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Exploring Artificial Intelligence and English Language Learning Practices of Undergraduate Students

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Abstract

This study focuses on integrating Artificial Intelligence into English Learning processes and investigates its usage by undergraduate students in the District of Peshawar. The research objectives are the impact of Artificial Intelligence (AI) on students' capacity to acquire, master, and excel in the English language. Also, evaluating their perspectives on its incorporation. Moreover, it aims to assess the adverse effects of AI on pupils' skills and capacities. The investigation evaluates socio-demographic data, advancements in learning outcomes, student attitudes toward AI, comparison to instructor assistance, the entire learning experience, and the influence of AI on students' competencies and capabilities. The data analysis reveals that AI, especially Chat GPT, is perceived positively in District Peshawar. Students find AI tools beneficial for improving their English Learning skills, highlighting the potential benefits of AI in education and fostering hope for the future of learning. However, while AI is often seen as helpful, a balanced approach involving both AI and traditional teaching methods is recommended. Findings indicate that using AI improves efficiency and learning results, but at the same time, it weakens cognitive and problem-solving skills, creativity, and effective learning engagement, and also enhances students' over-reliance on technology.

Keywords: Artificial Intelligence, English Language Learning, Constructivist Learning Theory, Technology Acceptance Model (TAM), Chat GPT.



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1. Introduction

Language can be viewed as a social construct arising from individual interactions. Legate et al. (2023) contend that communication serves as a medium for conveying knowledge, forming social connections, and exhibiting cultural identity. Language is considered a cognitive tool for thinking and problem-solving, highlighting its importance in improving cognitive abilities. Learning permanently alters a person's comprehension or behaviour as an outcome of their exposure to information (Mayer, 2002). Language Acquisition refers to the deliberate and subconscious process of gaining proficiency in the English language, focusing on language development's social and cognitive aspects, especially in educational environments (Ellis, R. et al., 2015). Artificial intelligence, popularly known as AI, integrates computer functionalities that replicate human intellect and can make judgments with human-like skills. The primary goal is to create highly sophisticated machines to make well-informed judgments. Artificial intelligence has improved the area of information science by forming creative algorithms that make computer devices use human abilities such as cognition, strategic thinking and acquisition. UNICEF (2021) defines AI as artificial intelligence that can present or alter tangible and virtual data settings by providing opinions or facts. AI is an assistant and evaluator who assesses and educates students who learn English as a foreign language. AI accelerates the growth of language skills in students through automatic evaluation tools, intelligent teaching processes, and neural computing devices (Jiang, 2022; Koh, 2022). AI has gained an enormous interest in academics, particularly concerning English Language Learning, due to its increased application in educational systems (An et al., 2023; Hwang et al., 2020; Ji et al., 2023). The utilisation of intelligent machines (AI) in education, particularly in the context of English language education, has emerged as a topic that has garnered significant scholarly interest (An et al., 2023; Hwang et al., 2020; Ji et al., 2023). There is an increased urgency in comprehending the opinions and focus of learners in using AI in formal and informal educational contexts. This research is essential for enhancing learners' methodologies by integrating advanced learning strategies (Li & Yuan, 2018; Ramzan et al., 2023d). The conventional methods of teaching English have faced significant criticism due to their inherent limitations and inadequacies (Akram et al., 2020; Ramzan et al., 2023a). There is a promising opportunity for this sophisticated technology to assist students through automated material generation, inventive tutoring systems, and tailored learning experiences (Hwang et al., 2020).

1.2 Objectives of the Research

1. To investigate the influence of Artificial Intelligence on students' English Language Learning (ELL) abilities and English Language Proficiency.
2. To evaluate the perceptions and preferences of students regarding the use of Artificial Intelligence in Education.
3. To assess artificial intelligence's possible drawbacks or benefits to students' abilities.

1. Literature Review

The following literature review identifies multiple studies conducted based on different arguments. Some view Artificial Intelligence as a powerful tool that improves educational performance in many ways; contrary to this, many researchers view it as a destructive process that destroys people's sense of imagination and concentration. Firdaus et al. (2024) researched the government colleges of Punjab to examine the varying perspectives of English teachers about using Artificial Intelligence in classrooms through mixed-method research and experiments on 110 teachers at the colleges showing an overall positive attitude and perspective of teachers about it, while some of them showed disbelief in the idea, the reason being the lack of proper knowledge

