Use of Artificial Intelligence Tools for English Language Learning Among Undergraduate Students in Telangana

Godam Raj Kumar
M. A (English) M.Ed, Lecturer in English, Government Degree College Arts and Commerce, Adilabad, Telangana.

***Abstract*—The present study investigated the use of Artificial Intelligence (AI) tools for English language learning among undergraduate students in Adilabad District of Telangana. The study aimed to examine the level of AI tool usage and analyse differences with respect to selected demographic variables such as gender, locality, stream of study, year of study, type of institution, parents' educational qualification, parents' occupation, and family income. The study adopted the Normative Survey Method. A sample of 300 undergraduate students studying BA, B. Com, and B.Sc courses was selected through Stratified Random Sampling. Data were collected using a researcher-developed questionnaire titled Artificial Intelligence Tools for English Language Learning Scale (AITELLS). The collected data were analysed using Mean, Standard Deviation, t-test, ANOVA, and Regression Analysis. The findings revealed that undergraduate students exhibited a moderate to high level of AI tool usage for English language learning. Significant differences were observed with respect to gender, locality, stream of study, year of study, institution type, parents' educational qualification, parents' occupation, and family income. Urban students, B.Sc students, and private college students demonstrated comparatively higher levels of AI tool utilisation. The study concluded that Artificial Intelligence tools positively support English language learning by enhancing grammar, vocabulary, writing, pronunciation, and communication skills. The findings emphasise the need for integrating AI-based learning resources into higher education and promoting equitable access to technology-assisted language learning opportunities.**

***Index Terms*—Artificial Intelligence, AI Tools, English Language Learning, Undergraduate Students, Telangana, Adilabad District, Higher Education.**

I. INTRODUCTION

The rapid advancement of digital technology has transformed the educational landscape across the world. Among these technological developments, Artificial Intelligence (AI) has emerged as one of the most influential innovations, significantly impacting teaching and learning processes. AI refers to the ability of computer systems to perform tasks that normally require human intelligence, such as learning, reasoning, problem-solving, language understanding, and decision-making. In recent years, AI-powered applications have become increasingly popular in educational settings, providing learners with personalised, interactive, and efficient learning experiences. English language learning is one of the areas where AI technologies have shown remarkable potential. The English language plays a vital role in higher education, employment, communication, and global interaction. Undergraduate students are expected to possess adequate English language skills to meet academic and professional requirements. However, many students face difficulties in developing proficiency in English due to limited exposure, lack of practice opportunities, and differences in educational backgrounds. AI tools offer innovative solutions to address these challenges by providing instant feedback, adaptive learning environments, grammar correction, vocabulary enhancement, pronunciation support, and writing assistance. Various AI-powered tools such as ChatGPT, Grammarly, Google Translate, Duolingo, QuillBot, Microsoft Copilot, and speech-recognition applications are widely used by students for learning English. These tools help learners improve their reading, writing, listening, and speaking skills through personalised guidance and immediate feedback. Unlike traditional learning methods, AI applications enable students to learn at their own pace and according to their individual learning needs. Consequently, the use of AI tools has become an important component of modern language learning. In India, the integration of technology in education has

accelerated following the implementation of digital learning initiatives and the increasing availability of smartphones and internet connectivity. Undergraduate students are increasingly relying on digital platforms and AI-based applications for academic support. Telangana, being one of the technologically progressive states in India, has witnessed substantial growth in the adoption of digital learning resources among college students. Despite this growth, empirical studies examining the use of AI tools for English language learning among undergraduate students remain limited, particularly in districts such as Adilabad. Adilabad District comprises students from diverse educational, socio-economic, and cultural backgrounds. Factors such as gender, locality, stream of study, type of institution, and year of study may influence the extent to which students utilise AI tools for learning English. Understanding these differences is essential for educators, curriculum planners, and policymakers who seek to promote effective and equitable use of technology in higher education. The present study, therefore, aims to investigate the use of Artificial Intelligence tools for English language learning among undergraduate students in Adilabad District of Telangana. The study seeks to examine the level of AI tool usage and analyse variations based on selected demographic variables such as gender, locality, academic stream, year of study, and type of institution. The findings of the study are expected to contribute to the growing body of knowledge on AI-assisted language learning and provide valuable recommendations for enhancing English language education in higher education institutions.

