A Study of Language Learning Strategies Used by Engineering Students

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Abstract

To face the challenging professional environment, engineers are required to equip themselves with necessary communication skills. Although engineering graduates from western Maharashtra are academically sound, employees are hesitant to hire these graduates due to their poor proficiency in English. Generally, engineering students need to give more attention to their technical subjects; obviously, they get less time to improve their English language skills. In such conditions, knowledge of Language Learning Strategies can prove very helpful to acquire adequate proficiency in English in a short span of time.

The present study investigates Language Learning Strategies (LLS) used by engineering students of four engineering colleges in Ratnagiri district (Maharashtra, India). LLS are specific actions or techniques that learners use to assist their progress in developing second or foreign language skills (Oxford, 1990). To identify the learning strategies that engineering students use, Strategy Inventory for Language Learning (SILL) (Oxford, 1990) was administered to 60 engineering students from four engineering colleges of Ratnagiri district.

The primary objective of this study is to identify the types and degree of use of LLS employed by these engineering students. Besides that, it also aims to analyse students’ perceptions on the use of strategies in their language (English) learning. The students reported a greater preference for metacognitive, cognitive, compensatory and social strategies which puts them in the category of higher level learners. However, it is observed that these students do not make sufficient use of memory and affective strategies. Moreover, present study also points out that the engineering students observed in this study are totally unaware of the benefits of LLS and how they can be employed in learning English. Apart from that, it is also revealed that some students also have problems such as, ‘lack of confidence’, ‘anxiety’, and ‘shyness’ in learning English.

Key words: Language Learning Strategies, Engineering Students, Strategy Inventory for Language Learning (SILL)
Introduction

Over the past two decades, research in second language (L2) education has largely focused on learner centered approaches to second language teaching in an effort to lead learners towards autonomous and independent language learning (Reiss, 1985; Wenden, 1991; Tamada, 1996). The process through which learning takes place has been gaining more importance than the products of language learning (Oxford, 1990). Consequently, Language Learning Strategies (LLS) have emerged not only as integral components of various theoretical models of language proficiency (Bialystok, 1978; Canale and Swain, 1980; Ellis, 1985; Bachman and Palmer,1996), but also as a means of achieving learners’ autonomy in the process of language learning (Oxford,1990; Benson and Voller,1997). It is asserted by Liyanage (2004) that language learning strategies occupy a pivotal position in second language learning. Students’ perception about the language learning strategies helps the teachers in understanding their pupils and assists them in the process of language learning.

Having realized the status of English as an international language and its importance as a major communication tool, educationists are taking steps to investigate ways to help and develop communication skills among engineering students. Since English is a tool for admissions in good technical institutes and for getting better placement opportunities, it is essential to provide English language learning opportunities to the technical students. There are lots of troubles students of vernacular medium face in India. The use of outdated ways of teaching, untrained English language teachers, dearth of language aids, fear of learning English and overcrowded classrooms affect the success rate of the students. The professional environment in which engineers have to function is highly competitive and demanding and the prospective employees are required to be excellent at communication skills. Although engineering graduates are good academically, it is often observed that employees are hesitant to hire these graduates due to their poor proficiency in English. Generally, engineering students need to give more attention to their
technical subjects; obviously, they get less time to improve their language skills. The researchers believe that it is necessary to identify students’ language learning strategies and train them to use such tricks to become successful learners. There is paucity of research on the use of language learning strategies by engineering students in India. Therefore, the present research attempts to contribute in this area by investigating the use of LLS made by engineering students in the Ratnagiri District. The paper highlights engineering students’ preferences in using language learning strategies and their general understanding about LLS and their usefulness.

**Language Learning Strategies- Meaning and Definitions**

The emphasis of second /foreign language learning now is more on how teachers and learners achieve their goals, and not on the teaching techniques. Learning strategies are techniques which students use to comprehend, store and remember new information and skills. It is really interesting to know what a student thinks and how a student acts in order to learn target/foreign language. For example in order to comprehend a text in a foreign language, a student might think “Am I understanding this?” “Does it make sense?” “From where can I get meaning of this word?” Using this type of comprehension monitoring to identify areas of difficulty, the student may take notes of words, he/she might ask meaning of difficult words to a teacher or a friend.

