Language Learning Strategies of Engineering Students: An Explorative Study in Bangladesh Perspectives

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ABSTRACT

This paper aims to explore various language learning strategies (LLS) employed by undergraduate engineering students in Bangladesh. This individual difference a major concern for the ELT practitioners as it facilitates understanding the learners' nature of learning their target language (TL). Hence, the specific aim of this paper is to investigate the particular Language Learning Strategies the engineering learners apply to learn English as a second language. To attain the objectives, a mixed method of research using survey questionnaire for both teachers and students and semi-structured interview for teachers have been applied. To execute the research objective, 80 randomly selected engineering students from DUET have been considered as the participants. The findings of the study suggest that engineering students prefer to use memory, cognitive, affective and social strategies over compensation and metacognitive strategies.

1. INTRODUCTION

The more a teacher is preoccupied and concerned with the learners' style and strategies of learning, the easier the teaching-learning enterprise becomes. Post 1970s have experienced a significant shift in the paradigm in English language teaching learning processes. The focus has been shifted from the teachers' towards the learners' and their learning process. Hence learners become the central focus in the teaching-learning practices. Current English Language Teaching (ELT) trends incline towards learner-autonomy, therefore understanding the learners' versatile learning styles and strategy is of utmost importance to the ELT practitioners in general and ESP teachers in engineering context.

This study will be a ground to look into the case of learning strategies of the engineering learners in English as a second language (ESL)/English as a foreign language (EFL) classrooms at tertiary level in the context of Bangladesh. As the research field is quite pertinent in the teaching-learning enterprise at Dhaka University of Engineering & Technology (DUET), Gazipur, the teachers and learners of DUET have been chosen as the primary sample for this study. Language Learning Strategy (LLS) is defined as the operations used by the learners to aid acquisition, storage, and retrieval of information [1]. The New Oxford Dictionary of English further defined learning strategy as "plan of action or policy designed to achieve a major or overall aim" [2]. This study certainly is a platform for the ELT practitioners to revise and reformulate the existing teaching practices, techniques and methodologies employed in English language classroom. It will further promote more learner- friendly and needs-oriented classrooms to exploit the utmost goal of mastering the core language skills, knowing the learning strategies and thus solving various language and communication tasks that learners come across in everyday life. Globalization and its world-wide effects have given the English language a prestigious identity; to be more specific, English is no more taught as a mere subject but rather as an essential language and communication skills primarily required for academic and professional purposes. Nevertheless, it has drawn special attention from the graduating engineering learners as well as from the employment sectors.

Hence, LLS has been given prominence in research in learner-centered classroom pedagogy. Learning strategies provide authentic feedback to the language teachers for designing effective instructional methods and teaching materials, planning the language tests at par with learners' capabilities and knowledge domains. Thus, awareness about the learners' language learning strategies help the language teachers bridge the gap between the students' and teachers' expectation from them.

This paper exploits a mixed method study (Ql-Qn) where teachers and learners of DUET have been surveyed and interviewed for data collection. It is divided into five sections namely: Introduction, Literature Review, Research Methodology, Research Findings and Conclusion as a general structure.

2. LITERATURE REVIEW

Teaching ESL to the engineering learners in 21st century is rather a challenge since they are primarily preoccupied with their specialized subjects. Hence, due to the special nature of academic endeavor, they tend to apply unique

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learning strategies to solve their academic problems. In this connection, while learning English language, they use various LLS. Rebecca Oxford defines LLS as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective and more transferable to new situations" [3].

Although researchers have developed several kinds of Language Learning Taxonomies such as Rubin's (1981), O'Malley et al. (1985), O'Malley and Chamot (1990) and Oxford (1990), this paper has adopted the Language Learning Taxonomy proposed by Rebecca Oxford (1990) [4].

Rebecca Oxford conducted a study among 1200 foreign language students at tertiary level of USA to identify the key variables that affect the choice of learning strategies [3]. The mixed gender-respondents were undergraduate students learning five different foreign languages. Strategy Inventory for Language Learning (SILL) was used in her research that among the repertoire of strategies, the findings demonstrate that university students gave highest priority to using formal rule-based practice strategies and general study strategies. The research successfully delineated that high motivation and proficiency level lead to the use of various learning strategies. Though various issues regarding strategies were included here, the context outside the classroom, the learners' need, learners' autonomy, and the communicative aspects were neglected in the study which will be considered in this paper.

