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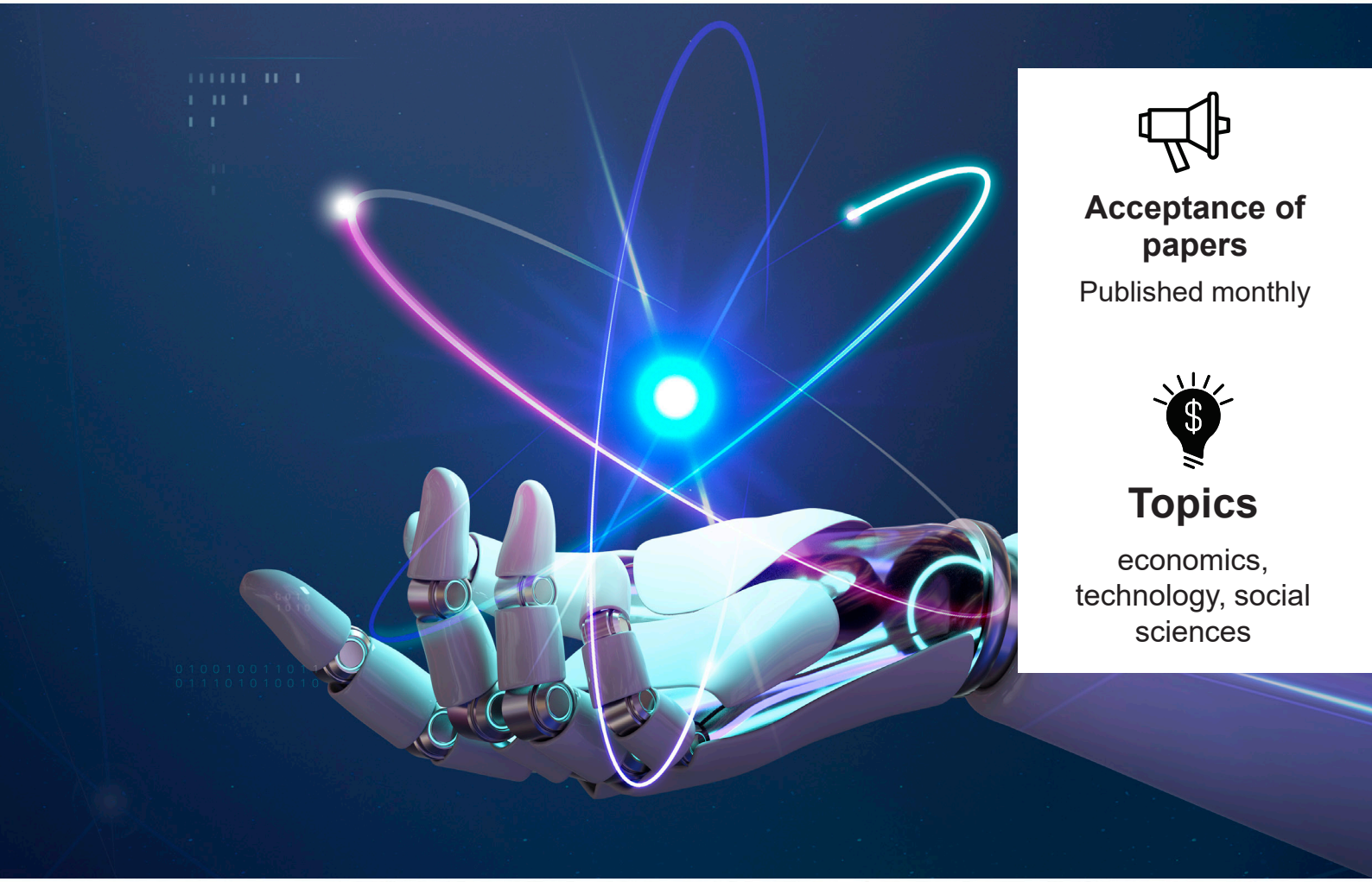

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CONTENTS

FINANCING OF SMALL BUSINESSES THROUGH INVESTMENT LOANS BY COMMERCIAL BANKS.....15
Yangiboyev F.B.