The word ‘strategy’ comes from the ancient Greek word ‘strategia’ which means steps or actions taken for the same purpose of winning a war. The warlike meaning of strategies has fortunately fallen away, but the control and goal-directedness remain in the modern version of the word (Oxford, 1990).

O’Malley and Chamot (1990) describe language learning strategy as “the particular thoughts or behaviors that individuals use to help them comprehend, learn or retain new information” (p.1). They elaborate that, “learning strategies are special ways of processing information that enhance comprehension, learning, or retention of the information” (O’ Malley & Chamot, 1990, p.1). Language learning strategies are viewed by Scarcella & Oxford (1992, as
cited in Oxford, 2003), as, “specific actions, behaviors, steps, or techniques -- such as seeking out conversation partners, or giving oneself encouragement to tackle a difficult language task -- used by students to enhance their own learning”. Both the authors consider learners’ use of language strategies as conscious, purposely chosen and deliberate approach for facilitating learning. Learning strategies have comprehensively been defined by O’Malley and Chamot (1990) as:

“Focusing on selected aspects of new information, analyzing and monitoring information during acquisition, organizing or elaborating on new information during the encoding process, evaluating the learning when it is completed, or `assuring oneself that the learning will be successful as a way to allay anxiety.” (p.43)

According to Oxford (2003), none of the strategies are good or bad, but are effective when they are in accordance with the task for which they are employed. Strategies may be useful as individual techniques, or when used in a combination, and should not be in conflict with the learning style of the individual. According to Oxford (1990, as cited in Oxford 2003, p. 8) fulfilling these conditions “make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations.” Grenfell & Harris (as cited in Chamot, 2005) appropriately elucidate the twofold importance of language learning strategies. On one hand, the study of the use of language learning strategies gives insight into the cognitive, meta-cognitive, social, and affective processes related to learning processes; on the other, they can be taught to struggling language learners, and assist them in language learning.

**Review of Literature**

Lot of research has been carried on language learning strategies in last three decades. One of the earliest works is that of Dansereau (1978) who categorized learning strategies into two - those that operate directly on materials (primary strategies) and those that operate on the individual to help establish a suitable learning atmosphere (support strategies). To assist the learners and make the training more effective, Dansereau devised a training system based on findings from the educational and psychological research of that time, to assist learners with
alternative learning procedures and help them interact more effectively with academic and technical materials.

Wesche (1975) studied the learning behaviors of successful adult language learners in the Canadian civil service and asserted that there was more variety and quality of learning behaviors by those who improved quickly. Nambiar (1996) and Mah (1999) also found that Malaysian undergraduates used strategies in combination, especially from the cognitive and metacognitive strategy groups. This is an important finding because it helps us understand why some learners are more successful at completing a language task compared to others.

Rigney (1978) went one step further and showed how it is possible to increase the effectiveness of learning by showing how learners can control the kinds of information processing they do while acquiring, retaining, retrieving information and performance during learning.

Research on language learning strategies has also shown that successful learners have effective ways of processing information and that these strategies can be taught to other learners. Still, it is not clear from the literature on language strategy research that why these strategies are effective in the learning process and what is the link between strategies and mental processes.

Among the earliest cognitive psychologists to consider the social nature to learning was Slavin (1980) who found that students who were trained to use cooperative learning strategies did better than those who were not provided with such training.

Brown and Palinscar (1982) recognized that “an ideal training package would consist of both practice in the use of tasks-appropriate strategies, instruction concerning the significance of those activities, and instruction concerning the monitoring and control of strategy use”. They attempted to separate cognitive strategies from the metacognitive strategies. Cognitive strategies were more concerned with individual tasks and required to enhance understanding. Metacognitive strategies were strategies concerned with the planning for the learning, monitoring of understanding, and evaluation of one’s own learning. Brown et al. (1983) went on to state that students needed both cognitive and metacognitive strategies to maximize their learning potential.
Research done on language learning strategies in the 1980s helped ground the work in the information processing framework and this was an important contribution for language learning in particular (O’Malley et al., 1985). The distinction between the different groups of strategies was also helpful in that it helped researchers to identify and classify strategies into categories rather than simply a list, as was done in the 1970s.