and a distraction for students. Tiwari (2024) focused on university-level English teachers in Nepal to study their interaction with using AI in teaching practices. The findings revealed that most teachers described the revolutionary aspect of English education as immediate feedback and personal experience. Some of the teachers were seen as having some unsatisfied comments, including the displacement of jobs, loss of personal touch in learning, and the ethical use of AI. Domínguez et al. (2024) investigated the adoption of AI to determine how it is incorporated into their teaching and learning practices. The commonly used AI tools were Chat GPT and Dall-E, used for content creation, presentations, and tests without emphasizing the active participation of students. The results indicated a positive attitude and a willing behavior of teachers towards using AI on all levels, and the commonly used application was Chat GPT. Sangapu (2019) explored the effectiveness of AI in classrooms and its perceptions in the minds of Teachers and Students by conducting a survey. The study found that both teachers and students considered it beneficial and harmful for use in education. Luke's research (2023) was to understand undergraduate students' usage of AI, particularly Chat GPT, considering a correlation between students' ethical standards and improvement in their academic tasks by using AI. The key findings indicated that 46% of students were using it, while a significant amount, 30% of students, used it for studying and 39% for assignments. In the paper, Essel et al. (2024) argue about the role of the use of Chat GPT by students at the undergraduate level. It explores the various dimensions that can be affected by its use, such as cognition, strategic thinking, and reflectiveness of students in Ghana. The study found that the integration of Chat GPT has positively contributed to their skills. Wako (2022) studied the dark side of Artificial Intelligence in education to understand its negative impact on students' learning. The results showed that it has become a massive cause for the lessening of human connection, reduced emotional and cultural connectedness, erosion of problem-solving and critical thinking skills, loss of culturally and socially authentic and relevant experiences, and unequal accessibility to tools, therefore fostering an imbalanced opportunity for all students. Darveshi et al. (2024) conducted their study on the impact of the employment of Artificial Intelligence by students for analysis, self-assessment, self-monitoring, and feedback on their learning. The study recommends that AI be implemented, however, the implication is that students become entirely dependent on artificial intelligence because AI is unavoidable and has become a norm today. George (2024) researched the threat to human cognition skills in the age of technology and how over-relying on it can affect problem-solving skills, critical thinking, and creativity. The results pose a potential risk to the mentioned intellectual abilities of Humans along with technology taking over one-fifth of the mental energy of humans, and over-reliance on technology. The study recommends its controlled usage. The literature available is summarised after a comprehensive examination and the researchers disclose the results and perspectives of users. Some individuals regard AI as a beneficial instrument in education, which directly opposes the views of others who have emphasized its detrimental effects on Human Abilities. Nevertheless, the literature on the function of AI in the Teaching-Learning process of the English Language at the Bachelor's level in the Peshawar district is characterized by a lack of focus and effort specifically undergraduate students, receiving minimal attention, apart from a few studies conducted on medical and engineering subjects, which exclude education in language. Secondly, the research is primarily conducted in a non-Pakistani context. This research is significant in that it fills the gap in the literature by examining the function of AI in Pakistani students' learning of English. The particular focus is laid on the undergraduate level students in District Peshawar.

3. Methodology

This research employs a quantitative method (SPSS) to give a more comprehensive picture of the extent of AI's application in learning the English language. The quantitative data is collected from

questionnaires to determine students' use of AI. It will assist in understanding the participants' attitudes, difficulties, and encounters regarding implementing AI in ELL. This method proves beneficial because it can cover a broader study area and provide extensive details. The study aims to target undergraduate students studying English in the Peshawar district. The sample is selected from public and private universities that provide English language courses. The study uses a stratified sampling technique to ensure that the sample is drawn from various institutions, different levels of study, and genders. About 110 students are chosen to join the survey. The respondents are 55 girls and 55 boys from private and public universities and colleges in the Peshawar district. This questionnaire has six sections: socio-demographic data, assessing improvement in Learning Outcomes, student perceptions of AI, comparison with traditional methods, overall experiences, and preferences.

4. Data Analysis

This section analyses the collected data through the results obtained from the questionnaire survey on AI in ELL at the undergraduate level in District Peshawar. The data is based on the use of AI, in this case, Chat GPT, in learning English, the effects on students' reading, writing, listening, and speaking skills, and their general perception of using AI in learning. The data collected is analysed using quantitative measures such as means, standard deviations, and frequencies of responses. Descriptive statistics include mean, mode, median, standard deviation, frequency tables, and graphs. In contrast, inferential statistics include t-values and p-values that help identify the differences in the responses across demographic variables. There are six main sections of the analysis, which align with the sections of the questionnaire used.

4.1 Socio-Demographic Information

The respondents' socio-demographic profile, namely age, gender, year level, and course, offers a background against which to understand the responses. The most significant number of respondents was in the age range of 18 to 24 years, and the male and female participants were almost equal. The data is shown in Table-1

Table 1: *Socio-Demographic Characteristics of Respondents*

Variable	Category	Number (n)	Percentage (%)
Age	18-21	50	0.455
	21-24	35	0.318
	Above 24	25	0.227
Gender	Male	55	0.5
	Female	55	0.5
Year of Study	First-year	20	0.182
	Second year	25	0.227
	Third year	35	0.318
	Fourth-year	30	0.273

