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**Project-based Learning (PBL) for Developing Communication Skills:  
Perspectives of Engineering Students in West Bengal**

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**Abstract:**

*English is used as a second language in India, students do not realize the importance of this language for professional purposes, especially regional medium learners. For the engineering students English is merely a subject of the B.Tech curriculum. The students are unable to identify their own inner reasons for learning English. The teaching-learning environment and lacuna in curriculum have resulted in the development of low motivation during teaching and learning process. One way to bring a change in the scenario and to motivate the students to develop their communication skills would be by engaging them into project learning. This paper aims to explain why and how project-based learning (PBL) is to be introduced and implemented in the engineering classroom to develop the communicative skills of the students.*

**Key words:** *Project-based learning, motivate, lacuna in curriculum*

**Introduction:**

In India, English is considered as a second language, which is learnt and taught in every level of education in India starting from primary level to tertiary level. It has been observed that 70 to 80% of the students in the engineering colleges of West Bengal are from a regional medium

background. They undergo lot of problems during classes. One of the primary issue is the development of their communication skills in English. Many learners feel that English is a very difficult language. Therefore, they tend to ignore English classes and do not feel motivated enough to learn English. Gardner stated, "... we assess motivation in terms of three components, the desire to learn a language, attitudes towards learning the language and motivational intensity."

When students lack motivation in learning, they tend to be passive in the classes. These B.Tech English classes have a homogeneous group of learners. Students do not learn well when the old teaching methodologies are followed in the colleges. They become gradually disinterested. When they reach the final year of the B.Tech course, they realize the importance of communication skills but it already becomes too late. Souriyavongsa et al, (2013) identified some factors affecting English learning. The major issues they found were the absence of exposure to the language outside the classroom, deficiency of vocabulary, the lack of motivation or the negative attitude to learn English when learners are unaware of their impact to develop their communication skills.

The teacher's performance in the classroom plays a key role and has a huge impact in the teaching learning scenario in the engineering colleges. Teachers can choose the teaching methodology, which can be applied in the classroom in order to stimulate the students to participate in the learning procedure. One of the ways in which learning can be made interesting and engaging is Project-based learning. Project-based learning (PBL) gives opportunities to students to learn the English language in context and to use communicative English in real life situations, especially in their professional life. Apart from communication skills, students are seen to nurture problem solving skills and critical thinking skills and they acquire a knowledge of how to be creative and collaborative. Beckett & Slater (2019) mentioned that, "... multimodal students equipped with multiliteracies" are required to professionally excel in the real world 21<sup>st</sup> century. Solomon (2003) explained that PBL is a process of learning that makes students feel that learning is their own responsibility. Learners learn to work in collaboration to solve issues that are "authentic, curriculum-based, and over interdisciplinary." Students through PBL learn how to develop their own learning methodology and determine what, where and how much material can be gathered to meet their learning needs. They assess and integrate the facts and information then put in and display their understanding of the details at the end. Throughout the process of learning, teachers act as facilitators (Simpson, 2011).

Many studies showed that Project Based Learning (PBL) is one of the most effective ways

to develop the communicative skills of the students by making the teaching learning process more interesting and engaging. PBL encourages authentic target language use in classroom settings which is pertinent to the lives of students, learner decision-making, and autonomy, and it brings about several advantages to L2 classrooms which includes improved language, academic and real-life skills, scope for interaction, and vehemence of motivation, affiance, creativity, and enjoyment (Hutchinson, 1991; Stoller, 1997; Stoller & Myers, 2020). Ruby (2014) investigated the implementation of PBL in an English language tourism classroom in a Thai university. He examined whether PBL could develop the communication skills of the students. The results displayed that PBL had a statistically potential impact on the learning proficiency of regional medium learners.

## **Literature Review**

So far, very few studies on PBL and Access programs have been conducted in India. The current study of Sana Imtiaz, on the Access program in Pakistan (2012) has focused on students' conversions into free-willed learners through PBL. The study also concentrated on developing positive self-perception. She mentioned that, when the project was going on, she observed that the students developed communication skills and also a set of sub skills such as life skills, teamwork, self-encouragement and time management. A same type of research framework was used by Zakia Sarwar to explore the impact of PBL in promoting learner-centered methodology among college students in Pakistan (2000). Sarwar (2001, p.135) pointed out in her research findings that "The transition from learner dependence to independence was not an easy process, especially in a system of education where spoon-feeding and rote-learning are common teaching learning strategies... Learners felt more in control and willing to work and perform and there was a great change in the student's confidence. The study revealed that the students' feedback and keenness for applying PBL helped them to achieve autonomy. The study also highlighted that anxiety, group dynamics and shortage of time were the major issues encountered by the students at the tertiary level while doing project work.

## **Integrating Project-Based Learning in Engineering Colleges**

Through integration of basic knowledge and conceptual aspects with hands-on training and practice in a real life work environment, Project based learning assures learning opportunities to

the undergraduate engineering students. To prepare the students for providing the solutions to the real-time problems in the society, the Four C's of 21st Century Learning i.e critical thinking, communication, collaboration, and creativity are integrated into project-based learning.

