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The Effect of Teaching Technical English for Professional Students in Terms of Background Variables: Case of Southern Tamil Nadu

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ABSTRACT This paper criticizes the effectiveness of Teaching Technical English course for professional students offered in the Engineering Colleges in Tamil Nadu. Many engineering graduates in India are found to be unemployable due to their poor communication skills and shy because of a lack of self - confidence. This study was mainly conducted to understand the reality in English classrooms of engineering colleges to extricate the mystery behind the poor performance of many engineering graduates in Tamil Nadu. Moreover, it has been found that the methodologies of faculty members need to be upgraded with more interactive sessions to progress their language skills.Therefore, the present study primarily sought to establish whether the methodologies adopted for teaching Technical English were traditional in nature or modern oriented.In addition to this, an attempt has been made to find the level of different methods used in terms of the chosen background variables.

INTRODUCTION

In this age of globalization, English has obtained the status of an international language and it has become the most important language of communication. Today's engineers need to be trained globally. They need to the use English language in the larger context because they have to co-operate with their colleague from different countries and to cope with the latest and emerging trends in the field of science and technology. The aim of teaching English to engineering students is to make them able to operate in the international context. There is a need to design an English Language Teaching (ELT) program that can meet the requirements of domestic as well as multinational companies (Jalaluddin 2016).

Students are aware of the demand and significance of English in the professional world. We all know that the main reason of unemployability among engineering graduates is the lack of communication skills. Companies and employers often complain that the fresh engineering graduates from India lack industry-specific knowledge. The present-day engineering students are not giving enough importance to English language and they give preference to specialized subjects. As a result, they lack communication skills and are unable to satisfy the interviewers in job interviews.

Engineering students are failing to reach the expectations of MNC companies and global industries because of their inefficiency in English language skills. In the Indian context, an engineering student's success in the on-campus recruitment purely depends on their demonstration of communication skills. According to NASSCOM (National Association of Software and Services Company) president Karnik, "Only 25 percent of technical graduates are suitable for employment in the outsourcing industry because of their lack of abilities to speak or write well in English". Especially in the Engineering English course, students fail to acquire English language communication skills due to various reasons like lack of awareness of importance of these skills, lack of adequate time to practice.The main reason is their entire educational background and their mother tongue influence. Students are not trained in listening and speaking skills properly and their examinations assess only their writing and reading skills. When they complete their engineering, it is tough to get a job in on-campus recruitment. This lack of communication skills only serves to undermine the whole profile of the professional engineer. It is

required that students should be trained in the skills which companies are demanding from engineering graduates (Abdulla and Kumar 2016).

Teaching English to engineers is a delectable and demanding matter in terms of content, methods, techniques and deciding which are appropriate for this particular area of Engineering and English. That is, the aim of such an interdisciplinary the course is to develop proper communication and professional skills using English as a means and a kind of arbitrator in shaping future engineers (Riemer 2016).To achieve this goal, English for Specific Purposes (ESP) teachers have to plan the course they teach and provide the materials for it. Rarely is it possible to use a particular textbook without the need for supplementary material, and sometimes no really suitable published materials exist for certain learners' needs. The role of English for Specific Purposes teachers thus involves choosing suitable published materials from a variety of reliable and valid sources, adapting materials when published ones are not suitable, and even writing new materials if nothing suitable exists.

Objectives

The study aimed at finding whether the teaching of technical English in colleges of Engineering and Technology was traditional oriented or modern in nature along with the level of adoption of different methods of teaching in colleges of Engineering and Technology in the case of Southern Tamil Nadu.

METHODOLOGY

The survey method was adopted in the present research for the collection of needed data using appropriate data collecting instruments- "Teachers information sheet", and "Traditional/ Modern Methods of Teaching English Inventory" (see Appendix). Following the survey technique, the collected data were used to establish the demographic status of the sample chosen from the population and also to present a descriptive picture of the problem focused on the adoption of traditional and modern methods of teaching English in Colleges of Engineering and Technology in the case of Southern Tamil Nadu.

Sharma (2004) remarks that the survey approach to educational problems is one of the most commonly used approaches. It goes beyond mere gathering and tabulation of data. It involves measurement, classification, comparison, evaluation, interpretations, and generalization, all directed towards a proper understanding and solution of significant educational problems. In this manner, the researcher had fully made use of the techniques of survey research. Nevertheless, for answering the last research question, a qualitative approach in the form of the phenomenological interview was planned for both teachers and students, which in a way would help to bridge the gap between the quantum of data collected through the information sheet and inventory and the untapped information from the target population and the beneficiary group. Thus, the present study had adopted all essential scientific means to arrive at valid findings and meaningful conclusions along with practical recommendations for solving the problem investigated.

