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Impact of Technology - Enhanced Multimedia Instruction on Language Skills of Engineering Students

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Abstract:-
As stated by Graddol (2010) English language skills are considered as 'survival skills' or 'Life skills' in the twenty-first century. The success in the personal and professional life of Engineering students relies more upon effective language skills. The industries have also cleared their objectives of hiring only those graduates who possess good language skills other that their subject knowledge and students who fail to execute effective communication skills are bound to face its consequences like less credit to the work as compared to the actual credit they deserve. According to Infosys (2008) the engineers who lack communication skills, most of them are not 'Industry ready'. Hence, the engineers who study communication
Skill as a part of their offered subject during their graduation need to be questioned about the impact of subject knowledge in their professional life. However, it has been observed that present curriculum of communication skills at GTU is based on Theoretical knowledge. Therefore, it has become a need of the hour after reviewing the present curriculum of GTU where the theory of language is given more importance than the practical usage of the language, to introduce a curriculum which brings out engineers with good language skills. The present study aims at providing the impact of technology-enhanced multimedia material to enrich the language skills of engineering students.

Keywords:- Language skills, multimedia material and subject knowledge.

Introduction

"It's surprisingly hard to find graduates which have a combination of the technical skills and the right soft skills'...The skills short fall appears to be worsening...two-thirds of the[employers]panel felt graduates did not have the right skills for business." (Silicon.com,
6th September2009)

In the global arena the industry demands the candidates with sound technical knowledge and effective language skills. The one who does not hold a good command over language will always find himself lacking behind the one who knows language.

Moreover, these candidates are devalued and degraded only due to poor language skills and they don't get the credit of their work as they deserve it. As stated by Infosys (2008) the research scholars and the institute should make sure to provide candidate with good language skills for the industry.

Review of literature

Today engineering students are supposed to enhance their language skills and other soft skills in order to survive in the global arena and the challenges put forward in the corporate sector. Students with only technical skills in their field of engineering are not assured of getting a good job at the workplace. Engineers who possess good language skills will be hired by the Multinational companies and Information technology companies in India. In today's scenario proficiency in English is considered as one of the 'Employability skills'. As stated by Graddol (2010) English language skills are considered as 'survival skills' or 'Life skills' in the twenty-first century. According to Karnik, former president of NASSCOM (National Association of Software and Services Company), the percentage of suitable technical engineers for the employment in the outsourcing industry is 25 percent because they can speak and write effectively in English. (Karnik, 2007 as cited in P'Rayan 2008). Since they lack effective language skills, most of them are not considered as industry-ready candidate. (Infosys, 2008) and the great necessity to enhance the language skills of technical students has been emphasized by the educationists and the employers as it has created a vast gap between the industry and the industry ready candidate. However, Narayanan, vice chairman of Cognizant Technology Solutions and chairman of the NASSCOM, in an interview (Warrier,2007) answered a question pertaining to the supply gap and talent demand and the vital role of the NASSCOM to assist the industry bridging the gap; In today's scenario, the availability of talent candidate is very good where as the problem lies in the suitable candidates. Today the industries have moved forward very quickly and technologies have also changed as per the present conditions but the curriculum offered in the university has not changed that rapidly. Henceforth, it is essential to bridge the gap by providing additional training to the candidates who are coming out of colleges as fresh graduates so that they become industry-ready. And enhancing their communication skills becomes essential at the institutional level.

Research Questions:

1. Can the students of engineering acquire language skills faster through the technology-enhanced multimedia materials?
2. Can the technology-enhanced multimedia materials create learning inquisitiveness in the minds of engineering students?
3. Will the engineering students at the UG level appreciate language learning through multimedia?
4. Will the technology-enhanced multimedia materials have equal effect on the engineering students at the UG level in respect to their gender?

Objectives:

1. To prepare & tryout a set of technology-enhanced multimedia materials to enhance language skills of the engineering students at UG level.

2. To check the impact of technology-enhanced multimedia materials on the engineering students at UG level in respect to certain variables.

Hypotheses:

The following null hypotheses form the parts of investigation undertaken:-

1. There will be no significant difference in the overall mean scores of experiment group in pre test and post test.
2. There will be no significant difference in the mean scores of the pre test and the post test with respect to the language skills.
3. There will be no significant difference in the mean scores of the pre test and the post test with respect to gender in experiment group.
4. There will be no significant difference in the overall mean scores of post test of experiment and control group.
5. There will be no significant difference in the mean scores of the post test with respect to the language skills of experiment and control group.