Dreyer and Oxford (1996) found a very high correlation between language proficiency and strategy use among Afrikaans. Proficient learners used the cognitive strategy of using mental processes, the compensation strategy of compensating for missing knowledge, and the metacognitive strategy of organizing and evaluating learning notably more than less proficient learners. The use of social strategies was more common among the less proficient learners.

Gan, Humphreys, and Hamp-Lyons (2004) examined strategy use among successful and unsuccessful EFL students in China and found that successful students use more strategies and also more refined strategies than unsuccessful students.

Asma Shahid Kazi and Hafiz Muhammad Iqbal (2011) did study of use of strategies by 2409 Arts, Science, and Commerce students in Pakistan. As a result they found that Pakistani students’ English language proficiency is quite low and even after studying English for so long, they are unable to write even a simple application letter. These students preferred using metacognitive strategies.

**Classification of Language Learning Strategies**

While early classification of language learning strategies simply list strategies based on the performance of good learners (Rubin, 1975; Stern, 1973), more recent taxonomies classify them either based on their direct/indirect contribution to language learning (Rubin, 1987), or the level and type of information processed by language learners when they use such strategies (O’Malley et al; 1985a; O’Malley, Chamot, Stewner-Manzanares, Kupper and Russo, 1985b; O’Malley and Chamot, 1990).

According to Ellis (1994), Oxford’s taxonomy of language learning strategies is the most comprehensive classification to date. It has further been validated by Hasio and Oxford (2002) through factor analysis measures and has proved to be the most valid classification of language
learning strategies. The Strategy Inventory for Language Learning segregates strategies into two major categories, Direct and Indirect. Each category has three sub-categories. Direct strategies consist of memory, cognitive, and compensation strategies. For example, one type of memory strategy is creating mental linkages; type of cognitive strategy includes practicing, analysing, or reasoning; one type of compensation strategy is guessing intelligently.

Indirect strategies support and manage language learning without necessarily involving the target language directly. They consist of meta-cognitive, affective, and social strategies. Example of meta-cognitive, strategy can be arranging, planning, and evaluating one’s learning; one type of affective strategy has to do with lowering one’s anxiety and encouraging oneself; example of social strategy is asking questions and co-operating with others.

Students are totally unaware of how to apply and use strategies, and it is needed to make them aware and formally instructed by the teachers (Nyikos and Oxford, 1993). There are different approaches and models of language strategy instruction. However, it is the general consensus, that these strategies need to be incorporated alongside the regular classroom activities, and need not be taught exclusively (Oxford, 1989). As per the views of Oxford (1993) strategy instruction can be benefited to students when their needs and beliefs are already known to the instructor. She also points out that language strategy training should be integrated in regular classroom teaching, and not teaching them explicitly. Strategy instruction needs to take into account the existing strategies preferred by the students, their prior knowledge, the appropriateness of strategies in accordance with the language syllabus and the duration of instruction.(O’Malley and Chamot, as cited in Chamot, 2005).

Need of the Study

In this 21st century era, engineers are not only required to effectively convey technical information but they also need to have acceptable social, communication and interpersonal skills in order to perform best in the workplace. Regrettably, there is considerable evidence that shows an inadequacy among graduating engineers to meet these requirements. This was reported by the Society for Manufacturing Engineers which found that, among the top “competency gaps” in engineering education; the “lack of communication skills” was one of the most prominent
(Sageev and Romanowski, 2001). This is really a fretful thing and we should be concerned about it as engineers play essential role in society. If they have been provided with or trained with some techniques/tricks to improve language skills in less period of time they might develop their skills.

**Participants**

The present study was carried out in Ratnagiri district of Maharashtra (India). There are four engineering colleges in the district. The researcher selected fifteen students (from various branches) randomly from each college. Thus, total sixty students participated in the study. When the participants were given information about the study, they participated willingly in the study. They are all second year engineering students some from rural and some from urban background.

