

How Artificial Intelligence Helps Students to Learn English in Depth

Akam Seyedi

Mohammad Ali Alaei Yeganeh

Diar Noorzad

Shahrooz Firouzi

Mahsa Qurbani

Erfan Shakeri

Kiana Osati

ABSTRACTS

This research examines the applications and advancements of artificial intelligence (AI), a computer-based simulation of human intelligence meant to act like humans. AI is one of the driving forces behind the 4.0 industrial revolution, making teaching and learning more accessible in schools. This study aims to understand the function of AI in ELT and examine AI technologies in ELT. This is a library research project. The findings indicate that AI provides a positive learning environment for learning English. Depending on the learner's current level of English, career needs, or hobbies, it has much potential to create a customized environment where students can simultaneously use their senses to learn English. AI boosts practical abilities like writing and offers a trustworthy simulation dialogue platform like spoken English. It maximizes the teaching impact of English in ELT while increasing students' practice ability. With the advancement of technology and platforms, learning English has gotten simpler. Artificial intelligence technology provides the chance to enhance English linguistic competence. [1]

Keywords: Artificial Intelligence (AI), English Language Teaching (ELT), customized environment, simulation dialogue platform, learning technologies, AI-mediated instruction, self-regulated learning, AI-powered platforms.

INTRODUCTION

Students may comprehend English more quickly because many different learning technologies are available. Students get access to a wide variety of ELT apps that are built on AI technology. These technologies include Google Translate, Text to Speech (TTS), EnglishAble, Orai, Elsa, Chatbot, Duolingo, Neo platforms, and many others. Using a method that computers and mobile devices can use, these intelligent machines can mimic intelligence and make decisions as people do. Artificial Intelligence (AI) is a human intelligence simulation based on computers and designed to function as human beings. AI is one of the drivers of the 4.0 industrial revolution to

facilitate education in teaching and learning. This research is to know the role of AI in ELT and to investigate AI technologies in ELT. This is library research. The result shows that AI offers a good learning atmosphere for English learning. It has considerable ability to create a personalized atmosphere in which learners use their senses to concurrently exercise English skills depending on their current level of English, vocational needs, or interests. AI provides a real simulation dialogue platform such as spoken English and increases practical skills such as written. It increases the practice of students' capacity and optimizes the teaching impact of English in ELT. Learning English becomes easier with the development of technology and platforms. AI's technology offers the opportunity to improve English language skills. The existence of various kinds of learning technology makes it easier for students to understand English. Many choices of ELT applications are based on AI technology that can be used by students. These technologies as smart machines that think and behave like people with the ability to simulate intelligence and make decisions identical to human reasoning through a process both computers and cell phones such as Google Translate, Text to speech (TTS), English Able, Orai, Elsa, Chatbot, Duolingo, Neo platforms, and many more. [2]

Artificial Intelligence, from its birth, has facilitated educational applications to form an unbreakable bond, bringing new technology and new tools for the development of education, which has gradually attracted greater attention from the education and academic circles at home and abroad. The application of Artificial Intelligence in English teaching can play a good role in assisting teaching. In order to study the current status of domestic and international research on artificial intelligence in the field of English teaching and to grasp the research trend, this study uses CiteSpace visual analysis software to analysed the institutions, the countries or regions engaged in the research, the change in the number of articles issued, and the keywords. The results of the study show that the application of artificial intelligence in English language teaching has received more and more attention in recent years, with the United States, China and the United Kingdom leading the majority of research in this area, and the direction of the research is mostly based on online teaching, artificial intelligence technology, learning analytics, and the English language. In future research, communication and exchange between countries and institutions should be strengthened to jointly promote the application of AI in English language teaching. [3] This research aim is to analyze an artificial intelligence platform that can be used in imparting education as well as evaluating student performance. This research was conducted with a qualitative method by conducting in-depth interviews and a literature study. The findings of this study show that Artificial Intelligence technology can be used as a means of developing English learning for students. There have been several studies that support research results, that AI can be used to improve students' English skills through applications, websites, Virtual Reality technology, and other AI-based learning and teaching systems. Limitation: The limitation of this research is that it does not examine how far the role of AI in students' English learning is. Further research, is expected to test how far the role of AI is to improve students' English skills, especially Universitas Airlangga students. [4] In this artificial intelligence-based English writing blended teaching model is in the stage of research and innovation, this article uses a university English major as the experimental object and launched a 19-week teaching experiment. The combination of advantages improves the traditional English writing teaching mode and establishes an artificial intelligence English writing mixed teaching mode. The results of the study show that this model can improve students' English writing level while improving students' English writing level, and can also increase students' interest in English writing. [5] The goal of this study is to examine an artificial

intelligence platform that may be utilized for assessing student performance and delivering education. By conducting in-depth interviews and completing a literature review, this research was carried out using a qualitative methodology. The results of this study demonstrate that artificial intelligence technology can be applied to enhance students' English learning. Studies have shown that using apps, websites, and virtual reality technologies. [6]

Two intact classes, consisting of a total of 60 university students, participated in this study. The experimental group received AI-mediated instruction, while the control group received traditional language instruction. Pre-tests and post-tests were administered to evaluate English learning achievement across various domains, including grammar, vocabulary, reading comprehension, and writing skills. Additionally, self-report questionnaires were employed to assess L2 motivation and self-regulated learning. Quantitative analysis revealed that the experimental group achieved significantly higher English learning outcomes in all assessed areas compared to the control group. Furthermore, they exhibited greater L2 motivation and more extensive utilization of self-regulated learning strategies. These results suggest that AI-mediated instruction positively impacts English learning achievement, L2 motivation, and self-regulated learning. Qualitative analysis of semi-structured interviews with 14 students from the experimental group shed light on the transformative effects of the AI platform. It was found to enhance engagement and offer personalized learning experiences, ultimately boosting motivation and fostering self-regulated learning. These findings emphasize the potential of AI-mediated language instruction to improve language learning outcomes, motivate learners, and promote autonomy. This study contributes to evidence-based language pedagogy, offering valuable insights to educators and researchers interested in incorporating AI-powered platforms into language classrooms. The results support the notion that AI-mediated language instruction holds promise in revolutionizing language learning, and it highlights the positive impact of AI-driven educational technologies in the realm of language education. [7]

Technology and artificial intelligence (AI) advancements are increasingly impacting second language (L2) learning, particularly in writing skills development. Motivated students seeking writing feedback can benefit from AI implementation, with writing feedback literacy being crucial for effective use. Engaged students with specific writing goals benefit from ongoing practice and learning to attain high-quality outcomes, whether from formal or informal settings such as AI applications. AI's integration into L2 education underscores the need to comprehend its role in improving L2 writing engagement, writing feedback literacy, and writing outcomes. A mixed-method study was conducted, which involved 46 students at the upper-intermediate level. The student cohort was divided into two groups for the purpose of the study. One group was designated the control group, while the other was the experimental group, each comprising 23 students. By using Wordtune, an AI-based application, the experimental group was able to significantly improve their writing outcomes, engagement, and feedback literacy when compared to the control group. Furthermore, the Wordtune application received positive feedback from students interviewed about its ability to improve their writing outcomes, engagement, and feedback literacy. These findings will contribute to our understanding of AI in L2 learning and inform instructional considerations for Wordtune's application. [8]

The integration of artificial intelligence (AI) in education has the potential to revolutionize the learning experience for students. This abstract provides an overview of the impact of AI on students' learning experience, highlighting its benefits and potential challenges. AI technologies

such as machine learning, natural language processing, and data analytics have been increasingly adopted in educational settings. These technologies enable personalized and adaptive learning experiences, providing students with tailored content and feedback based on their individual needs and learning styles. AI-powered educational platforms can analyze vast amounts of data to identify patterns and offer personalized recommendations, thereby enhancing students' engagement and motivation. One of the significant benefits of AI in education is its ability to provide immediate and constructive feedback to students. Automated grading systems powered by AI algorithms can assess and provide feedback on assignments, quizzes, and exams promptly, allowing students to understand their strengths and weaknesses in real time. This timely feedback facilitates self-reflection and enables students to make necessary improvements, leading to enhanced learning outcomes. Furthermore, AI can support collaborative learning environments. Intelligent tutoring systems and virtual learning assistants can facilitate group discussions, provide guidance, and foster collaboration among students. These AI-powered tools can promote active participation, critical thinking, and problem-solving skills, creating a dynamic learning environment that mirrors real-world scenarios. However, the integration of AI in education also poses challenges that need to be addressed. Privacy and ethical concerns arise when dealing with student data, as AI relies on collecting and analyzing personal information to provide personalized experiences. Safeguarding student data privacy and ensuring the ethical use of AI technologies are essential considerations for educators and policymakers. Additionally, there is a potential risk of over-reliance on AI technologies, leading to a passive learning experience for students. Balancing the use of AI with human instruction and guidance is crucial to maintain meaningful interactions and promote deeper understanding. In conclusion, the integration of AI in education holds significant promise for transforming the learning experience for students. AI technologies have the potential to provide personalized learning, and immediate feedback, and foster collaboration among students. However, careful consideration of privacy, ethics, and maintaining a balance between AI and human instruction is necessary to maximize the benefits of AI in education and ensure a holistic learning experience for students. [9]

This paper explores the field of Artificial Intelligence applied to Education, focusing on English Language Teaching. It outlines concepts and uses of Artificial Intelligence, and appraises the functionalities of adaptive tools, bringing evaluative feedback on their use by American school teachers, and highlighting the importance of additional research on the matter. It was observed that the tools are valid media options to complement teaching, especially concerning adaptive learning. They offer students more inclusive opportunities: they maximize learning by tailoring instruction to address students' needs, and helping students become more responsible for their own schooling. As for teachers, their testimonials highlight the benefits of dedicating more class time to the students' most pressing weaker areas. Drawbacks might include the need to provide teachers with autonomy to override recommendations so as to help them find other ways to teach a skill that seems to be more effective for a specific student. [10]

METHODOLOGY

This study examines, how artificial intelligence helps students to learn English in depth related articles, The object of this study end to how artificial intelligence effect on learning English in depth. In this section, after categorizing and classifying the collected data, it was processed and analyzed. The results and findings of this study are presented. To answer the research

questions, the non-parametric one-sample binomial test was used to analyze the data. Data analysis was performed using SPSS software, and diagrams were created using Excel.

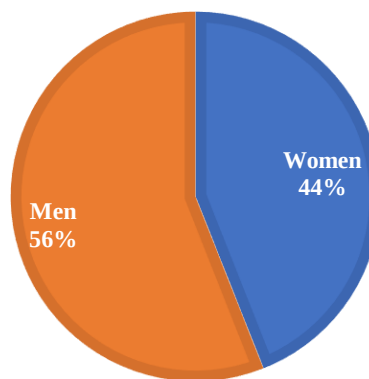
DATA ANALYZES

Statistical Analysis

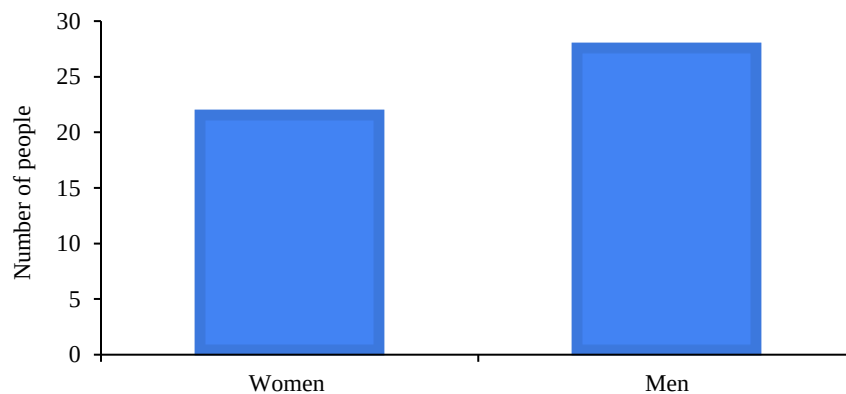
Hypothesis 1: What were the genders of the subjects in the study?