Christina and Corina conducted another experimental study on learners' strategies in language learning with 50 Romanian Foreign Language (FL) learners to assess their favourite learning strategies [5]. They explored that learners take independent steps, manage and process their information receiving styles and method of comprehension in order to improve their learning strategies and finally become autonomous learners. The findings also seem to help the teachers improve both the students' level of competence and the teachers' teaching styles and principles. Since the study was conducted in English as foreign language (EFL) context, the current study might come up with somewhat different findings in the local context of the researchers.

Kung Shan-Shan administered a study to observe the reading strategies the Taiwanese EFL college students applied [6]. He took 398 EFL college students as sample for the study and used a questionnaire modified from Wan-Yin Lin's Chinese reading strategies questionnaire (2005) as a research instrument. As research outcomes it was found that higher grade students applied more integrated strategies than lower grade students. Based on the research outcomes he recommended that teachers should not focus on teaching listening and speaking skills separately rather they should enhance the balance development in integrated skills where reading strategies would be accompanied by speaking, listening and writing strategies. Although the study was conducted in a different context, the recommendations might be quite relevant for the study undertaken in the local context.

3. RESEARCH METHODOLOGY

3.1 Rationale

Most of the engineering Departments offer maximum two foundation English courses at undergraduate levels, therefore, English language teachers face various pedagogical challenges to deal with undergraduate Engineering students. Hence, the researchers have attempted to identify the particular language learning strategies adopted by them. The research findings on engineering students' learning strategies will be of immense help to ELT practitioners and English language teachers of engineering universities in revising the existing teaching methods and thereby designing teaching materials and inputs.

3.2 Research Questions

To attain these objectives, the following research questions have been formulated:

a) What language learning strategies are used by engineering students at undergraduate level?

b) Which particular strategies do the engineering students mostly use to improve their English proficiency?

3.3 Study Design

This section is an overview of the research methodology employed in this paper. Hence, various processes and events related to population, sampling, data collection setting, instrument selection, design and administration of tools for data collection have been duly addressed. Furthermore, data analysis, possible findings and the scopes and limitations of the study have been discussed in greater details in this section.

3.4 Sample

Though the engineering students have been selected as population for this current study, 80 randomly chosen engineering students across various departments of DUET and 5 English language teachers have been selected for the data collection of this study. All the participant teachers and 20 sample learners were selected for interview.

3.5 Research Instruments for Data Collection

As a research instrument, survey questionnaire provides scalability, comparability, validity and reliability in terms of data analysis. Similarly, interview protocol as a research instrument offers the opportunity to record personal feelings and perceptions of the respondents and allows more detailed questions to be asked. Therefore, survey questionnaire and interview have been incorporated in this study to observe learners' and teachers' perspectives regarding their belief on the use of language learning strategies. To be specific, survey questionnaire for students, survey questionnaire for teachers and semi-structured interview for teachers have been employed in this study. A mixed-method (Qn-Ql) of research has been applied. After eliciting their feedback from all the sources, the key findings have been recorded for further study and analysis.

3.6 Data Analysis Techniques

To have valid and reliable findings, obtained data have been analyzed using MS Excel to measure the relative frequencies and percentages of the participants' opinions quantified through Likert scale signifying -2 for the lowest to +2 for the highest scale. However, the strength and reliability of the findings have been achieved through the incorporation of triangulation technique.

3.7 Scopes and Limitations

The scope of this study is significant enough as it includes the larger part of literate people of Bangladesh and, the most potential one, the undergraduate engineering community. The findings have the great potential to further extend and experiment on the learners' profile and the curriculum of Bangladesh whether suitable for them or not while experiencing learning.

The survey comprises of a meager 80 samples from DUET only which might be a limitation for this study to truly represent all the engineering students DUET, Bangladesh.

3.8 Data Analysis and Discussion

3.8.1 Data Analysis of Students' Survey Questionnaire

The diagrams summarize the use of learning strategies such as memory, cognitive, compensation, metacognitive, affective and social strategies [7] employed by tertiary level engineering students.

