ISSN 2350-109X
www.indianscholar.co.in

Indian Scholar

An International Multidisciplinary Research e-Journal

RELEVANCE OF COGNITIVE SCIENCE AND IT'S IMPACT ON LANGUAGE OF ENGINEERING GRADUATES

Dr. G. V. Praveen
Professor in Civil Engineering and
Dean (Administration)
S. R. Engineering College,
Warangal, India.

Abstract

Cognitive science as a discipline of its own studying the mind during past 50 years and it has build up at a significant pace resulting in an extensive development of research on the brain, intelligence, technology and the mind.

Language is acquired within the earliest few years of life and every one of humans under circumstances is able to get hold of language proficiency. The capability to learn and comprehend language is an exceptionally complex process. The study of language processing in cognitive science is very much coupled to the field of linguistics. Linguistics was conventionally studied as a part of the humanities including study of art, history and literature.

One of the basic questions about cognitive is the relationship between thinking and language. It is known that flow of thoughts occurs in words. In the present globalized scenario, English is considered to the Universal language and English language has an ease to disseminate ideas, thoughts and feelings in an effective manner. Especially, in the present day competitive world, in engineering education there is a growing need to mastery in English that would improve chances and career prospects of students.

In the recent years, it was observed that, the professional students are lagging in their communicative skills despite the fact that the language subject is being taught and focused in their regular curriculum. It is opined that, this is purely dependent on cognitive levels of the students. Hence, the present study is proposed to enhance their levels of perception during the classroom teaching during their course of study.

Key words: Cognitive Science; Intelligence; Technology; Language; Communication Skills.

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Introduction

It is well known that, Cognitive Science is the interdisciplinary scientific and logical study of mind and its process. The study includes research on intelligence and behavior of human, especially focusing on how information is represented, processed and transformed with respect to perception, language, memory, reasoning and emotion.

It is evident that, language is a necessary condition and a tool for human beings to be capable of entertaining atleast some kinds of thought. The vast majority of research studies on language and thought are based on languages which are spoken and heard. But all it really shows is that language is required for expressing certain kinds of thought.

One of the reasons for the popularity of the communicative conception amongst cognitive scientists is that almost all now believe that language is a distinct input–output module of the mind. Accordingly, a distributed approach to language and cognition would be tracked by treating language is essential to social, cultural and biological development and maintenance.

Further, the present study aims to investigate similarities and differences between groups of individuals especially student community of engineering education with respect to behavioral and neural levels during their course of the study.

Background and Need of the Study

It was proposed by Skinner (1974) that Cognitive Science is the creation Science of psychology. In the area of language acquisition, Steven Pinker has argued that, specific information containing universal grammatical rules must be contained in the genes while, Jefferey Elman (1990) argued that, Pinker's (1994) claims are biologically unrealistic and argued that, genes determine the architecture of a learning system, but that specific facts about how grammar works can only be learned as a result of experience. Whorf (1956) and Vygotsky (1961) discussed some ways in which specific types of concept might be claimed to be language dependent. Lakoff (1988) emphasized that ideas and concepts used by the mind for understanding the world have metaphorical structure that generates new abstract meanings. Diaz and Berk (1992) studied the self directed verbalizations of young children during problem solving activities. Clark (1996) draws attention to the many ways in which language is used to support human cognition. Spelke and Tsivkin (2001) found that perception rate is swift and accurate in their language of teaching when tested in other language. Barkow (1978), Sperber and Wilson (1986), Pinker (1997), Carruthers (2006) stated that mind contains a large number of conceptual systems for forming new ideas and for decision making. Cheng (1986) worked on the spatial cognition of rats seemed to provide a plausible way of testing the idea. Narayan Srinivasan (2008) studied on emerging perspectives and approaches in cognitive science. Further, he reported that beginning of cognitive science is usually placed as the Darmouth Symposium on information theory in 1956.

Fresh engineering graduates need to develop the language based skills to be in the race in the present corporate world. Hence, mapping and screening of the students into 3 or 4 groups should be done based on simple tests (written skills) seminars (oral skills) by the English teacher and has to provide the students with certain strategies for Learning, Speaking, Reading and writing (LSRW) well enough to become successful in real life situations. It is observed that, conventional class rooms are being replaced with language labs, class rooms with e- learning aids.

Objectives of the Study
The present project work is aimed to fulfill the following objectives

- To facilitate the students with better learning methods based on their level of perception.
- To study individual differences pertaining to language proficiency among the students of institutions/industry.
- To investigate the inherent abilities and develop intuitive mechanism to promote quality education.
- To provide an empirical solution for exploring communication needs to make students more employable in various industries.

Methodology
In order to achieve the above objectives following methodology is adopted

Step 1: Enable the students to assess their internal relationship.
In classroom assessments, teachers try to determine how best to help students learn certain concepts and the efficacy of student are based on individual cognitive levels.

Step 2: Correlate the relationship between learners in language in a classroom with their outside atmosphere.
A preliminary survey will be conducted by visiting IITs, NITs, reputed universities and professional institutions. The students are mapped into groups according to their perception levels of language proficiency and a separate mechanism is devised for each individual group. This mechanism is devised to suit the standards of each individual student in a group.

Step 3: Develop relationship between sentences promptedby the substitution of synonyms and antonyms.
A text can be expressed by a group of sentences; however the same idea is conveyed using different terminology. The practice modules is designed and devised in the language laboratory.

Step 4: Perception that involves certain assumption about human behavior the way they function and what research methods are suitable for undertaking this study.
The student community is segregated based on their background such as rural backdrop, financial status, religion etc. During the study research assistants will interact with students from reputed institutions and industries. For this, a survey will be conducted by questionnaires and sometimes by video conferencing.

Outcomes of the Study
The following outcomes could be derived from the present study

- Provides in-depth analysis and the relationship between cognition and language from a psychological and developmental perspective.
- Promotes critical and reflective attitude among the students besides transmitting knowledge about cognition, emotion and language.

- Also develop their skills in presenting, discussing and using their inner abilities in a critical and reflective way.

Conclusions

Cognitive Science comprises of human psychology, neuroscience, philosophy of mind, sociology, linguistics and biology. It is evident that, communication involves the transmission of content between interlocutors. The ability to learn and understand language is extremely complex as the language is acquired in first few years of life. Generally linguistics was studied as a part of the humanities, history, art and literature. Research has been done on the knowledge and use of language as a cognitive phenomenon, the main problems being how knowledge of language can be acquired and used. During the course of the study in engineering students gain deeper and modern knowledge and finds the relationship between cognition emotions and language. Further, they develop their skills in presenting, discussing and using their inner abilities in a critical and reflective way. This enhanced importance for English language pose a formidable challenge to English teachers. Further, it is very essential for the teacher to practice innovative ideas such as role play, JAM, Debate, Group Discussion, Oral Presentations and Telephonic Conversation to improve their communication skills and to make students more professional. This in turn helps them in overcoming stage fear and being confident. To accomplish this, the teacher can use technology i.e., computers, internet and other modern educational aids. The present study discusses some of the strategies and practices to improve language skills of students based on perception of students.

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