Delimitation of the study:

The study was confined to preparation and tryout of multimedia based materials for the engineering students at the UG level. In addition to this, as the study did not include soft skills, the generalization of information provided by this study was limited to language skills (LSRW) of under graduate learners.

Scope of the study

The present study explored the impact of technology-enhanced multimedia instruction program to enrich the language skills of ESL students particularly the engineering students. The study enables the learners to incorporate technology in and web tools in the process of language learning effectively. However, the present study can be taken up for further studies with respect to ESP (English for specific purpose) for engineers. It also has scope in terms of introducing integrated language tasks through web based learning. However, the present study would help course designers to follow the certain guidelines for materials production.

Research design

The present study used the true experimental research design where control and experiment group pre-test and post-test research design was highlighted which is given below.

A true experimental design

		Pretest	Treatment	Posttest
Experiment	[R]	O_{11}	X	O_{12}
Control group	[R]	O_{21}		O_{22}

Here O_{11} and $O_{21}$was the pre-test, X meant as treatment i.e. the technology-enhanced multimedia for enhancing language skills, and O_{12} and O_{22} stood for post test which was used to assess the language skills of the student participants.

Participants

In the present study the researcher used random stratified sampling where in the participants were taken from different branches of first semester at A.D Patel Institute of Technology. There were two groups formed control and experiment group

Variables:

There were two variables taken up in the study by the invigilator, were independent and dependent variable. The treatment which was given to the participants through multimedia-based material to enhance language skills (LSRW) of engineering students was labeled as the independent variable in the present study. However, the dependent variables in this study was the pre-test & post-test scores that actually assessed the impact of the materials on language skills with respect to listening skills, speaking skills, reading skills, writing skills and gender of the participants. In addition to that, the study was followed with series of test and a questionnaire to observe the development in the process.

Instrument for data collection

The primary instrument used to determine the effectiveness of the technology-enhanced multimedia program for developing the language skills was incorporation of the treatment in the form of the experiment, the pre-test and post-test scores, and followed by a questionnaire to evaluate the program.

Treatment

The participants of the presents study have undergone the technology-enhanced multimedia program during their first semester of first year of engineering. All the participants as part of their curriculum were offered a compulsory subject on communication skills by GTU. The program was bifurcated into ten units of two hours each totaling of twenty hours wherein each unit consists of four skills that is listening, speaking, reading and writing. However, each skill was further divided into many sub skills while designing the program. Pedagogical approaches associated with incorporation of different aspects of technology into language learning program were taken into consideration.

Data Analysis

The present study the obtained data from the pre-test and post-test scores was initially computed for a descriptive statistical analysis before it could be subsequently analysed. However, the collected data from the test scores projected that the overall mean of the pre-test was 13.03 and the standard deviation was 2.35, where the overall mean of the post-test was 15.94 and the standard deviation was 1.36. Thus, descriptive details of the pre-test and post-test scores are given below in Table 4.21.

Table 4.21 Descriptive analysis of Experiment Pre and Post test scores

	N	Mean	Std. Deviation
Overall Pre test scores	59	13.0339	2.35596
Overall Post test scores	59	15.9492	1.36992

As per the given table it is clearly indicated that the overall mean of the pre-test in the control group was 11.30 and the standard deviation was 2.29 whereas the overall mean of the post test was 12.05 and the standard deviation was 1.73.

Table 4.24 Descriptive analysis of control Pre and Post test scores

	N	Mean	Std. Deviation
Over all Pre-test scores	52	11.3077	2.29696
Overall Post test scores	52	12.0577	1.73107

Online questionnaire to evaluate program

The investigator sent out an online questionnaire to the participants to evaluate the technology-enabled language learning program soon after the completion of analysing the pre-test and post-test scores with the aim to understand the effectiveness of the program. However, there were 59 participants who underwent the technology-enabled language learning program, where 55 participants out of 59 participants responded to the survey, which indicates a 93.2% response rate for the survey where following are various aspect which are evaluated through questionnaire.

1. **Accessibility**
2. **Language function: level**
3. **Time frame**
4. **Comprehensibility**
5. **Interactivity and feedback**
6. **Resources enjoyment**
7. **Self perception**
8. **Attitudes to technology**

Conclusions

The present study enabled the researcher to explore the impact of technology-enhanced multimedia based instruction to develop the language skills of engineering students.

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