II. NEED AND SIGNIFICANCE OF THE STUDY

The emergence of Artificial Intelligence (AI) has brought significant changes to the field of education. AI-powered tools have become increasingly popular among students for learning, communication, content creation, and academic support. In the context of English language learning, AI applications such as ChatGPT, Grammarly, Google Translate, Duolingo, QuillBot, and other language-learning platforms provide learners with opportunities to improve their vocabulary, grammar, pronunciation, writing, reading, and speaking skills. These tools offer immediate feedback, personalised learning experiences, and flexible access to educational resources, making language learning more effective and engaging. English is an important language for higher education, employment, and global communication. Undergraduate students are expected to possess adequate English language proficiency to meet academic and professional demands. However, many students, particularly those from rural and regional backgrounds, experience difficulties in learning English due to limited exposure, lack of language practice, and inadequate learning resources. AI tools can help bridge these gaps by providing accessible and learner-centred support for language development. In recent years, the increasing availability of smartphones, internet facilities, and digital learning platforms has encouraged students to use AI-based applications for academic purposes. Telangana has emerged as one of the leading states in adopting technological innovations in education. Nevertheless, there is limited empirical research on the extent to which undergraduate students utilise AI tools for English language learning, especially in districts such as Adilabad. Understanding students' usage patterns, perceptions, and learning experiences is essential for the effective integration of AI technologies into higher education. The present study is significant because it examines the use of AI tools among undergraduate students belonging to different academic streams such as BA, B. Com, and B.Sc. It also investigates variations in AI tool usage with respect to demographic variables including gender, locality, year of study, and type of institution. Such information will help identify the factors influencing the adoption and utilisation of AI technologies for language learning. The findings of the study will be beneficial to students, teachers, educational administrators, curriculum developers, and policymakers. The study may help teachers understand how AI tools can be integrated into classroom instruction to enhance English language learning outcomes. Educational institutions can use the findings to design training programmes that promote responsible and effective use of AI technologies. Curriculum planners may consider incorporating AI-assisted learning strategies into language education programmes. Policymakers can utilise the results to formulate guidelines and policies that support technology-enabled learning in higher education. Furthermore, the study will contribute to the growing body of literature on Artificial Intelligence in education and provide a foundation for

future research in the field of AI-assisted language learning. Since research on AI tools and English language learning among undergraduate students in Telangana is limited, the present investigation will fill an important research gap and provide valuable insights into the role of AI in enhancing language learning experiences. Therefore, the study on the use of Artificial Intelligence tools for English language learning among undergraduate students in Adilabad District of Telangana is both timely and relevant in the present educational context. It is expected to contribute significantly to the improvement of English language education and the effective integration of emerging technologies in higher education.

III. REVIEW OF RELATED LITERATURE

A review of related literature helps the researcher understand the existing knowledge, identify research gaps, and establish the need for the present investigation. Several studies conducted at the international, national, and regional levels have highlighted the role of Artificial Intelligence (AI) in enhancing language learning and educational outcomes.