The bar chart in Figure 01 illustrates the perceptions of the engineering learners' application of memory strategy while learning new ideas and topics. It can clearly be seen

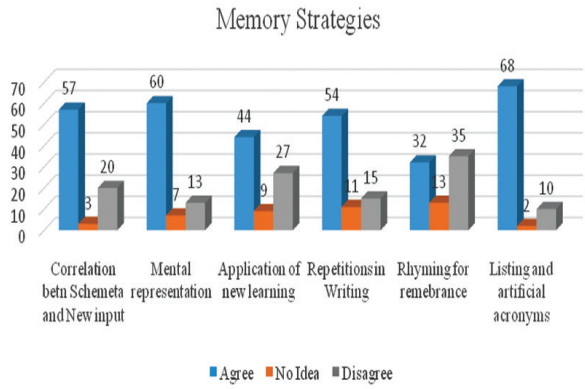

Fig. 1: Learners' Perception on Using Memory Strategies

that the bar number six in the chart scores the highest rank in terms of the agreement (68 students agree out of 80) in using the strategy of the listing and artificial acronyms while recalling longer stretches of information whereas the opposite trend is more conspicuous in the bar number five. Here, only 32 students give their consent positively in using rhymes to remember new words, key points, and discussed topics. Moreover, 35 learners out of 80 disagree in using rhyming strategy. It clearly portrays that engineering students are not in the habit of using rhymes for remembering newly learned topics like the general students. Furthermore, a similar drift of rising pattern in provisions of the agreement is obvious in the bar number one, two, and four which incorporate the association of correlation between schemata and new knowledge, mental representation of new ideas into words and images, use of repetition in writing to make the learned topics longer lasting. Their number of agreements 57, 60, and 54 (out of 80) consecutively exposes that these are the most common strategies used by them. Besides, only 13 students show that they have no idea in using rhymes which is the largest scale in term of "No Idea". Finally, it can be delineated that the engineering students prefer memory strategy mostly as a traditional concept and their overall agreement of using is 52.5%, where only 20% disagree to use it.

Figure 02 below shows the number of students in terms of the agreement, disagreement, and no idea of using cognitive strategy. The highest number of positive responses is reflected in the first four and last three bars where the numbers are as followed 65, 65, 61, 58 and 58, 52, 46 (out of 80) consecutively. These numbers depict the similar nature of positive ranking as the students are quite comfortable in using mind mapping, flow chart, and brain storming (65), translating word by word (65), seeking opportunities for practice outside classroom (61), correlating between English and Bengali items (58), watching documentaries in English (58), following native speakers for correct pronunciation (52), and finally using repetition in writing (46).

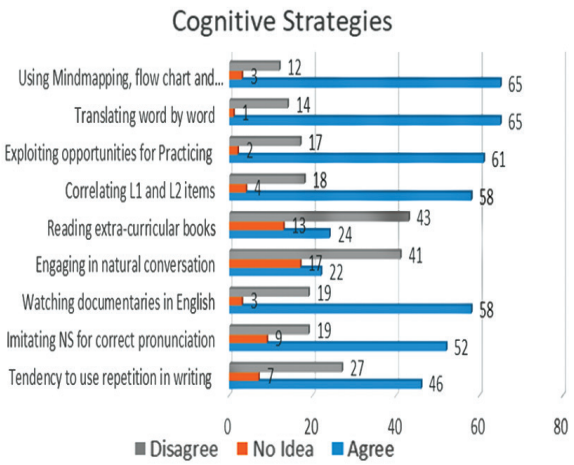

Fig. 2: Learners' perception on using Cognitive Strategies

Surprisingly, 43 Students disagree that they are they are not in the habit of reading extracurricular books for an overall understanding of new concepts. Hence, it is an indication that they are motivated to read textbooks only for the sake of passing an examination and securing good grades. Moreover, 17 students are without any concrete opinion regarding their involvements in natural conversation. Henceforth, the mean of positive response of the students (50.11%) is an overall indication of their strong association with cognitive learning strategies, whereas, only (23.33%) students are less interested in using this strategy. To sum up, it is clearly evident that engineering students are aware of different cognitive strategies they use while learning new items to give it a longer existence.

Figure 3 shows learners' perception on using compensation strategies. Out of 80 participants, 55 learners agree that they guess meaning from contexts and 56 learners agree that they read the whole text for overall idea, whereas, 20 and 18 learners disagree to the statement respectively. A similar kind of trend is observed in the conformity of using gestures and postures, asking for clarification and using vocabulary substitutes. A parallel kind of disagreement is seen in the context of asking for clarification and using vocabulary substitutes, which amounted to 54 and 56 learners respectively. Thus, we can say that learners hardly ask for clarification in class. In addition, they were observed rarely use vocabulary substitutes in their productive skills. However, 34 learners disagree on using gestures and postures and significantly 25 learners have no idea on this issue.