Engineering students' come from varied linguistic, cultural, schooling and social backgrounds. They have different learning ability levels. Most of these students come from a background where the importance of communication skills is very little prioritized. Indeed, English has to compete with their native Bengali or Hindi languages in West Bengal. These students from regional medium schooling backgrounds where the teacher mostly used the Grammar Translation Method to teach the student. In an ideal situation, English language acquisition not only focuses on syntactic accuracy or competency in grammar usage, but also gives opportunities to use English in real life contexts. To deal with this challenge, English language teachers in engineering colleges are required to employ a suitable methodology for imparting English language learning that encourages students to use language with an emphasis on communicative purposes in real world settings. Project-based learning (PBL) seems to match this learning need.

Increased emphasis on standards, clear outcomes, and accountability is the most important recent shift in education especially in English language learning. "Doing projects" is a long-standing tradition in education (Grant, 2002; Markham, et al. 2003). PBL has become interdisciplinary because there is the need for education to adapt to a rapidly changing world. It has been observed that academic performance of an engineering student is not always associated with skill and technical expertise. Students with good academic records may have poor communication skills and vice versa. When students in engineering colleges get the scope to work in a team to develop their skills especially during language laboratory classes, they get the platform to come out of their learning inhibitions. Students perform better in communicative activities like role plays than in extempore.

### **Methodology:**

For this research paper, a survey was conducted among engineering students learning English in the private engineering colleges of West Bengal under MAKAUT. A questionnaire was prepared and distributed among nearly 300 students in 10 colleges to identify the effectiveness of Project based learning with respect to the English teaching-learning scenario. A set of 15 questions

were designed for students. The responses thus received from both teachers and students were carefully represented as graphs, pie charts etc.

### **Data Analysis of Students Questionnaire:**

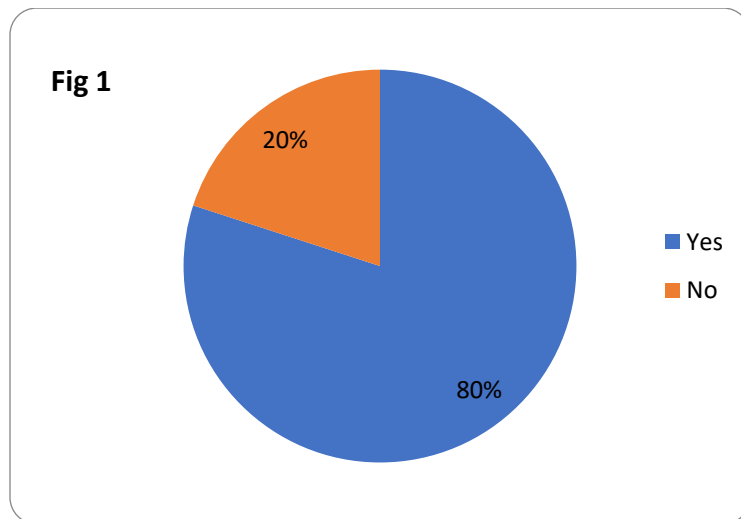
For the survey, questionnaires were distributed to 300 students, out of which response was received from 200 students. The samples of 150 male students and 50 female students, ranging between 18 -21 years of age. The male students constituted 80% whereas the female students constituted 20% of the sample.

The other demographic details of the students i.e., age, steam, degree schooling background etc. were collected to ascertain the socio-economic challenges faced by the students.

The responses given by the students for the questions asked are as follows:

#### *1. Are you aware of Project Based Learning?*

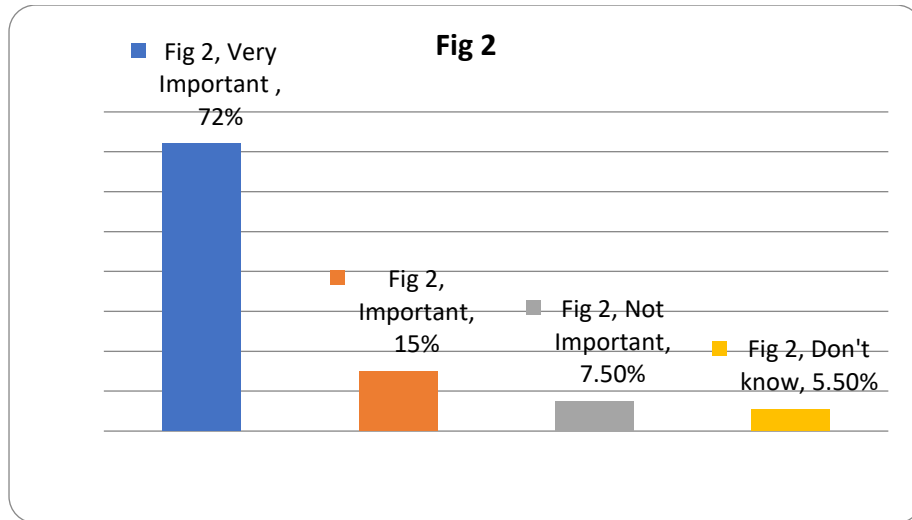
From the data collected, it was revealed that out of 200 students 160 students were aware of Project-Based Learning while the remaining students were not aware i.e., 80% students gave a positive response to this question and the remaining students gave a negative response.