	Number of people	Percentage
Men	22	44
Women	28	56

Gender Distribution Percentage Chart



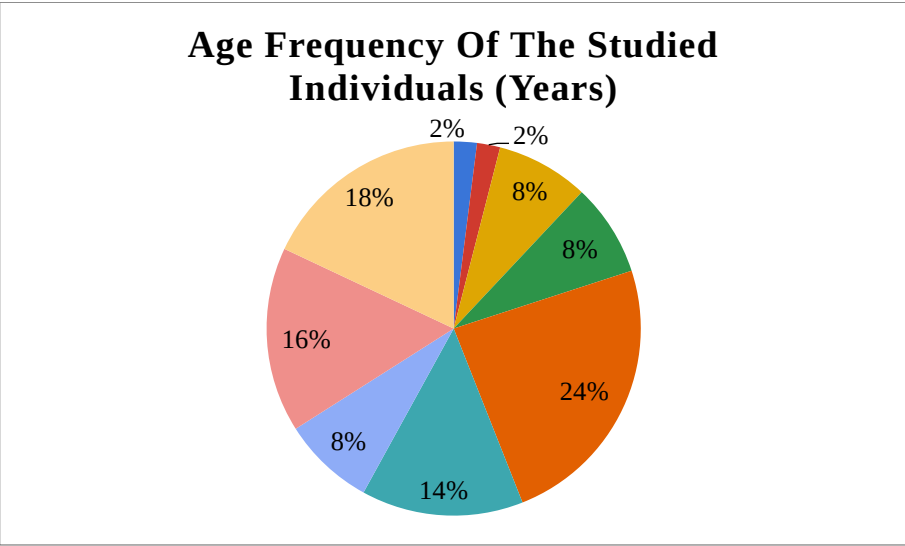
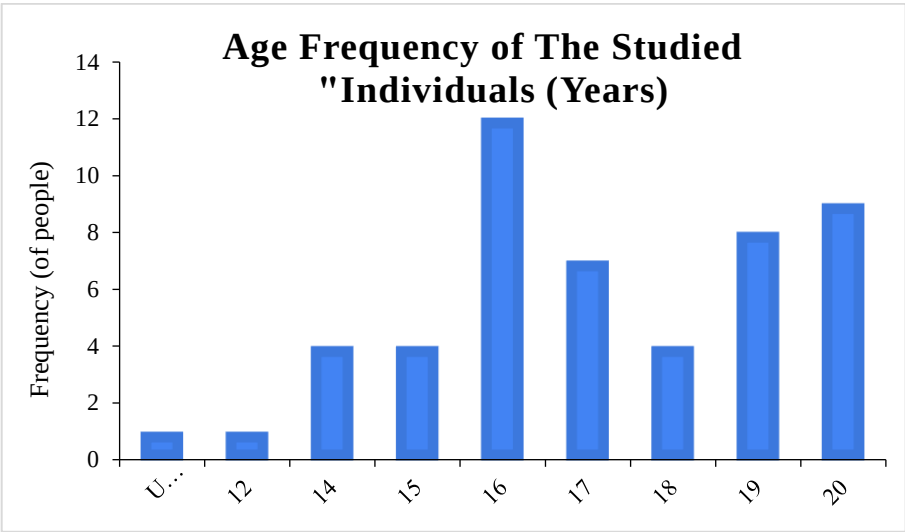
Gender Distribution Percentage Chart



Hypothesis 2: What was the age distribution of the participants?

Age composition	Number of people	Percentage
Unknown	1	2
12	1	8
14	4	8
15	4	8
16	12	24

17	7	14
18	4	8
19	8	16
20	9	18



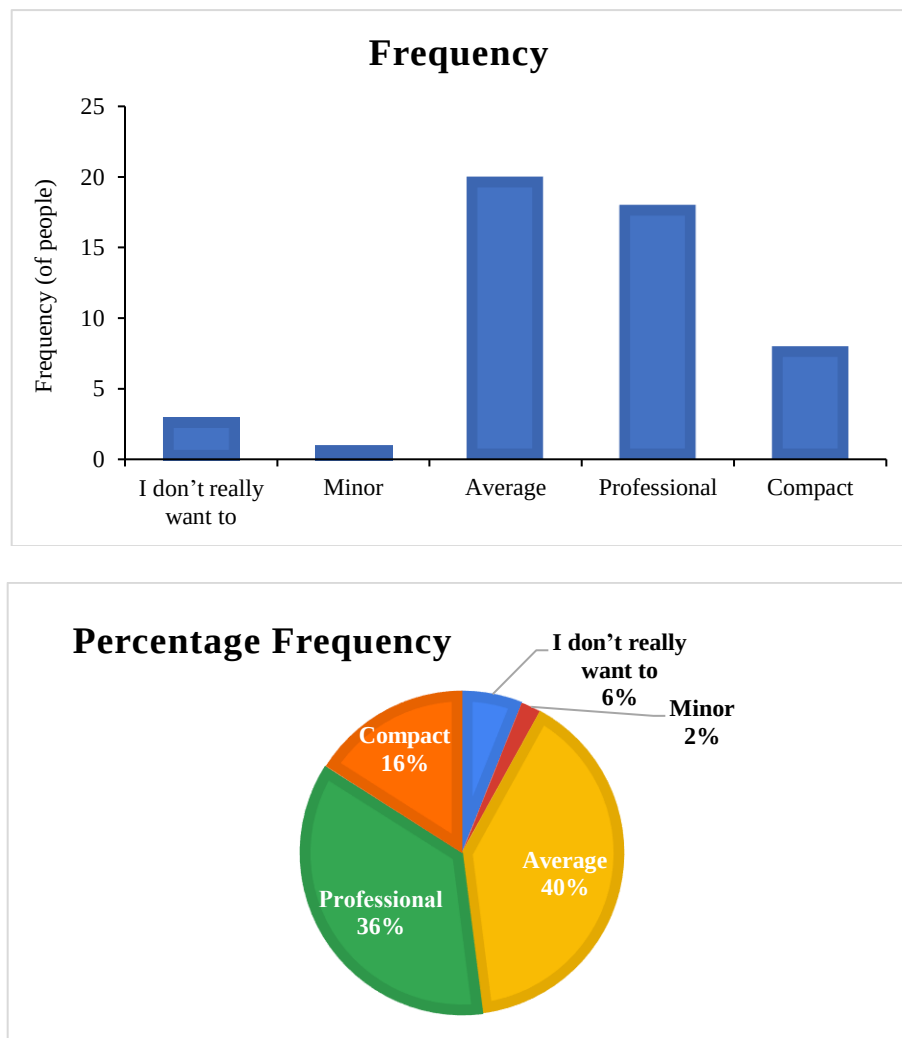
Hypothesis 3: How do you acquire the English language?

- Affirmative hypothesis: The majority of individuals do not engage in language learning.
- Alternative hypothesis: Language learning is a widespread pursuit among individuals.

Variable name	Number	Percentage	sig
Group 1: None or very little.	4	8	Sig < 0.05
Group 2: Intermediate, Advanced, and Intensive	46	92	
Overall number	50	100	

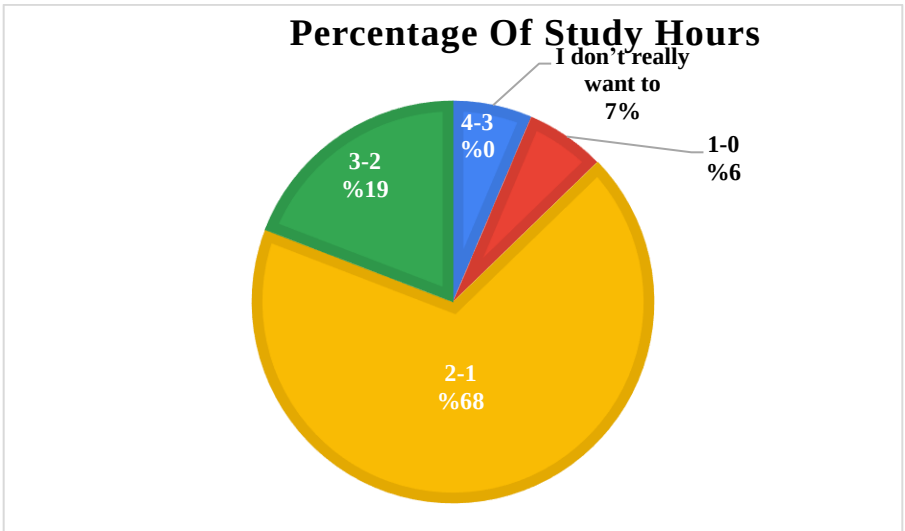
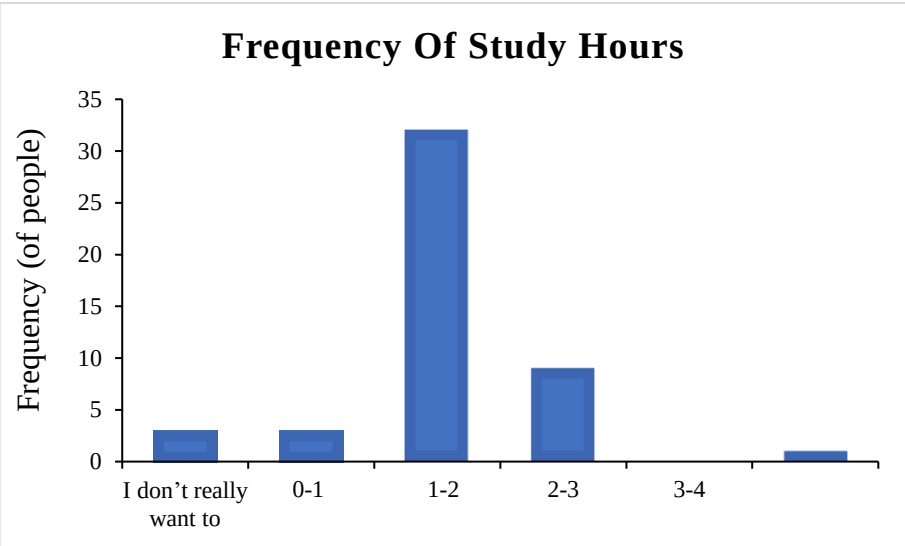
Based on the table, the computed test statistic yields a significant result. The p-value is less than the alpha level of 0.05, leading to the rejection of the null hypothesis and the acceptance of the

alternative hypothesis. With 95% confidence, we can conclude that the findings can be extrapolated to the broader population, suggesting a prevalence of language learning among individuals.



➤ Hypothesis 4: How many hours has been the frequency of the study for individuals?