Population

The population of the present study comprises all the teachers teaching technical English in 93 colleges of Engineering and Technology located in the southern part of Tamil Nadu. It came to about 450 to 500 faculty members including temporary and management staff. As required, stratified random sampling technique was adopted to form the sample of the study. The final sample came to 85 male and 115 female teachers.

Research Instruments

Information Blank (IB)

To collect information on the selected background variables of teachers of English, an Information Blank was prepared by the researcher. To study the organismic characters; professional status factors and professional enrichment factors; the following details have been asked for from the respondents - locality of the college, gender, (organismic factors); educational qualification, professional cadre, length of teaching experience (job status factors) knowledge updation, research orientation, and subject specialization (professional enrichment factors).

RESULTS

Methods of Teaching English Inventory (MTEI)

The information about the preparation, validation and scoring of the inventory is given in

three sections. *Section A* provides details about the design of the instrument, *Section B* gives details of the pilot study for establishing validity and reliability, and *Section C* furnishes the scoring procedure.

Section – A: Design of the Instrument

Methods of teaching English Inventory prepared and validated by the researcher was intended to assess the levels of adoption of different methods of teaching English by the English language teachers in colleges of Engineering and Technology. Before preparing the inventory, the investigator gained a good understanding of the background of the nature of various teaching methods that are commonly used in Indian contexts for teaching technical English; their uniqueness; and their general problem for implementation in the classrooms. After establishing such theoretical knowledge about the various teaching methods of English with reference to Engineering Colleges, the researcher prepared statements for each one of them to assess the level of their adoption by the teachers teaching English in Colleges of Engineering and Technology.

The following are the teaching methods considered for inclusion in the proposed inventory for studying their level of adoption – Translation Method (TM), Direct Method (DM), Bilingual Method (BLM), Situational Language Teaching (SLT), Communicative Language Teaching (CLT), Audio-Lingual Method (ALM), Functional Notional Approach (FNA), Natural Approach (NA), Total Physical Response (TPR), Cooperative Learning Method (CLM) and Web Quest Method (WQM). For each statement prepared for the inventory on the basis of concerned methods, the respondents have to answer by marking any one of the following three alternatives - Applicable to me, Applicable to me at times and Not applicable to me.

Validation of Methods of Teaching English Inventory (MTEI)

The types of validity such as construct validity and item validity are prepared for the purpose of validating the "Methods of Teaching English Inventory".

Section B – Pilot Study

For conducting a pilot study, the draft tool was administered to a randomly selected sample of 50 teachers from colleges of Engineering and Technology. The responses given by the teachers were scored following the scoring procedure and the data were tabulated.

Construct Validity

Using the tabulated data, the score for each item was correlated with the total score obtained for all the items to establish the construct validity of the newly formed tool. Table 1 reveals the item - total correlation for all the 40 items.

The computed correlation coefficients for items 14, 20, and 37 are less than the table value (0.361) at 1 percent level for the degrees of freedom 48. Table 1shows that the items number 14, 20 and 37 are not significant enough to be included in the final form of the tool. Therefore,

Table 1: Item-total correlation value for 'Methods of Teaching English Inventory'

S. No.	*'r' value*	*Sig.*	*S. No.*	*'r' value*	*Sig.*	*S. No.*	*'r' value*	*Sig.*
1	0.48	0.00	15	0.62	0.00	29	0.58	0.00
2	0.44	0.00	16	0.54	0.00	30	0.50	0.00
3	0.54	0.00	17	0.34	0.04	31	0.47	0.00
4	0.62	0.00	18	0.35	0.03	32	0.39	0.01
5	0.39	0.01	19	0.38	0.02	33	0.38	0.02
6	0.50	0.00	20	0.10*	0.53	34	0.53	0.00
7	0.43	0.01	21	0.51	0.00	35	0.61	0.00
8	0.35	0.03	22	0.69	0.00	36	0.57	0.00
9	0.38	0.02	23	0.55	0.00	37	0.08*	0.64
10	0.49	0.00	24	0.45	0.00	38	0.44	0.00
11	0.54	0.00	25	0.38	0.02	39	0.61	0.00
12	0.47	0.00	26	0.48	0.00	40	0.57	0.00
13	0.63	0.00	27	0.49	0.00			
14	0.24*	0.15	28	0.76	0.00			

they were deleted and not included in the item validity test.

