

Use of Cognitive Learning Activities to Enhance Vocabulary Acquisition of Engineering Students

I. Jerlina, M. M. Uma Maheswari



Abstract: *The proficiency in English language has become a necessity in the modern world. The competency of using the language efficiently lies in the right choice of words. Learning words and improving vocabulary skills have become peremptory among the tertiary level students that they cannot exempt themselves from learning it. A large vocabulary collection allows the students to regulate and organise their thoughts with clarity. In order to facilitate effective use of words, many techniques, approaches and strategies have been devised by teacher-researchers to help the learners not only in acquiring wide vocabulary but also to have active vocabulary. Authors on realizing the importance of facilitating tertiary level engineering students not only to acquire wider vocabulary but also make them to understand, retain and use the learnt word appropriately have attempted to use cognitive learning activities in classroom. The paper registers methods and implications of cognitive learning activities on enhancing vocabulary of a set of 55 engineering college students. According to oxford English dictionary, Cognition is "the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses". This brings about many aspects such as attention, memory, reasoning, problem solving, decision making and production of language. The ultimate aim of incorporating cognitive learning approach through learning activities in a classroom gears up them to remember, understand, retain, apply, evaluate, and create. The researcher tried to bring out the classroom learning activities that enabled the students to develop learning strategies that instigates autonomous learning.*

Keywords: *Vocabulary Acquisition, Cognitive learning activities, classroom activities, etymology, category game.*

I. INTRODUCTION

Cognitive learning approach is a type of learning which engages the students to make use of their brain effectively for learning. This kind of approach requires students' active participation and keeps them away from the boredom memorization of words. Learning words through this type of approach helps the learners to gain deeper understanding of words and increases retention. Students can benefit from instruction in language learning strategies, including

metacognitive strategies that help them plan, organize, and monitor their learning. (McLaughlin, 1987; Oxford, 1990). The teacher uses cognitive learning strategies: Asks the students to throw back light on their past experience; helps students to find solutions to problems; encourages participating in discussions; helps students to apply connections between words; teaches them to justify the logical connections between words to explain their thinking.

II. BACKGROUND OF THE STUDY

Vocabulary acquisition plays a conspicuous role in using the language efficiently. Even though there are lot of internet supported ways of acquiring ways play a role in the vocabulary acquisition, classroom instruction also can enhance vocabulary of engineering students. Wilkins (1972) wrote that ". . . while without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (pp. 111–112).

"What the elements are to chemistry, what the sounds are to music, are words to language" (Ernest Klein 1996). Vocabulary learning can be made best by making connections to acquired knowledge by interactions. David Ausubel's Assimilation Learning Theory focuses on 'meaningful Learning'. Meaningful learning focuses on learners' previous knowledge and the teacher devising meaningful material for students enable the learner to learn autonomously. Ausubel also claims "If I had to reduce all Educational psychology to just one principle it would be this: The most important single factor influencing learning is what the student already knows." (Ausubel et al. 1978, p. 163). Another researcher McLaughlin mentions, "New material should be sequenced in such a way that it can be integrated with students' previous knowledge. It should also be reviewed periodically" (McLaughlin, 1987).

Vocabulary learning is facilitated through learning activities and instructions that help the learners retaining the learnt concept. Language use involves the application of a complex system of rules; students need opportunities to apply these rules to express their own meanings in communicative situations. In addition, students need feedback on their language use to help them understand how to apply rules more effectively (Hadley, 2001).

III. METHODOLOGY

This research paper aimed to achieve vocabulary competency through cognitive learning activities in a classroom. The study was conducted with 55 students of computer science engineering in SRM Institute of Science and Technology.

Manuscript received on February 10, 2020.

Revised Manuscript received on February 20, 2020.

Manuscript published on March 30, 2020.

* Correspondence Author

I. Jerlina, Assistant Professo, Senior Grade & Research Scholar
English Language Teaching SRM Institute of Science & Technology
Kattankulathur Campus.