Study hours	Number of people	Percentage
Unknown	3	6
0-1 Hours	3	6
1-2 Hours	32	64
2-3 Hours	0	0
3-4 Hours	9	18
4-5 Hours	1	2
5-10 Hours	2	4
Overall number	50	100

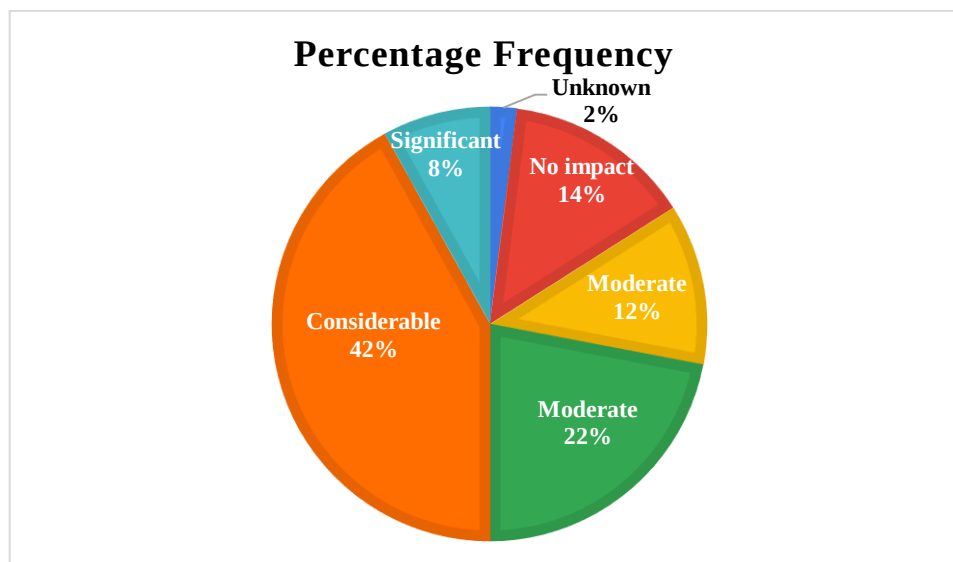
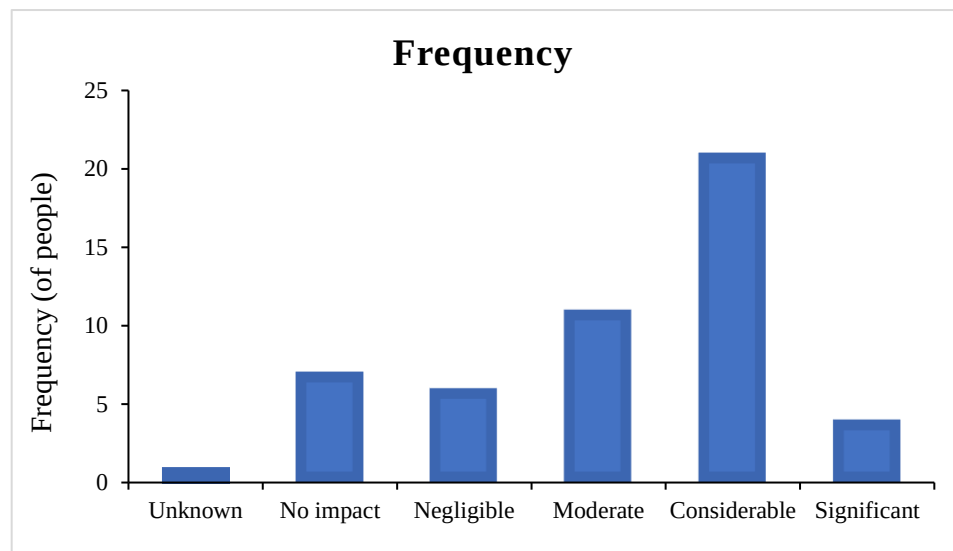


Hypothesis 5: How has artificial intelligence influenced your understanding of language learning processes?

- Affirmative hypothesis: Artificial intelligence has no impact on language learning.
- Alternative hypothesis: Artificial intelligence impacts language learning.

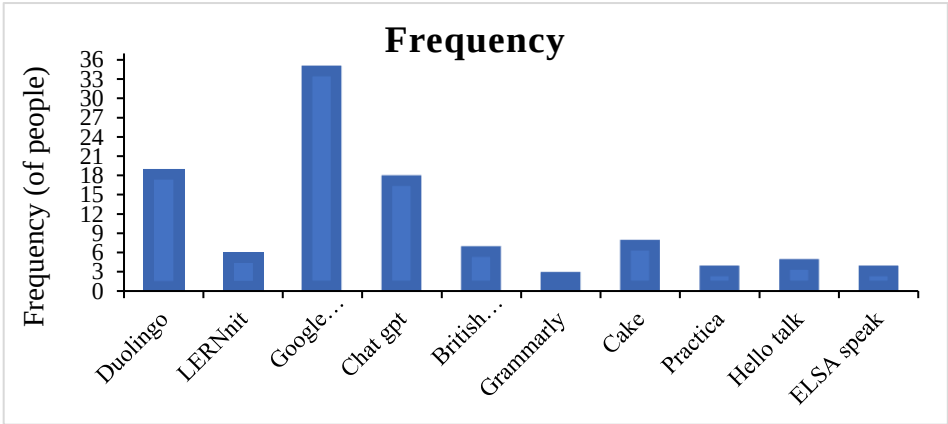
Variable name	Number	Percentage	sig
Group 1 (had no effect, had a low impact)	14	28	0.3
Group 2 (Moderately, Highly, and Very Highly Influential)	36	72	
Overall number	50		

As shown in the table above, the calculated test value is significant. The significance level (p-value) is less than 0.05, indicating that the null hypothesis is rejected. Therefore, the alternative hypothesis is accepted with 95% confidence. This implies that the results can be generalized to the population, and it can be concluded that artificial intelligence has a significant impact on language learning.



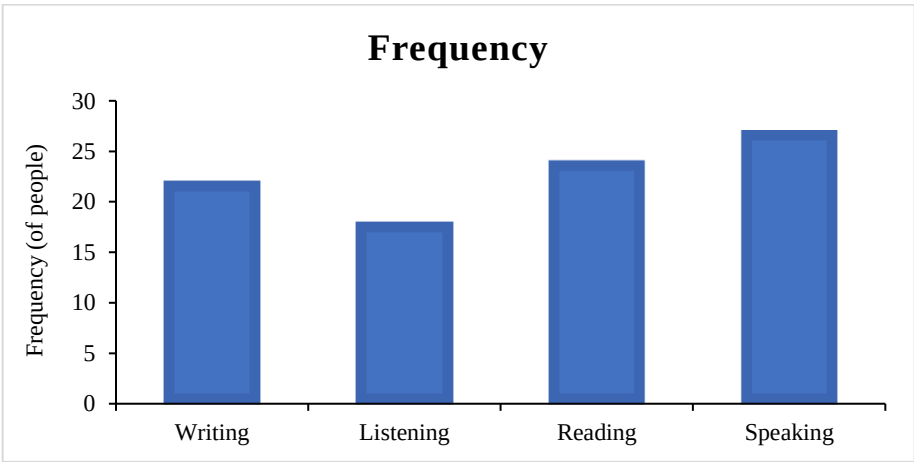
Hypothesis 6: Which of the following artificial intelligence applications have you used for language learning?

Artificial intelligence software name	Number of users
Duolingo	19
LERNnit	6
Google translate	35
ChatGPT	18
British council	7
Grammarly	3
Cake	8
Practica	4
Hello talk	5
ELSA speak	4



Hypothesis 7: Which skill, among those examined, was most influenced by artificial intelligence?

Study hours	Number (of people)
Writing	22
Listening	18
Reading	24
Speaking	27

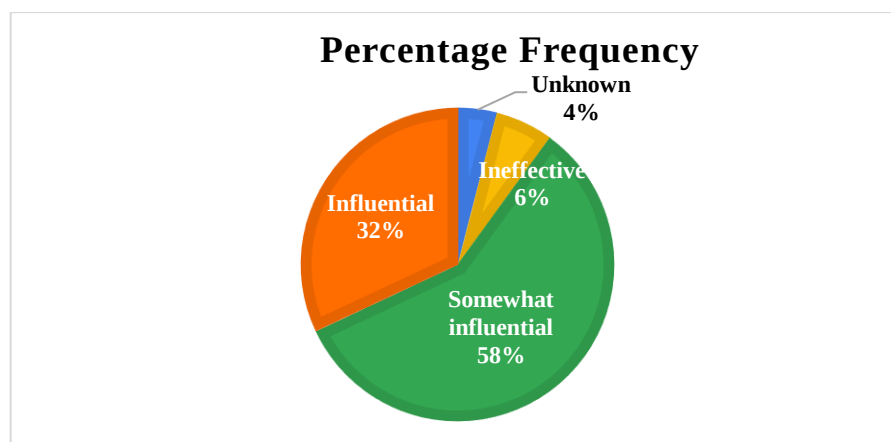
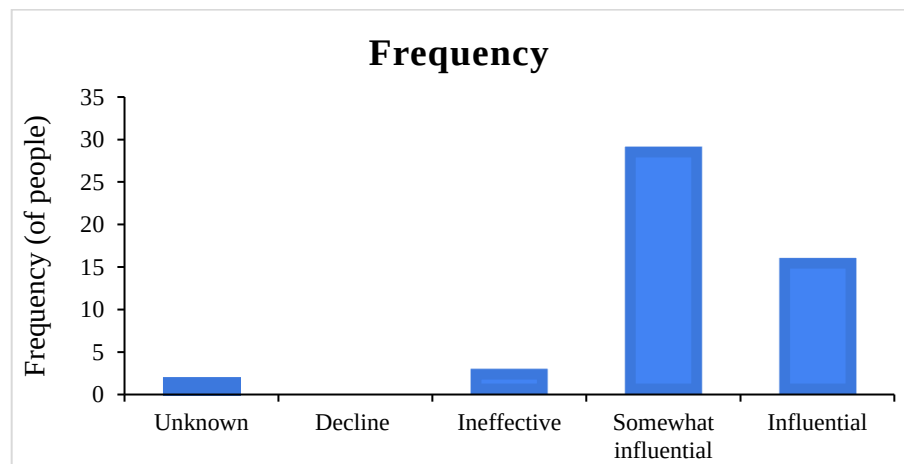


Hypothesis 8: Has this positively influenced your grammar and vocabulary development?

- Affirmative hypothesis: Artificial intelligence has not had a positive impact on grammar and vocabulary learning.
- Alternative hypothesis: Artificial intelligence has had a positive impact on grammar and vocabulary learning.

Variable name	Number	Percentage	sig
Group 1: Unknown, regressing, and ineffective.	5	10	0
Group 2: Partially effective and highly effective	45	90	
Overall number	50	100	

As seen in the table above, the calculated test value is significant, meaning that the sig value is less than 0.05. Therefore, the alternative hypothesis is accepted, and the statistical hypothesis is accepted with 95% confidence. This result can be generalized to the population, indicating that artificial intelligence has a positive impact on grammar and vocabulary learning.

