the ability of writing can be identified based on the students' previous knowledge, their schemata and also their creativity in presenting the ideas, thinking, including the opinion. In the academic purposes, it is a means for extracting the received information, which plays a vital role in transforming knowledge and creating the new one (Yundayani, Emzir & Rafli, 2018). However, due to the nature of comprehensive and large-scale surveys, none of these studies was specific to academic writing, and the specific nature of language problems as the most important hindrance. According to

Robinson (1991:8), “PSA (Present Situation Analysis) seeks to establish what the students are like at the start of their language course, investigating their strengths and weaknesses”. Some experts believe that writing is considered as ability included in core academic skills and also as the most complex skill to be mastered when compared to listening, speaking and reading skill (Makalela, 2004; Nunan, 1990). Reading becomes a path to get knowledge as an input in interpreting a phenomenon or situation. When learners read academic text more, they enable to express their ideas into written text or well-structured speaking connected to the main discussion. In the other word, reading is an activity will be a way to fulfill learners’ expectation for their academic needs. Grabe (2009) view reading as the most important skill required of people in multicultural and international settings, academic learning, and self-study situations. Reading is a path to the wider world with different information. Need analysis needs to identify the students’ needs and the deficiency of the course for them. So, that needs analysis can be followed up by the confirmed program, and the accompanying problems during the course will be overcome.

Learning Situation Analysis (LSA)

“Learning Situation Analysis (LSA) includes subjective, felt and process-oriented needs” (Dudley-Evans & St. John 1998, p.124). It also refers to what learners want to acquire through learning . Dudley-Evans and St. John (1998) stated the effective ways of learning the skills and language. LSA is highly required for present day engineers since NASSCOM REPORT 2018 reveals only 34% of engineering graduates are employable with which 25% to 30% of them are ineligible only because of lacking in language skills particularly in speaking . As employability directly relates growth of our nation it is need to be addressed and measures to be taken immediately. LSA need to be done separately for IT / ITES companies and core companies.

Reading Skills

Reading skills are important among the four language skills. Students must have ideas about reading skills and sub-skills. Jordan (1997) suggests these reading skills and sub-skills for academic reading aspect:

1. Prediction
2. Skimming (reading quickly for the main idea or gist)
3. Scanning (reading quickly for a specific piece of information)
4. Distinguishing between factual and non-factual information
5. Distinguishing between important and less important items
6. Distinguishing between relevant and irrelevant information
7. Drawing inferences and conclusions
8. Deducing unknown words
9. Understanding graphic presentation
10. Understanding text organization and linguistic/semantic aspects (e.g. relationship between and within sentences –cohesion and recognizing discourse/semantic markers and their function)

Richard's book on Curriculum Development showing us shows that needs analysis in language teaching may use for a number of different purposes, for example:

- 1) to find out what language skills a learner needs in order to perform a particular role, such as sales manager, tour guide, or university students;
- 2) To help determine if an existing course adequately addresses the needs of potential students;
- 3) To determine which students from a group are most in need of training in particular Language skills;
- 4) To identify a change of direction that people in a reference group feel is important;

5) To identify a gap between what students are able to do and what they need to be able to do; 6) to collect information about a particular problem learners are experiencing

Richard (2001:52).

Blanchard and Root (2005) suggest some important reading skills. They are as follows:

1. Identifying subject matter/topic
2. Identifying main ideas
3. Identifying supporting details
4. Distinguishing facts from opinions
5. Recognising sequence in sentences

Research Design

Participants in this present study is a descriptive study, was a small-scale research. The study was based on convenient sampling under the non-probability sampling strategy. Questionnaire were distributed to gather the data purposed to know, responses related to their on reading and their needs or wants for the course, which was designed by the researcher as a needs assessment instrument. Data were analyzed descriptively in table presentation.

Subjects

The subjects, chosen for the purpose of conducting needs analysis study, were 60 students, studying at an undergraduate level in the department of Mechanical Engineering at Velalar College of Engineering and Technology, Erode, Tamil Nadu in the year of 2018 (Semester-3 in 2018-2019 academic session). The *N* (total) population was 60 third semester students in the specialized discipline. 60 students of the third semester were chosen for this research. The rationale was that these students of Mechanical Engineering had been exposed

to the academic programme for three years of their academic programmes while the duration of their programmes was four years and they might identify the English language needs of their Mechanical Engineering discipline for academic purposes. Therefore, they were able to provide feedback on which aspects of language they needed for their academic purposes.