#### *2. Do you think English is very important to shape up your career?*

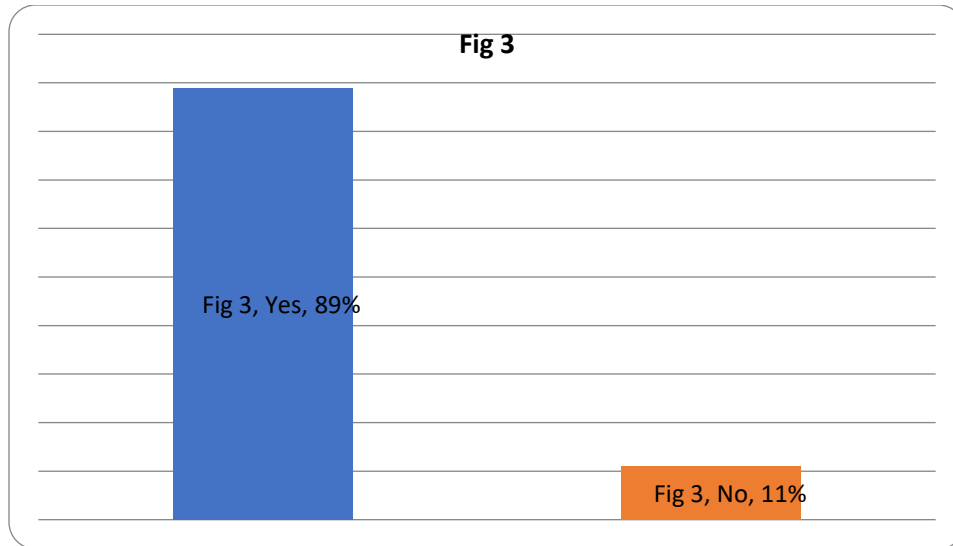
The survey for Question no. 2 was conducted on four parameters: “Very Important,” “Important,” “Not Important” and “Don’t Know.” The responses received revealed that majority of the students felt that English as a subject is extremely important for them to perform well in their professional life. Out of 200 responses received, it was observed that 144 students (72%)

mentioned English to be very important to shape their career, 30 students(15%) felt that English was important whereas 15 students (7.5%) mentioned that English was not important and 11 students(5.5%) answered that they don't know whether English is important to shape their career or not.



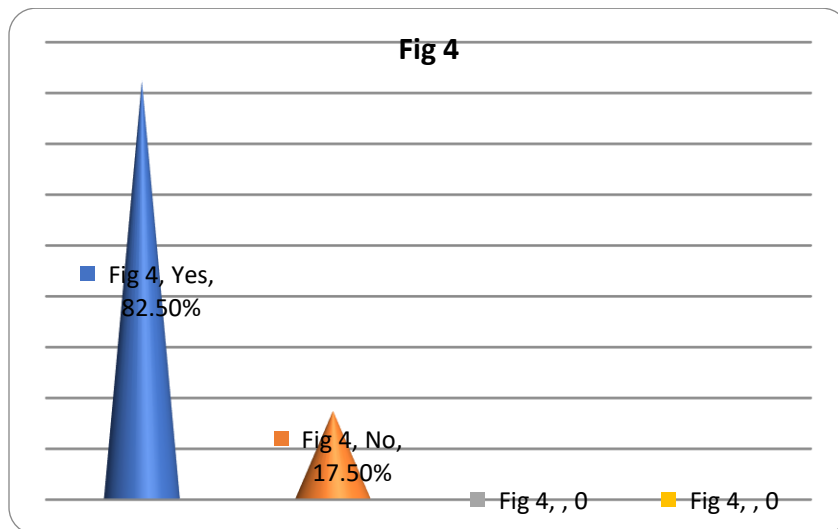
### 3. Are you willing to adopt Project Based learning for developing your communication skills?

It was important for the researcher to find out the interest level of the engineering students in Project Based Learning. When the survey was conducted, it was observed that majority of the students was willing to adopt Project-Based Learning for developing their communication skills. Out of 200 students, 178 students (89%) were willing to adopt and 22 students (11%) expressed that they were not willing to adopt PBL for language learning.



*4. Do you think PBL can help in meeting some important outcomes of the English course?*

The teaching-learning process in the engineering colleges is associated with the Course Outcomes of the B.Tech course. Course Outcomes are specific and measurable statements that define the knowledge, skills, and attitudes, which learners are expected to demonstrate at the completion of a course. As a part of the teaching learning process, this question was asked to the students to identify their views on the use of PBL to meet the course outcome of the English course. The results demonstrated that 82.5% students feel that PBL meets the course outcome of the English course whereas 17.5% students gave a negative response.



5. *What skills do you think are necessary for successful implementation of PBL?*

For question no.5, students were given the option to select multiple options. The question was designed to find out whether the engineering students possess the desired skill or not to utilize PBL to learn a language. The researcher has considered those skills with response above 75% as the ones most necessary for successful implementation of PBL (as per the students opinion). As per the table below, the skills, which fall under this category, are motivation (77%), visualization (79%), problem solving (84.5%), creativity (87%), active participation (86%), attitude and hardworking (78.5%).