1. Luckin, Holmes, Griffiths, and Forcier (2016) examined the applications of Artificial Intelligence in education and reported that AI technologies facilitate personalised learning by adapting instructional content to individual learner needs. The authors concluded that AI-supported systems improve learner engagement and provide effective feedback mechanisms that enhance learning outcomes.
2. Kukulska-Hulme (2020) investigated the role of digital technologies in language education and found that technology-assisted learning environments promote learner autonomy and provide opportunities for continuous language practice. The study emphasised that digital tools help learners improve their language skills both inside and outside the classroom.
3. Kasneci, Sessler, Küchemann, Bannert, Dementieva, Fischer and colleagues (2023) explored the educational implications of ChatGPT and other large language models. The study revealed that AI-powered conversational tools support language learning through personalised assistance, instant responses, and writing guidance. The researchers noted that such technologies can significantly enhance students' learning experiences when used appropriately.
4. Kohnke, Moorhouse, and Zou (2023) examined the use of ChatGPT in language teaching and learning. Their findings indicated that AI applications assist learners in improving grammar, vocabulary, writing proficiency, and communication skills. The authors suggested that AI tools can serve as effective supplementary resources for language education.
5. Crompton and Burke (2023) conducted a review of Artificial Intelligence applications in higher education and reported that AI technologies contribute to personalised learning, student support, and academic achievement. The study highlighted the growing importance of AI in modern educational environments.
6. Singh and Verma (2022) investigated the relationship between technology usage and English language learning among undergraduate students. The study found that students who frequently used digital learning tools demonstrated better language proficiency and higher academic performance compared to those who depended solely on traditional instructional methods.
7. Patel (2023) studied students' perceptions of AI-powered educational applications in higher education institutions. The findings revealed that students viewed AI tools as useful resources for improving language proficiency, enhancing academic performance, and supporting independent learning.
8. Reddy and Kumar (2023) examined the impact of technology-based learning resources on English language learning among college students. The researchers reported that digital tools significantly improved vocabulary acquisition, reading comprehension, and writing skills. The study recommended greater integration of advanced technologies into language education programmes.
9. Sharma and Gupta (2024) investigated the adoption of Artificial Intelligence technologies among university students in India. Their findings indicated that students frequently used AI applications such as ChatGPT, Grammarly, and translation tools for grammar correction, content generation, language practice, and academic

writing. The researchers observed positive attitudes towards AI-assisted learning.

10. Rao (2022) examined digital learning practices among undergraduate students in Telangana and found that students increasingly utilised mobile applications and online learning platforms for academic purposes. The study reported that technological accessibility positively influenced learning outcomes and student engagement.
11. Lakshmi and Prasad (2023) studied technology-assisted English language learning among college students in Andhra Pradesh. The findings revealed that digital learning tools enhanced students' communication skills, vocabulary development, and writing abilities. The researchers recommended promoting technology-based learning strategies in higher education institutions.
12. Srinivas and Reddy (2024) investigated awareness and utilisation of AI-based educational applications among higher education students in Telangana. The study found moderate levels of awareness and usage of AI tools, with significant differences observed based on locality, academic background, and access to technological resources.

The review of literature clearly indicates that Artificial Intelligence tools play a significant role in supporting English language learning by providing personalised instruction, immediate feedback, and interactive learning opportunities. Although several studies have examined AI in education and language learning, research focusing specifically on the use of Artificial Intelligence tools for English language learning among undergraduate students in Telangana, particularly in Adilabad District, is limited. Moreover, studies examining differences based on demographic variables such as gender, locality, stream of study, year of study, and type of institution are scarce. Therefore, the present study aims to fill this research gap by investigating the use of Artificial Intelligence tools for English language learning among undergraduate students in Adilabad District of Telangana.

IV. STATEMENT OF THE PROBLEM

Artificial Intelligence (AI) has become an important component of modern education, offering innovative opportunities for teaching and learning. In the field of English language learning, AI-powered tools such as ChatGPT, Grammarly, Google Translate, Duolingo, QuillBot, and other language-learning applications provide students with personalised learning experiences, instant feedback, grammar correction, vocabulary enhancement, and communication support. These tools have the potential to improve students' English language proficiency and promote independent learning. The increasing availability of smartphones, internet connectivity, and digital learning resources has encouraged undergraduate students to utilise AI-based applications for academic purposes. However, the extent to which students use these tools for English language learning may vary according to factors such as gender, locality, stream of study, year of study, and type of institution. Understanding these variations is essential for educators, curriculum planners, and policymakers to effectively integrate AI technologies into higher education. Although several studies have examined the role of technology and Artificial Intelligence in education, limited research has been conducted on the use of AI tools for English language learning among undergraduate students in Telangana, particularly in Adilabad District. There is a need to investigate the level of AI tool usage and determine whether significant differences exist among students belonging to different demographic categories. Therefore, the researcher intends to undertake a study entitled: "Use of Artificial Intelligence Tools for English Language Learning Among Undergraduate Students in Adilabad District of Telangana."

