Need Analysis on The Use and Effectiveness of ChatGpt for English Language Teaching Learning in Private Engineering Colleges in West Bengal

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Abstract
The twenty-first century has seen an extensive growth of technology in various fields. Education, not being an exception, has also witnessed significant technological intervention. ChatGPT is one of the technical innovations which has taken the world by storm with everyone buzzing about its features. It is an AI (Artificial Intelligence) powered large language model developed by OpenAI based on the Generative Pre-trained Transformer (GPT) architecture. Engineers are expected to communicate their thoughts, plans and details to their associates, partners and stakeholders in the industry in English Language. Proficiency in English is thus necessary for engineers to communicate and collaborate with global partners and clients. This paper shall analyze the use and effectiveness of ChatGPT for English language teaching learning in private engineering colleges to develop the communication skills of the learners. The analysis is done by circulating a questionnaire among students of 1st year studying in engineering colleges and the researchers found that most of the students are using it already for their learning.
[Keywords: Artificial Intelligence, ChatGPT, communicate, English, Generative Pre-trained Transformer, technological intervention.]

1. Introduction

An engineering student requires to carry out some specific tasks in English language and which is why he/she needs to learn basic grammatical rules and structure to precisely give a significant shape to what they are attempting to communicate. ChatGPT can be substantial for those who intend to learn English. English language proficiency is very essential for engineers who work at multinational companies or communicate with foreign delegates, clients, and colleagues from different parts of the world. In today's globalized business environment, being able to communicate efficiently in English can make a significant difference in an engineer's career trajectory. However, learning the English language can be challenging, especially for those who have less exposure to English-speaking environments. Fortunately, with the advancement of AI technology engineers can now use language models like ChatGPT to enhance their English learning experience. It is a state-of-the-art AI language model developed by OpenAI. It is based on the GPT-3.5 architecture and trained on a massive corpus of text data, making it one of the most sophisticated natural language processing models available. ChatGPT can engage in conversations with users, providing a realistic simulation of a conversation with a native English speaker. Engineers can ask questions, practice pronunciation, and work on their listening comprehension by listening to its responses. Thus, this AI-powered language model is helpful for engineers in developing speaking and listening skills. Another key advantage of using ChatGPT is it can introduce engineers to new words which will help them better understand technical reports and documents. ChatGPT is also beneficial in introducing engineers to grammatical rules and their applications. This can help engineers develop better writing habits and produce more professional and effective documents. Moreover, ChatGPT can respond to interview questions related prompts. Lack of English proficiency often makes people nervous during some serious interactions or discussions. Using ChatGPT engineers can practice interview questions along with answers by passing prompts like "Interview me", "give me some examples of interview questions", etc. This will enhance their confidence when they face it.

It is a valuable resource for engineers who are learning English as a second language. Its advanced language processing capabilities can help engineers improve their speaking, listening, writing, and reading skills, as well as their understanding of American culture and customs. With the increasing importance of English language proficiency in the global business environment, ChatGPT can be an asset for engineers looking to advance their careers.

1.1. Implementation of ChatGPT for language teaching learning in private engineering colleges

Most engineers don't get much opportunity to practice their speaking skills in English. They tend to use their mother tongue for communication with their friends, colleagues, etc. Sometimes they code-switch between two languages to express their thoughts clearly (Mondal and Banerjee, 2018). Due to the lack of practice in their speaking skills in schools and professional lives, they

feel less confident while speaking in front of others. It is also a matter of fact that verbal language reflects on the writing skills of a student. If they practice correct and grammatical error-free English speaking, their writing skills shall automatically develop. ChatGPT can simulate conversations that engineers might have in a professional situation, such as meetings or presentations, and help them practice their communicative skills in a safe and supportive environment.

Engineers often focus on developing their technical skills rather than prioritizing the improvement of their communication skills in English. Right from the school level students are instructed to prioritize subjects like science, mathematics and computer which gives them less exposure English language. As a result, they know the grammar rules but have a scarcity of knowledge of the application. ChatGPT can help engineers expand their technical vocabulary by suggesting terms and providing definitions and examples of their use in context.

Engineers may not receive enough feedback on their communication skills, which can make it difficult for them to identify areas where they need to improve. Without feedback, engineers may not realize that their speaking skills need work. Prompts like "Correct my sentence", and "find mistakes in the sentence" can help them highlight their backlogs and help them to learn error-free English.

Engineering students are extremely exposed to technology. Thus, a language model can make them feel comfortable while learning. Knowledge of technology can be an asset for engineers who want to learn language using chatGPT. There are many language learning apps available for smartphones and tablets that can help engineers to practice their language skills on the go. These apps often use gamification techniques and adaptive learning algorithms to make the learning experience more engaging and effective. They can easily download and use these apps. There are also many language learning software programs available that use artificial intelligence and machine learning techniques to personalize the learning experience for each individual.

2. Literature review

Numerous advantages and educational possibilities are provided by ChatGPT. According to Rudolph et al. (2023), learners can gain from experience learning since ChatGPT may produce several situations for addressing challenges. Additionally, ChatGPT offers private coaching to students. Teachers may be relieved of their onerous marking loads by AI marking, giving them more time for lesson planning. ChatGTP offers several significant advantages specifically for students. In line with the principles, ChatGPT can come up with conversation topics and writing prompts for students to use in their creative writing (TESOL International association, 2023). More significantly, ChatGPT excels at incorporating a wide variety of learning tools and information for users. It can also provide examples and a thorough explanation of how to utilize the English language. The feedback is instant, which is the best part because instructor feedback naturally takes time to process, and by the time students receive their feedback, the program may assist in developing exciting and captivating English language classes that will keep the students riveted.