Figure-1: Socio-Demographic Characteristics of Respondents

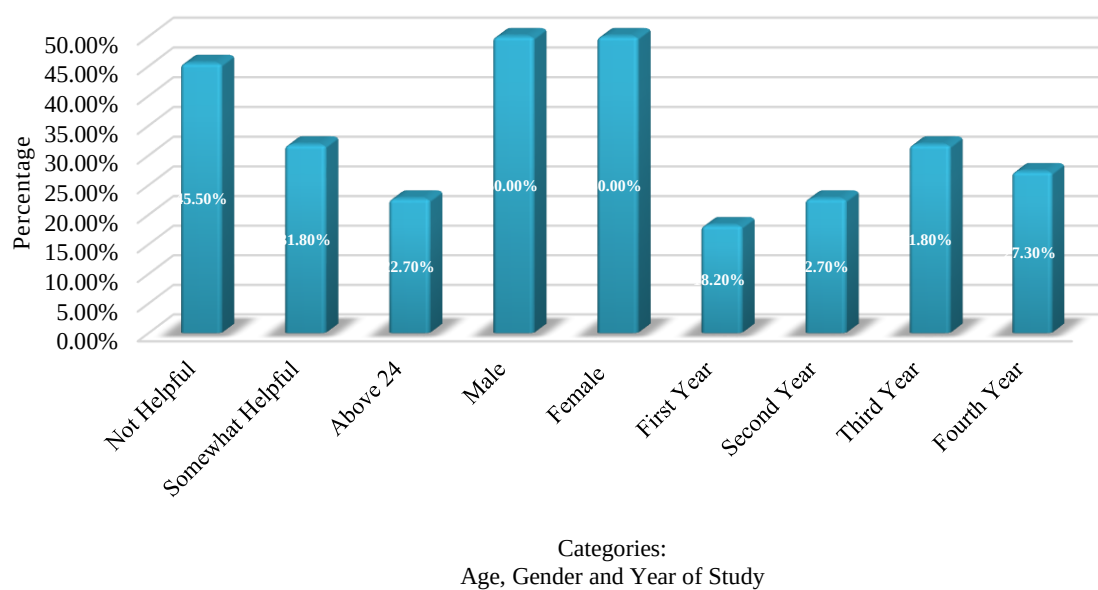
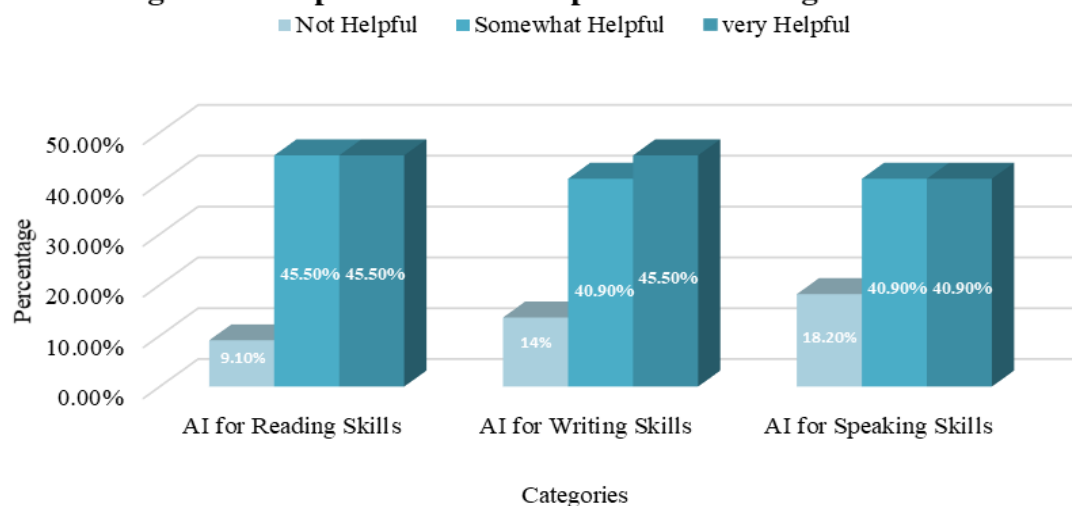