Data Collection Method: Questionnaire

The method, which was employed in the research to collect data, was a survey questionnaire. The questionnaire was designed to reveal the target information based on the objectives of the study. The questionnaire consisted of five sections, each designed for a specific purpose. In section one, the questions sought to elicit information on respondents' gender, education level and English language grades/results in End semester examinations (B to O grade equivalent). In section two (Academic Reading Needs), the questions sought to investigate learners' perceived academic reading needs, learners' present level of reading skills and the necessity of English Reading for the field of Mechanical Engineering. In section three, the questions sought information concerning learners' difficulties in reading skills in English language for the field of Mechanical Engineering. The questions in all sections were formulated on the basis PSA (Present Situation Analysis) and LSA (Learning Situation Analysis).

The researcher carried out a pilot study to determine the reliability of the instrument (the questionnaire) used. According to the result of the reliability analysis, the alpha value was more than 0.6. So, it was evident that the instrument was reliable. According to the respondents, they did not find any difficulty in responding to the questionnaire. To the respondents, the questions were clear and it has been validated by an expert.

Data Collection Procedures

The data of the study were collected through the distribution of questionnaires. The students' questionnaires were administered to the undergraduate students in the field of Mechanical Engineering at Velalar College of Engineering and Technology, Erode, Tamil Nadu. The questionnaires were distributed to the undergraduate students during the semester 3 (2018-2019 academic session). It took three weeks to carry out data collection. The students' responses in the questionnaires were analysed using descriptive statistics from the Statistical Package for Social Sciences (SPSS). Frequency and percentage counts were considered for data analysis.

Findings and Discussions

Level of Reading Skills in English for Academic Purposes based on PSA (Present Situation Analysis)

The findings reveal that 18 students (30%) rated their reading skills in English for academic purposes as good while nine (15%) students rated their skills as excellent as shown in Figure 1. About half of the students (24 or 40 %), on the other hand, rated their reading skills as average while nine students rated their reading skills as weak. The results reveal that half of the students did not think that they were competent in reading in English.

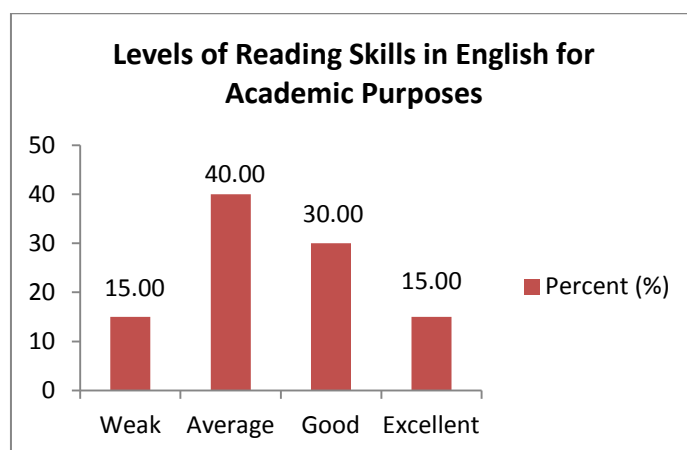


Figure 1: Levels of Reading Skills in English for Academic Purposes

Importance of Learning ‘Specific Technical Vocabulary’ for Academic Purposes based on LSA

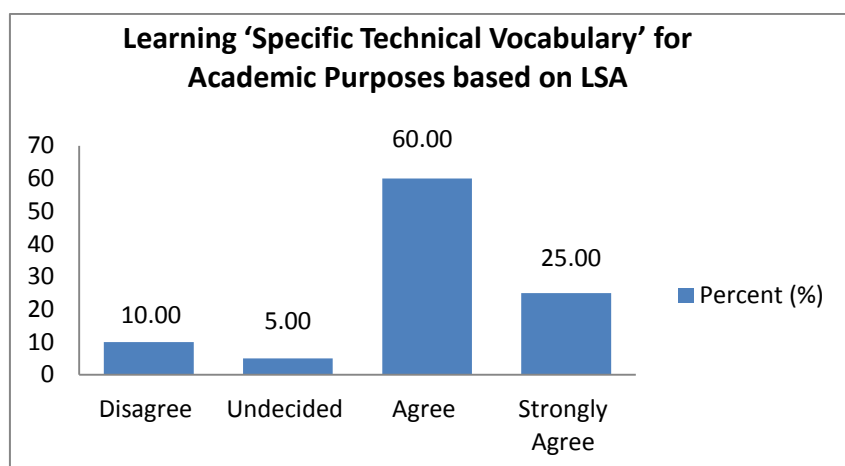


Table 2: Importance of Learning ‘Specific Technical Vocabulary’