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Using ChatGPT in engineering classes has several benefits, one of which is its capacity to comprehend and respond to input in natural language. This implies that it may make interactive exercises and activities using it to provide the students with speaking, listening, reading, and writing practice. For instance, ChatGPT may utilize to make conversation simulations so that the students can hone their communication skills by chatting on the computer. Students will benefit from being exposed to a range of English dialects because of the model's ability to replicate diverse accents, speeds, and even personalities. It can be designed for interactive reading and writing assignments with ChatGPT. As an illustration, might instruct the programmer to produce a short tale or news piece for students to study, after which can be asked to respond to comprehension problems or compose summaries. Yes, that means preparing lessons 10 minutes in advance in case of forgetting the materials at home. The capability of ChatGPT to provide students with personalized feedback and corrections is yet another outstanding feature. This may be accomplished by allowing the model to recognize and correct typing errors made by language learners by training it on a dataset of language errors and corrections. For English language instructors, this may be quite helpful since it can save a lot of time. ChatGPT has embraced a numberof the websites or programs that learners already use, like Grammarly, Wikipedia, Google Translate, Quillbot, etc. As a result, it can identify linguistic and structural problems in students' work, provide writing tips, and recommend fixes (Ohio University, 2023).

3. Methodology

For this study, asurvey was conducted among the students of 1st year pursuing engineering in private engineering colleges of West Bengal under MAKAUT. A questionnaire was prepared and circulated among 185 students in 10 colleges to identify the effectiveness of ChatGPT for language learning by engineers. The questionnaire consisted of 22 questions. About 87 students responded to the survey and each of them chose the most fitting option(s) they were provided with. The responses are thus represented in the form of pie charts, graphs, tables, etc.

3.1 Participants

Variable	Category	Frequency
Gender	Male	33
	Female	53
	Other	1
Age	18	26
	19	48
	20	11
	21	2

Mother tongue	Bengali	76
	Hindi	10
	Maithili	1
Other languages known	English	80
	Hindi	64
	Bengali	42
	Spanish	3
	German	1

Table: 3.1.1

Out of 87 received responses 37.93% were male, 60.91% respondents were female and only 1.16% belong to the third gender category. According to the responses, the participants of our questionnaire were mostly 19 years old as the percentage (55.17%) reveals. 29.88% of students were 18 years old while only 2.31% were aged 21 years. 11 students (12.64%) out of the total respondents were 20 years old. Majority of the engineering students use Bengali as their "Mother tongue" (87.35%). Out of 87 students, 64 students use Hindi and only 1.15% (1 out of 87) student uses Maithili. From the responses, it can be seen that students popularly use English (91.95% of students) as a side language other than their mother tongue. Next to English students know Hindi (73.56%). 48.27% of students understand Bengali other than their mother tongue. 3 out of 87 (3.45%) students have responded that they know Spanish too. Only 1 out of the total respondents know German.

4. Data Analysis

According to the responses received approximately 79.31% (69 out of 87) of students have done their schooling from English medium schools and the rest 20.69% students had the mode of instruction in regional language.
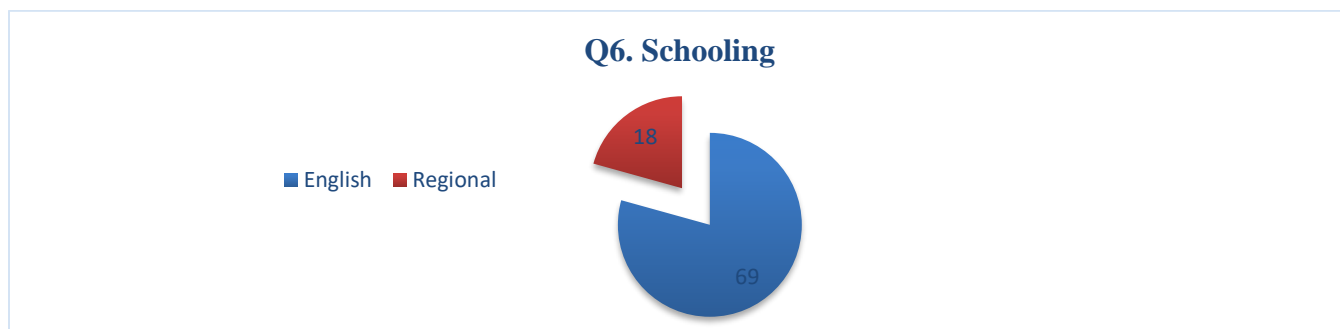