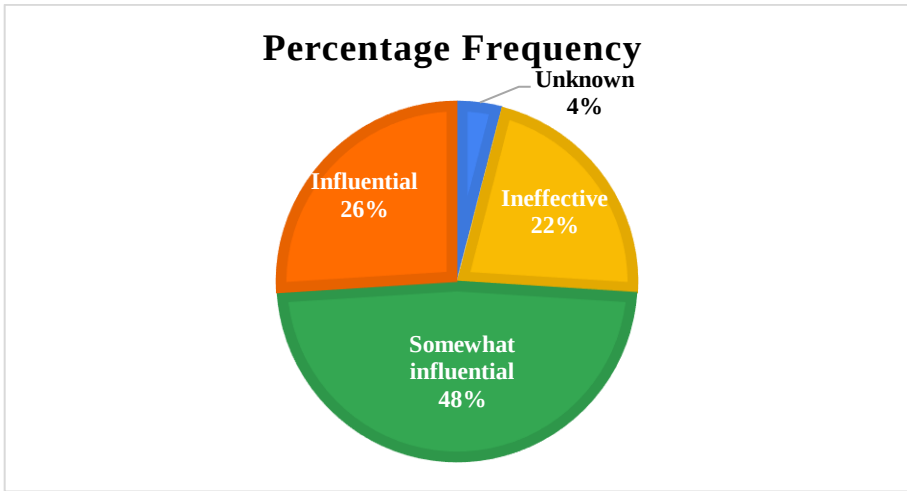
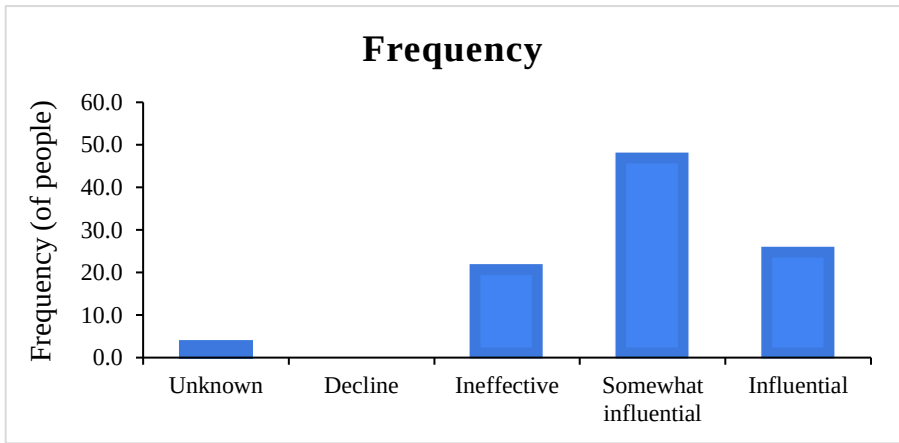


Hypothesis 9: Has this improved the connectivity of ideas in your writing and speaking?

- Affirmative hypothesis: Artificial intelligence does not affect the coherence of content in writing and speaking.
- Alternative hypothesis: Artificial intelligence affects the coherence of content in writing and speaking.

Variable Name	Number	Percentage	sig
Group 1: Declining and ineffective.	13	26	0
Group 2: Partially effective and highly effective	37	74	
Overall number	50	100	

As seen in the table above, the calculated test value is significant, meaning the sig value is less than 0.05. Therefore, the alternative hypothesis is accepted and the statistical hypothesis is accepted with 95% confidence. This result can be generalized to the population, indicating that artificial intelligence has an impact on the coherence of content in both writing and speaking.

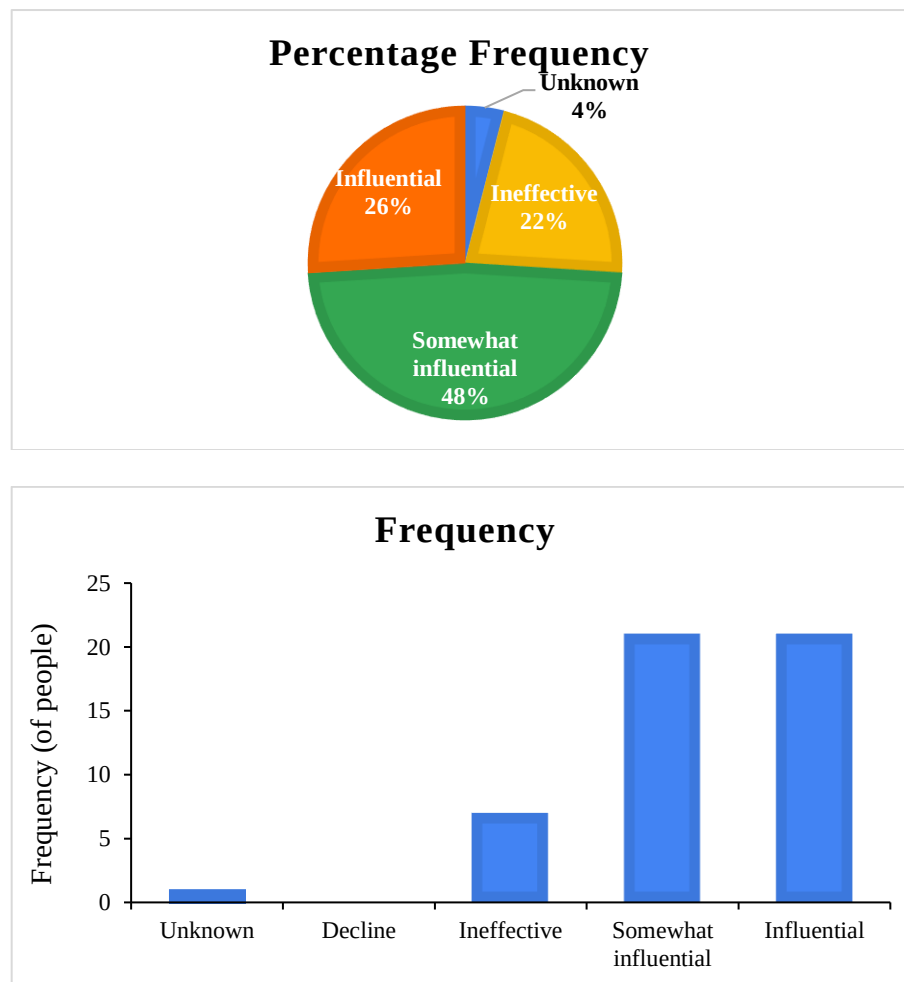


Hypothesis 10: Has this had a positive impact on your pronunciation accuracy?

- Affirmative hypothesis: Artificial intelligence does not have a positive impact on pronunciation accuracy.
- Alternative hypothesis: Artificial intelligence has a positive impact on pronunciation accuracy.

Variable Name	Number	Percentage	sig
Group 1: Declining and ineffective.	8	16	0
Group 2: Partially effective and highly effective	42	84	
Overall number	52	100	

Based on the table above, the calculated test statistic is significant at the 0.05 level, as the p-value is less than 0.05. Consequently, the alternative hypothesis is accepted, and we can conclude with 95% confidence that the statistical hypothesis is true. This finding can be generalized to the population, supporting the claim that artificial intelligence positively influences accurate pronunciation.

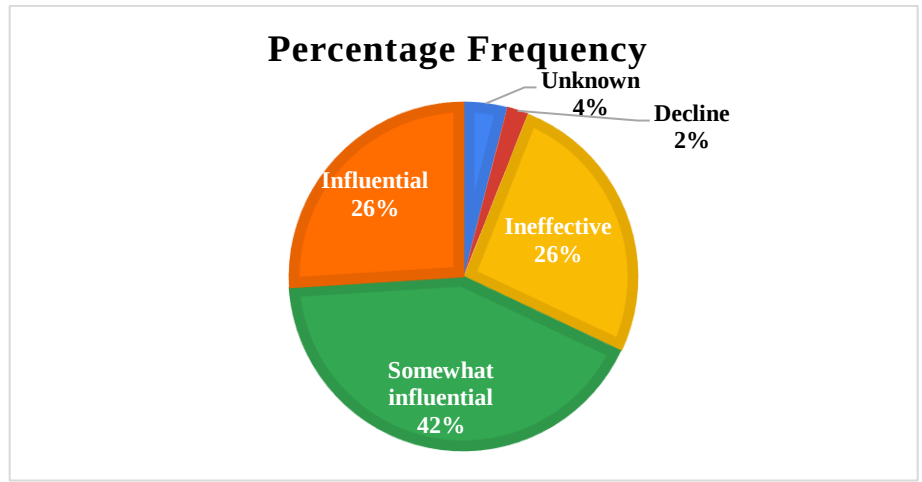
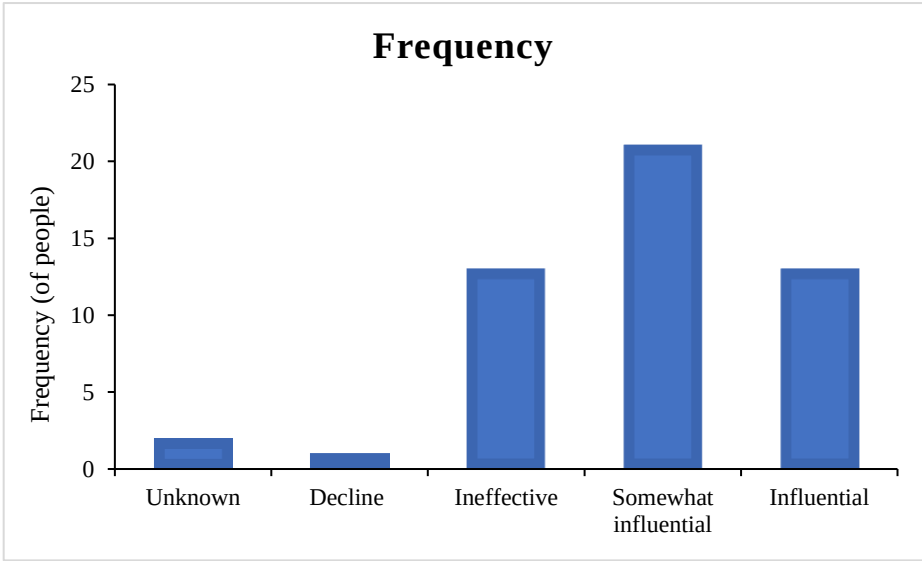


Hypothesis 11: Has this affected your speaking fluency?

- Affirmative hypothesis: Artificial intelligence does not have an impact on speaking fluency.
- Alternative hypothesis: Artificial intelligence has an impact on speaking fluency.

Variable Name	Number	Percentage	sig
Group 1: Declining and ineffective.	16	32	0.015
Group 2: Partially effective and highly effective	34	68	
Overall number	50	100	

As observed in the table above, the calculated test value is significant. This means the p-value is less than 0.05. Therefore, the alternative hypothesis is accepted and the statistical hypothesis is accepted with 95% confidence. Consequently, the results can be generalized to the population, indicating that artificial intelligence has an impact on speaking fluency.