Item Validity

Using the collected data, the item validity was established by subjecting the data to Goodness of Fit Test, which is otherwise called Chi-square one sample test. It is one of the several applications of Chi-square test (Cohen 1976). Here, it is used to test the null hypothesis formed for every statement in the draft tool that, the responses obtained under applicable to me, applicable to me at times, and not applicable to me are not by choice. Table 2 provides the Goodness of Fit value for each item present in the tool – Methods of Teaching English Inventory.

Since the computed goodness of fit value for the items, 18 and 31 are less than the table value (9.21) at 1 percent level of significance for degrees of freedom 2, the stated null hypothesis is accepted. Therefore, the items 18 and 31 were not valid to be included. So the final form of the tool contains 38 items.

Reliability

Reliability is the degree of consistency that the instrument or procedure demonstrates (Garret 2005). The reliability of the tool 'Methods of Teaching English Inventory' was established by test and t-test method. The draft tool was administered to a sample of 50 teachers. After the first administration, the responses were scored and tabulated. Then for the same sample after a period of 15 days, the draft tool was administered again. After the respondents scored, the researcher then had two sets of data for the same tool. By using the two sets of data, Pearson's product moment correlation was computed. The correlation coefficient computed was 0.819. As the correlation coefficient was significant, the tool was highly reliable and worthy to be used for the data collection.

Section C - Scoring Procedure

The positive and negative items in the research instrument "Methods of Teaching English Inventory' are furnished in Table 3.

Table 3: List of positive and negative items in the 'Method of teaching English Inventory'

Nature of statements	*Serial Number*
Positive	2,4,6,8,10,12,14,16,18,20, 22, 24,26,28,30,32,34,35
Negative	1,3,5,7,9,11,13,15,17,19,21, 23,25,27, 29,31,33,

The 'Method of Teaching English Inventory' consists of eleven teaching methods considered as the dimensions of the tool. Table 4 provides the number of statements finally available in the tool for assessing the adoption of each method of teaching.

The responses to the individual items can be scored as per the scoring key is given in Table 5.

The final form of the research tool – "Methods of Teaching English Inventory" is given in Appendix. Wherever possible, personal interviews were conducted for a select few teachers of English and students with open-ended ques-

Table 2: Goodness of Fit value of 'Methods of teaching English Inventory'

S.No.	χ^2 *-value*	*Sig.*	*S. No.*	χ^2 *-value*	*Sig.*	*S. No.*	χ^2 *-value*	*Sig.*
1	11.02	0.00	15	18.11	0.00	29	23.54	0.00
2	7.6	0.02	16	20.61	0.00	30	17.51	0.00
3	15.82	0.00	17	10.11	0.00	31	3.48*	0.17
4	9.82	0.00	18	2.11*	0.34	32	11.52	0.00
5	8.97	0.01	19	14.11	0.00	33	21.54	0.00
6	18.41	0.00	20	-	-	34	15.85	0.00
7	21.65	0.00	21	23.07	0.00	35	25.55	0.00
8	10.11	0.00	22	9.85	0.00	36	19.52	0.00
9	30.61	0.00	23	12.11	0.00	37	-	-
10	17.20	0.00	24	20.85	0.00	38	20.45	0.00
11	25.60	0.00	25	15.35	0.00	39	17.66	0.00
12	19.25	0.00	26	21.52	0.00	40	15.65	0.00
13	17.37	0.00	27	9.89	0.00			
14	-	-	28	11.54	0.00			

Table 4: List of items meant for assessing the adoption of each method of teaching

Dimensions	*Item numbers*
Translation	1,5,9,17,19
Direct	4,10,12,34
Bilingual	8,14,22
Situational	3,26, 31
Communicative language teaching	6,7,16
Audio lingual	11,20, 27
Functional notional approach	23,24,30
Natural	18,28,35
Total physical response	13,15, 29
Cooperative learning	21,25,32
Web Quest	2,33

Table 5: Scheme for scoring positive and negative items

Options	*Positive (Scores)*	*Negative (Scores)*
Applicable to me	3	1
Applicable to me at times	2	2
Not applicable to me	1	3

tions for getting information to perceive beyond the quantitative data. The completed research tools were scored according to the scheme of scoring and data were categorized and tabulated.