Fig: 4.1

Figure 4.2 symbolizes the percentage of students who have been studying English for 5 years, 10 years and 12 years. The responses to question number 7 reveal that nearly 11.51% (10 out of 87) of students have studied English as a subject for only 5 years. It was observed that a smaller number of students have studied English for 10 years which is approximately 5.74%. Most of the students have studied English as a subject for 12 years. The percentage of the same results up to 82.75% (72 out of 87).
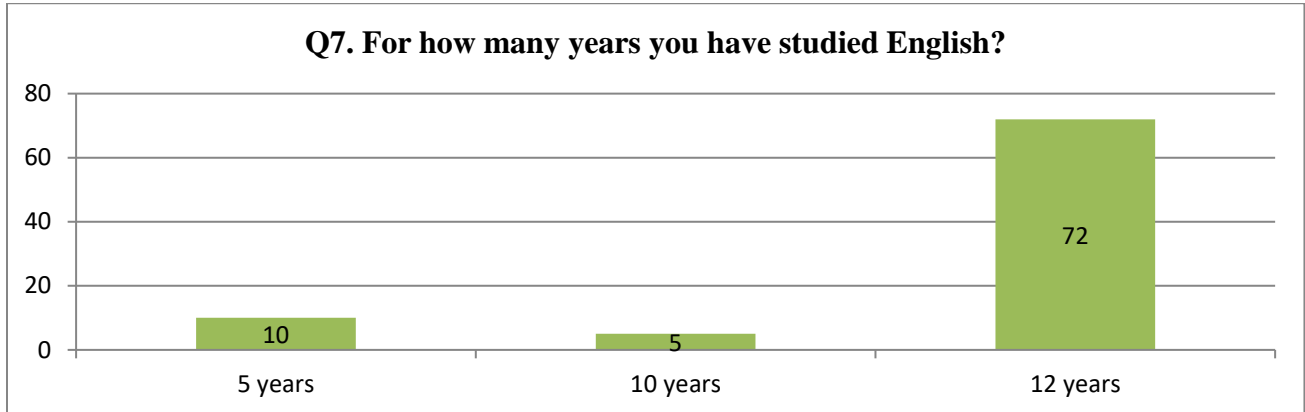

Fig: 4.2

It has been observed from the responses to question number 8 that 67% (58 out of 87) of students can interact fluently in English in their classroom. On the other hand, nearly 30% of students are unable to communicate effortlessly with their teachers and classmates. Very few numbers of students face lack of confidence in speaking in English which makes up nearly 3%. These students usually try to combine two or more languages to express themselves to others.
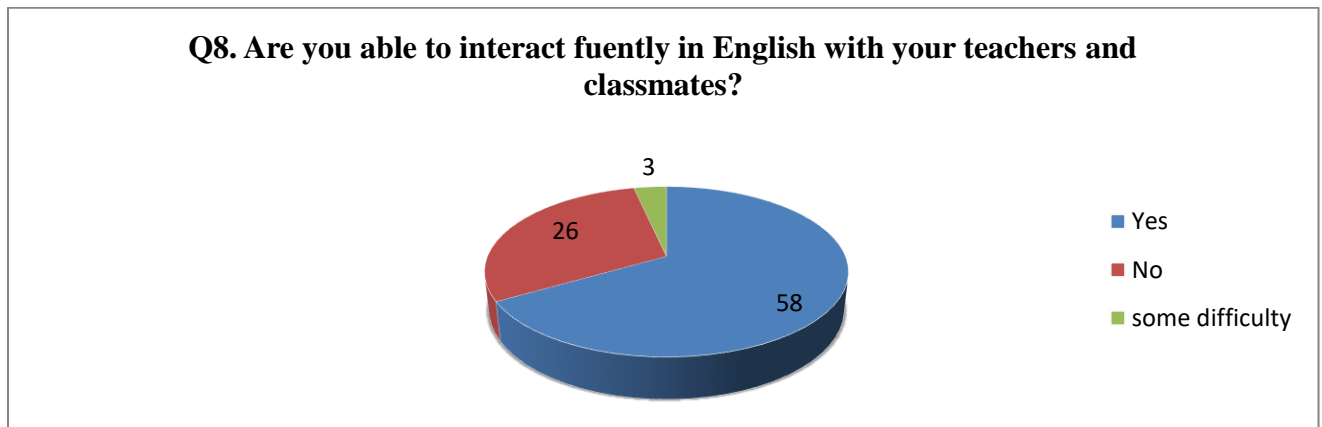

Fig: 4.3

Question number 9 was framed to collect data to find out whether students think in English. Studies say that if we can think in error-free English, we can write and speak confidently. The responses reveal that approximately 23% (20 out of 87) students are capable of thinking in English whereas

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nearly 20.68% of students (18 out of 87) students consider thinking in their mother tongue. 56.32% of students think in English when they are provoked to such as in examinations, JAM, Extempore, etc.

Q9. When you think about something, do you think in English?
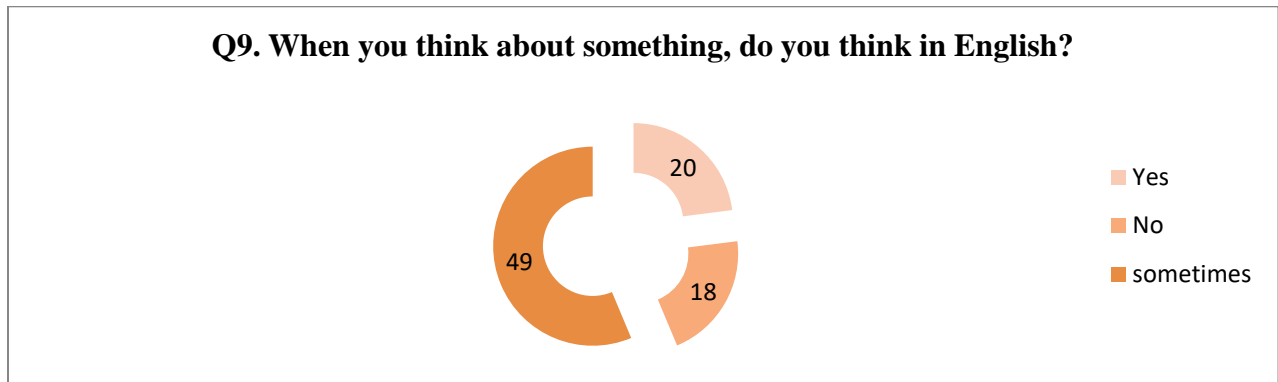
Fig: 4.4