INTEGRATION OF THE TRANSPORT SECTOR INTO THE GREEN ECONOMY AND IMPACT ON SUSTAINABLE DEVELOPMENT: ECOLOGICAL TRANSFORMATION AND INNOVATIVE SOLUTIONS.....20
Narziyev Umidjon Bakhrillayevich

FOREIGN EXPERIENCE IN INCREASING THE INVESTMENT ACTIVITY OF JOINT-STOCK COMPANIES.....24
Begamov. S.X.

AN ENHANCED FINANCING MODEL FOR STARTUP PROJECTS IN HIGHER EDUCATION INSTITUTIONS OF UZBEKISTAN.....27
Kasimova Nargiza Sabitdjanovna

STRATEGIES FOR ENHANCING INVESTMENT POTENTIAL.....32
Tillayeva Barno Ramizitdinovna

THE IMPORTANCE OF USING ARTIFICIAL INTELLIGENCE IN HOTEL MANAGEMENT.....36
Husenova Madina Farkhodovna

MARKETPLACES AND ECONOMIC SECURITY IN UZBEKISTAN: RISKS AND REGULATION.....42
Umarkhodjayeva Zaynabkhon Nodirkhonovna

TECHNOLOGICAL STRENGTH AND PROPERTIES OF METAL OF AUSTENITIC JOINTS DURING WELDING WITH VARIOUS FLUXES.....47
Khudoykulov Nurilla Zikirillaevich, Khudoyorov Sardor Sadullaevich

MODERN SYSTEMS OF PRODUCT COST CALCULATION: METHODOLOGICAL FOUNDATIONS AND DIRECTIONS OF PRACTICAL TRANSFORMATION.....51
Abdumalik Abdiraximovich Tulyaganov

SUPPORTING ECONOMIC EXPANSION AND MAXIMIZING PRODUCTION EFFICIENCY WITHIN A MARKET ECONOMY.....56
Aytmuratov Qutlımurat Jalgasovich

SUCCESS FACTORS OF DIFFERENTIATION STRATEGY IN A MARKET ECONOMY.....62
Sodiqov Miraxror Abbos ugli

THE “MISSING MIDDLE” PROBLEM IN SOCIAL PROTECTION SYSTEMS AND MECHANISMS FOR ADDRESSING IT.....67
Farrukh Juraqulovich Bafoev

IMPROVING POPULATION INVESTMENT ACTIVITY THROUGH THE DEVELOPMENT OF BANK BROKERAGE SERVICES AND FINANCIAL LITERACY IN FORMING A SECURITIES PORTFOLIO IN THE KHOREZM REGION.....72
Bakhtiyorov Khudaybergan Hamdam ugli

DEVELOPMENT OF THE SERVICE SECTOR AND ITS IMPACT ON POVERTY REDUCTION.....79
Dauletmuratov Adilbay Mirzabaevich

THE ROLE AND IMPORTANCE OF A SYNERGETIC APPROACH IN DEVELOPING THE MANAGEMENT SKILLS OF SCHOOL DIRECTORS.....84
Yusupova Dilnoza Fayzullayevna

REGIONAL INNOVATION DEVELOPMENT INDICATORS AND THEIR EVALUATION SYSTEM.....89
Xamrayev Quvvat Iskandarovich

GADGETS AND VALUES: HOW DOES THE VIRTUAL WORLD IMPACT THE EDUCATION OF YOUTH?.....97
Makhmudova Sohiba Ravshan kizi, Mirzaliyev Sanjar Makhamatjon ugli

WAYS TO IMPROVE SERVICE QUALITY AND SAFETY IN THE HOSPITALITY INDUSTRY THROUGH DIGITAL TECHNOLOGIES.....101
Musayeva Shoira Azimovna

DIRECTIONS FOR INCREASING HOUSEHOLD INCOMES BASED ON FOREIGN EXPERIENCE.....104
Eshbaeva Shahnoza Faxriddinovna

CONTENTS

IMPROVING METHODS FOR DETECTING FRAUD CASES IN CURRENT ASSET AUDITS 108
Mavlyanova Dilobar Makhkamovna