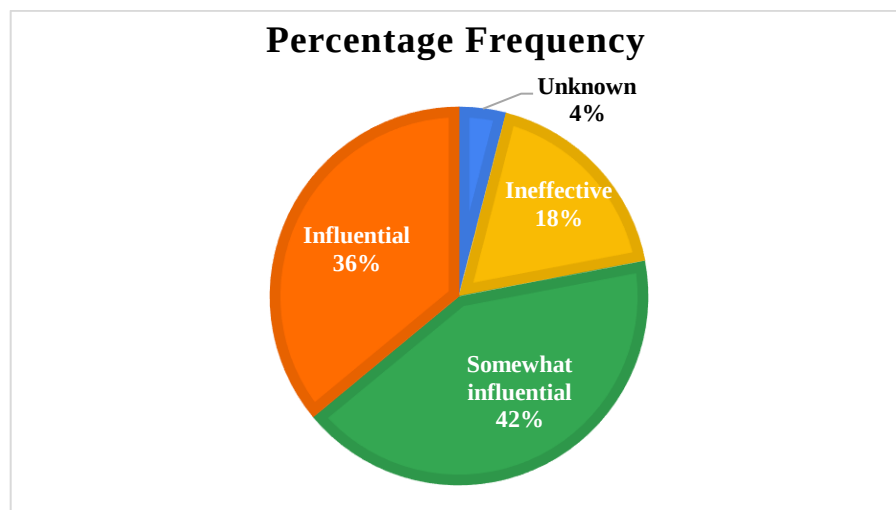
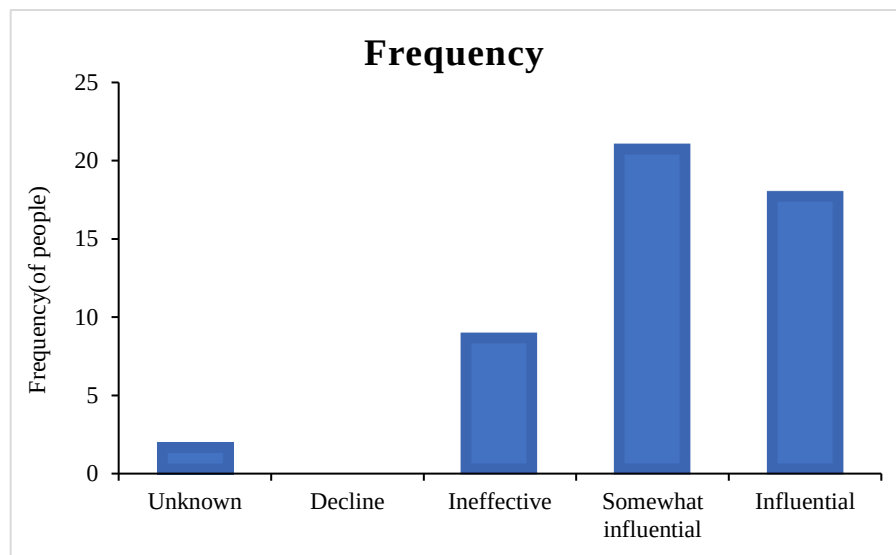


Hypothesis 12: Have they had an impact on comprehension and learning from various texts?

- Affirmative hypothesis: Artificial intelligence does not have an impact on comprehension and learning from various texts.
- Alternative hypothesis: Artificial intelligence has an impact on comprehension and learning from various texts.

Variable Name	Number	Percentage	sig
Group 1: Declining and ineffective.	11	12	0
Group 2: Partially effective and highly effective	39	78	
Overall number	50	100	

As seen in the table above, the calculated test statistic is significant, with a p-value less than 0.05. Therefore, the alternative hypothesis is accepted and the statistical hypothesis is accepted with 95% confidence. Consequently, the results can be generalized to the population, indicating that artificial intelligence has an impact on comprehension and learning from various texts.

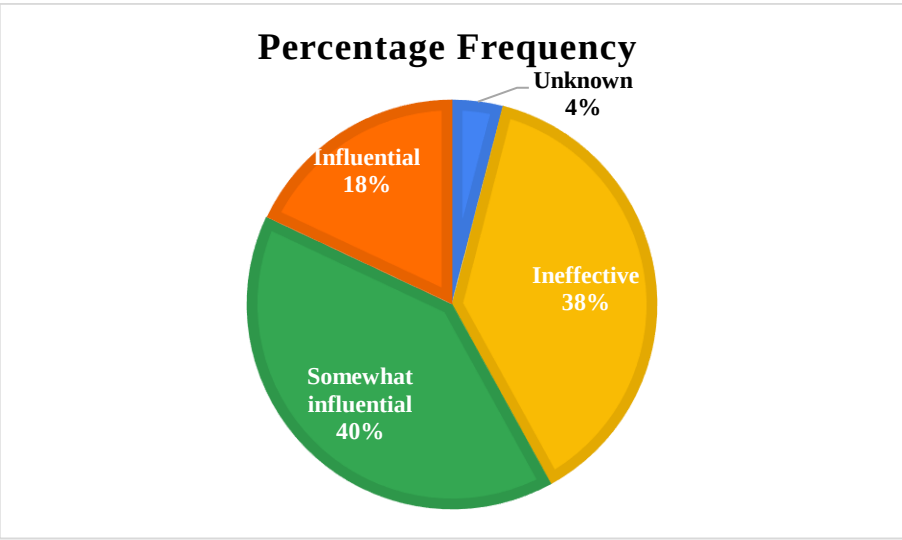
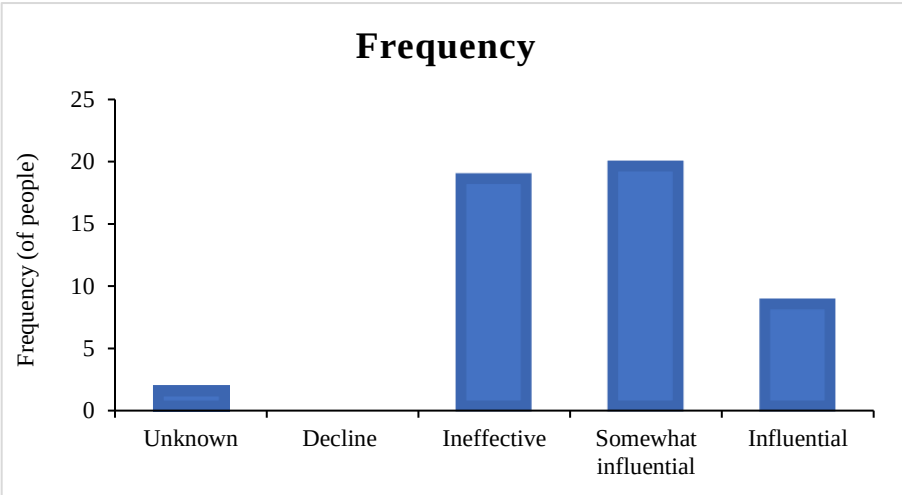


Hypothesis 13: Does artificial intelligence impact the learning of phrasal verbs and idioms?

- Affirmative hypothesis: Artificial intelligence does not affect the learning of phrasal verbs and idioms.
- Alternative hypothesis: Artificial intelligence has an impact on the learning of phrasal verbs and idioms.

Variable Name	Number	Percentage	sig
Group 1: Inconclusive, declined, and ineffective.	21	42	0.322
Group 2: Partially effective and highly effective	29	58	
Overall number	50	100	

As seen in the table above, the calculated test statistic is not significant, with a p-value greater than 0.05. Therefore, the null hypothesis is accepted and the statistical hypothesis is rejected with 95% confidence. Consequently, the results can be generalized to the population, indicating that artificial intelligence does not have an impact on the learning of phrasal verbs and idioms.

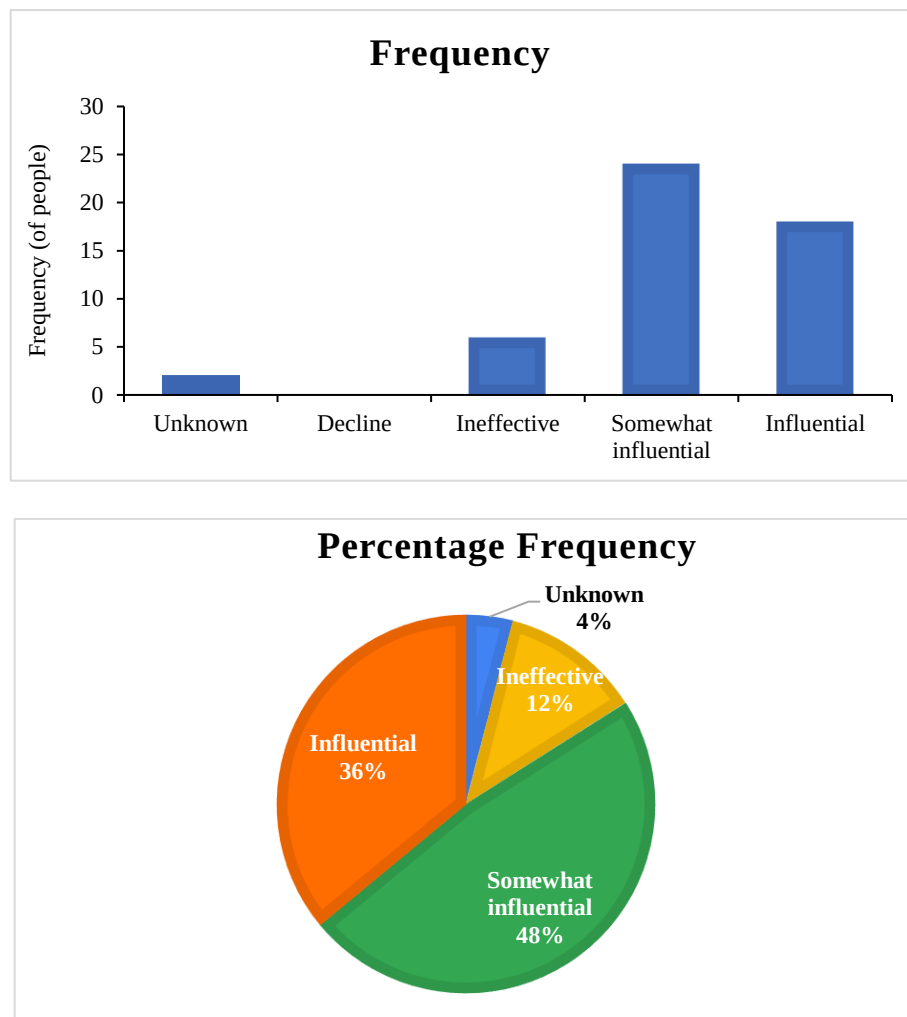


Hypothesis 14: Does artificial intelligence reduce mistakes in English language skills (speaking, listening, writing, reading)?

- Affirmative hypothesis: Artificial intelligence has not contributed to a reduction in English language errors.
- Alternative hypothesis: Artificial intelligence has contributed to a reduction in English language errors.

Variable Name	Number	Percentage	sig
Group 1: Declining and ineffective.	8	16	0
Group 2: Partially effective and highly effective	42	84	
Overall number	50	100	

As shown in the table above, the calculated test statistic is significant, with a p-value less than 0.05. Therefore, the alternative hypothesis is accepted and the statistical hypothesis is supported with 95% confidence. Consequently, the results can be generalized to the population, indicating that artificial intelligence has contributed to a reduction in English language errors.