M. M. Uma Maheswari, Assistant Professor, Department of English and
Foreign Languages, Kattankulathur Campus, SRM Institute of Science and
Technology

© The Authors. Published by Blue Eyes Intelligence Engineering and
Sciences Publication (BEIESP). This is an [open access](http://creativecommons.org/licenses/by-nc-nd/4.0/) article under the CC
BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Use of Cognitive Learning Activities to Enhance Vocabulary Acquisition of Engineering Students

The students who participated in the study were in the second year of Engineering with the age group between 19 and 20. There were 14 girls and 41 boys in the class. The learning activities that were constructed for the

participants require 8 hours of instruction. The eight hours of instruction comprised sharing the importance of vocabulary acquisition of engineering students in the current scenario, motivating their minds to develop an anxiety for learning words, practicing vocabulary learning activities that help them understand their comprehending speed. A diagnostic test was conducted to the participants to assess the current level of their vocabulary competency. The test was administered through an online portal empower.srmist.edu.in which could be accessed only by SRMIST students.

The learning management system (LMS) of Career Development Centre was developed with the thought to empower the students for varied demands of their career. It is a comprehensive platform that combines the ideas of students and knowledge of the trainers to facilitate learning beyond classroom and connect them to the real life instances. With knowledge and learning just a click away, rest is all bright and clear in the way forward..

Students can access their online courses here: empower.srmist.edu.in

The test contained 30 MCQ questions: 10 sentence - based and 5 isolated word based synonyms and antonyms with the duration of 25 minutes. The questions were combination of both high frequency and low frequency words.

The sample questions:

David turned out to be a **dexterous** key board player.

A. Clumsy B. cloddish C. doltish D. adept

The professor is very **erudite**, scholarly, and has lots of fresh ideas.

A. scholarly B. uneducated C. Muddled D. Illiterate

Grandiloquent

A. Talkative B. speaker C. elocution D. banal

Docile

A. Rough B. unfit C. gentle D. lazy

<http://empower.srmist.edu.in/>

Diagnostic test Performance table

Table 1

| Score level | No of students |
|-------------|----------------|
| 0 - 5 | 0 |
| 6- 10 | 15 |
| 11 - 15 | 18 |
| 16 - 20 | 13 |
| 21 - 25 | 7 |
| 26 - 30 | 2 |

The sample student's performance displayed moderate level of vocabulary knowledge. It was evident from the performance table that maximum number of students scored in average level. Based upon the tests performance it is understood that the level of vocabulary knowledge is not satisfactory and hence they required further drills and activities to enhance vocabulary.

The students' performance data was collected from the teacher's login in empower.srm portal. The sample students were already registered to the test that was conducted as quiz in the portal. The performance of every single student could be retrieved from the portal. The diagnostic table was

prepared based upon the scores scored by the students and the level of score secured by the students. Similarly post test data was also collected in the same way. The link of the portal was provided for authentication.

Strategy#1: Activities to measure mental response in understanding a concept.

An introductory session highlighting the importance of vocabulary acquisition: vocabulary based questions in competitive exams like GRE, TOEFL, IELTS etc., and in recruitment exams, was shared in the class. When they were mentally prepared for vocabulary learning, they were given two activities collected from the book, 'Word Power Made Easy' by Norman Lewis. The activity is a timed test that they were given list of 20 simple words and they were instructed to find equivalent synonyms or approximately equivalent synonyms for the given list of words. Also they were restricted to give all their answers starting with the letter 'P' within duration of 90 seconds. The score level varied from students to students. Based upon the score they were informed that that displays their mental speed in comprehending a concept. When the answers were discussed the students understood that they had already known the answer but their mind could not retrieve words at the time of requirement. They were advised to learn words on a regular basis. Similarly another list of 20 words was given to the sample students. They were instructed to find antonyms or approximately equivalent antonyms for the given list of words. They were restricted to give all their answers starting with the letter 'G'. This time they understood that they have to be quick enough to give more answers within the time mentioned. These activities created an anxiety for learning words among the students.

Strategy #2: Activities to learn from previous knowledge.