**Fig5**

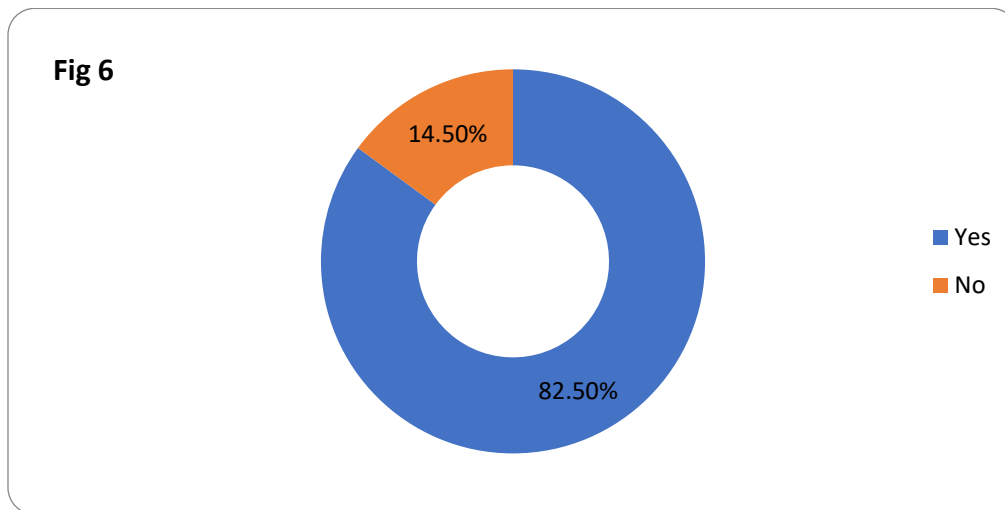
Sl No.	Items	Response
1	Design Skill	30
2	Software Knowledge	110
3	Experience	24
4	Communication	75
5	Inquisitiveness	120
6	Motivation	154
7	Discipline	100
8	Practical Exposure	76
9	Visualization	158
10	Problem Solving	169
11	Sound in Fundamentals	124
12	Creativity	174
13	Active Participation	172
14.	Attitude and Hard working	157

6. *Do you think implementation of PBL will improve the English teaching-learning process and help students learn better?*

Question no.6 was asked to assess how much the students are ready to accept PBL to

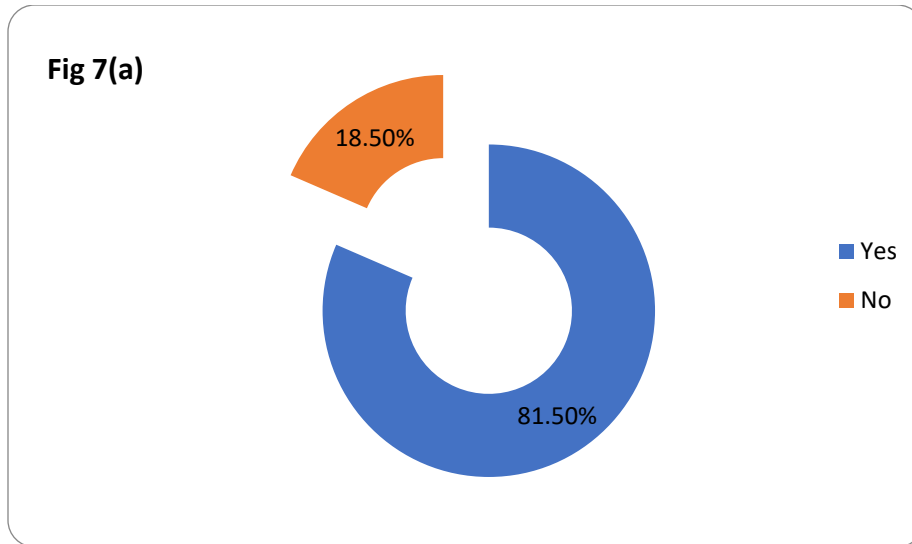


improve the teaching learning process. Since the researcher was also a teacher teaching in the engineering college, she has observed the lacunas in the application of traditional teaching learning methods. If traditional teaching learning methods are blended with PBL then the possibilities of better results are expected. In response to this question, the researcher found that, 171 students (85.5%) responded that implementation of the method would improve the English teaching-learning process and 29 students (14.5%) responded that they do not feel so regarding this matter.



*7(a). Do you think in English classes projects can be used to develop your speaking skills?*

This question was asked to assess whether PBL would be helpful to develop the speaking skills of the engineering students. Engineering students require speaking skills to perform well in their professional life. Speaking skills are essential for them to attend meetings, give PowerPoint Presentations, and appear in Group Discussions etc. In response to this question 163(81.5%) students felt that PBL would meet their needs to develop their speaking skills and 37(18.5%) students felt that PBL would not be very effective to meet their needs.