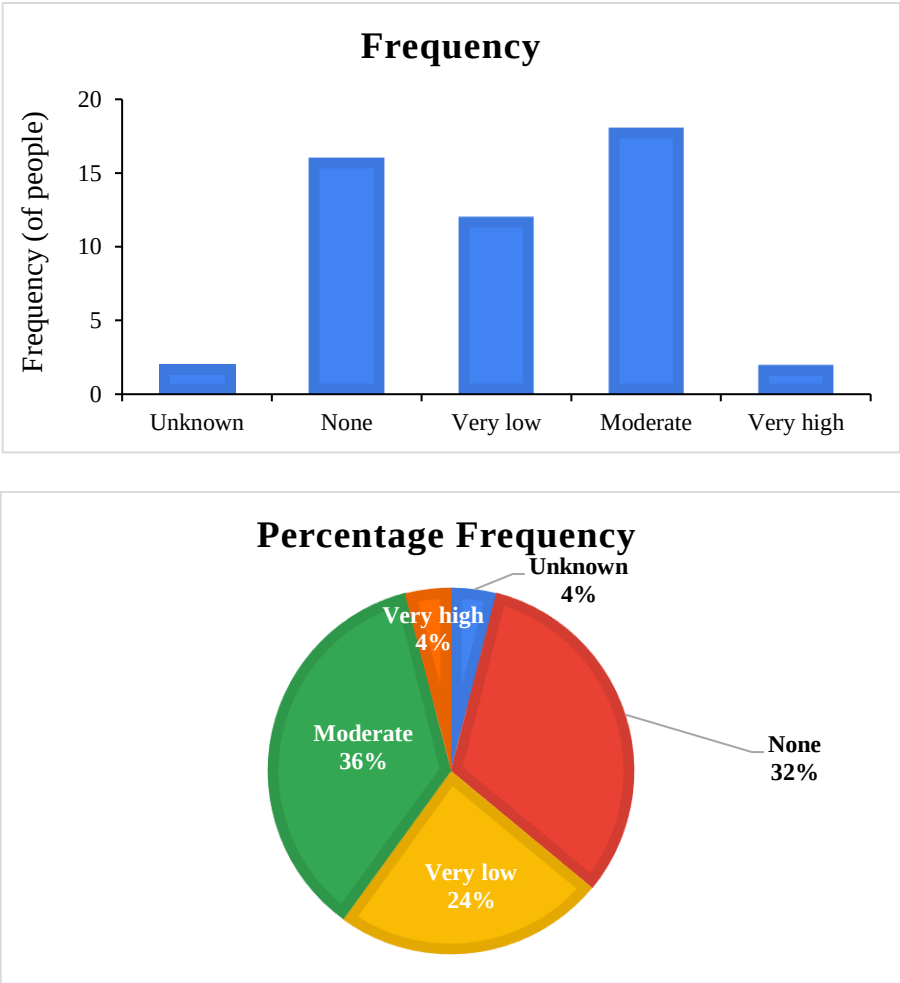


Hypothesis 15: Does learning to operate artificial intelligence systems present significant challenges?

- Affirmative hypothesis: Learning to use artificial intelligence tools and systems was not difficult or complex.
- Alternative hypothesis: Learning to use artificial intelligence tools and systems was not difficult or complex.

Variable Name	Number	Percentage	sig
Group 1 (None and Very low)	30	60	0.2
Group 2 (Moderate and High)	20	40	
Overall number	50	100	

As shown in the table above, the calculated test statistic is not significant, with a p-value greater than 0.05. Therefore, the null hypothesis cannot be rejected at the 95% confidence level. Consequently, the results can be generalized to the population, indicating that, according to most individuals, learning to work with artificial intelligence was not difficult or complex.

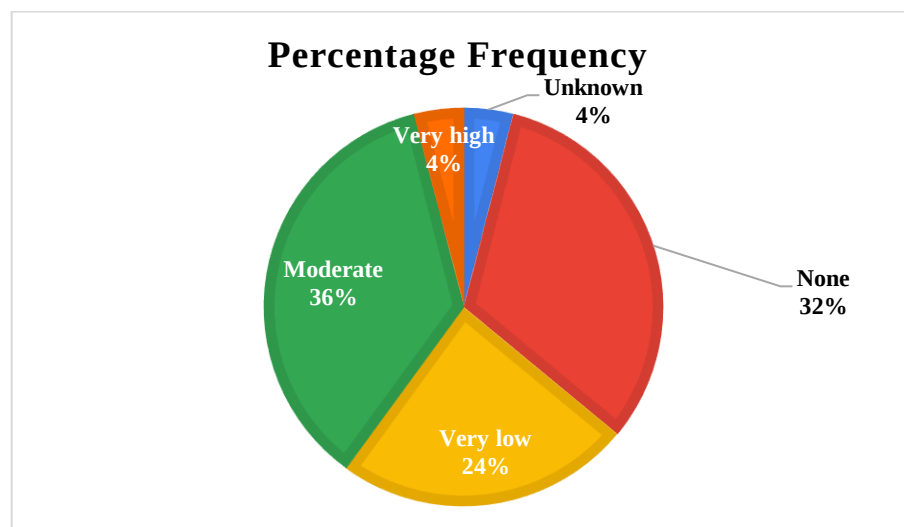
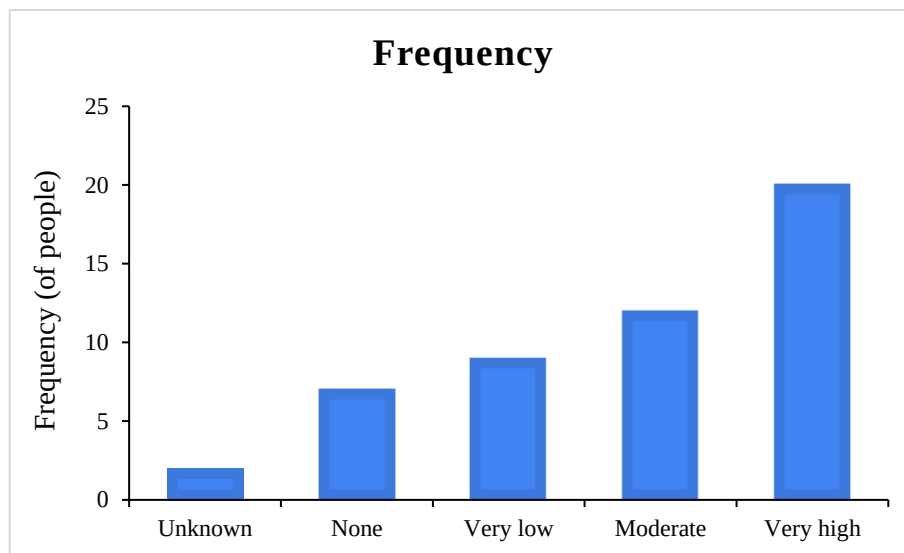


Hypothesis 16: Did artificial intelligence improve the ability to find diverse sources and books?

- Affirmative hypothesis: Efforts to learn how to find various sources and books have been unsuccessful.
- Alternative hypothesis: The process of learning to locate diverse sources and books is effective.

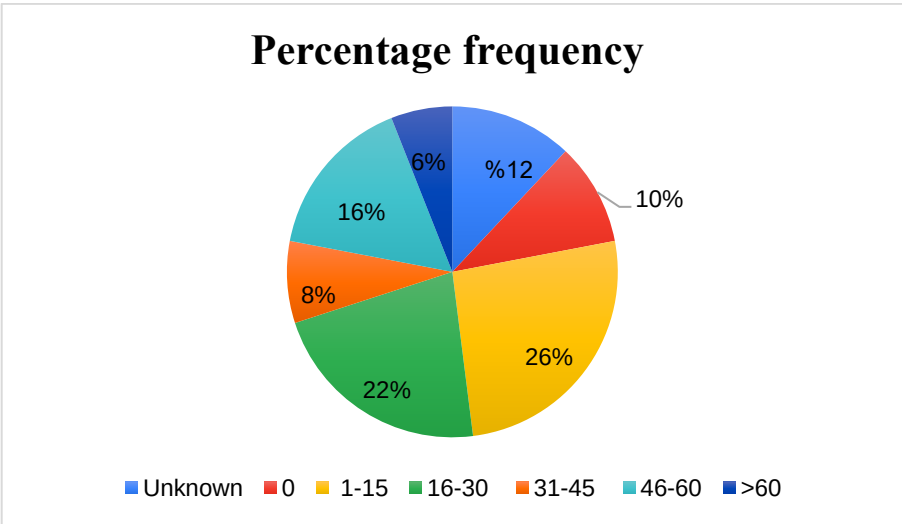
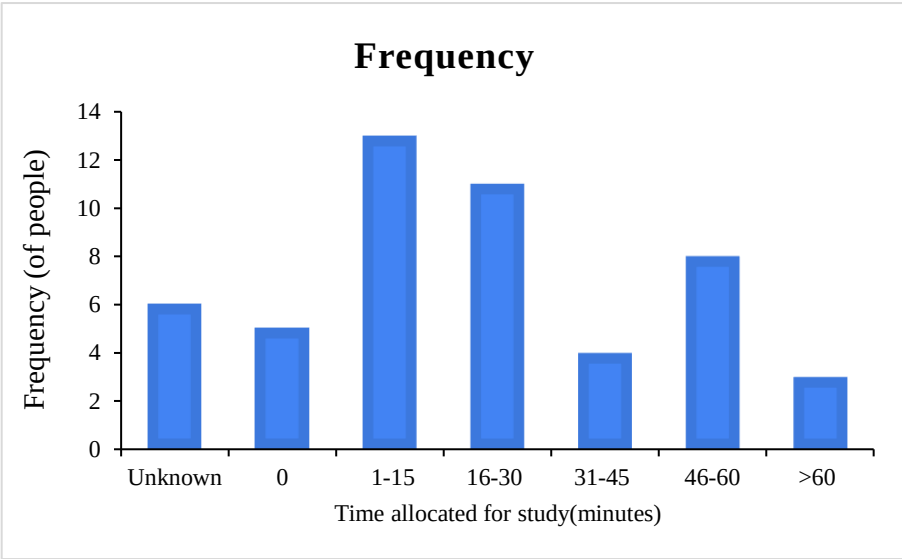
Variable Name	Number	Percentage	sig
Group 1 (None and Very low)	16	33	0.029
Group 2 (Moderate and High)	32	67	
Overall number	48	100	

As shown in the table above, the calculated test value is significant, meaning the sig value is less than 0.05. The statistical hypothesis is accepted with 95% confidence. Thus, the result can be generalized to the population, indicating that learning to find various sources and books is effective.



Hypothesis 17: How often do you utilize artificial intelligence in your daily learning activities?