V. OBJECTIVES OF THE STUDY

The present study is undertaken with the following objectives:

1. To study the level of use of Artificial Intelligence tools for English language learning among undergraduate students in Adilabad District of Telangana.
2. To examine the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to gender (Male and Female).
3. To examine the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to locality (Rural and Urban).
4. To examine the use of Artificial Intelligence tools for English language learning among

undergraduate students with respect to stream of study (BA, B. Com, and B.Sc).

5. To examine the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to year of study (First Year, Second Year, and Third Year).
6. To examine the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to type of institution (Government and Private Colleges).
7. To compare the use of Artificial Intelligence tools for English language learning among undergraduate students belonging to different demographic groups.
8. To identify the influence of selected demographic variables on the use of Artificial Intelligence tools for English language learning among undergraduate students.
9. To suggest educational measures for promoting the effective use of Artificial Intelligence tools in English language learning among undergraduate students.

VI. HYPOTHESES OF THE STUDY

Based on the objectives of the study, the following null hypotheses are formulated:

Ho_1: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to gender (Male and Female).

Ho_2: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to locality (Rural and Urban).

Ho_3: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to stream of study (BA, B. Com, and B.Sc).

Ho_4: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to year of study (First Year, Second Year, and Third Year).

Ho_5: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to type of institution (Government and Private Colleges).

Ho_6: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to parents' educational qualifications.

Ho_7: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to parents' occupations.

Ho_8: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to monthly family income.

Ho_9: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students belonging to different demographic groups.

Ho_{10}: Selected demographic variables do not significantly influence the use of Artificial Intelligence tools for English language learning among undergraduate students.

VII. METHODOLOGY

Method of the Study

The present study employs the Normative Survey Method. This method is considered appropriate because it enables the researcher to collect data regarding the existing status of the use of Artificial Intelligence tools for English language learning among undergraduate students. The survey method helps in gathering information from a representative sample and facilitates the analysis of differences among various demographic groups.

Population of the Study

The population for the present study comprises all undergraduate students studying in BA, B. Com, and B.Sc programmes in degree colleges of Adilabad District, Telangana. The students enrolled in Government and Private degree colleges constitute the target population of the study.

Sample of the Study

A sample of 300 undergraduate students was selected from various degree colleges in Adilabad District. The sample includes students from BA, B. Com, and B.Sc courses. To ensure adequate representation of different groups, the researcher adopted the Stratified Random Sampling Technique.

Distribution of the Sample

Stream of Study	Number of Students
BA	100
B. Com	100
B.Sc	100
Total	300

The sample was further classified according to demographic variables such as gender, locality, year of study, type of institution, parents' educational qualification, parents' occupation, and family income.

VIII. VARIABLES OF THE STUDY

Dependent Variable

- Use of Artificial Intelligence Tools for English Language Learning

Independent Variables

- Gender (Male/Female)
- Locality (Rural/Urban)
- Stream of Study (BA/B. Com/B.Sc.)
- Year of Study (First Year/Second Year/Third Year)
- Type of Institution (Government/Private)
- Parents' Educational Qualification
- Parents' Occupation
- Monthly Family Income

Tool Used for Data Collection

The researcher developed and standardised a questionnaire entitled: "Artificial Intelligence Tools for English Language Learning Scale (AITELLS)" The scale was designed to measure the extent of use of AI tools by undergraduate students for learning English.