GLOBAL TRENDS IN WORLD MARKETS AND THEIR IMPACT ON THE DEVELOPMENT OF INTERNATIONAL TRADE 113
Meliqulov Abduhalil Norinovich

THEORETICAL ASPECTS OF FORMING AND APPLYING THE INTEGRATION MECHANISM OF SMALL BUSINESS 119
Rustambek Ibragimovich Israilov

THE IMPORTANCE OF USING PERFORMANCE INDICATORS IN IMPROVING ROAD MANAGEMENT METHODS 125
Sirojiddin Yadgarov

WAYS TO IMPROVE BANKING EFFICIENCY IN THE CONDITIONS OF TRANSFORMATION 131
Babakhanova Dildora Rustamovna

THE ROLE OF PROGRAM-BASED BUDGETING MECHANISMS IN ENSURING STATE FINANCIAL SECURITY 137
Abduganiyev Uchkun Khabibulla ugli

ANALYSIS OF THE IMPACT OF PUBLIC FINANCIAL MANAGEMENT EFFICIENCY ON SOCIAL JUSTICE THROUGH PEFA AND CEQ METHODOLOGIES 143
Zokirjonov Muhammadsodiq Ravshanbek ugli

MANAGERIAL MECHANISMS OF CORPORATE HYBRID BUSINESS MODELS: FINTECH INTEGRATION IN E-PAYMENT SYSTEMS OF UZBEKISTAN 151
Mokhirakhon Abdullaeva

TOKENIZATION OF REAL SECTOR ASSETS AND DEEPENING OF CAPITAL MARKETS: A NEW FINANCIAL ARCHITECTURE FOR EMERGING ECONOMIES 156
Oybek Qo‘shboqov

TECHNOLOGIES OF ARTIFICIAL INTELLIGENCE IN OPTICAL COMMUNICATION AND THEIR INTEGRATION INTO INTELLIGENT TUTORING SYSTEMS 162
Maxamadov Rustam Xabibullayevich, Djamatov Mustafa Xatamovich

APPROACHES TO ENHANCING THE EFFECTIVENESS OF GOVERNMENT SUPPORT FOR SMALL BUSINESSES IN THE REGION 169
Madraimova Marxamat Raximberganovna

INNOVATIVE WAYS TO INCREASE THE INVESTMENT CAPACITY OF REGIONS BASED ON DIGITAL TECHNOLOGIES 174
Qabilov Anvar Eshpulatovich

TAXATION OF AGRICULTURAL ENTERPRISES AND THE ORGANIZATION OF THEIR ACCOUNTING SYSTEMS 179
Abdullayev Abdurauf

DEVELOPMENT PROSPECTS OF THE VEGETABLE FARMING SECTOR IN THE REPUBLIC OF UZBEKISTAN 183
Sobir Xasanov

AI FOR TEACHING ENGLISH AS A FOREIGN LANGUAGE TO UNIVERSITY STUDENTS 191
Nurzhanova Zhainash, Rajapova Guldona

AI FOR TEACHING ENGLISH AS A FOREIGN LANGUAGE TO UNIVERSITY STUDENTS

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Abstract: The integration of Artificial Intelligence (AI) into higher education has significantly enhanced pedagogical approaches, particularly in Teaching English as a Foreign Language (TEFL). This study examines the effectiveness, applicability, and pedagogical outcomes of AI-driven tools—such as intelligent tutoring systems, automated writing evaluation platforms, and conversational chatbots—in improving the English language proficiency of university students.

Based on a mixed-methods research design, the study involved 120 undergraduate students divided into control and experimental groups over a 16-week academic semester. The experimental group utilized AI platforms (e.g., ChatGPT, Grammarly, and AI-powered speech recognition tools) alongside traditional teaching methods, while the control group followed conventional communicative language teaching approaches.

Quantitative data obtained from pre- and post-intervention language proficiency assessments revealed a statistically significant improvement in the experimental group, particularly in writing and speaking skills. In addition, qualitative findings derived from structured surveys and focus group discussions indicated increased student motivation, more personalized learning experiences, and the availability of immediate feedback as key advantages of AI integration.