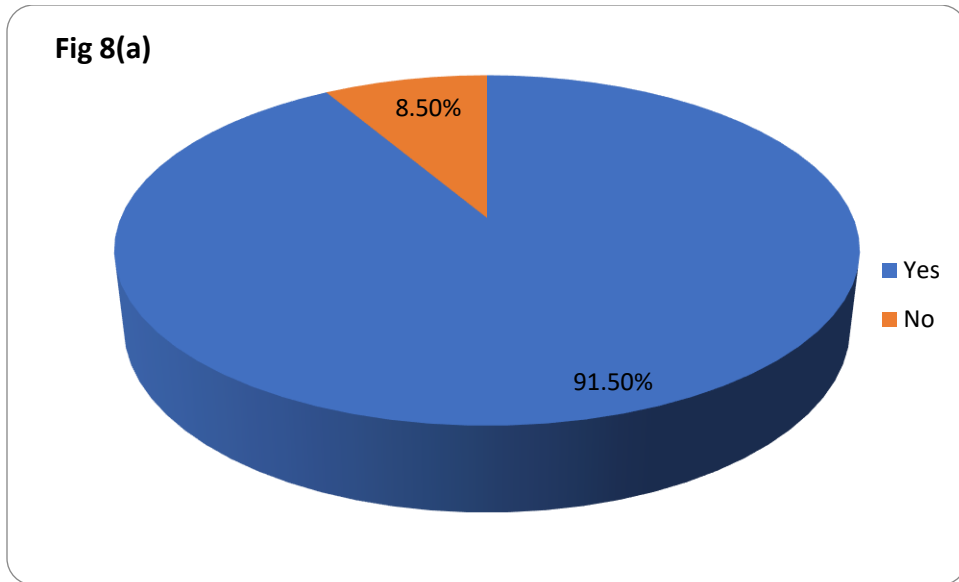


*7(b). Can you suggest some topics from your syllabus on which projects can be given to develop your speaking skills?*

In response to question no. 7(b) the students suggested the topics like Group Discussion, PowerPoint presentations, Visual, Graphics and Diagram Display in a team, Chart Display etc.

*8(a) Do you think in English classes projects can be given to develop your writing skills?*

Writing has been identified as one of the most essential skills because the world has become so text-oriented. One of the most important reasons why engineering students require writing skills is to write technical reports in their professional life. It has been observed that with respect to any kind of documents engineering students face problems with respect to vocabulary, content creation, sentence structures etc. In response to this question, it has been observed that 183 students (91.5%) mentioned that PBL may cater to their writing needs whereas 17 students (8.5%) clearly stated that PBL might not cater to their needs in this regard.

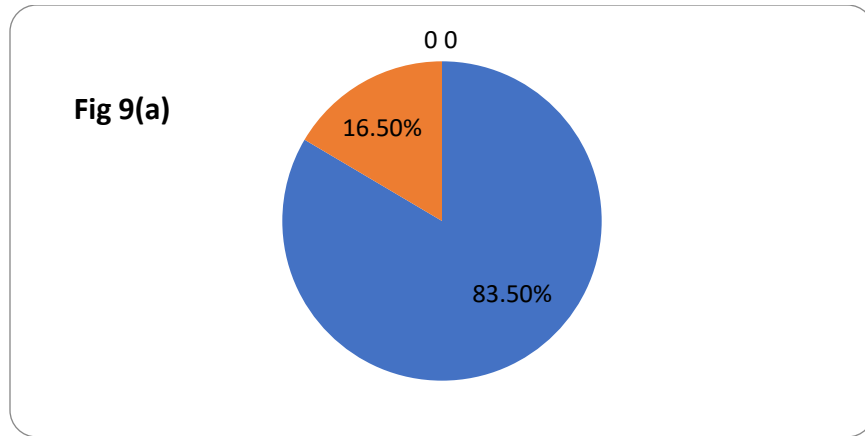


*8(b). Can you suggest some topics from your syllabus on which projects can be given to develop your writing skills?*

In response to question no. 8(b) the students suggested the topics like etc. vocabulary, sentence structures, use of phrases and clauses in sentences, creating coherence, creating cohesion, techniques of writing precisely, identifying common errors in writing, précis writing essay writing, business letters, job application, CV and Resume writing etc.

*9 (a) Do you think in English classes projects can be used to develop your reading skills?*

Engineering students often face problems when they are required to understand a text after reading it. Projects given on reading can assist the learners to come out of their learning inhibitions and participate in the learning activities. In response to this, 167 students(83.5%) gave a positive response and the remaining 33 students(16.5%) gave a negative reply.

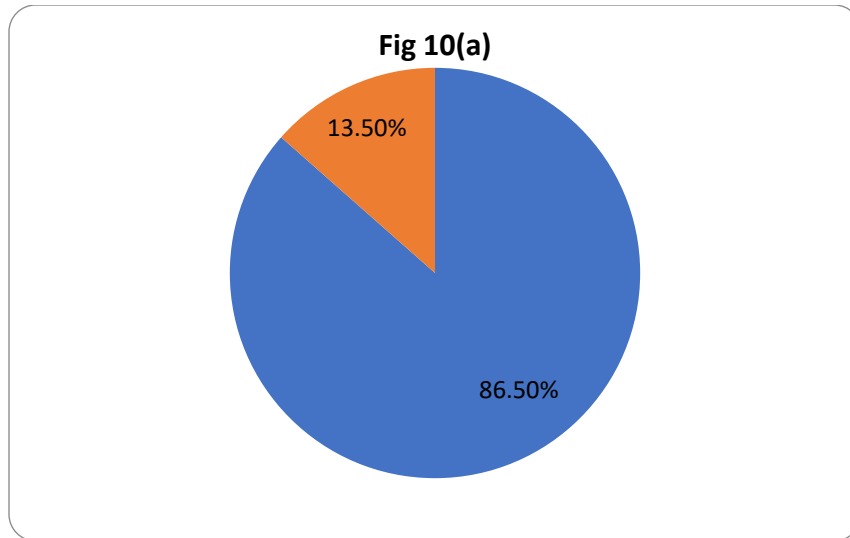


*9(b). Can you suggest some topics from your syllabus on which projects can be given to develop your reading skills?*

In response to question no. 9(b) the students suggested topics like reading comprehension, reading newspapers and articles etc.