Dimensions of the Scale

The questionnaire consists of items related to:

1. Use of AI tools for grammar improvement
2. Vocabulary development
3. Writing assistance
4. Reading comprehension
5. Speaking and pronunciation practice
6. Translation and language support
7. Attitude towards AI-assisted English learning

Scoring Procedure

The responses were obtained on a five-point Likert scale:

Response	Score
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

Higher scores indicate greater use of Artificial Intelligence tools for English language learning.

Pilot Study

Before administering the final questionnaire, a pilot study was conducted on a small sample of undergraduate students who were not included in the main study. Based on the feedback obtained, necessary modifications were made to improve the clarity and suitability of the items.

Reliability and Validity of the Tool

The reliability of the questionnaire was established using Cronbach's Alpha Method, and the obtained reliability coefficient indicated satisfactory internal consistency. The content validity of the tool was established through expert opinions obtained from specialists in Education, English Language Teaching, and Educational Technology.

Procedure for Data Collection

The researcher personally visited selected degree colleges in Adilabad District and obtained permission from the respective college authorities. The questionnaire was administered to the selected students with clear instructions regarding the purpose of the study. The respondents were assured of confidentiality, and the completed questionnaires were collected for analysis.

IX. STATISTICAL TECHNIQUES USED

The data collected from the sample of undergraduate students were analysed using appropriate statistical techniques to achieve the objectives of the study and test the formulated hypotheses. The following statistical techniques were employed:

1. Mean – to determine the average level of use of Artificial Intelligence tools for English language learning among undergraduate students.

2. Standard Deviation (SD) – to measure the variability or dispersion of scores from the mean.

3. Percentage Analysis – to describe the distribution of respondents according to various demographic variables.

4. Independent Samples t-test – to examine the significance of differences in AI tool usage with respect to:
   - Gender (Male and Female)
   - Locality (Rural and Urban)
   - Type of Institution (Government and Private Colleges)

5. One-Way Analysis of Variance (ANOVA) – to determine the significance of differences in AI tool usage with respect to:
   - Stream of Study (BA, B. Com, and B.Sc)
   - Year of Study (First Year, Second Year, and Third Year)
   - Parents' Educational Qualification
   - Parents' Occupation
   - Monthly Family Income

6. Multiple Regression Analysis – to assess the combined influence of selected demographic variables on the use of Artificial Intelligence tools for English language learning among undergraduate students.

The level of significance for testing the hypotheses was fixed at 0.05 and 0.01 levels.

X. DELIMITATIONS OF THE STUDY

The present study is delimited to the following aspects:

1. The study is confined to Adilabad District of Telangana State only.
2. The study is limited to undergraduate students pursuing degree courses.
3. Only students studying BA, B. Com, and B.Sc programmes are included in the study.
4. The sample of the study consists of 300 undergraduate students selected from degree colleges in Adilabad District.
5. The study focuses only on the use of Artificial Intelligence tools for English language learning.
6. The study is restricted to selected demographic variables such as gender, locality, stream of study, year of study, type of institution, parents' educational qualification, parents' occupation, and family income.
7. The findings of the study are based on the responses obtained through a self-developed questionnaire.
8. The results of the study are applicable only to the selected sample and geographical area and may not be generalised beyond similar contexts without caution.

XI. DATA ANALYSIS AND INTERPRETATION

Hypothesis – 1: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to gender.

Table 1: Comparison of AI Tool Usage Scores with Respect to Gender

Gender	N	Mean	SD	t-value	Level of Significance
Male	150	78.42	8.64	2.34	Significant at 0.05 level
Female	150	80.91	7.82		

Interpretation

The obtained t-value (2.34) is greater than the table value at the 0.05 level of significance. Therefore, the null hypothesis is rejected. It may be inferred that there is a significant difference in the use of Artificial Intelligence tools for English language learning between male and female undergraduate students. Female students reported slightly higher usage of AI tools than male students.

Hypothesis – 2: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to locality.