Figure 4 shows learners' perception on using metacognitive strategies. 52 learners out of 80 participants admit that they do not allot any time for studying English, whereas, only 19 learners pay special attention to English. 28 learners look for opportunities to use English in different contexts

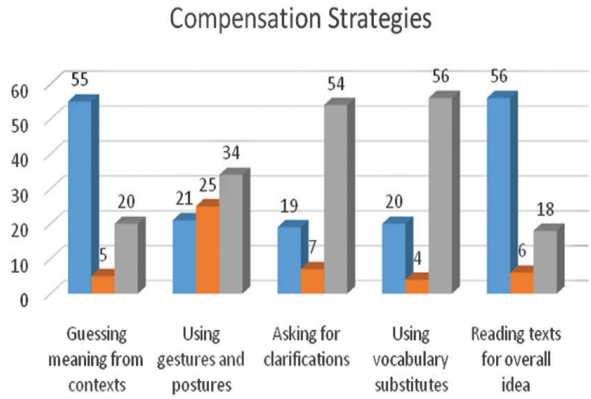

Fig. 3: Learners' perception on using Compensation Strategies

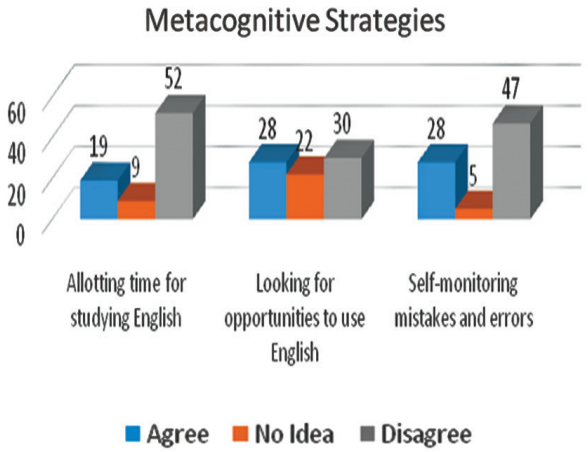

Fig. 4: Learners' perception on using Metacognitive Strategies

and monitor their own errors and mistakes in productive language skills. Significantly, 47 learners do not monitor their errors. 30 learners opine that they do not look for opportunities to use English, whereas, 22 learners have no idea about the fact.

Figure 5 displays learners' perception on using affective strategies. Here, 47 students reported that they attempt to remain hopeful under psychological pressure though 24 subjects disagreed the statement. Again, 49 participants exposed that they try repeatedly to accomplish their academic activities until success comes. It focuses their persistence on achieving their academic goal.

Moreover, 62 learners opined that they become motivated after success as well as 66 learners get motivated from others' success. In contrast, only 15 and 10 learners disagree to the statements respectively. Thus, this bar chart reflects the engineering students' positive attitude and motivation in using affective strategies.

Fig. 5: Learners' perception on using Cognitive Strategies

Figure 6 highlights learners' perception on using social strategies. Among 80 participants, 28 agree to the facts that they ask teachers to slow down the tempo of conversation in classrooms though 41 students disagreed that. Again, 61 students opined that they request teachers and peers to correct their mistakes which show their positive inclination towards learning English. Besides, 51 learners reported that they are interested in practicing English outside classroom context. Moreover, 51 students showed negative response in adopting and adapting native speakers' culture as they have limited scope to interact with them in non-native setting although 24 students exposed interest to learn their culture to adapt themselves in foreign academic settings. Therefore, this chart represents engineering students' positive perception in using social strategies.