Time allocated for study	Number	Percentage
Unknown	6	12
0	5	10
Minutes 1-15	13	26
16-30 Minutes	11	22
31-45 Minutes	4	8
46-60 Minutes	8	16
More than 60 minutes	3	6
Overall number	50	100

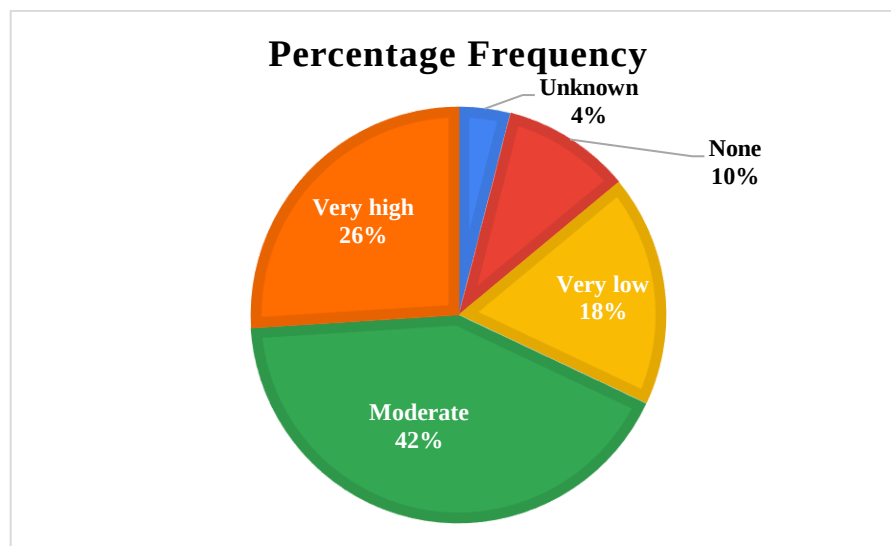
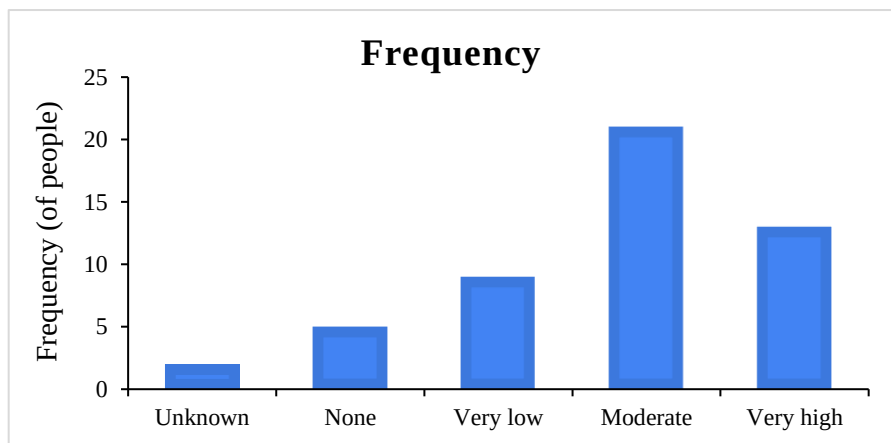


Hypothesis 18: Has artificial intelligence had an impact on creativity and diversity of ideas across different fields?

- Affirmative hypothesis: Artificial intelligence does not enhance creativity or foster diversity of thought in various domains.
- Alternative hypothesis: Artificial intelligence can enhance creativity and foster diversity of thought in multiple fields.

Variable Name	Number	Percentage	sig
Group 1 (None and Very low)	16	32	0.015
Group 2 (Moderate and High)	34	68	
Overall number	50	100	

As seen in the table above, the calculated test value is significant, indicating a p-value less than 0.05. This allows us to reject the null hypothesis at the 95% confidence level. Therefore, we can conclude that artificial intelligence has a significant impact on creativity and diversity of ideas across various domains.

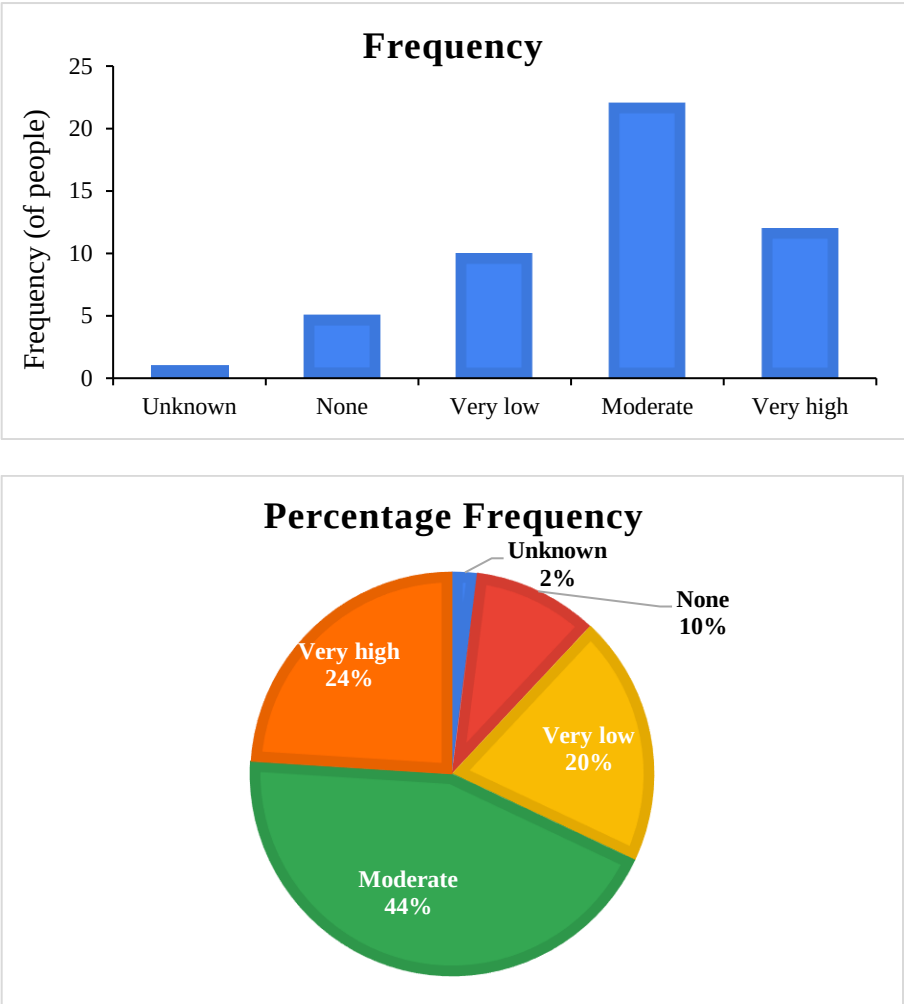


Hypothesis 19: Does artificial intelligence have a positive impact on spelling accuracy?

- Affirmative hypothesis: Artificial intelligence has not had a positive impact on reducing spelling errors.
- Alternative hypothesis: Artificial intelligence has contributed to a decrease in spelling errors.

Variable Name	Number	Percentage	sig
Group 1 (None and Very low)	16	32	0.015
Group 2 (Moderate and High)	34	68	
Overall number	50	100	

As observed in the table above, the calculated test statistic is significant, indicating a p-value less than 0.05. At a 95% confidence level, we can reject the null hypothesis and conclude that artificial intelligence has a positive impact on reducing spelling errors.

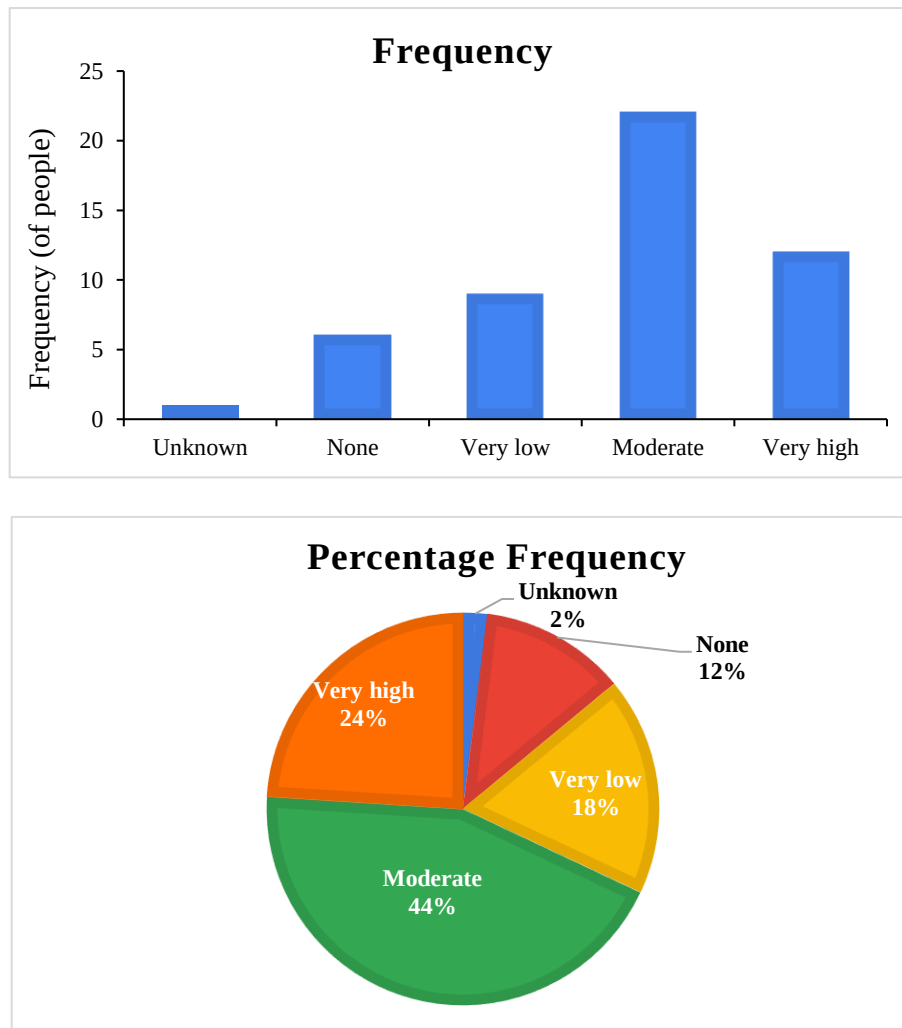


Hypothesis 20: Has artificial intelligence been effective in facilitating the acquisition of various techniques across different skill sets?

- Affirmative hypothesis: Artificial intelligence is ineffective in facilitating the acquisition of various techniques across different skill sets.
- Alternative hypothesis: Artificial intelligence is effective in facilitating the acquisition of various techniques across different skill sets.

Variable Name	Number	Percentage	sig
Group 1 (None and Very low)	16	32	0.015
Group 2 (Moderate and High)	34	68	
Overall number	50	100	

As observed in the table above, the calculated test statistic is significant, Indicating a p-value less than 0.05. At a 95% confidence level, we can reject the null hypothesis and conclude that artificial intelligence has a positive impact on learning various techniques across different skill sets.