At the same time, the study highlights important considerations such as ensuring fairness in algorithmic processes, maintaining a balanced use of AI tools, and safeguarding data privacy. Overall, the research supports the implementation of a blended pedagogical framework in which AI functions as a supportive and complementary resource alongside human instructors.

Key words: Artificial Intelligence, TEFL, higher education, language proficiency, automated feedback, chatbots, personalized learning, educational technology, university students, ESL, EFL, communicative competence, AI integration, digital literacy, pedagogical innovation, intelligent tutoring systems, generative AI, student engagement, autonomous learning, language acquisition.

INTRODUCTION

In the era of rapid globalization and digital transformation, proficiency in foreign languages—particularly English—has become an essential requirement for university graduates seeking to enhance their competitiveness in the international labor market. The active integration of digital technologies into the educational environment encourages institutions to continuously improve and modernize traditional teaching methodologies. In recent years, the development of Artificial Intelligence (AI) has contributed to a significant transformation in the field of education, especially in the process of language acquisition.

AI-powered tools—ranging from advanced text generation systems and intelligent editing software to speech recognition technologies and conversational chatbots—provide students with extensive opportunities for individualized and adaptive language learning. Within higher education, the application of AI in Teaching English as a Foreign Language (TEFL) plays an important role not only in strengthening learners' grammatical and lexical knowledge but also in enhancing their overall communicative competence. The transition from traditional, uniform teaching models to flexible, AI-supported learning environments represents an important stage in the evolution of modern pedagogy and requires thorough academic analysis.

In the Republic of Uzbekistan, the digitalization of the education system and the comprehensive support for youth in mastering foreign languages are identified as key priorities of state development policy. An important step in this direction was the adoption of the Presidential Resolution No. PQ-5117 dated May 19, 2021, "On measures to bring the popularization of learning foreign languages in the Republic of Uzbekistan to a qualitatively new level" (Lex.uz). The document emphasizes the importance of introducing modern technologies and information and communication tools into the process of teaching foreign languages, expanding access to digital educational resources, and training specialists who meet international standards. This regulatory framework creates favorable conditions for the effective integration of innovative approaches, including AI-based technologies, into higher education practice.

Pedagogical approaches to teaching English have undergone continuous development over time. While earlier methods were largely based on grammar-translation and direct instruction, modern approaches are primarily grounded in the principles of Communicative Language Teaching (CLT) and Task-Based Language Teaching (TBLT). At the same time, certain organizational challenges—such as large class sizes, limited time for individual interaction between teachers and students, and differences in learners' initial proficiency levels—can influence the effectiveness of the educational process. In this context, AI technologies offer additional opportunities to enhance learning efficiency.

AI tools are capable of analyzing individual learning trajectories, identifying knowledge gaps, and providing personalized learning materials along with timely and constructive feedback. For example, generative AI tools such as ChatGPT and Claude create interactive environments for practicing communication skills, while applications like Grammarly support the development of academic writing through automated real-time language correction. These technologies contribute to the formation of a flexible learning environment that adapts to the individual needs of each learner.

The main objective of this research is to conduct a comprehensive analysis of the pedagogical, psychological, and methodological effects of using AI technologies in teaching English to university students. The study focuses on non-philological undergraduate students studying English in higher education institutions of Uzbekistan. The research addresses several key questions: to what extent AI tools contribute to the development of reading, writing, listening, and speaking skills; what practical and pedagogical aspects should be considered when integrating AI into the educational process; and how academic integrity and ethical standards can be effectively maintained in an AI-supported learning environment.

It is important to emphasize that artificial intelligence is not intended to replace the role of the teacher, but rather to serve as a supportive tool that expands instructional capabilities. In an AI-enhanced learning environment, the teacher's role evolves toward that of a facilitator, mentor, and guide. Given that university students increasingly engage in independent learning, AI platforms enable them to continue their educational activities beyond the traditional classroom setting. At the same time, the integration of AI into education requires a balanced and responsible approach. Considerations such as maintaining students' critical thinking skills, encouraging independent analysis, and ensuring academic honesty highlight the need for well-developed methodological guidelines.

Overall, this study provides a balanced examination of the opportunities offered by AI technologies while also addressing important considerations related to their effective and responsible use, ultimately offering practical recommendations for improving the quality of higher education.