*10(a). Do you think in English classes projects can be used to develop your listening skills?*

Collaboration, authentic materials, integration of skills and learning opportunities are probable aspects, which can lead to improved listening competency of engineering learners and PBL can meet these learning criteria. In response to this question 173, students (86.5%) replied that PBL could cater to their learning needs whereas 27 students (13.5%) did not give a positive reply in this regard.

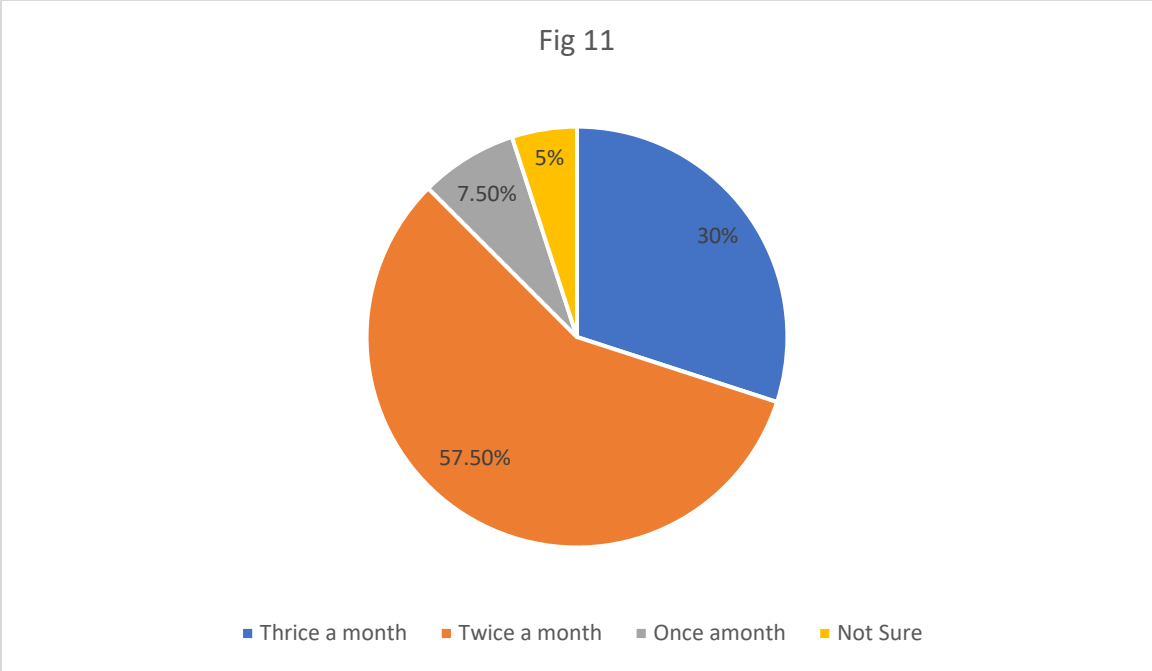


*10(b). Can you suggest some topics from your syllabus on which projects can be given to develop your listening skills?*

In response to question no.10(b) the students suggested the topics like listening to comprehension exercises and solving them, conversation in pairs or groups etc.

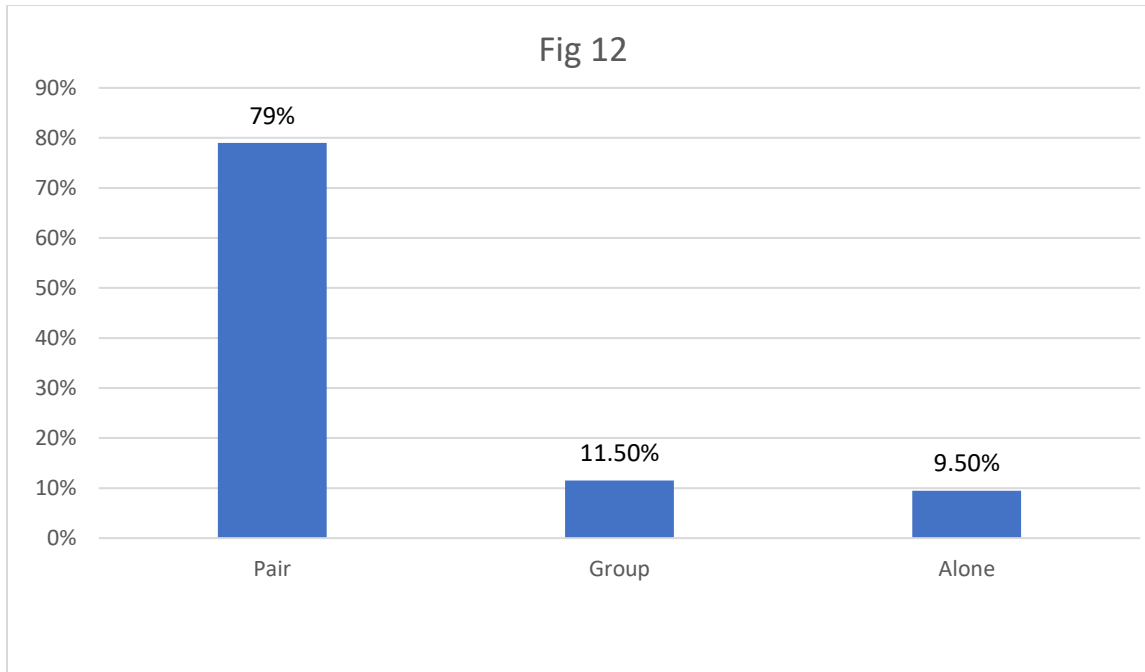
*11. What should be the frequency of projects to be given in language classes?*