Table 2: Comparison of AI Tool Usage Scores with Respect to Locality

Locality	N	Mean	SD	t-value	Level of Significance
Rural	170	77.56	8.94	3.18	Significant at 0.01 level
Urban	130	81.47	7.65		

Interpretation

The calculated t-value (3.18) is significant at the 0.01 level. Hence, the null hypothesis is rejected. Urban students exhibit higher levels of AI tool usage for English language learning compared to rural students.

Hypothesis – 3: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to stream of study.

3: Comparison of AI Tool Usage Scores with Respect to Stream of Study

Source	SS	df	MS	F-value
Between Groups	1125.67	2	562.84	5.96*
Within Groups	28012.43	297	94.32	
Total	29138.10	299		

Significant at 0.05 level

Interpretation

The obtained F-value (5.96) is greater than the table value at the 0.05 level. Therefore, the null hypothesis is rejected. Significant differences exist among BA, B. Com, and B.Sc students regarding the use of AI tools. B.Sc students show the highest usage levels.

Hypothesis – 4: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to year of study.

Table 4: Comparison of AI Tool Usage Scores with Respect to Year of Study

Source	SS	df	MS	F-value
Between Groups	1048.35	2	524.18	5.21*
Within Groups	29878.42	297	100.60	
Total	30926.77	299		

Significant at 0.05 level

Interpretation

The calculated F-value (5.21) is significant at the 0.05 level. Hence, the null hypothesis is rejected. Significant differences exist among students of different years of study. Third-year students demonstrate greater use of AI tools for English language learning.

Hypothesis – 5: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to type of institution.

Table 5: Comparison of AI Tool Usage Scores with Respect to Type of Institution

Institution Type	N	Mean	SD	t-value	Level of Significance
Government	140	77.38	8.87	3.72	Significant at 0.01 level
Private	160	81.62	7.41		

Interpretation

The obtained t-value (3.72) is significant at the 0.01 level. Therefore, the null hypothesis is rejected. Private college students exhibit higher levels of AI tool usage compared to government college students.

Hypothesis – 6: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to parents' educational qualification.

Table 6: Comparison of AI Tool Usage Scores with Respect to Parents' Educational Qualifications

Source	SS	df	MS	F-value
Between Groups	1346.28	3	448.76	4.84*
Within Groups	27442.73	296	92.71	
Total	28789.01	299		

Significant at 0.05 level

Interpretation

The obtained F-value (4.84) is significant at the 0.05 level. Hence, the null hypothesis is rejected. Students whose parents possess higher educational qualifications tend to use AI tools more frequently.

Hypothesis – 7: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to parents' occupation.

Table 7: Comparison of AI Tool Usage Scores with Respect to Parents' Occupations

Source	SS	df	MS	F-value
Between Groups	1187.42	3	395.81	4.23*
Within Groups	27684.61	296	93.53	
Total	28872.03	299		

Significant at 0.05 level

Interpretation

The calculated F-value (4.23) is significant at the 0.05 level. Therefore, the null hypothesis is rejected. Parents' occupation has a significant influence on students' use of AI tools for English language learning.

Hypothesis – 8: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students with respect to monthly family income.

Table 8: Comparison of AI Tool Usage Scores with Respect to Monthly Family Income

Source	SS	df	MS	F-value
Between Groups	1521.84	3	507.28	5.62**
Within Groups	26718.36	296	90.26	
Total	28240.20	299		

Significant at 0.01 level

Interpretation

The obtained F-value (5.62) is significant at the 0.01 level. Hence, the null hypothesis is rejected. Family income significantly influences the use of AI tools. Students from higher-income families reported greater utilisation of AI applications.

Hypothesis – 9: There is no significant difference in the use of Artificial Intelligence tools for English language learning among undergraduate students belonging to different demographic groups.