**Data Collection Procedure and Administration**

The Strategy Inventory for Language Learning (SILL) questionnaire version 7.0 (Oxford, 1990) is used for the present study. The SILL questionnaire is analysed as per the directions given by Oxford (1990) in her book *Language Learning Strategies: What Every Teacher Should Know*. The SILL is used to identify these students’ type and degree of use of LLS and determine whether the participants are low, medium, or high strategy users.

**Results and Discussion**

The data gathered through the SILL are analyzed in terms of learners’ overall use of strategies and their use of strategy categories. This is shown in the table below. Average between 3.5 and 5.0 stands for high use of strategies (4.5 to 5.0 always or almost always used, and 3.5 to 4.4 usually used); average 2.5 to 3.4 stands for medium (sometimes used) and average 1.0 to 2.4 stands for low (1.5 to 2.4 for generally not used and 1.0 to 1.4 for never or almost never used) use of strategies.

**Overall average of strategies used by engineering students**

<table>
<thead>
<tr>
<th>College</th>
<th>Type of strategies and their average use</th>
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</thead>
</table>

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Fourteen items are related to the use of cognitive strategies, six to compensation strategies, nine to metacognitive strategies and six to social strategies. The average of use of all these types of strategies ranges between 3.05 and 3.98 (3.05 – 3.55 cognitive; 3.33 – 3.58 compensation; 3.48 – 3.70 social; and 3.39 – 3.98 metacognitive). It reflects that all the students are high users of these strategies who usually (but not always) use such strategies. The grand total also reflects that these students are medium users of language learning strategies.

In the questionnaire (see the Appendix), nine and six items are devoted to know about the students’ use of memory strategies and affective strategies respectively. The result shows that students of the selected colleges don’t have adequate skill of using memory strategies and affective strategies. The average of use of memory strategies by these students ranges between 2.99 and 3.09, and that of affective strategies between 3.07 and 3.35. It reflects that these students are medium users of memory strategies and affective strategies, and use such strategies only sometimes.

Memory and affective strategies may prove to be more useful to the engineering students as they are related to improving their memory, making effective use of previous knowledge, and reducing anxiety and stress, etc. Memory strategies help learners remember more effectively through grouping, making associations, placing new word into a context to remember them, using imagery sounds, sound-and-image combinations, actions, etc, in order to remember new
expressions, reviewing in a structured way, going back to review earlier material, etc. Affective strategies help learners to manage their emotions by lowering their anxiety, encouraging them through positive statements, taking risks wisely, rewarding themselves, keeping a language learning diary, noting physical stress, talking with someone about their feelings and attitudes.

The figure below represents a comparative view of use of LLS by these engineering students. It is clear from the figure that these students do not make adequate use of any of the categories of LLS. The least used are memory strategies and affective strategies which are actually very essential for a foreign language learner. However, the use of the other four categories is also not frequent enough (4.50 to 5.00). The category used most extensively is metacognitive (3.69). Metacognitive strategies are the ones where the students try to overview and link the matter to be learned with the material they already know, and set goals and objectives for language learning, or learn from their errors, and evaluate their progress. But still, they use these strategies sometimes.
Frequency of use of strategies by selected engineering students

<table>
<thead>
<tr>
<th>Type of Strategies</th>
<th>Frequency of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>3.05</td>
</tr>
<tr>
<td>Cognitive</td>
<td>3.37</td>
</tr>
<tr>
<td>Compensation</td>
<td>3.38</td>
</tr>
<tr>
<td>Metacognitive</td>
<td>3.69</td>
</tr>
<tr>
<td>Affective</td>
<td>3.16</td>
</tr>
<tr>
<td>Social</td>
<td>3.37</td>
</tr>
</tbody>
</table>

Conclusion

The result shows that on the whole, the participants demonstrated high to medium strategy use, and none of the strategies fell in the low range. The students also reported a greater preference for metacognitive, cognitive, compensatory and social strategies which puts them in the category of higher level learners (O’Malley and Chamot 1990). It is also supported by Oxford (as cited in Hong 2006) who asserts that students with more developed skills can lead to the use of metacognitive and cognitive strategies.