Figure-2: Responses on AI's Impact on Learning Outcomes

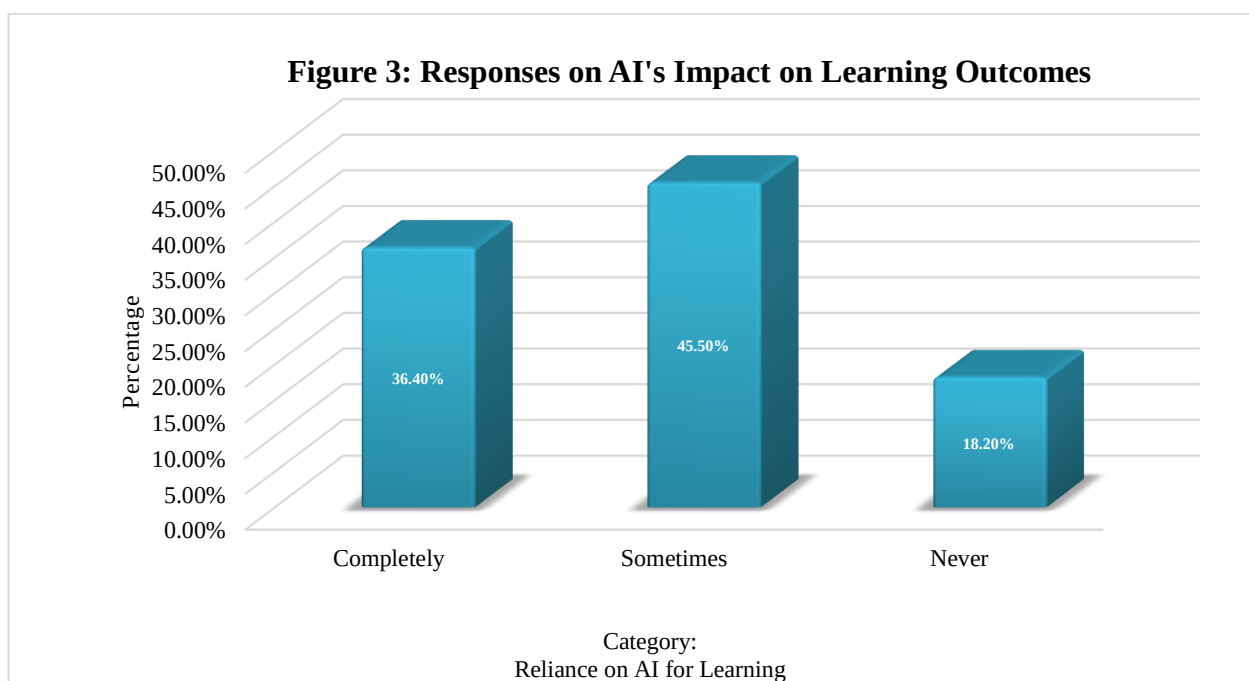


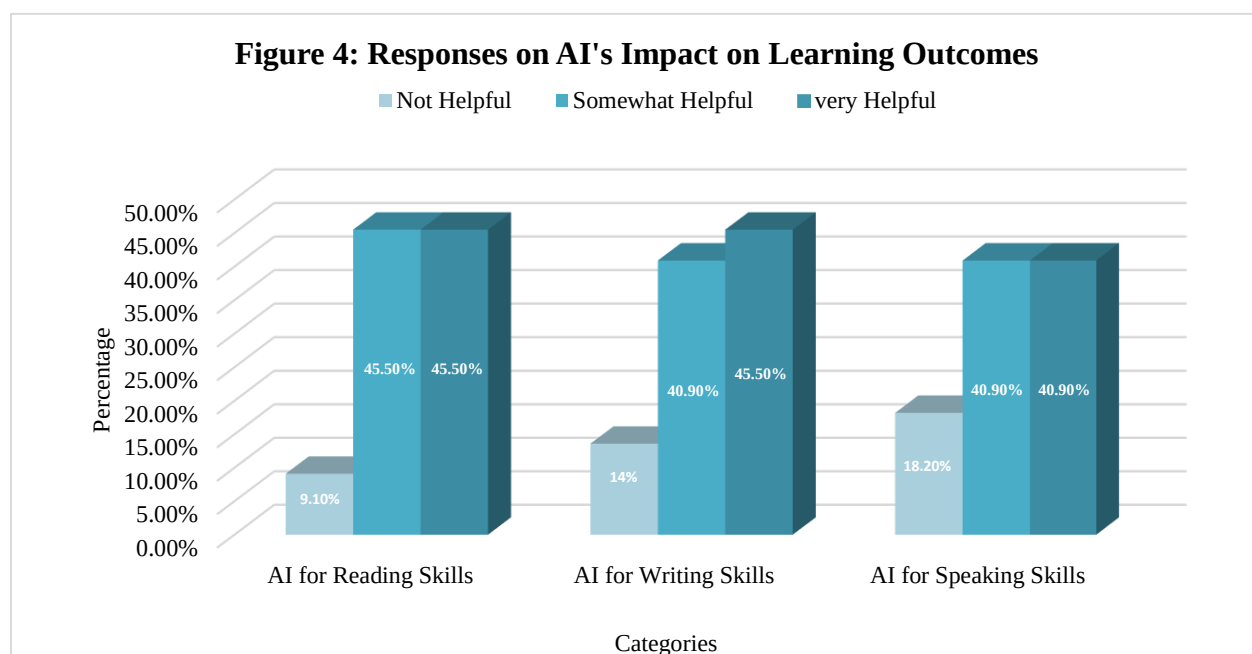
4.2 Assessing Improvement in Learning Outcomes

This section focuses on the effect of AI tools such as Chat GPT on English learning, especially regarding reading, writing, and speaking skills.

Table 2: Responses on AI's Impact on Learning Outcomes

Question	Category	Number (n)	Percentage (%)	Mean	SD
How much do you rely on AI for learning?	Completely	40	0.364	2	0.65
	Sometimes	50	0.455		
	Never	20	0.182		
How helpful is AI for reading skills?	Not helpful	10	0.091	2.3	0.75
	Somewhat helpful	50	0.455		
	Very helpful	50	0.455		
How helpful is AI for writing skills?	Not helpful	15	0.136	2.2	0.73
	Somewhat helpful	45	0.409		
	Very helpful	50	0.455		
How helpful is AI for speaking skills?	Not helpful	20	0.182	2.1	0.77
	Somewhat helpful	45	0.409		
	Very helpful	45	0.409		





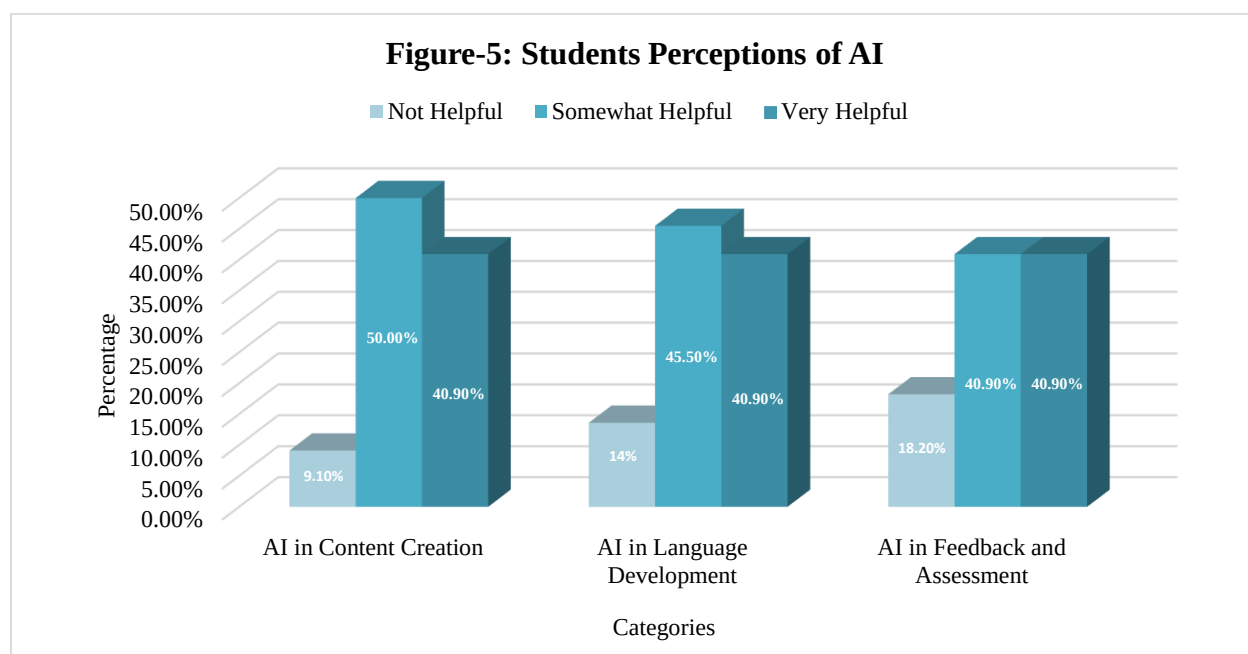
The data shows that 45.5% of the respondents found Chat GPT useful in enhancing their reading and writing proficiency. Somewhat less numerous but still significant is the 40.9% of the students who report that AI is slightly helpful in enhancing their speaking skills.