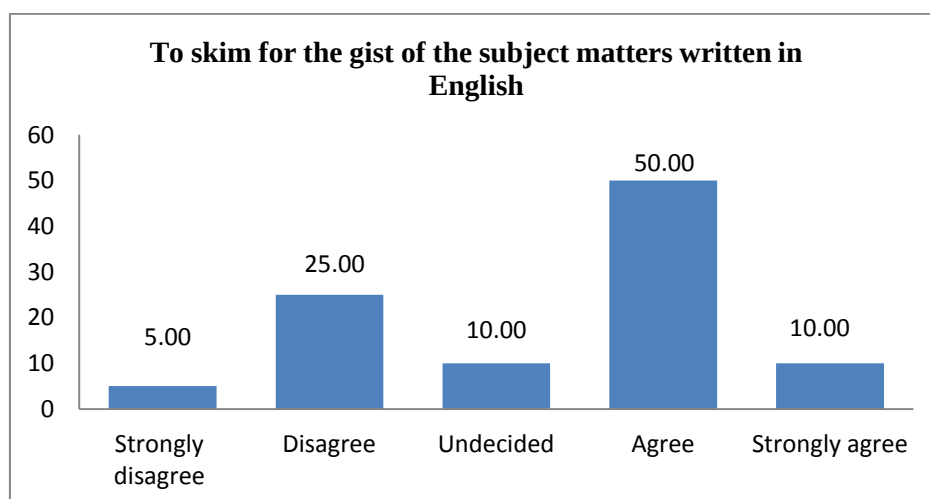
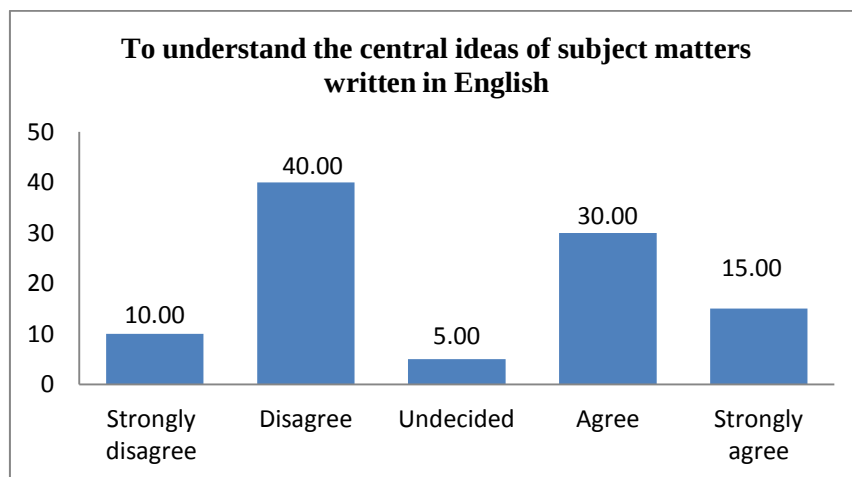
In Figure 2, a majority of the students (51 students or 85%) responded that they needed to learn ‘specific technical vocabulary’ to improve reading skills in the field of Mechanical Engineering. Only six students (10%) responded that they did not need to learn ‘specific technical vocabulary’, while only three students (5%) was undecided to respond.

Discussions of Findings

From the results, it is apparent that reading skills for academic purposes were important for most of the students to master the readings of text books/reference books, technical journal articles, research reports, magazine articles, newspaper articles, memos and short notes, and government bulletins written in English. It is unequivocal that reading skills for academic purposes are much needed skills for these reading tasks. Gillett(1989) in his study revealed that scanning and skimming were two important reading skills for academic purposes for the undergraduates.. Finally, the findings report that a majority of the students decided to learn ‘specific technical vocabulary’ to improve their academic reading skills in the field of mechanical Engineering. It is suggested that specific technical vocabulary is

important to improve reading skills in English language in the field of Mechanical Engineering.

Students' Difficulties in Reading Skills in English for Academic Purposes based on PSA