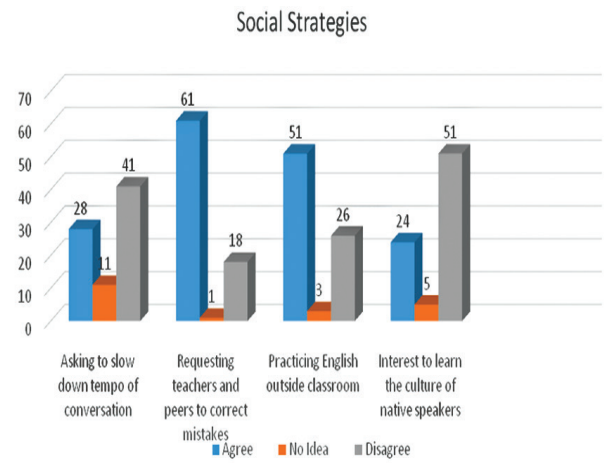

Fig. 6: Learners' perception on using Social Strategies

3.8.2 Data Analysis of Teachers' Survey Questionnaire

Teachers' opinions obtained from the similar kind of survey questionnaire provide somewhat a different picture. In terms of using the memory strategies, 3 teachers (60%) opined that students do not apply repetition in writing to make the learned topic longer lasting, whereas 2 teachers (40%) opined otherwise. Only 2 teachers (40%) were of the view that students use rhymes to remember new words, key points, and discussed topics and the majority of them opined the opposite. However, all the teacher participants agreed that students apply the strategy of the listing and artificial acronyms. They also agreed that students correlate between schemata and new knowledge, use repetition in writing to make the learned topics longer lasting, and mentally represent the new ideas into words and images.

With reference to using cognitive strategy, like majority of the students, all the teachers agreed that students use mind mapping, flow charting and brain storming to learn a new language. All of them agreed that students' use translating word by word, correlating between English and Bengali equivalence as cognitive strategies. Similarly, like majority of the students, teachers opined that students do not read extra-curricular books, and engage themselves in natural conversation. However, there are some disagreements between teachers' opinions and students' opinions. Though majority of the students opined that they watch documentaries in English, imitate natural sound for correct pronunciation and use repetition in writing, all the teachers opined the students really do not follow these strategies.

In Compensation strategies, like majority of the learners, all the teachers reflected that students read texts for overall ideas and guess meaning from contexts. However, most of the teachers differed from the student's opinions on the remaining strategies.

Interestingly the teachers' opinions on the use of metacognitive strategies namely, allotting time for studying English, looking for opportunities to use English and self-monitoring one's errors, gives a blueprint impression with that of majority of the students.

In case of applying Affective Strategies, all the teachers agreed with majority of the students' findings. The teachers reported that the students remain determined and try hard in completing their tasks. On the contrary, majority of the teachers diverged from the students' opinions on being hopeful under psychological pressure and trying repeatedly to improve their L2 skills.

Regarding social strategies, there is a similarity between the teachers' and students' opinions on requesting teachers and peers for feedback and interest to learn L2 culture. Conversely, majority of the teachers opined that students ask to slow down tempo of conversation and they do not practice English outside classroom.

3.8.3 Data Analysis of Teachers' Interview

The teachers' interview seems to suggest a pattern reflecting that of the majority of students' opinions on the use of learning strategies. The findings further demonstrate that engineering students apply certain memory strategies such as rhyming, listing and artificial acronyms and schema strategy, using prior knowledge and information, over the others.

Next, as per the teacher's opinions obtained from the interview, students prefer to use more L2 to L1 translation strategies, mind mapping, flow charting and brain storming under cognitive strategies.

In response to the third, fourth and fifth questions, teachers opined that students use certain social strategies. When students face any problem in class, they ask for feedback and clarification from teachers and peers and they ensure their comprehension of any difficult issue by receiving such feedbacks. However, students do not use English outside their classroom to practice the productive language skills.

However, students do not spare much time to improve their English language skills. For example, as per the teachers' opinions students do not read extra-curricular books, watch documentaries in English and so on under cognitive strategies.

Regarding the seventh question, teachers reported that students do not use any meta-cognitive strategies like self-monitoring their mistakes and errors.

Finally, in response to question on drawing motivation to learn the target language, teachers opined that students' get motivated from their own and their peers' success.

4. RESEARCH FINDINGS AND DISCUSSION

Though the engineering students are different from general students in terms of technical expertise, it has been observed that engineering students conform to most of the learning strategies applied by students in general. It is noteworthy here that as they study technical courses, they are inclined towards using some learning strategies more than other strategies. Henceforth, the study seems to suggest that engineering students apply memory, cognitive, affective and social strategies more frequently than other learning strategies. Nevertheless, a significant disagreement has been observed between teachers' and students' perceptions towards using compensation as well as metacognitive strategies.

5. CONCLUSION

The findings of the research represent that engineering learners are interested in using almost all of the learning strategies demonstrated in this study. Though there are different disciplines in engineering education, the research outcome illustrates that the engineering students in most cases demonstrate an inclination towards using memory, cognitive, affective and social strategies vis-à-vis using compensation and metacognitive strategies. These findings will surely be a great source for ELT practitioners interested in exploring the engineering students' learner-profile to provide effective teaching. Hence for their holistic development, ELT practitioners and material-developers can work together to modify and update the existing teaching methods and approaches as well as revise teaching materials and resources based on the research outcomes.

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