The responses clearly show that students are aware of the necessity of English to broaden the range of their career trajectories. We can see that there are 0 votes for "not important and "don't know" which is the proof of the previously stated fact. 29 students voted that they assume English is somewhat important to lighten up their future whereas 58 students consider it to be very important.

Q10. How important do you think English is to shape up your career?
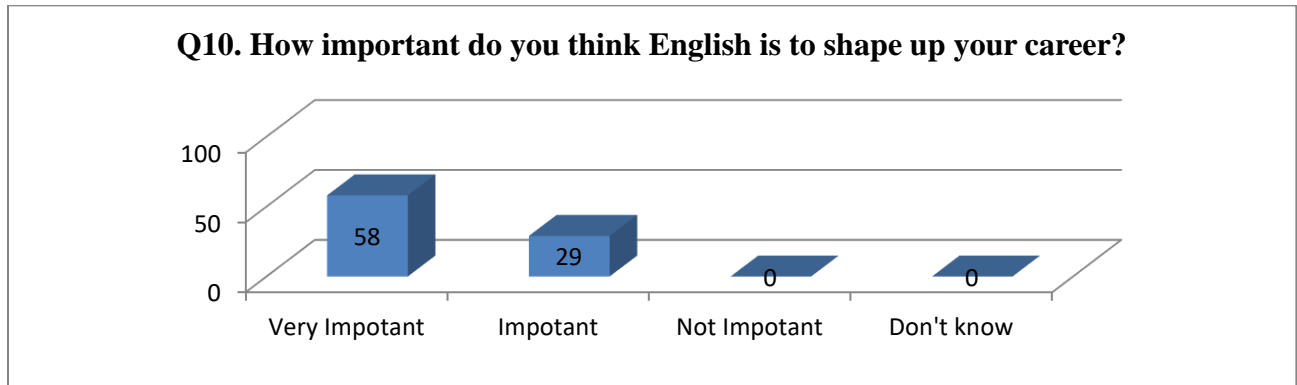
Fig: 4.5

Data collected in response to question number 11 reveal that around 60.9% (53 out of 87) students consider that their fluency in English is enough to cope with the demands of B.Tech courses. 18.39 % (16 out of 87) students assume that their current glibness in English is not quite sufficient to adapt to the B.Tech curriculum. 20.71% of students are not sure about their capability in fluent and accurate English for B.Tech courses.

Q11. Do you think your fluency and accuracy in English are quite enough to cope with the demands of B. Tech courses?

18

16

53

- yes
- no
- may be

Fig: 4.6

The responses to question number 12 show that students mostly use English at college and not much in social gatherings. This reveals that students do not usually practice speaking in English other than they are needed to. 86 numbers of students out of 87 have chosen their area of requirement of English to be college and 60 numbers of students accept that they need English at social gatherings as well.


Q12. Where do you need to use English?

At social gatherings, 60

At college, 86.00
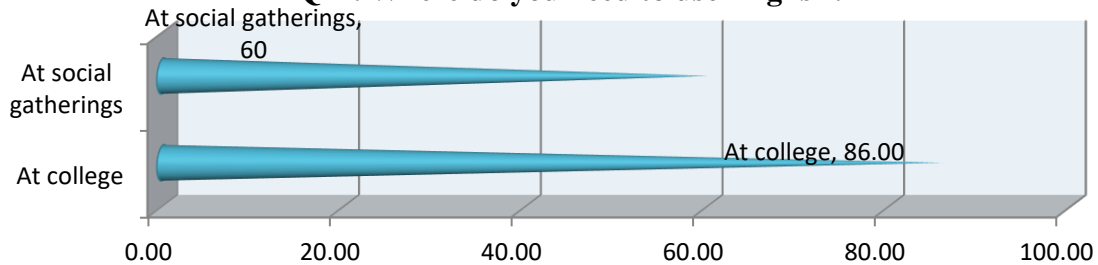
Fig: 4.7

Question number 13 was designed to collect data on whether students prefer using technology in education. The responses show that every student is exposed to online or virtual modes of instruction for studies. As we can see 100% of students voted affirmative when asked this question which is the evidence that students have already prepared themselves for the transition of instruction from the traditional way to the new technical way.