This question was asked to find out how frequently the students were interested in doing projects in their English language classes. In response to this question it was observed that 60 students(30%) wanted to do projects thrice a month, 115 students(57.5%) wanted to do it twice a month, 15 students(7.5%) wanted to do projects once a month and 10 students(5%) were not sure about this matter.



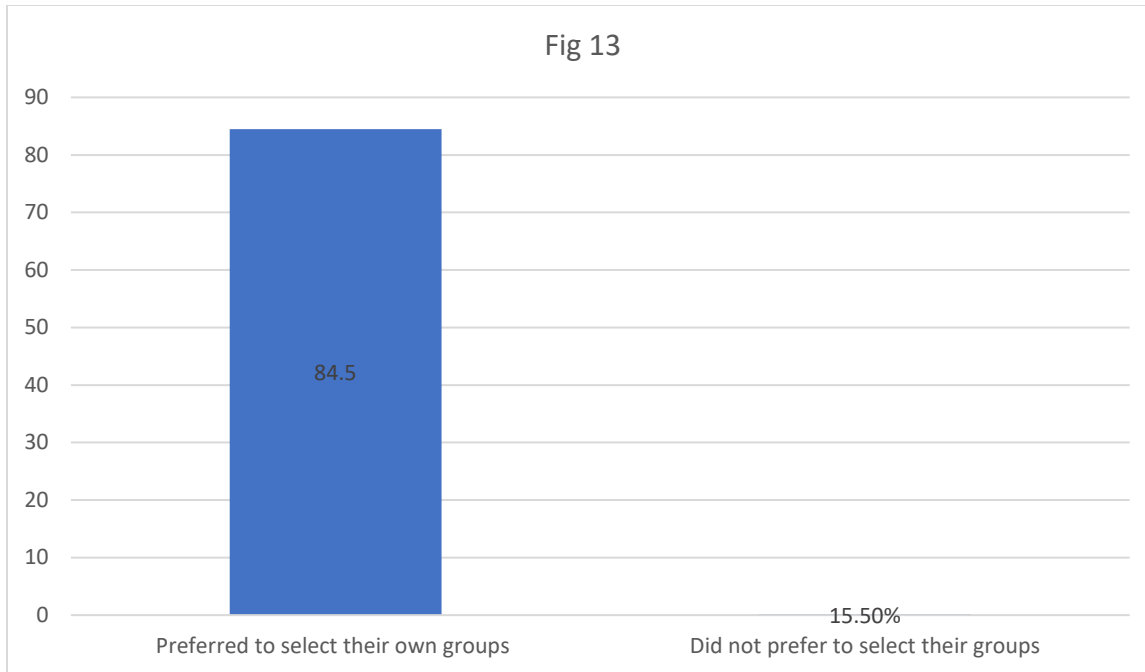
*12. Do you like to do projects in pairs, groups or alone?*

This question was asked to assess how the learners preferred to do projects. On close observation it was observed that learners prefer the learner centered approach where they can work in teams and the role of the teacher would be that of a facilitator. In response to question no. 12 it was observed that out of 200 students 158 students preferred to do projects in group 23 students preferred to do it in pairs and 19 students preferred to do it alone.



*13. For doing projects do you prefer your teacher to select your group, or would you prefer to do it by yourself?*

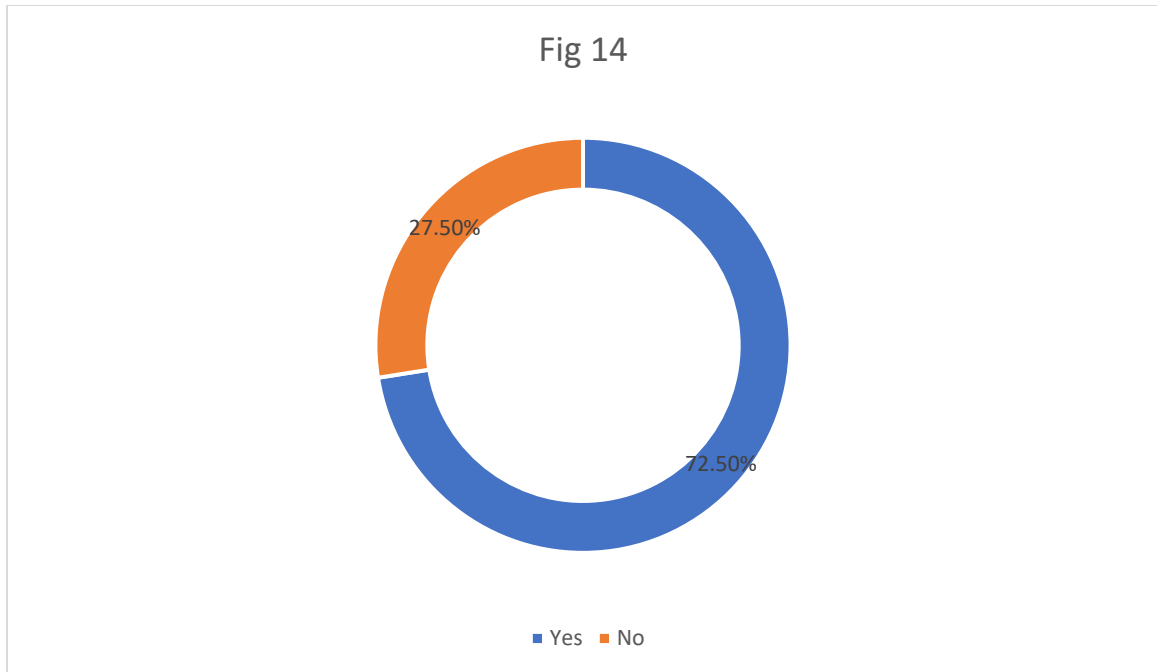
This question was asked to find out whether the learners preferred the learner centered methodology with respect to project based learning. The responses revealed that 169(84.5%) of the students preferred to select their own groups whereas 31 (15.5%) students did not want to do so.