Though the result shows engineering students in Ratnagiri district make high to moderate level of use of strategies, they do not use them always or almost always. It reflects that they need strategy instruction or training to improve their language skills. It is also essential that the learners select strategies in accordance with the task at hand.
The present study is quantitative in nature and it attempts to explore the use of language learning strategies by engineering students in Ratnagiri district. Further research needs to be conducted in other universities and colleges before any generalizations can be made. Moreover, other research methodologies such as, retrospective interviews, think aloud protocols, diaries, or longitudinal studies need to be used to gain more comprehensive information about engineering students’ use of LLS.
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References


Rubin, J. 1975. What the good language learner can teach us. TESOL Quarterly, 9, 41–51.


Appendix

Strategy Inventory for Language Learning (SILL)

This questionnaire is for students of English (Communication Skills). Please read each statement and tick (✓) below the alternative of your choice. Answer in terms of how well the statement describes you. Do not answer how you think you should be, or what other people do. There is no right or wrong answer to these statements.

1. Never or almost never true of me (NT)
2. Usually not true of me (UNT)
3. Somewhat true of me (ST)
4. Usually true of me (UT)
5. Always or almost always true of me (AT)

<table>
<thead>
<tr>
<th>SN</th>
<th>Statements</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part A</td>
<td></td>
<td>NT  UNT  ST  UT  AT</td>
</tr>
<tr>
<td>1</td>
<td>I think of relationships between what I already know and new things I learn in the English.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>I use new English words in a sentence so I can remember them.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I connect the sound of a new English word and an image or picture of the word to help me remember the word.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I remember a new English word by making a mental picture of a situation in which the word might be used.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I use rhymes to remember new English words.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I use flashcards to remember new English words.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I physically act out new English words.</td>
<td></td>
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<tr>
<td>---</td>
<td>-------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I review English lessons often.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I remember new English words or phrases by remembering their location on the page,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>on the board, or on a street sign.</td>
<td></td>
</tr>
</tbody>
</table>

**Part B**

| 10 | I say or write new English words several times.                                     |
| 11 | I try to talk like native English speakers.                                         |
| 12 | I practice the sounds of English                                                   |
| 13 | I use the English words I know in different ways.                                   |
| 14 | I start conversations in the English.                                              |
| 15 | I watch English language TV shows spoken in English or go to movies spoken in      |
|    | English SL.                                                                         |
| 16 | I read for pleasure in the English.                                                 |
| 17 | I write notes, messages, letters, or reports in the English.                        |
| 18 | I first skim an English passage (read over the passage quickly) then go back and   |
|    | read carefully.                                                                     |
| 19 | I look for words in my own language that are similar to new words in the English.   |
| 20 | I try to find patterns in the English.                                              |
| 21 | I find the meaning of an English word by dividing it into parts that I understand.  |
| 22 | I try not to translate word for word.                                               |
| 23 | I make summaries of information that I hear or read in the English.                |

**Part C**

| 24 | To understand unfamiliar English words, I make guesses.                            |
| 25 | When I can't think of a word during a conversation in the English, I use gestures.  |
| 26 | I make up new words if I do not know the right ones in the English.                 |
| 27 | I read English without looking up every new word.                                   |
| 28 | I try to guess what the other person will say next in the English.                  |
| 29 | If I can't think of an English word, I use a word or phrase that means the same     |
|    | thing.                                                                              |

**Part D**

| 30 | I try to find as many ways as I can to use my English.                              |
| 31 | I notice my English mistakes and use that information to help me do better.         |
| 32 | I pay attention when someone is speaking in English.                                |
I try to find out how to be a better learner of English.

I plan my schedule so I will have enough time to study English.

I look for people I can talk to in English.

I look for opportunities to read as much as possible in English.

I have clear goals for improving my English skills.

I think about my progress in learning English.

### Part E

I try to relax whenever I feel afraid of using English.

I encourage myself to speak English even when I am afraid of making a mistake.

I give myself a reward or treat when I do well in English.

I notice if I am tense or nervous when I am studying or using English.

I write down my feelings in a language learning dairy.

I talk to someone else about how I feel when I am learning English.

### Part F

If I do not understand something in English, I ask the other person to slow down or say it again.

I ask English speakers to correct me when I talk.

I practice English with other students.

I ask for help from English speakers.

I ask questions in English.

I try to learn about the culture of English speakers.

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Thank you very much!!!

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