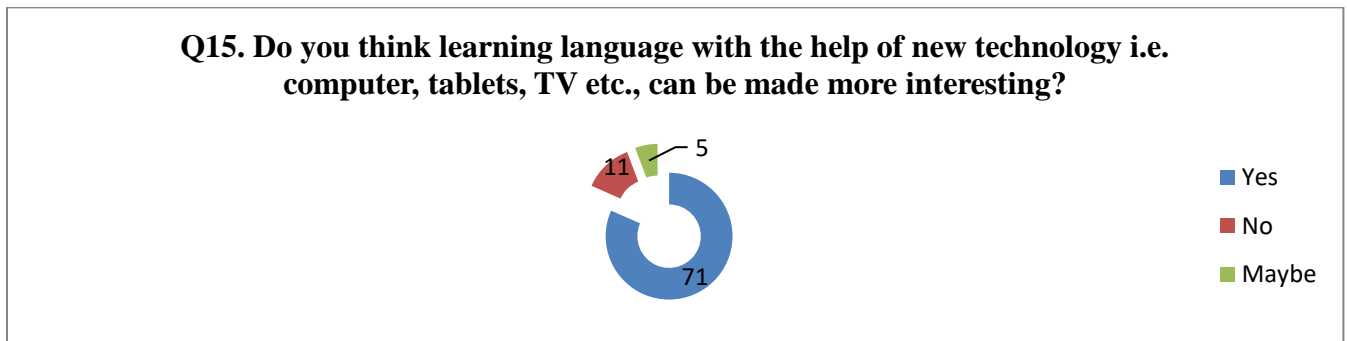

Q13. Do you use technology for education?

100.00%

0.00%

100.00%

0

Yes   No
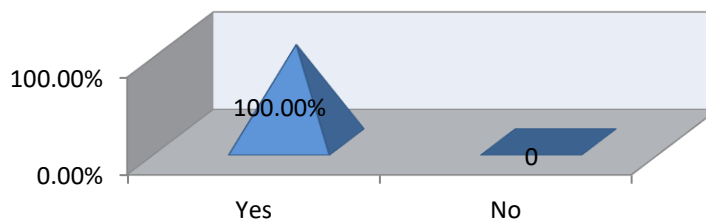
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The responses to question number 14 reveal that students prefer using laptops the most for their education purpose. 78 students have chosen the option "laptop". After Laptop, mobile users make up 51 numbers. We have a somewhat less number of users of desktop (24 out of 87) and tablet (9 out of 87). The reason behind probably is that desktop is not portable and tablets have lost their cause as nowadays laptops can serve as tablets for example HP Pavilion.

**Q14. Device you prefer for studying**
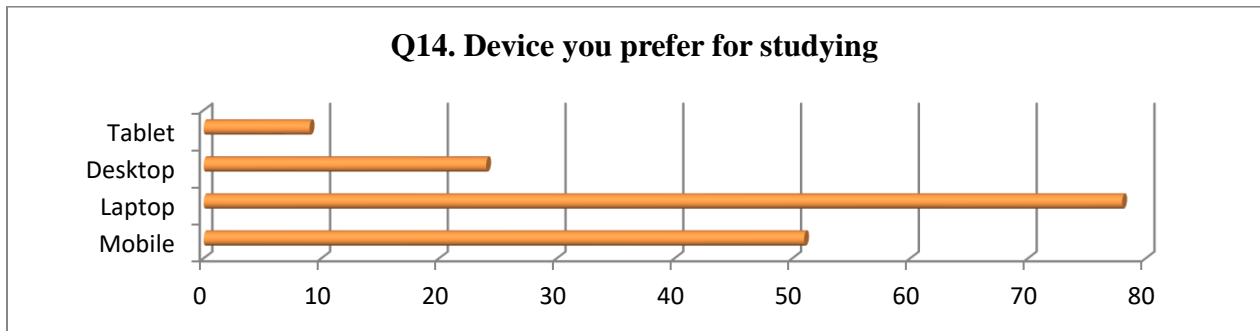
Fig: 4.9

Responses to question number 15 say that 81.6% (71 out of 87) of students consider that learning can be made more interesting using technology. This reveals their enthusiasm to learn more and make complete use of technology for better learning. Nearly 12.64% (11 out of 87) of students have no idea if learning can be made more interesting using technology. The rest of the students are not sure if the development of technology can enhance their learning strategy.

Q15. Do you think learning language with the help of new technology i.e. computer, tablets, TV etc., can be made more interesting?
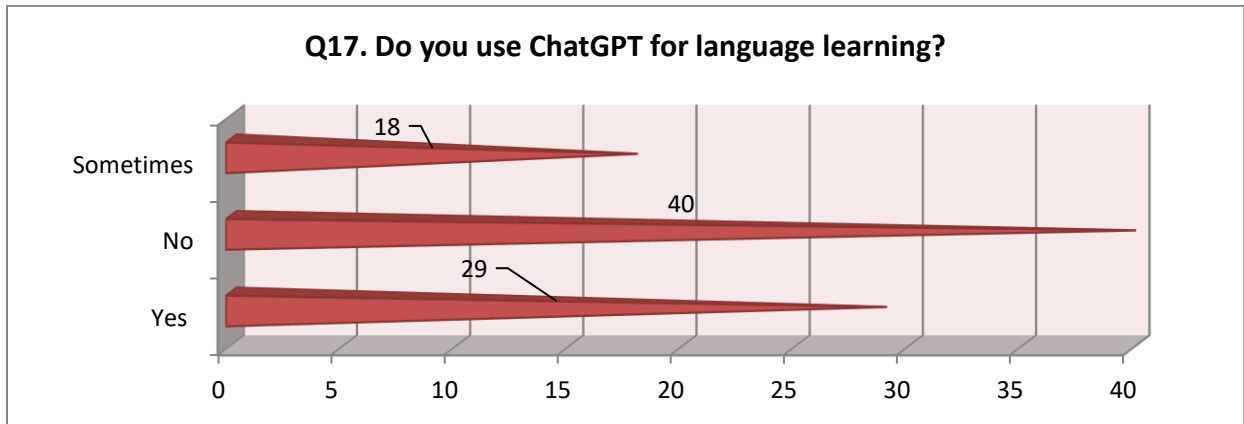

Fig: 4.10

Data collected for question number 16 says that 80 out of 87 students are aware of the AI language model. And the rest 7 understudies have no idea of ChatGPT. This shows that it has already gained much popularity among students in just a few years, and it can be assumed they are using this language for their assignments and other work.