DISCUSSION

Language and communication skills are recognized as paramount elements in the education of the modern Engineer. The incorporation of language and communication improvement courses is a significant element of continuous learning, and will ultimately contribute to the process of life-long learning. This should, in turn, simplify advancements in engineering and indeed, engineering education through rationalizing fundamental communication skills. As many as 97 percent of graduating engineers demand jobs either in Software Engineering or Core Engineering. However, only 3 percent have sufficient skills to be employed in software or product market, and only 7 percent can hold Core Engineering works. Nearly 90 percent of the students from rural and town-based engineering colleges have difficulty in communicating even two sentences efficiently in English. Thousands of graduate out of college every year, but find it difficult to find a foothold because of their raw English language skills (Varshinii 2017).

According to a 2016 survey by Employment Solutions Company Aspiring Minds report says that the IT sector carries out the highest number of recruitments from the pool of engineers, only 18.43 percent engineers are skilled enough to work there, while, for IT product roles, the numbers are as low as 3.21 percent. Due to comparatively higher employment in the IT sector, students even from other disciplines take up IT-related courses. Thus, the end result of this inadequate education generates Engineering graduates who are not well-versed in their core subjects, nor in IT (Chakrabarty 2016). The study traits the lack of English Communicative Skills, which they found in 73.63 percent of candidates, and low analytical and quantitative skills, which they discovered in 57.96 percent of candidates to be other main reasons for unemployment. Even the IT sector requires employers who are fluent and well versed in English, as, within around two years of experience on the job, they would have to communicate with international customers. Thus, if the quality of engineering graduates do not improve, IT sector hiring will also go down.

The teachers of English in colleges of engineering and technology were neither traditional oriented nor modern oriented, but they made use of both the type of methodologies for curriculum transaction. The percentage analysis leading to the identification of percentage of teachers adopting traditionally oriented (18%) modern oriented (22%) and a combination of both traditional and modern oriented (60%). Soft skills have become very important in the present job industry, but they are routinely ignored in educational institutes.The lack of ability of the individual to deliver his/her views effectively at the interview leads to rejection of even the most brilliant candidate. This is because training institutes do not make an effort to ensure that the candidates develop their skills in a wholesome manner which can contribute towards client-handling and team communication skills.

CONCLUSION

English now plays a very important role in many domains of international communication. Additionally, it plays a foremost role internationally, not only in inner and outer circle countries but in acquiring circle countries where people listen to popular music, watch TV or see and hear advertising in English. Thus, the move from imperial to the econocultural spread of English

is very much visible. Since the teaching of English in engineering collegescomes under the category of English for Specific Purposes, the language mastery of the students is just the resultant of the teaching of their teachers based on the prescribed syllabus in a given infrastructure. Possibly, the realization of the goals of teaching depends only on the adoption of a variety of techniques and strategies. Methods such as Translation Method, Direct Method, Bilingual Method, Situational Language Teaching Method, Functional - Notional Approach, Total Physical Response Method, and Cooperative Learning Method were found to be predominantly adopted by teachers at a moderate level. The methods such as Communicative Language Teaching Method, Audio- Lingual Method, Natural Approach, and Web Quest Method were distinctly used at a high level. By and large, the adoption of the modern methodologies is the only solution for targeting the set goals of English Language Teaching in Engineering Colleges and Technology.

RECOMMENDATIONS

On the basis of the findings of the present research, the author recommends the following to teachers in colleges of engineering, the college authorities, curriculum designers, policymakers and University authorities. The following proposals are to be considered and executed for the good of students of engineering and teachers teaching English. In order to equip the teachers of English with necessary skills and knowledge, the following recommendations are made.

- The majority of the teachers do not seem to have good exposure to research and research-oriented activities. It is advisable to have a research cell in every college of engineering headed by experienced research-oriented faculty members.
- A well-designed course with hand on training may be organized by the college authorities and induct the teachers of English in a phased manner to help them to get the ICT skills (Information and Communication Technology) in the question of every individual teacher.
- The researcher recommends a series of workshop sessions may be organized exclusively for teachers of English in Colleges of Engineering to develop practical skills in making use of different methodologies for different purposes at the time of teaching English.