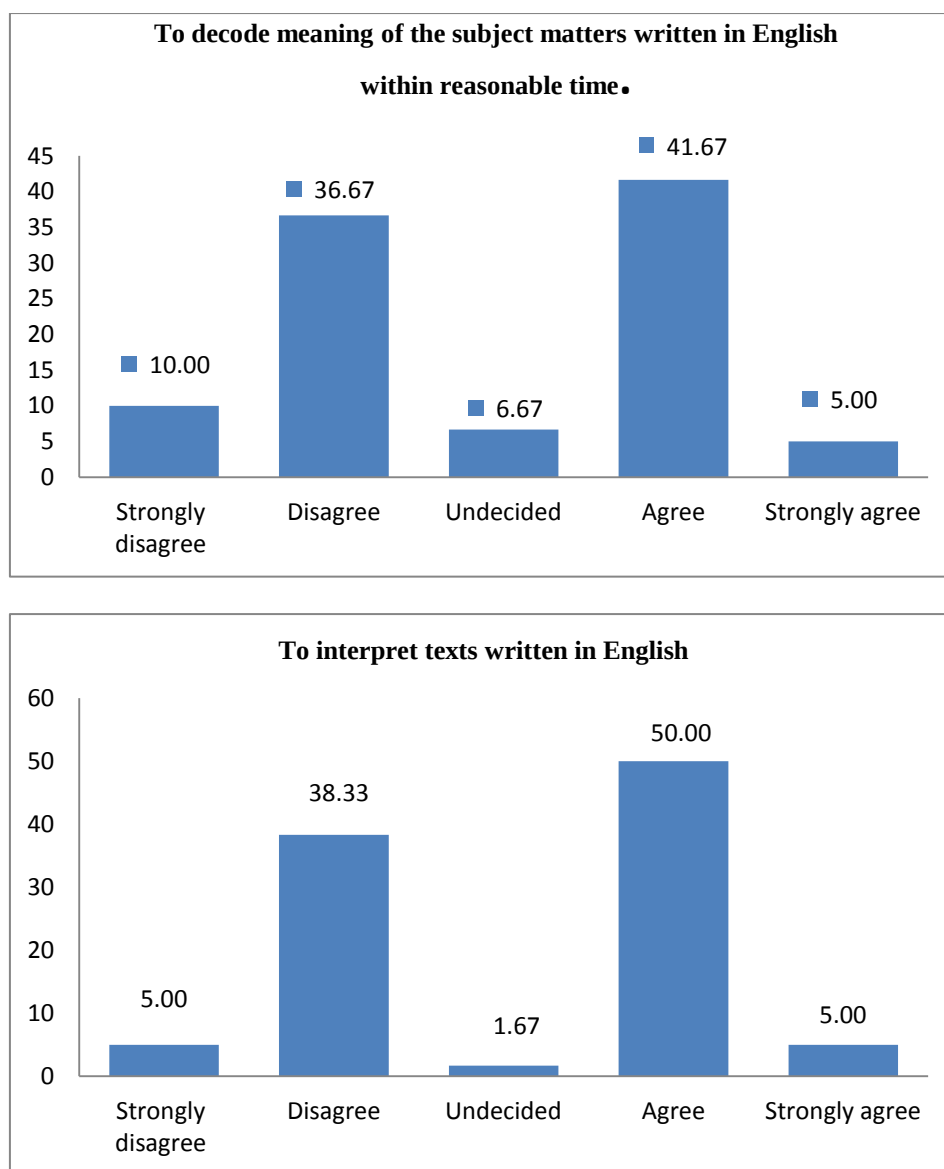


Figure 3: Students' Difficulties in Reading Skills

From the figure 3 illustrates that nearly half of the students (27 students) out of 60 students agreed that they found difficulties in understanding the central ideas of the subject matter written in English while a majority of the students (30 students or 50%) disagreed and three students were undecided to respond. majority of the students (36 students or 60%) found difficulties in skimming for the gist of the subject matter written in English while 18 students (30%) did not find any difficulties in the same. On the other hand, only six (10%) students were undecided to respond whether they found difficulties in skimming for the gist of the

subject matter written in English. 28 students or 46% of the students agreed that they found difficulties in decoding meaning of the subject matter written in English within reasonable time while 28 students (47%) disagreed and four students were undecided to give their opinions. The majority of the students (33 students or 55%) found difficulties in interpreting texts written in English.

Discussions of Findings

The findings reveal that the majority of the students faced difficulties in skimming for the gist of the subject matter written in English. Maximum number of the students agreed that they found difficulties in decoding meaning of the subject matters written in English. Finally, many students found difficulties in interpreting texts written in English. This finding is similar to Grundy's findings. Grundy (1993) found that most overseas postgraduate students of science disciplines in a university in UK encountered difficulty in understanding scientific texts due to lack of technical vocabulary.

Conclusion and Implications of the Study

The study revealed the specific reading needs of English language for the undergraduate students of Mechanical Engineering discipline at Velalar College of Engineering and Technology, Erode, South India based on the two components of exploring reading needs: PSA (Present Situation Analysis) and LSA (Learning Situation Analysis). The study also revealed that a majority of the above said students found difficulties in reading skills in English language for academic purposes.

The findings of the study may help the ESP practitioners/researchers design an English language course for the undergraduates in the context of reading skills for academic purposes, namely, "English for Mechanical Engineering" which can be confined. The

findings of the study may enable the ESP practitioners to make informed decision on the students' English needs of Mechanical discipline in the development of syllabuses and materials. The research may also be beneficial to the students that they can know their strengths and weaknesses in English language skills, particularly in reading skills.

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