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Q16. Are you aware of ChatGPT?
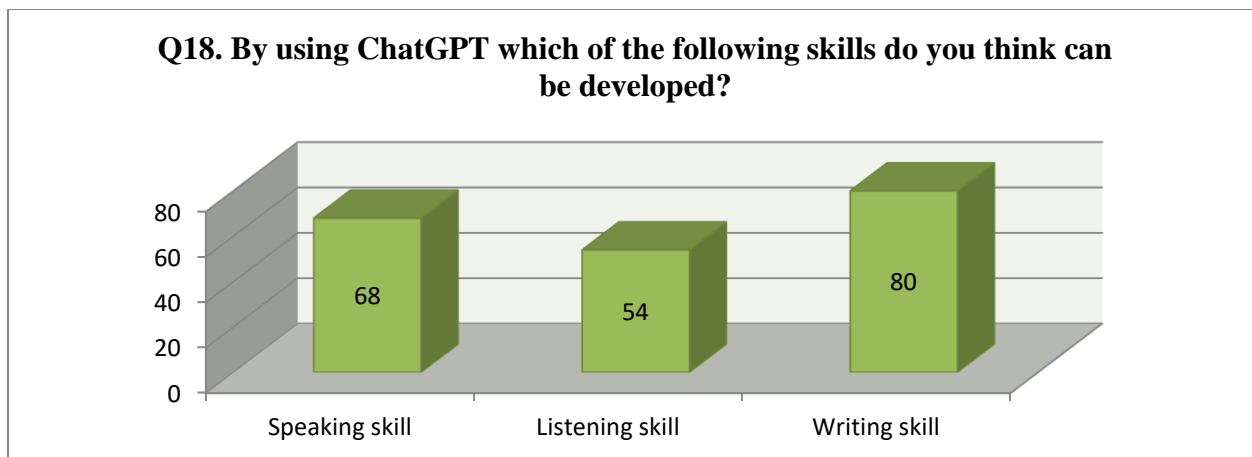
7

80

■ Yes
■ No
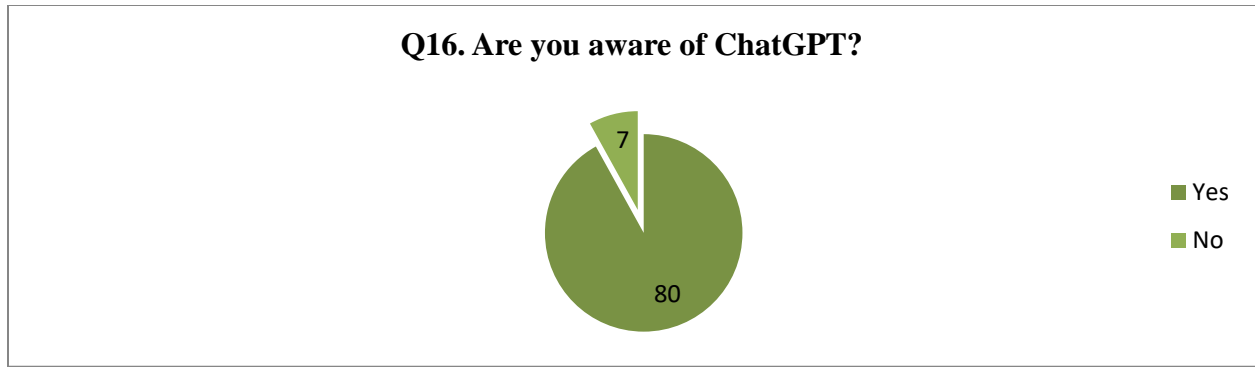
Fig: 4.11

Data analysis of Question number 17 reveals that only 29 out of 87 students (33.33%) are using ChatGPT for language learning and almost 40 out of 87 students still do not consider using it for the discussed purpose. On the other hand, very few (18 out of 87) students use ChatGPT sometimes when they feel its need.

Q17. Do you use ChatGPT for language learning?