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APPENDIX

Methods of Teaching English Inventory

Instruction

Find here below FORTY statements each depicting your experience with regard to different strategies of teaching English.
For each statement THREE responses are given:
1) Applicable to me
2) Applicable at times
3) Not Applicable
Kindly read each statement carefully and show your response by putting a tick (“) in any one of the THREE columns.
Please don’t leave any of the items unanswered.

S.No.	*Statement*	*Appli-cable*	*Not appli-*	*Appli-cable at times*
1	I ask the students to read the passages/activities given aloud one by one, for me to explain the meaning in L_1.			
2	For active learning and practicing language skills, web-based activities are very helpful.			
3	I don’t rely on Situational language teaching as it is inadequate and ineffective for higher classes.			
4	Quite a number of opportunities are given in the class for developing different language skills.			
5	Students directly get the meaning from me for new words in L_1.			
6	I involve my students in several problem-solving tasks and participation in planned language activities.			
7	I am hesitant to make use of communicative language teaching as it demands me to play different roles to facilitate second language learning.			
8	I make a judicial use of L_1 and L_2 in the English class.			
9	In order to ease the burden of students to master L_2, I provide synonyms and antonyms directly for the vocabulary taught.			
10	The textbooks I use should have content incorporating vocabulary and sentence structures according to the need/level of the students			
11	Seldom I make use of aural-oral approach as it focuses more on developing listening and speaking than reading and writing.			
12	I teach concrete linguistic items through demonstration and abstract ideas through Association.			
13	I teach grammar directly and explicitly.			
14	I avoid acting as a language counselor in the class for the reason that once a student becomes ‘Client like’ he/she does not join the mainstream easily as a motivated, independent learner of English.			
15	Students read the passages/work on the activities silently and answer my questions either in L_1 or L_2.			
16	I correct the mistakes of the students on the spot, at the time of production itself.			
17	I develop effective communication skills in English in my students as it is an asset to them.			
18	As I find Total Physical Response Approach difficult in the routine class schedule to allow an individual “Readiness Period” for spontaneity to speak, it is not possible for me to make use of this method.			
19	Since writing sentences with correct grammatical forms is emphasized, I don’t spend much time on speech correction.			
20	Acquisition of L_2 is made possible by reducing the fear of learning English in the class.			
21	As the teacher has to proceed with Natural Approach according to the linguistic ability, attitude, aptitude and personality characteristics of the students, I don’t feel comfortable to use this method.			
22	To keep myself easily approachable, I speak most of the time in L_1 inside the class.			

S.No.	*Statement*	*Appli-cable*	*Not appli-*	*Appli-cable at times*
23	I adopt dialogues to impart knowledge about language forms and vocabulary, and to develop the skill of using them.			
24	My attempts to functionalized varied group activities for English language teaching are not materialized.			
25	I encourage my students to learn new words through L_1 and make use of them for framing sentences in English in the class itself.			
26	As the Functional Notional Approach requires me to identify the needs of the learner and prepare the syllabus accordingly for teaching and learning I don't attempt at this.			
27	My primary concern in the class is to help my students use real and appropriate language when communicating.			
28	I don't venture into the creation of interactive classroom as it lands me on peculiar problems arising out of students' interpersonal relationships.			
29	My students are exposed to new grammatical forms repeatedly during the oral presentation of the content.			
30	I do not insist on accurate production of English speech sounds while practicing oral skills.			
31	In order to lower the 'Affective Filter' for a positive 'hike' in learning, I organize the following clubs for effective learning among like-minded individuals; Conversation Club, Pronunciation Club, Reading Club, English Movie Club&English Dramatics Club.			
32	Since I act as a language counselor, the students get over their problems and become interested in using the second language.			
33	I don't find time to provide exposure to students in L_2 by interactional dialogues, dramatization, and role plays.			
34	Language variations can be best understood when concepts or ideas as communicative acts are used in different situations.			
35	My attempt to expose the students to oral aspects of the language fail because of their inclination to get mother tongue equivalence for all words and sentences.			
36	I prefer cooperative learning method as it facilitates higher order learning and development of positive, social – interpersonal characteristics.			
37	Students are not aware of using websites such as Morning Stories, Podcasting,Podcast Pickle, etc., for developing language competence.			
38	I banish L_1 in all forms from the English class.			
39	Now and then I try on my own the 'Total Physical Response' Approach put forth by Asher.J.C because the combination of skills in this approach enables the students to assimilate the information and skills rapidly.			
40	By supplying communicative and comprehensible input I allow my students to participate in the communicative task, only when they are ready.			