*14. Do you think that equal enthusiasm and involvement of all students and availability of resources will be the major challenges to implement PBL to develop communication skills?*

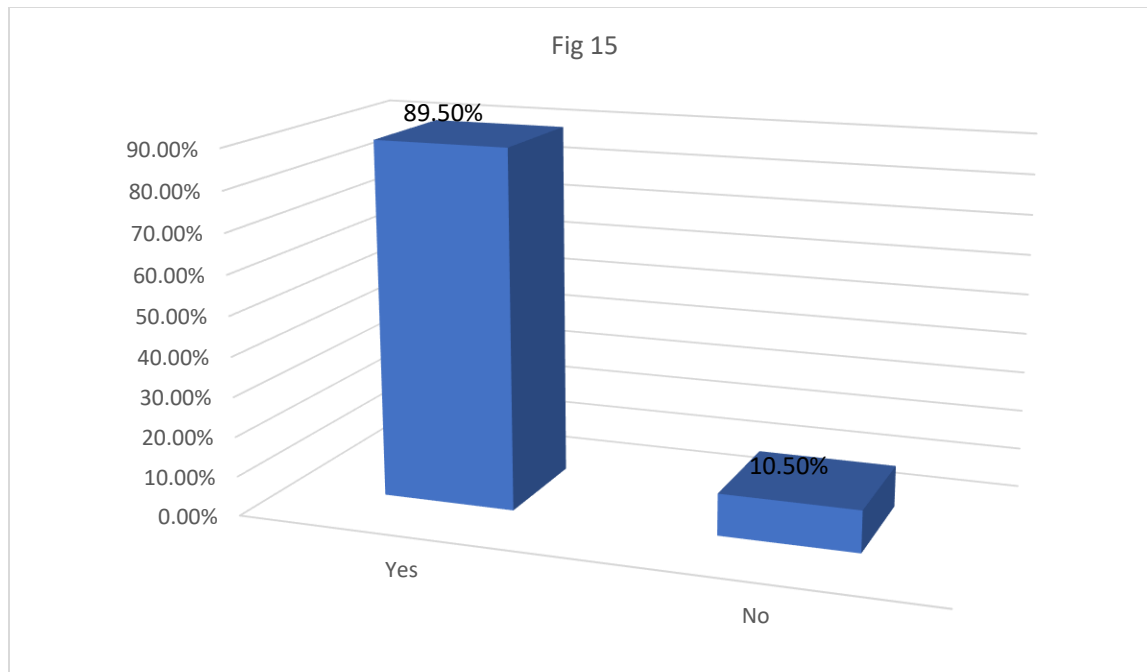
It has been observed that Project Based learning may face a set of challenges in the engineering colleges . When Qs. No. 14 was asked the responses revealed that majority of the students(145/200) felt that equal enthusiasm and involvement of all students and availability of resources would be the major challenges in Project Based Learning.





*15. Do you think that your projects must be evaluated by your teacher?*

Question no.15 was asked to find out whether there should be evaluation criteria for the projects. In response to this question no. 15, it was observed that 179 students mentioned that they desire that their projects must be evaluated whereas 21 students did not want their projects to be evaluated.



## Conclusion

The study provides evidence to show that PBL is good for promoting collaboration and self directed learning, which are two important skills that university students should acquire (Barrows, 2002; Sungur & Tekkaya, 2006). The study reveals that PBL not only enhances students' language proficiency through lots of language production opportunities, it also promotes various non-linguistic skills such as leadership skills, collaborative skills, critical thinking skills and problem-solving skills which would prepare students for future employment (Sungur & Tekkaya, 2006). An important element of PBL is group work. Learners discover how to solve problems and think independently through peer and social interaction, which, in turn, promote cognitive development (Vygotsky, 1978). Communication about the roles of the teacher and student is vital, and the students may benefit from more feedback and assessment on their participation in the group, particularly early on in the programme and from additional forms of consolidation of their learning (Spronken-Smith and Harland, 2009). In summary, the study has provided some insights into the importance of using the PBL approach in the ESL classroom.

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