Sometimes 18

No 40

Yes 29

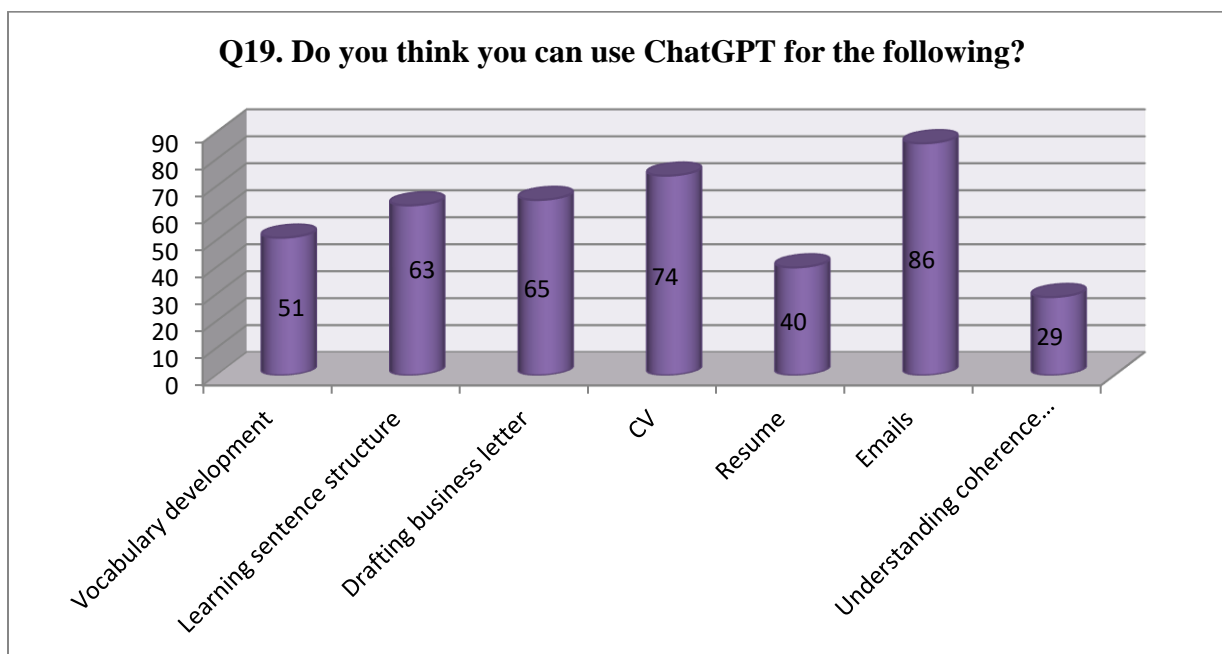0   5   10   15   20   25   30   35   40

Fig: 4.12

Responses collected for question number 18 reflect that 68 students out of 87 consider that speaking skills can be developed and upgraded using ChatGPT. A relatively lesser number of students (54 out of 87) believe that listening skills can also be developed via chatGPT. Most students consider that chatGPT can be a good assistance for developing the writing skills required for B.Tech courses.

Q18. By using ChatGPT which of the following skills do you think can be developed?

|	Speaking skill	Listening skill	Writing skill
	68	54	80

Fig: 4.13

The data analysis of question number 19 shows that ChatGPT is widely used for the vocabulary development of students. 51 out of 87 students prefer using it for upgrading their knowledge of new words. Under the curriculum of B.Tech courses sentence structure is a part. 63 out of 87 students favor using the AI language model for this. 65 out of 87 students say it is helping them to learn how to draft business letters. They are also extensively using it to create their CV as they number (74 out of 87) says. Relatively fewer students are using it for practicing resumes (40 out of 87). The responses reveal that ChatGPT has been most helpful to students in writing an email. 86 out of 87 students choose it for drafting emails. Very few students (29 out of 87) prefer ChatGPT for understanding the cohesion and coherence of sentences.

Q19. Do you think you can use ChatGPT for the following?

| Vocabulary development	Learning sentence structure	Drafting business letter	CV	Resume	Emails	Understanding coherence...
51	63	65	74	40	86	29

Fig: 4.14

ChatGPT can engage in conversations with users. Students can pass prompts so as to practice conversation for interviews, casual meetings, delivering speeches, etc. Question number 20 was designed to collect views from students on this feature. 42.27% (42 out of 87) favor using ChatGPT for fluency in casual conversations in English. 45.97% (40 out of 87) consider that it can be helpful in assisting them to pass examinations conducted at their institutions. Again 63.22% (55 out of 87) students prefer it to practice interactions for conferences. From the data, it is seen that students are extensively using ChatGPT for practicing interview questions and responses. 79.31% (69 out of 87) students prefer using it for interview prompts.
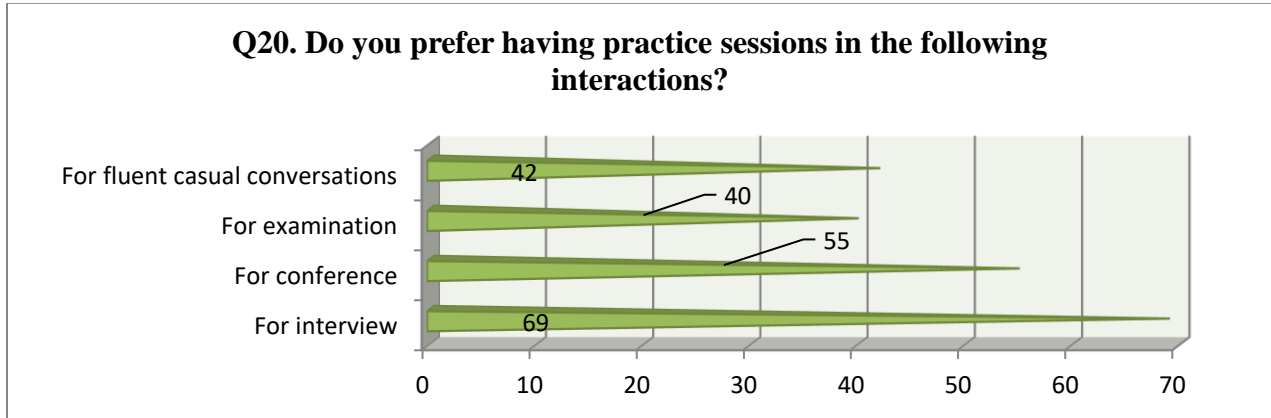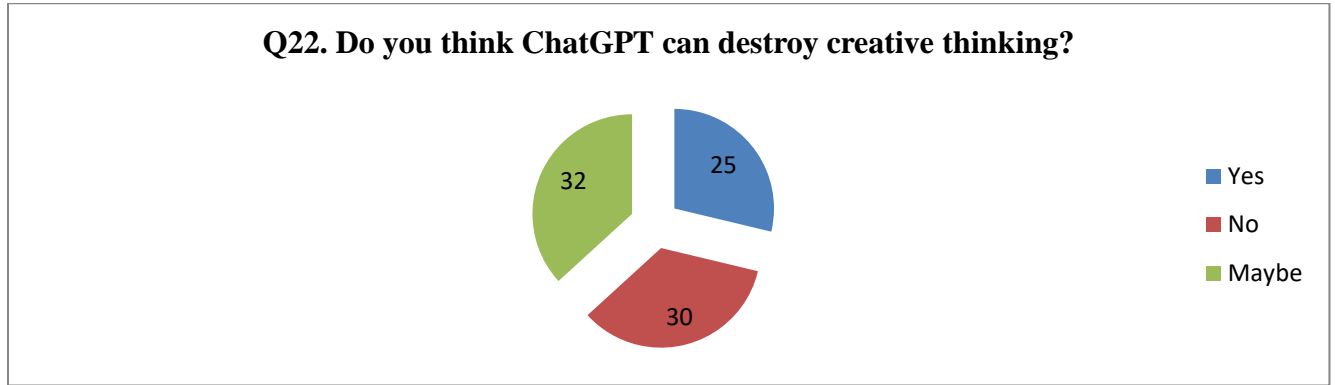