The next session highlighted with the introduction of etymological method of learning words through activities. The students were totally unaware of etymology. The researchers wrote the root words: Phile, Philo, Phila and Phil on the board and asked the students to come up with the words that they had already known with any combination words. The students answered : philosophy - love for knowledge and wisdom ;Philosopher - A person who loves to learn knowledge and wisdom ; Philanthropist - A person who loves to do charitable works; paedophile - A person who loves to have sex with kids; philately - love for the collection of stamps; bibliophile - love for reading books ; Philadelphia - country of brotherly love. The meanings of all known words what the students answered were discussed in the class. They understood that the meaning of the root word phile, Philo and phila is love. Then a list of words with the same root word was written on the board. They were Anglophile, Francophile, Germanophile, Cinophile, Retrophile, Necrophile, philharmonic, caninophile. The students with no hesitant were able to apply the meaning of root word; phile - love to the new word by associating with the previous knowledge Anglo - English. It is love for English Language, culture and its tradition. Similarly they were able to apply the concept for other listed words also.

When the students were posed a question in between, "How would you say a person who loves to learn Indian languages, culture and its tradition?" There was an immediate response from the students: Indophile

Strategy#3: Activities to make connections between concepts

The next session was an activity that involved students to be alert to listen to the question continuously posed one after the other. They have to recall, apply logic and come up with answers. The question posed to them was: what was the root word that they learnt the previous day? They answered correctly.

Q: What is Polygamy?

A: many wives, multiple wives, many relationships, multiple marriages.

Q: what is bigamy?

A: getting married 2 times.

Q: What is monogamy?

A: getting married one time.

Q: So what is gamy then?

A: gamy means marriage.

The students had already learnt the meaning of two root words: philo- to love and gamy - marriage. Now they were asked few more questions and asked them to make meaningful connections between root words.

Q: When philo is to love and gamy is to marriage, then how do we say an act of a person who loves getting married?

A: Philogamy, philogamist, gamophile.

Q: when there is a word exists to love getting married, then what is the word that says to hate getting married?

A: antigamy, Gamophobia.

Q means Questions posed by the teacher

A means Answers given by the students

The students at that junction were corrected that their answers were not right. They were informed there was no word antigamy exists. Gamophobia means fear for marriage, not hate for marriage.

The students were appreciated since they were in right track of making progress in the concept taught. Then they were given the answer: misogamy/ misogynist. The students expressed a sense of sorry that they had known the word but had not expressed that. At this point the students were instructed that miso is a root word which means to hate something.

Then a series of questions helped them to understand how to make logical connections between root words.

Q: Root word to hate means miso-, then how do we say a person who hates women?

A: misogyny, misogynist.

Then the students were informed that gyny is a root for women. Gynecologist: A doctor by profession who treats women related problems.

Q: When there is a word which means to hate women, then how do we say a person who hates men?

A: misandrist, misandry.

Q: what is the word to love women? They were guided to recall the root word for love and women.

A: philogynist or gynophile.

Q: Word to love men?

A: Philoandrist or Androphile.

Strategy#4: Memory activities: category game

The next few sessions were conducted through games and memory activities. The students were instructed to write as many names of cars as possible as a part of category game. The students came up with lot of names of cars: Fortuner, Endeavor, Ecosport, Aspire, Dzire, Xylo, Scorpio, ciaz, Ertiga, Hummer, titanium etc. They were asked to give the meaning of those name words of cars. They were able to give meaning of the name words of cars linking with the features of the cars.

Another session was conducted with another type of category game. The students were instructed to list out the words that means 'small'. The students came up with words like: tiny, little, mean, dwarf, bit. They were given list of words: limited, short, young, miniscule, petty, scanty, diminutive, miniature, slight, small-scale, narrow, micro, meager, undersized, insufficient, and inadequate.

A posttest was administered to the sample students through the same online portal <http://empower.srmist.edu.in/>

The students need to answer 30 multiple choice questions which comprises: 10 sentence based synonyms and antonyms; 10 word based synonyms and antonyms; and 10 one word substitutions. 40% of the questions which have been posed in the test were collected from the activities done in the class. Remaining 60% of the questions were collected from other sources. The range of questions contained combination of both low frequency and high frequency words.