LITERATURE REVIEW

The application of technology, particularly Artificial Intelligence (AI), in foreign language teaching has been actively explored by both domestic and international scholars over the past decade. This development, originating from the foundational methodology of Computer-Assisted Language Learning (CALL), has gradually evolved into the widespread use of Intelligent Tutoring Systems (ITS) and Generative AI. This section analyzes various academic perspectives on the role of AI tools in teaching foreign languages within higher education.

In the works of international scholars, the role of AI in education has been examined from a fundamental perspective. For example, Warschauer (2004) initially highlighted that computer technologies might contribute to a digital divide among learners; however, his later research indicated that AI-based technologies can support more inclusive education by adapting to diverse learner needs. Godwin-Jones (2021) emphasizes that AI tools significantly enhance students' writing skills through Automated Writing Evaluation (AWE), as they provide immediate and personalized feedback that complements traditional assessment methods. Furthermore, Holmes et al. (2019) developed the concept of "AI in Education" (AIEd), demonstrating that AI technologies support not only students but also teachers by enabling detailed analysis of the learning process through advanced learning analytics.

Additionally, Luckin (2018) highlights that the effective integration of artificial and human intelligence forms the basis of future education, where AI is primarily responsible for data processing and repetitive tasks, while teachers focus on fostering empathy, emotional intelligence, and complex social interaction. Chassignol et al. (2018) identify four key functions of AI in language learning: profiling, adaptation, evaluation, and prediction. In turn, Dodigovic (2005) provides an in-depth analysis of intelligent tutoring systems, emphasizing their effectiveness in supporting vocabulary acquisition and mastering complex grammatical structures through individualized practice. Chapelle (2001) proposes six criteria for evaluating the effectiveness of AI within the CALL framework: language learning potential, learner suitability, focus on meaning, positive impact, practicality, and authenticity. From the perspective of interactive pedagogy and constructivism, Beatty (2013) underlines the importance of AI-based conversational chatbots in reducing language anxiety and creating a supportive environment for oral practice.

Scholars from Uzbekistan have also made a significant contribution to the integration of digital technologies into language teaching methodology. For instance, Jalolov (2012), in his work "Methodology of Foreign Language Teaching," emphasized the importance of developing language skills in an integrated manner and anticipated the supportive role of automated tools in this process. Makhkamova (2017) examined the role of digital tools in fostering intercultural communication, noting that global AI platforms enable learners to simulate interaction with native speakers, which is particularly valuable in EFL contexts.

More recent studies further develop this line of research. Khasanova (2021) analyzed the use of digital resources in distance and blended learning environments, emphasizing the importance of digital literacy. Botirova (2022) explored the development of learner autonomy through AI-supported tools, highlighting the role of intelligent feedback in enhancing independent learning. Ruzimurodov (2023) investigated the pedagogical conditions for the effective and ethical use of AI programs, including ChatGPT, in academic writing, contributing to the development of academic integrity practices. Tursunov (2023) examined the application of speech recognition technologies and their adaptability to local Uzbek accents in assessing students' speaking skills.

An analysis of the literature indicates that, although the potential of AI in foreign language teaching has been extensively studied both theoretically and practically by international scholars, its adaptation within higher education institutions in Uzbekistan, the psychological readiness of students, and its alignment with national educational standards remain areas for further research. Building on the insights of the aforementioned scholars, this study aims to experimentally evaluate the impact of AI platforms on specific language skills—reading, writing, speaking, and listening—by integrating global pedagogical approaches with the local educational context.

RESEARCH METHODOLOGY

To comprehensively evaluate the impact of artificial intelligence tools on the English language proficiency of university students, this study employed an Explanatory Sequential Mixed Methods Research Design. This methodological approach integrates both quantitative and qualitative data, allowing for a more holistic and reliable analysis of the research problem.

In the first stage, quantitative data were collected and analyzed to assess measurable changes in students' language proficiency. In the subsequent stage, qualitative data were gathered to further explain, interpret, and contextualize the quantitative findings. Such a sequential approach enhances the depth of analysis and contributes to a more comprehensive understanding of the effectiveness of AI-based tools in the educational process.