Fig: 4.15

Data analysis of question number 21 shows that students strongly feel that ChatGPT is not enough to help them in the mentioned areas. For this reason, most respondents chose the option "agree" rather than "strongly agree". Out of 87 responses received, 9 respondents "strongly agree" with the statement. 7 respondents opted for "disagree" while 29 respondents chose to remain "neutral". Again 40 respondents chose to "agree" while 2 out of the total respondents choose "disagree". The analysis of this question indicated that students are not yet fully confident to adapt ChatGPT for language learning.
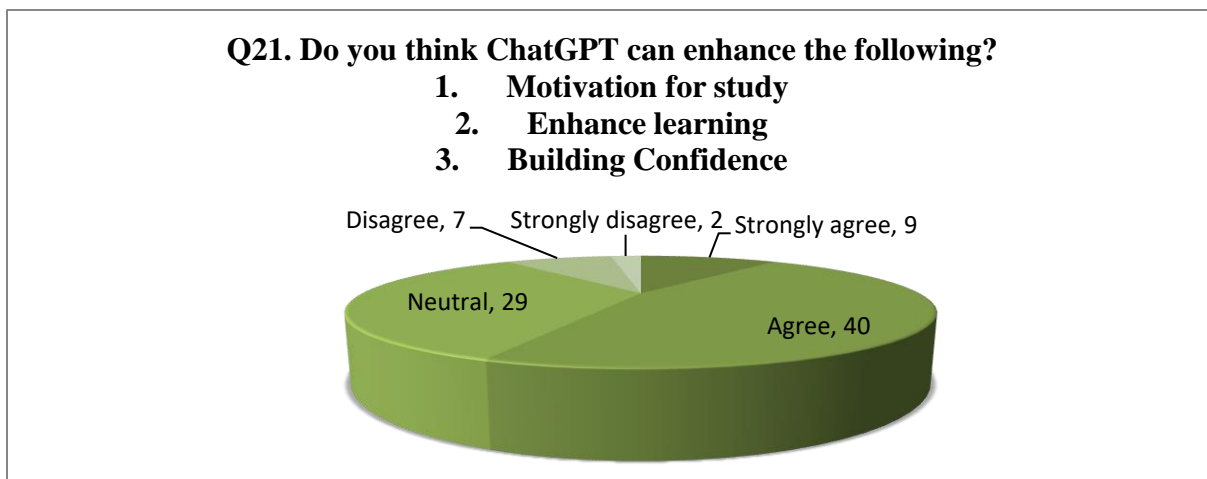
Fig: 4.16

Relatively a smaller number of students consider that ChatGPT can destroy their creative thinking ability. Only 25 respondents chose affirmative to the statement. Whereas 32 out of 87 students are not sure enough about its effects on their creative vision. On the other hand, 30 students are confident on the fact that ChatGPT will not act adversely on their resourcefulness.

Q22. Do you think ChatGPT can destroy creative thinking?

- Yes
- No
- Maybe

Fig: 4.17

Conclusion:

The current study has provided some initial ideas on how ChatGPT can support language teaching and learning English. It has offered some instances of learning tasks that teachers and learners who are new to ChatGPT can use. It has also identified some key debates and drawbacks related to ChatGPT and provided possible strategies to address them. The study argues that AI-driven digital tools are here to stay, so students need advanced digital competence to capitalize on them and successfully navigate their risks and drawbacks.

Thus, it has been derived that ChatGPT is a versatile and valuable tool with significant potential to promote engaging and adaptive English language learning and thereby assist to develop the communication skills of the students.

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