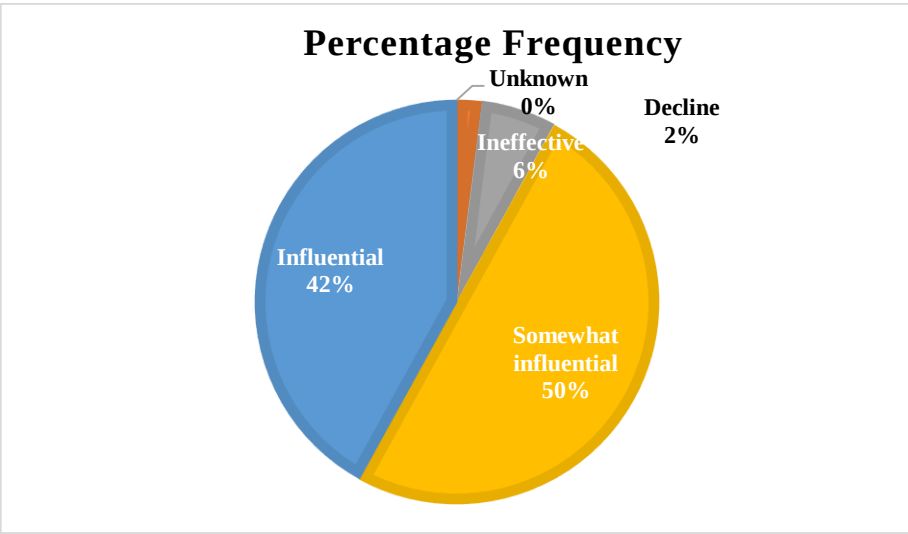
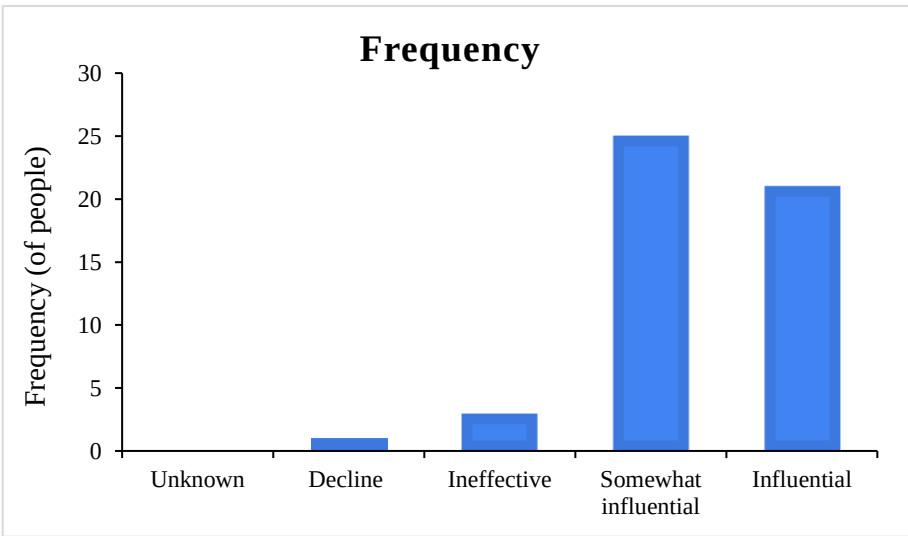


Hypothesis 21: Artificial intelligence enhances learning outcomes.

- Hypothesis: Artificial intelligence does not have a positive impact on learning.
- Hypothesis: Artificial intelligence has a positive impact on learning.

The variable of Hypothesis	Number	Percentage	sig
Group 1: Declining and ineffective.	4	8	0
Group 2: Partially effective and highly effective	46	92	
Overall number	50	100	

As observed in the table above, the calculated test statistic is significant, indicating a p-value less than 0.05. Therefore, we reject the null hypothesis and accept the alternative hypothesis at a 95% confidence level. This implies that artificial intelligence has a general positive impact on learning.

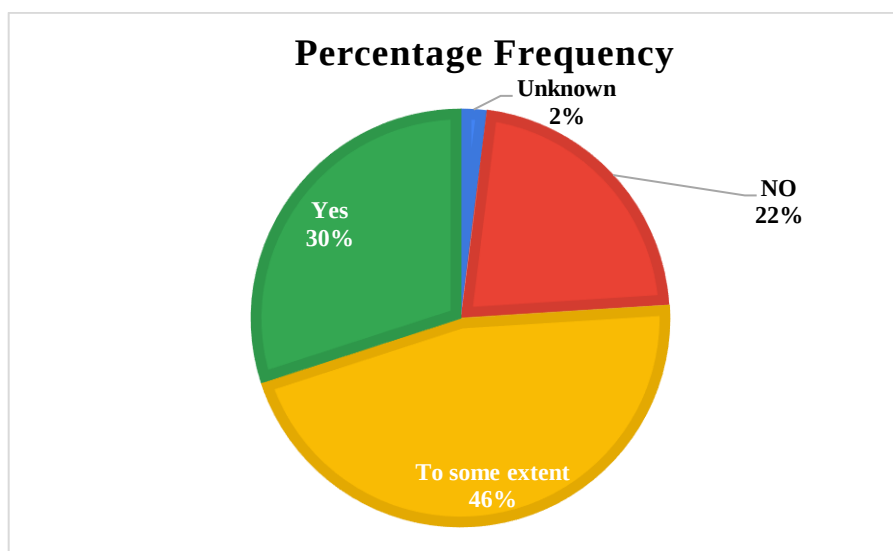
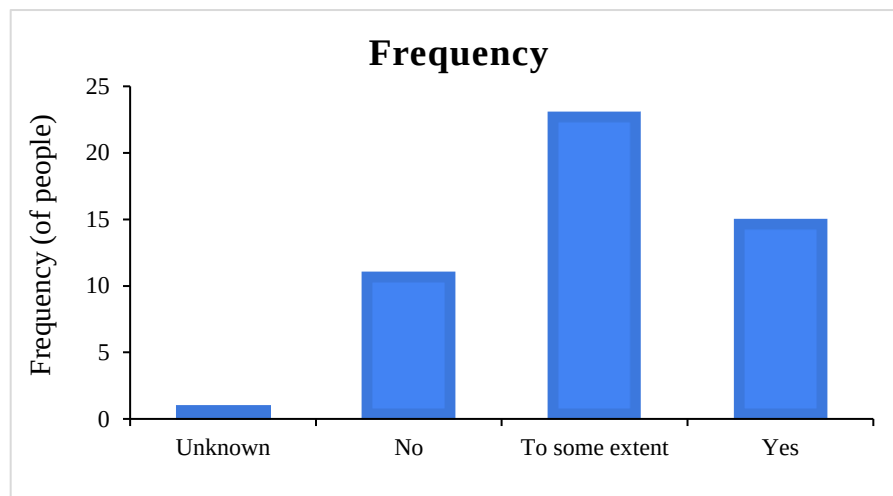


Hypothesis 22: AI-generated learning plans are effective in facilitating student learning.

- Hypothesis: AI-generated learning plans are ineffective.
- Hypothesis: AI-generated learning plans are effective.

نام متغیر	Number	Percentage	sig
Group 1: NO.	12	24	0
Group 2: To some extent and Yes	38	76	
Overall number	50	100	

As observed in the table above, the calculated test statistic is significant, indicating a p-value less than 0.05. Therefore, we reject the null hypothesis and accept the alternative hypothesis at a 95% confidence level. This implies that artificial intelligence is capable of generating effective learning plans.



DISCUSSION

The research aimed to explore the ways in which artificial intelligence enhances English learning for students. The findings align well with previous research, indicating consistency in both theoretical and practical results. The statistical analysis revealed that AI has a significant impact on various factors related to language learning. With a p-value of less than 0.05 in the test statistics, it was evident that, in most cases, the null hypothesis was rejected at a 95% confidence level. The alternative hypothesis, which suggests that AI enhances writing, coherent speaking, fluency, vocabulary, grammar, and pronunciation, was supported. Furthermore, the study found that AI notably fosters creativity and diverse ideas across different areas, while also significantly reducing spelling and grammar errors in English. The analysis was conducted using SPSS software, and diagrams were created in Excel. The significant findings indicate that AI positively impacts a broad range of English learning skills.

RESULT

A strong effort is made in this study to examine "How artificial intelligence helps students to learn English in depth." It is found that the findings of this research strongly and positively align with previous studies, showing consistency in both practical and theoretical writings. The

factors causing this alignment are identified through the theoretical and practical results. Based on the table, a significant result is yielded by the computed test statistic. The p-value is found to be less than the alpha level of 0.05, leading to the rejection of the null hypothesis and the acceptance of the alternative hypothesis, with 95% confidence. As shown in the table above, a significant calculated test value is indicated. The significance level (p-value) is noted to be less than 0.05, indicating that the null hypothesis is rejected. As seen in the table above, a significantly calculated test value is presented, meaning that the significance value is less than 0.05. Based on the table above, it is observed that the calculated test statistic is significant at the 0.05 level, as the p-value is less than 0.05. It is noted that the calculated test value is significant, with the p-value being less than 0.05. As seen in the table above, a significant calculated test statistic is indicated, with a p-value less than 0.05. Conversely, it is noted that a calculated test statistic is not significant, with a p-value greater than 0.05. As shown in the table above, a significant calculated test statistic is indicated, with a p-value less than 0.05. It is also shown that a calculated test statistic is not significant, with a p-value greater than 0.05. As shown in the table above, it is indicated that a significant calculated test value exists, meaning that the significance value is less than 0.05. As observed in the table above, it is indicated that a significant calculated test value exists, suggesting a p-value less than 0.05. It is observed that the calculated test statistic is significant, indicating a p-value less than 0.05. The findings of this study suggest that they can be extrapolated to the broader population, indicating a prevalence of language learning among individuals. Therefore, the alternative hypothesis is accepted with 95% confidence. This implies that the results can be generalized to the population, leading to the conclusion that artificial intelligence has a significant impact on language learning. Consequently, the alternative hypothesis is accepted, and the statistical hypothesis is accepted with 95% confidence. This result can be generalized to the population, indicating that artificial intelligence has a positive impact on grammar and vocabulary learning. Thus, the alternative hypothesis is accepted and the statistical hypothesis is accepted with 95% confidence. This result can also be generalized to the population, indicating that artificial intelligence impacts coherence in both writing and speaking. Therefore, with 95% confidence, it can be concluded that the statistical hypothesis is true. This finding can be generalized to the population, supporting the claim that accurate pronunciation is positively influenced by artificial intelligence. Hence, the alternative hypothesis is accepted and the statistical hypothesis is accepted with 95% confidence. Consequently, it can be generalized to the population that artificial intelligence impacts speaking fluency. Therefore, the alternative hypothesis is accepted and the statistical hypothesis is accepted with 95% confidence. Furthermore, it can be generalized to indicate that artificial intelligence impacts comprehension and learning from various texts. Therefore, with 95% confidence, it can be concluded that the null hypothesis is accepted and the statistical hypothesis is rejected. Consequently, it can be generalized that the results indicate that an impact on the learning of phrasal verbs and idioms is not had by artificial intelligence. Therefore, the alternative hypothesis is accepted and the statistical hypothesis is supported with 95% confidence. Consequently, it can be generalized that a contribution to a reduction in English language errors has been made by artificial intelligence. Therefore, the null hypothesis cannot be rejected at the 95% confidence level. Consequently, it can be generalized that, according to most individuals, difficulty or complexity in learning to work with artificial intelligence was not experienced. The statistical hypothesis is accepted with 95% confidence. Thus, it can be generalized that effectiveness in learning to find various sources and books is indicated. This allows for the null hypothesis to be rejected at the 95% confidence level. Therefore, it can be concluded that a significant impact on creativity and

diversity of ideas across various domains is had by artificial intelligence. The calculated test statistic is significant, indicating that a p-value less than 0.05 is present. At a 95% confidence level, the null hypothesis can be rejected and it can be concluded that a positive impact on reducing spelling errors is had by artificial intelligence. The calculated test statistic is significant, indicating that a p-value less than 0.05 is present. At a 95% confidence level, the null hypothesis can be rejected and it can be concluded that a positive impact on learning various techniques across different skill sets is had by artificial intelligence. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted at a 95% confidence level. This implies that a generally positive impact on learning is had by artificial intelligence. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted at a 95% confidence level. This implies that effective learning plans are capable of being generated by artificial intelligence. Data analysis was performed using SPSS software, and diagrams were created using Excel, and significant results were shown.

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