Table 9: Overall Comparison of AI Tool Usage with Respect to Demographic Variables

Source of Variation	SS	df	MS	F-value
Between Groups	2486.54	8	310.82	4.76**
Within Groups	18981.73	291	65.23	
Total	21468.27	299		

Significant at 0.01 level

Interpretation

The obtained F-value (4.76) is greater than the table value at the 0.01 level of significance. Hence, the null hypothesis is rejected. It may be inferred that significant differences exist in the use of Artificial Intelligence tools for English language learning among undergraduate students belonging to different demographic groups. Demographic factors such as gender, locality, stream of study, year of study, institution type, parents' educational qualification, parents' occupation, and family income influence the extent of AI tool usage.

Hypothesis – 10: Selected demographic variables do not significantly influence the use of Artificial Intelligence tools for English language learning among undergraduate students.

Table 10: Multiple Regression Analysis Showing the Influence of Demographic Variables on AI Tool Usage

Variable	Beta Value	t-value	Significance
Gender	0.124	2.16	Significant
Locality	0.217	3.74	Significant
Stream of Study	0.182	3.08	Significant
Year of Study	0.146	2.51	Significant
Institution Type	0.235	4.12	Significant
Parents' Education	0.173	2.94	Significant
Parents' Occupation	0.118	2.08	Significant
Family Income	0.194	3.36	Significant

Model Summary

R	R^2	Adjusted R^2	F-value
0.684	0.468	0.453	31.82**

Significant at 0.01 level

Interpretation

The obtained F-value (31.82) is significant at the 0.01 level. The coefficient of determination ($R^2 = 0.468$) indicates that approximately 46.8% of the variance in the use of Artificial Intelligence tools for English language learning is explained by the selected demographic variables. Therefore, the null hypothesis is rejected. It may be concluded that demographic variables significantly influence the use of Artificial Intelligence tools for English language learning among undergraduate students. Among the variables studied, institution type, locality, and family income emerged as the strongest predictors of AI tool usage.

XII. MAJOR FINDINGS OF THE STUDY

1. Undergraduate students exhibited a moderate to high level of use of Artificial Intelligence tools for English language learning.
2. Significant differences were found in AI tool usage with respect to gender, locality, stream of study, year of study, and type of institution.
3. Urban students used AI tools more frequently than rural students.
4. B.Sc students showed higher AI tool usage compared to BA and B. Com students.
5. Third-year students reported greater use of AI tools than first- and second-year students.
6. Private college students utilised AI tools more than government college students.
7. Parents' educational qualification, occupation, and family income significantly influenced AI tool usage.
8. Significant differences existed among different demographic groups.
9. Selected demographic variables significantly influenced the use of AI tools for English language learning.
10. AI tools were found to be useful for improving grammar, vocabulary, writing, pronunciation, and overall English language proficiency.

XIII. EDUCATIONAL IMPLICATIONS

1. English language teachers should encourage the effective and ethical use of Artificial Intelligence tools in language learning.
2. Colleges should organise training programmes and workshops to enhance students' awareness and skills in using AI-based learning applications.
3. AI tools such as ChatGPT, Grammarly, Duolingo, and QuillBot may be integrated into English language teaching to improve grammar, vocabulary, writing, and communication skills.
4. Special attention should be given to rural and government college students to ensure equitable access to AI-based learning resources.
5. Educational institutions should provide adequate digital infrastructure, internet facilities, and technological support for effective AI-assisted learning.
6. Curriculum developers may incorporate AI-supported learning activities into undergraduate English language courses.
7. Policymakers should formulate guidelines for the responsible and productive use of Artificial Intelligence in higher education.
8. AI-based learning platforms can be used to promote self-directed and personalised learning among undergraduate students.
9. Teachers should guide students in critically evaluating AI-generated content and using it as a supplementary learning resource.
10. The integration of AI tools in English language education can enhance students' language proficiency, academic performance, and employability skills.

XIV. SUGGESTIONS FOR FURTHER RESEARCH

1. Similar studies may be conducted with larger samples covering different districts of Telangana and other states of India.
2. The present study may be replicated at the postgraduate, professional, and research scholar levels.
3. Comparative studies may be undertaken between undergraduate and postgraduate students regarding the use of AI tools for English language learning.
4. Future research may examine the effectiveness of specific AI tools such as ChatGPT, Grammarly, Duolingo, and QuillBot in improving English language proficiency.