4.3. Student Perceptions of AI

It deals with students' attitudes toward using AI to generate content, provide feedback, provide individual help, and contribute to language development.

Table 3: Perceptions of AI in Learning

Question	Category	Number (n)	Percentage (%)	Mean	SD
How helpful is AI in content creation?	Not helpful	10	0.091	2.4	0.7
	Somewhat helpful	55	0.5		
	Very helpful	45	0.409		
How helpful is AI in language development?	Not helpful	15	0.136	2.3	0.73
	Somewhat helpful	50	0.455		
	Very helpful	45	0.409		
How helpful is AI in feedback and assessment?	Not helpful	20	0.182	2.1	0.8
	Somewhat helpful	45	0.409		
	Very helpful	45	0.409		



The results show that most students perceive AI as somewhat or very useful in writing content, individual support, and feedback. This is a positive perception of integrating AI into their learning process.

4.4. Comparison with Other Methods

This section investigates students' comparisons between AI tools and traditional teacher guidance.

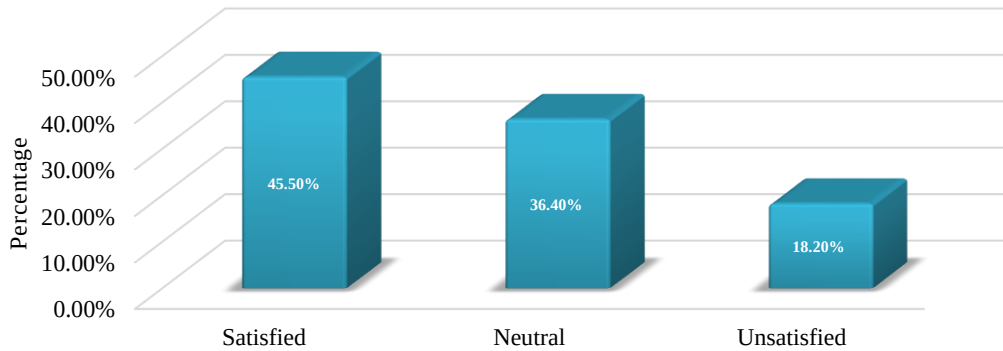
Table 4: *Comparison of AI and Teacher Guidance*

<i>Question</i>	<i>Category</i>	<i>Number (n)</i>	<i>Percentage (%)</i>	<i>Mean</i>	<i>SD</i>
AI more helpful than teacher guidance?	Always	30	0.273	2	0.64
	Sometimes	55	0.5		
	Never	25	0.227		
Do you prefer AI over human intelligence?	Yes	25	0.227	2	0.65
	Somehow	45	0.409		
	No	40	0.364		

Figure-6: Students Perceptions of AI

Always, Yes Sometimes, Somehow Never, No

Figure-7: General Experience with AI



Category:
Experience of Students in Learning using AI

The results indicate that students prefer a balanced use of AI alongside teacher guidance, with 50% reporting that they sometimes find AI more helpful than traditional methods.

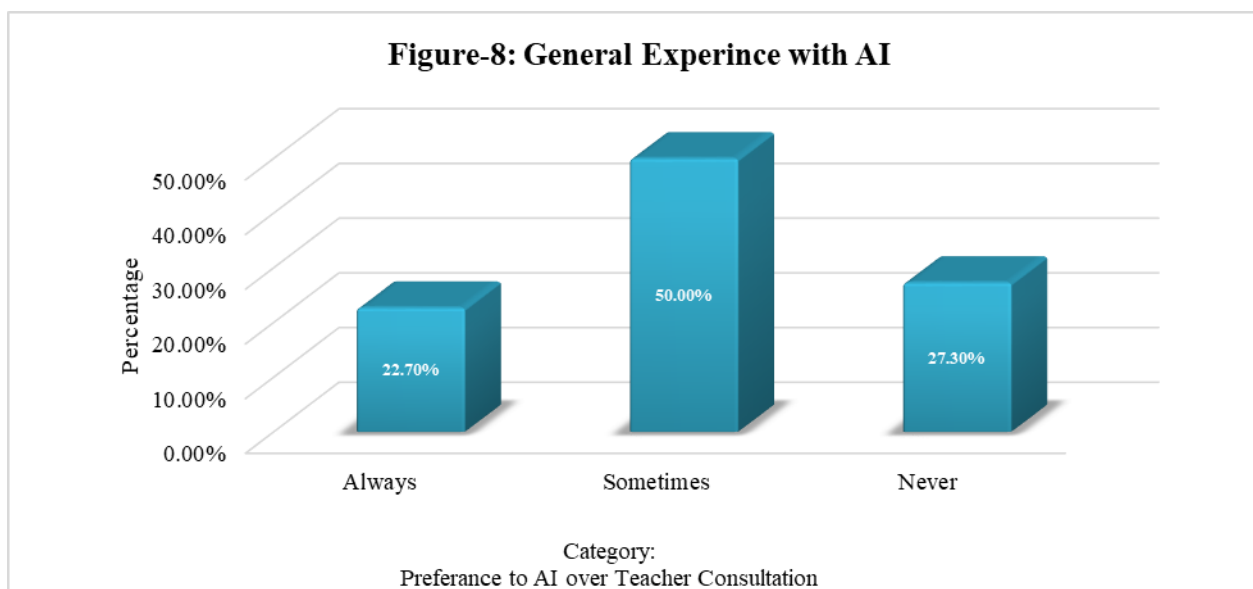
4.5. General Experience and Preferences

The final section looks at students' general experiences and preferences concerning AI.

Table 5: General Experience with AI

Question	Category	Number (n)	Percentage (%)	Mean	SD
Experience with AI	Satisfied	50	0.455	2.1	0.7
	Neutral	40	0.364		
	Unsatisfied	20	0.182		
Do you prefer AI over teacher consultation?	Always	25	0.227	2	0.65
	Sometimes	55	0.5		
	Never	30	0.273		

Most respondents are satisfied with AI's role in education, with many favoring a combination of AI and teacher guidance.