IV. RESULT AND DISCUSSIONS

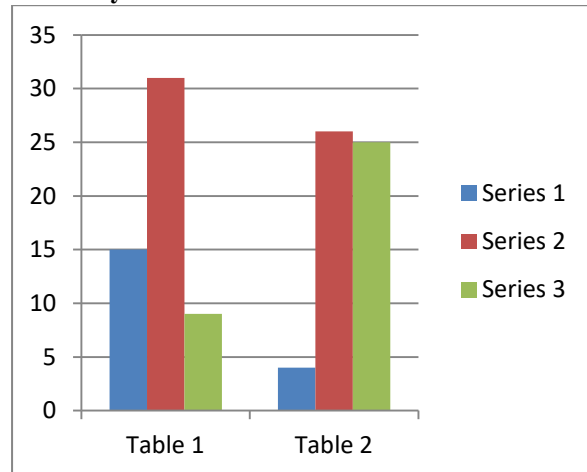
Post test performance table

Table2

| Score level | No of students |
|-------------|----------------|
| 0 - 5 | 0 |
| 6- 10 | 4 |
| 11 - 15 | 7 |
| 16 - 20 | 19 |
| 21 - 25 | 16 |
| 26 - 30 | 9 |

The post test performance displayed that majority of the students showed improved vocabulary competency.

Result Analysis



Use of Cognitive Learning Activities to Enhance Vocabulary Acquisition of Engineering Students

The result analysis showed an improved level of performance by the students. The number of students scored in the range 6 – 10 in the diagnostic test (Table1) decreased to 4 in the post test. It meant that 9 students showed an improved level of performance. There were 18 students in the score level 11 - 15 in the diagnostic test, but then it decreased to 7 in the post test. Nearly 11 students have showed an

improved level of performance. The number of students scored in the diagnostic test under different score level decreased to a considerable level. In every score level the number of students performed in the post test increased to good number of students.

Altogether the activities helped the students to enhance their acquisition of vocabulary through cognitive learning activities. In the modern world, due to the advancements in technology there are many ways and means for a teacher to deliver his/her content. In spite of the advancements in teaching, it is really a challenge for teachers to create classroom activities that facilitate learning, at the same time maintain interest among the students and also sustain the decorum of classroom. The activities mentioned in this paper enhanced their ability to apply logic, make connections, and retrieve solutions from their mind. An engineer is required to have great mental ability of comprehending a concept quickly. That is why activities are selected to measure their mental speed.

The concept of 'love' was specifically chosen for the activity considering their age group that would make the students interested towards the activity and be attentive. The students were asked to remember the meaning of one root word. By remembering the meaning of one root word they would be able to apply the meaning to other words and can process the meaning of a new word. Learning through such kind of activities helped the students to unlock other words in English.

The interactions in the classroom helped the students to make connections between concepts and form network of words that eventually supported them to learn words. The concept of 'love', 'hate', 'men', 'women', 'marriage' was specifically chosen to keep the students involved in learning. The students expressed a sense of anxiety for learning through such kind of activities. They were also informed that they were not going to memorize or by heart words instead they learn from root words that could be processed in their mind and retrieved from their mind.

The memory activity, category game also enabled the students to make use of their brain effectively for learning words. This activity made the students to retrieve words from their memory. The category 'Car' was purposely chosen to make the students come up with variety of names of cars. Since majority of the students were boys they were interested in cars and technicalities of it. Even the category small was also chosen to introduce the game to the students. From the number of words what they came up with, it was found that their ability of using words was limited. It was found that their communication was also filled with clichéd words eventually they would not be appropriate in context what they convey. These activities enabled them to be aware of using the unused words.

Also students came up with the meaning of the listed words and discussed how words vary in context. There was a

healthy discussion between students when they differentiated the meaning between micro and mini. The discussion required the teachers' support to come to conclusion. The students expressed that it was a nice learning experience having activities in the classroom.

The teacher used activities that made the students to be focused in the concept taught in the classroom. The students were made to think, reflect on their past experiences, discuss in the classroom enabled them to register the concept in their mind. The students of course were motivated when they were informed about the importance of vocabulary acquisition and how it becomes a pre requisite for their career prospects. This motivation eventually made the students to incline towards learning and acquisition. It is found that the cognitive learning activities helped the sample students to enhance vocabulary. The research conducted was limited to classroom instruction. This can be further extended to online instruction also. Since the sample students belong to engineering discipline they have the ability to apply concepts in a better way. A comparative study also can be conducted with humanities students also for further research. The duration of the classroom instruction comprised 8 hours of instruction. Students can be given lot of practice worksheets that also paves way for better learning experience. Students were inquisitive to do activities that make their mind work. According to their mental pace the students can adopt learning strategies that fit them. In order to develop automaticity in language use, students need extensive practice using language skills. Often this practice is organized so as to progress from highly structured to more open-ended activities (Rivers, 1981).