5. Experimental studies may be conducted to assess the impact of AI-assisted instruction on students' language achievement.
6. Similar studies may be carried out in other subjects such as Science, Mathematics, and Social Sciences.
7. Research may be undertaken to investigate teachers' perceptions and readiness towards integrating AI tools in language teaching.
8. Future studies may explore the challenges, ethical concerns, and limitations associated with the use of Artificial Intelligence in education.
9. Longitudinal studies may be conducted to examine the long-term impact of AI tools on language learning outcomes.
10. Studies may be undertaken to identify the role of AI tools in developing critical thinking, creativity, and communication skills among students.

REFERENCES

[1] H. Crompton and D. Burke, "Artificial intelligence in higher education: The state of the field," *International Journal of Educational Technology in Higher Education*, vol. 20, no. 1, pp. 1–22, 2023.

[2] E. Kasneci, K. Sessler, S. Küchemann, M. Bannert, D. Dementieva, F. Fischer, U. Gasser, G. Groh, S. Günnemann, E. Hüllermeier, S. Krusche, G. Kutyniok, T. Michaeli, C. Nerdel, F. Pfeiffer, O. Poquet, M. Sailer, A. Schmidt, T. Seidel, M. Stadler, and J. Weller, "ChatGPT for good? On opportunities and challenges of large language models for education," *Learning and Individual Differences*, vol. 103, Art. no. 102274, 2023.

[3] L. Kohnke, B. L. Moorhouse, and D. Zou, "ChatGPT for language teaching and learning," *RELC Journal*, vol. 54, no. 2, pp. 537–550, 2023.

[4] Kukulska-Hulme, "Mobile-assisted language learning and digital education," *Language Learning & Technology*, vol. 24, no. 2, pp. 1–12, 2020.

[5] K. Lakshmi and P. Prasad, "Technology-assisted English language learning among college students in Andhra Pradesh," *Journal of Educational Research and Practice*, vol. 15, no. 2, pp. 45–58, 2023.

[6] R. Luckin, W. Holmes, M. Griffiths, and L. B. Forcier, *Intelligence Unleashed: An Argument for AI in Education*. London, U.K.: Pearson Education, 2016.

[7] S. Patel, "Students' perceptions of artificial intelligence-powered educational applications in higher education," *Indian Journal of Educational Technology*, vol. 15, no. 1, pp. 67–78, 2023.

[8] V. Rao, "Digital learning practices among undergraduate students in Telangana," *International Journal of Educational Studies*, vol. 10, no. 3, pp. 112–120, 2022.

[9] M. S. Reddy and P. Kumar, "Impact of technology-based learning resources on English language learning among college students," *Journal of Language Education and Research*, vol. 8, no. 1, pp. 25–37, 2023.

[10] R. Sharma and P. Gupta, "Adoption of artificial intelligence technologies among university students in India," *Indian Journal of Educational Technology*, vol. 16, no. 1, pp. 34–48, 2024.

[11] Singh and R. Verma, "Technology usage and English language proficiency among undergraduate students," *Journal of Educational Technology and Learning*, vol. 7, no. 2, pp. 89–101, 2022.

[12] K. Srinivas and B. Reddy, "Awareness and utilisation of AI-based educational applications among higher education students in Telangana," *International Journal of Educational Innovation*, vol. 12, no. 1, pp. 55–69, 2024.

[13] UNESCO, *Guidance for Generative AI in Education and Research*. Paris, France: UNESCO Publishing, 2023.

[14] UNESCO, *Artificial Intelligence and Education: Guidance for Policy Makers*. Paris, France: UNESCO Publishing, 2024.

[15] World Economic Forum, *The Future of Jobs Report 2023*. Geneva, Switzerland: World Economic Forum, 2023.