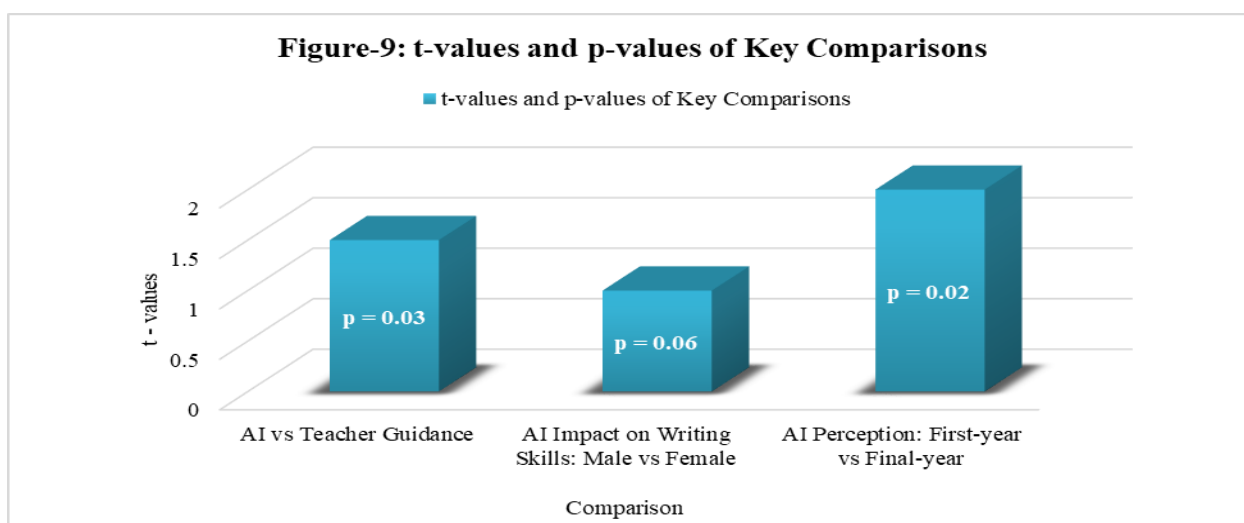
AI and teacher guidance.

4.6 Statistical Analysis: t-Values and p-Values

t-tests are conducted to evaluate the statistical significance of responses across different groups. The results are displayed in Table 4.6.

Table 6: *t-Values and p-Values of Key Comparisons*

<i>Comparison</i>	<i>t-Value</i>	<i>p-Value</i>
AI vs Teacher Guidance	2.15	0.03
AI Impact on Writing Skills: Male vs Female	1.89	0.06
AI Perception: First-year vs Fourth-year	2.34	0.02



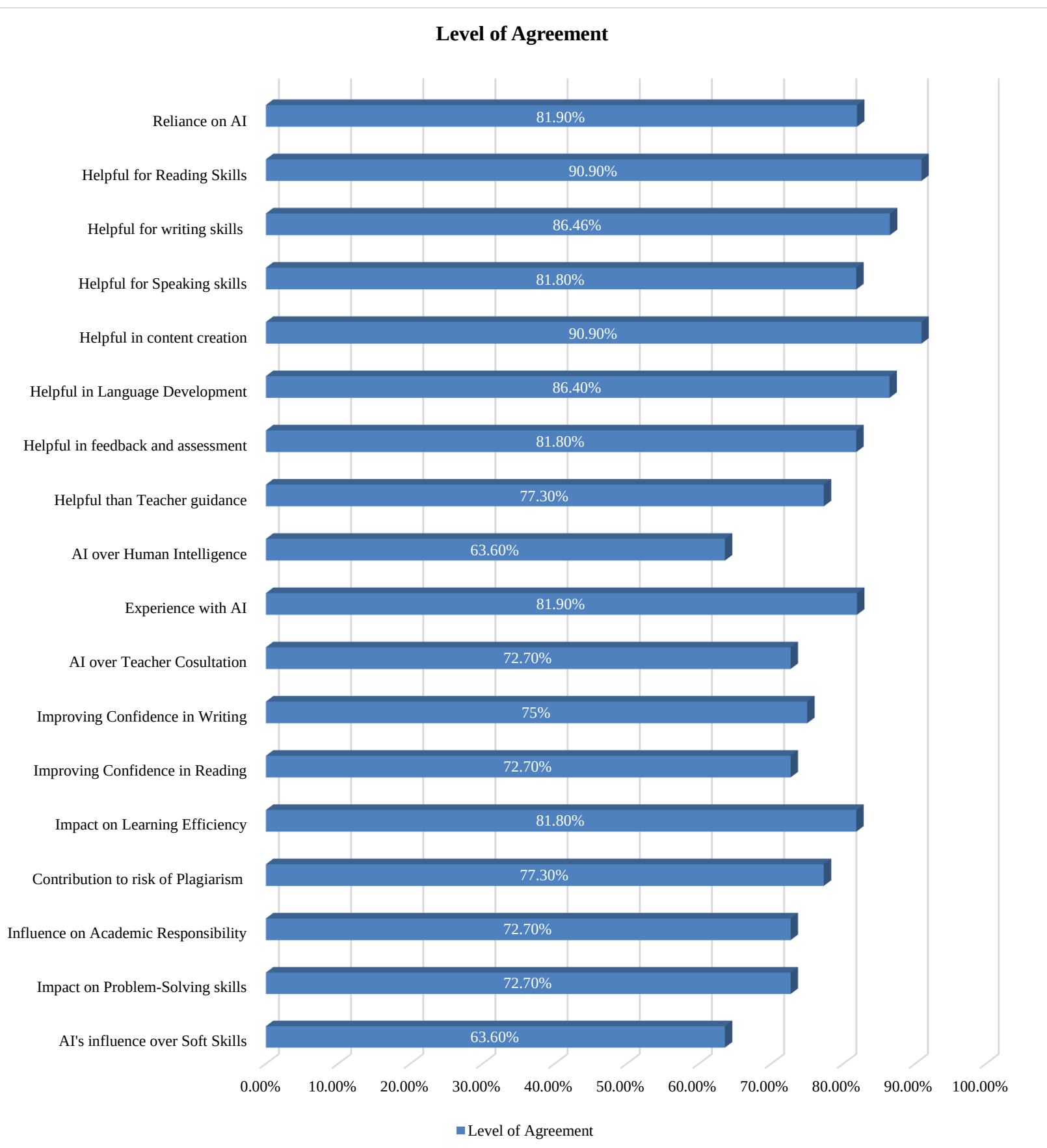
The t-test results show a statistically significant difference in perceptions of AI's efficacy between different groups, particularly in comparing AI with teacher guidance and across different years of study.