V. CONCLUSION

The result of the study suggests that learning words through cognitive learning approach helps the learners to develop their verbal skills. In order to help the students acquire words and use it in their communication requires a lot of effort by the facilitator to design choose or adopt learning strategies to enhance their vocabulary acquisition. It is not only important for the facilitator to choose learning activities but also to use those activities in an interesting way in a student centric mode in a classroom. It is found that classroom activities help the students to acquire vocabulary competency.

REFERENCES

1. <https://hhr.byu.edu/methods/content/text/cognitive-text.htm>
<http://www.tedpower.co.uk/esl0312.html>
2. Wilkins, D. A. (1972). *Linguistics in Language Teaching*. Cambridge: MFT Press.
3. Richards, J. C., & Rodgers, T. S. (2001). *Approaches and methods in language teaching* (2nd ed.). Cambridge: Cambridge University Press.
4. Ausubel, D., Novak, J., & Hanesian, H. (1978). *Educational psychology: a cognitive view* (2nd ed.). New York: Holt, Rinehart & Winston.
5. McLaughlin, B. (1987). *Theories of second-language learning*. London: Edward Arnold.
6. <https://sites.google.com/site/cognitiveapproachtolearning/ausubel-s-as-simulation-theory>
7. ISSN 1615-3014 Engineering and Humanities Students' Strategies for Vocabulary Acquisition: An Iranian Experience Hassan SoodmandAfshar (Hamedan), Ismail Moazam, Hassan RadiArbabi
8. Research Paper E-ISSN No: 2454-9916 | Volume: 4 | Issue: 2 | Feb 2018

9. Lewis, Norman. (2009) Word Power Made Easy: The Complete Handbook for Building a Superior Vocabulary, Anchor Books.
10. Hadley, A. O. (2001). Teaching language in context (3rd ed.). Boston: Heinle & Heinle.
11. Oxford, R. L. (1990). Language learning strategies: What every teacher should know. Boston: Heinle & Heinle.
12. Rivers, W. M. (1981). Teaching foreign-language skills. Chicago: University of Chicago Press.
13. "cognition - definition of cognition in English from the Oxford dictionary". www.oxforddictionaries.com. Retrieved 2016-02-04
14. <http://empower.srmist.edu.in/>

AUTHORS PROFILE



I. Jerlina,
Assistant Professor – Senior Grade & Research Scholar
English Language Teaching
SRM Institute of Science & Technology
Kattankulathur Campus
Jerlina_ilavarasan@srmuniv.edu.in



M.M. Uma Maheswari,
Ph.D., Assistant Professor, Selection Grade & Research Supervisor
Area: English Language and Literature
Affiliation: Department of English and Foreign Languages, Kattankulathur Campus, SRM Institute of Science and Technology (formerly known as SRM University)
Email: umamahem1@srmist.edu.in
'Where the Mind is Without Fear' as a tool for teaching essay writing to college students, Indian Review of World Literature, Vol 14 NoII Dec. '18
'Adoption of Multiple Teaching Strategies for Effective Coverage of Vast Syllabus;', Volume 7 Issue 11, Nov. 2018 International Journal of Science and Research (IJSR)
'Integration of Internet in Teaching of English,' International Journal of Innovative Research and Advanced Studies (IJIRAS), ISSN: 2394-4404- Google Scholar Indexed, Volume 5 Issue 5, May 2018
'Qualitative Study on Remedial Teaching of Writing Skills in Indian Engineering Colleges' in Google Scholar indexed journal, International Journal of Innovative Research and Advanced Studies, ISSN No.: 2394 4404. Volume- 5, Issue- 2
PRINTED JOURNAL - 1 article in 'Synthesis', Indian Journal of English Literature and Language- ISSN-0974-8536-2009
3 articles in 'The Indian Review of World Literature in English', a Biannual Online Literary Journal- ISSN,0974-097X-2008