Table 7: Standard Deviation and Level of Agreement

Question	Me an	Standard Deviation	Level of Agreement (%)
How much do you rely on AI to learn English?	2	0.65	0.819 (Completely/Sometimes)
How helpful is AI for reading skills?	2.3	0.75	0.909 (Somewhat/Very helpful)
How helpful is AI for writing skills?	2.2	0.73	0.864 (Somewhat/Very helpful)
How helpful is AI for speaking skills?	2.1	0.77	0.818 (Somewhat/Very helpful)
How helpful is AI in content creation?	2.4	0.7	0.909 (Somewhat/Very helpful)
How helpful is AI in language development?	2.3	0.73	0.864 (Somewhat/Very helpful)
How helpful is AI in feedback and assessment?	2.1	0.8	0.818 (Somewhat/Very helpful)
AI more helpful than teacher guidance?	2	0.64	0.773 (Always/Sometimes)
Do you prefer AI over human intelligence?	2	0.65	0.636 (Yes/Somehow)
Experience with AI	2.1	0.7	0.819 (Satisfied/Neutral)
Do you prefer AI over teacher consultation?	2	0.65	0.727 (Always/Sometimes)
Do you think AI improves students' confidence in writing?	2.1	0.71	0.75 (Strongly Agree/Agree)
Do you think AI improves students' confidence in reading?	2	0.66	0.727 (Strongly Agree/Agree)

AI's impact on learning efficiency (time/quality)	2.2	0.72	0.818 (Agree/Undecided)
AI's contribution to plagiarism risk	2.3	0.74	0.773 (Yes/Depends)
AI's influence on personal academic responsibility	2.4	0.78	0.727 (Yes/Somehow)
AI's impact on problem-solving skills	2.2	0.7	0.727 (Affected to some extent/Totally affected)
AI's influence on student soft skills (communication, teamwork)	2.3	0.75	0.636 (Agree/Undecided)

Figure-10: Level of Agreement of Respondents



4.8. Summary of Results from the Questionnaire

The questionnaire developed for this study has identified the impact of AI tools, including Chat GPT, on students' learning process in English. The responses are separated into six different areas: socio-demographic, learning achievements, the student's perspective, the comparison between traditional and modern methods, overall experience, and preference. Descriptive statistics such as t-values and p-values are applied to gauge the importance of the responses. In contrast, the level of agreement statistics is computed for each critical question.

Section 1: Socio-Demographic Information

The socio-demographic section sought to establish the respondent's age, gender, year of study, and area of study. The results show that respondents are evenly distributed demographically across the 18-24 age range, with a pretty diverse distribution of undergraduate years. The participants and the sample population have a 50/50 gender split. The demographic variables include the age and the year of study of the students; the analysis results are tested to examine whether these variables could have a meaningful effect on the student's perception of the integration of AI in English learning. For instance, the t-test reveals a significant difference in the perception of the first-year and fourth-year students on the efficiency of AI on language learning, $t\text{-value} = 2.34$, $p = 0.02$. This implies that older students, who are probably exposed to traditional learning methods, may not have adopted AI in their learning activities as much as young students.

Section 2: Assessing Improvement in Learning Outcomes

This questionnaire section examines how AI tools like Chat GPT have impacted students' reading, writing, and speaking learning outcomes. Most respondents (81.9%) have reported some degree of reliance on AI, with 36.4% stating they have relied on AI "completely" for learning English and 45.5% using it "sometimes." Many students have found AI tools highly beneficial when asked about specific language skills, particularly in reading and writing development. For reading, 45.5% of respondents show AI is "very helpful", and another 45.5% have found it "somewhat helpful." A similar distribution is found for writing, where 45.5% have rated AI as "very helpful" and 40.9% as "somewhat helpful." However, speaking skills have benefited slightly less from AI, with 40.9% finding it "somewhat helpful" and 40.9% rated it "very helpful." The mean values for these questions hover between 2.0 and 2.3 on a 3-point scale, indicating a positive reception overall. The standard deviations are moderate, ranging from 0.65 to 0.77, suggesting some response variation. However, the overall trend indicates that AI significantly improves students' English language skills, particularly reading and writing.

Section 3: Student Perceptions of AI

The third part analyses the students' views on AI's involvement in content generation, assistance, feedback, and language acquisition. The results indicate that students generally have a positive attitude towards AI. When it comes to content creation, about 90.9% of students find AI somewhat helpful or very helpful. Similar is the case with personalized assistance, where 86.4% of students find AI helpful in this regard. Regarding feedback and assessment, 81.8% of the respondents find AI tools helpful, and 50.0% find AI tools 'very helpful.' This shows that AI is appreciated for its capacity to offer constructive feedback that can enhance learning in a shorter time. However, there is a slight variation in the responses, with the standard deviations in this section being 0.70-0.80. The mean values are above 2.0, which implies that the students have positive attitudes towards using AI's feedback and personalized assistance. However, the standard deviation shows that not all students benefit from AI similarly.

Section 4: Comparison with Traditional Methods

In this section, students compare AI tools and traditional teacher direction. Consequently, the findings portray that, as much as students appreciate AI, most would like equal proportions of both AI and conventional teaching. Respondents were asked whether AI was more valuable than a teacher's advice; 77.3% answered 'always' or 'sometimes.' The mean score for this question is 2.0, with an SD of 64 respondents who preferred applying AI as an addition to conventional learning rather than replacing teachers. Moreover, 63.6% of the respondent's state that they "somehow" or "always" prefer AI over human intelligence, but that does not mean they want to replace teachers. Instead, it proves that students consider AI an adjunct to learning rather than a replacement for the teacher. The t-test analysis of the preference for AI among the different categories of the populace also shows variation. For instance, male students use AI more frequently than teacher guidance than female students, but there is no significant difference ($t = 1.89$, $p = 0.06$).

Section 5: General Experience and Preferences

The fifth section of the questionnaire focuses on students' overall experience with AI and their preferences for its use in education. Most students report positive experiences with AI, with 81.9% either "satisfied" or "neutral" about their AI interactions, only 18.2% express dissatisfaction. A significant number of students (72.7%) prefer a combination of AI and teacher consultation for addressing queries and questions. This again highlights the importance of balance in education, where AI is seen as a powerful tool but not a replacement for human interaction and guidance. Most students consider using AI in education ethical, although a paltry 9.1% consider it unethical. Further, students have lukewarm opinions regarding the impact of AI on their problem-solving behaviour and creative writing. 72.7% of the students say that AI impacts these faculties.

5. Discussion & Conclusion

The questionnaire's findings reveal undergraduate students' perceptions and experiences regarding AI integration in District Peshawar. Several of the study's conclusions are worth discussing in light of the study's theoretical framework.

5.1. Efficacy of AI in Language Learning

The findings reveal that most students consider AI applications such as Chat GPT to be highly helpful in enhancing their reading, writing, and, to some extent, speaking skills. More than 90% say that AI is 'somewhat helpful' or 'very helpful' in improving reading and writing skills, which means a 2.3 and 2.2 on a 3-point scale, respectively. The students also say that AI tools give immediate feedback and help generate content; they have also found it helpful in completing the work and enhancing language knowledge. Thus, the results show that AI's effectiveness in reading and writing is considerably high; however, its effectiveness in speaking skills was slightly lower, as fewer students reported it as 'very helpful'. According to the factors 'Perceived usefulness' and 'Perceived ease of use' of the Technology Integration Model, this research study proves that AI is helpful for students in both perspectives. Pupils consider using AI in ELL as a tool that enhances their learning experience and performance.

5.2 Student Perceptions and Opinions of AI and Effect of AI Integration on Students

The survey results show that the participants have a relatively positive perception of AI in education. From the students' perspective, AI helps generate content and provide support and feedback. The assessment of the satisfaction level of students regarding the use of AI in language learning reveals that 80 per cent of the students are satisfied with AI's contribution, and 81.8 per

cent of the students agree with the statement that AI has a positive impact on their performance. There are, however, some worries that it leads to over-dependence and may influence thinking or problem-solving abilities, with more than seventy per cent of the respondents agreeing to some extent that it has a negative effect in these areas. However, a more complex relationship exists between participants' preferences and their willingness to trust AI over human intelligence. Even though students understand the values of AI, they do not want to overemphasize its role; instead, they should use it with the teacher's support. More than 77 per cent of the student's state that AI should not replace traditional teaching methodologies. However, they should ideally study alongside them, especially for tasks like feedback and customized learning. From the opinions and perceptions of the respondents, it is evident that the Technology Acceptance Model may prove right in the context of long-term utilization of AI tools in the classroom, which can also prove that students might over-rely on its usage in the present and future.

5.3. Comparison with Traditional Methods

Another interesting discovery made by this study is that students do not perceive AI as a full-blown replacement for the teacher's assistance. Most of the student respondents (63.6%) have shown some inclination towards using AI over human intelligence in some contexts. However, the role of teachers is deemed necessary in creating a conducive learning environment through group work. Based on the student's year of study, the t-test analysis indicates that students prefer a teacher-centred approach the more senior they are. This means that as learners advance in their learning process, they begin to perceive the drawbacks of AI in aspects such as critical assessment, group interaction, creativity and speaking. According to a factor of Technology Acceptance Mode, the 'Behavioral Intention to Use,' most of the students agreed to relying on Artificial Intelligence more than Human guidance as it is in conventional classrooms, proving that students might start relying on Artificial Intelligence more than humans.

5.4. Conclusion

The present research confirms the importance of AI, especially ChatGPT, in improving the English language proficiency level of undergraduate learners, which aligns with the study's first objective, investigating the influence of AI integration into ELL. Hence, The study shows that AI helps develop language skills such as reading and writing; along with it, students can receive timely feedback and individual help; it is also effective regarding feedback assessment and personalised assistance, and it assists in content creation. It also shows that AI is a valuable tool. However, it cannot be used as an alternative to the traditional methods of a teacher's interaction with students, including speaking and classroom activities. The fact that the students are satisfied with AI overall shows that it can enhance traditional learning. However, at the same time, the drawback of over-dependency on technology and its consequences on human skills and abilities is seen. Along with it there is an increased risk of plagiarised materials in the classroom, impacting students' academic responsibility and active classroom engagement. The findings indicate that the use of AI improves efficiency and learning results, though, at the same time, it weakens problem-solving skills, creativity, and effective learning engagement. Therefore, the problem that arises in the future is how to combine the use of AI and human intervention in the education process to develop language skills effectively.

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