Research Participants and Sampling. The study was conducted with the participation of 120 second-year undergraduate students enrolled in non-philological fields (Faculty of Information Technology and Faculty of Economics) at a leading state university in Uzbekistan. The participants' baseline English proficiency was confirmed at the B1 (Intermediate) level according to the Common European Framework of Reference for Languages (CEFR) through initial diagnostic testing.

To ensure objectivity and minimize selection bias, participants were randomly assigned into two equal groups of 60 students each:

1. Control Group (N = 60): This group received instruction based on traditional Communicative Language Teaching (CLT) methodologies using standard university-approved textbooks.
2. Experimental Group (N = 60): In addition to traditional classroom instruction, this group engaged with selected AI-based tools for independent learning outside the classroom. These tools included Grammarly and ChatGPT for writing practice, as well as Duolingo Max and customized conversational bots for developing speaking and listening skills.

Research Duration and Procedures. The empirical study was conducted over a full 16-week academic semester. At the beginning (pre-test) and at the end (post-test) of the intervention period, students in both groups

were assessed across all four language skills (Reading, Writing, Listening, and Speaking) using standardized IELTS-format diagnostic tests.

The experimental group was provided with structured guidelines and instructed to use the designated AI tools for a minimum of four hours per week outside regular classroom sessions. Instructors monitored students' progress by reviewing AI-generated feedback and tracking engagement indicators, ensuring consistency and active participation throughout the study period.

Data Collection Instruments:

1. Standardized Tests: Quantitative data were collected using parallel versions of mock IELTS examinations to ensure reliability and validity of assessment results.
2. Surveys: A 5-point Likert scale questionnaire (ranging from "Strongly Disagree" to "Strongly Agree") was administered to the experimental group after the intervention to evaluate students' perceptions of AI integration, learning motivation, and usability of the tools.
3. Focus Groups: To obtain qualitative insights, semi-structured focus group interviews were conducted with 15 randomly selected students from the experimental group. These discussions explored students' learning experiences, perceived benefits, and areas for further improvement in the use of AI technologies.

All quantitative data were analyzed using SPSS software (Version 26), applying Paired-Samples T-tests and Independent-Samples T-tests to determine the statistical significance of the results.

ANALYSIS AND RESULTS

The empirical data collected over the 16-week intervention yielded significant insights into the efficacy of AI tools in an EFL context. The analysis is divided into quantitative findings, derived from the pre- and post-tests, and qualitative findings, derived from the student perception surveys. Quantitative Analysis.Table 1 illustrates the descriptive statistics for both the Control and Experimental groups before and after the 16-week semester. The scores are presented as overall band equivalents based on the standardized IELTS 9-band scale to provide a universally understood metric (Table 1).

Table 1. Pre-test and Post-test Descriptive Statistics for Language Proficiency[1]

Group	N	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	Mean Difference
Control Group	60	5.12	0.45	5.35	0.48	+0.23
Experimental Group	60	5.15	0.42	6.05	0.39	+0.90
Reading (Exp)	60	5.20	0.40	5.80	0.35	+0.60
Writing (Exp)	60	4.90	0.50	6.10	0.42	+1.20
Listening (Exp)	60	5.30	0.45	5.90	0.40	+0.60
Speaking (Exp)	60	5.20	0.55	6.40	0.45	+1.20
p-value (Control vs Exp)	-	$p > 0.05$	-	$p < 0.001$	-	-

At the onset of the study, an Independent-Samples T-test confirmed there was no statistically significant difference between the two groups' baseline proficiency (Control Mean = 5.12, Experimental Mean = 5.15, $p > 0.05$). However, the post-test results indicate a remarkable divergence. While the Control Group showed a modest natural progression (+0.23 band improvement), the Experimental Group exhibited a highly significant improvement (+0.90 overall band increase, $p < 0.001$). A granular look at the specific skills reveals that the AI intervention had the most profound impact on Writing (+1.20) and Speaking (+1.20). The use of AWE tools like Grammarly drastically reduced grammatical inaccuracies, while conversational bots provided the extensive, low-anxiety oral practice necessary to build speaking fluency (Figure 1).

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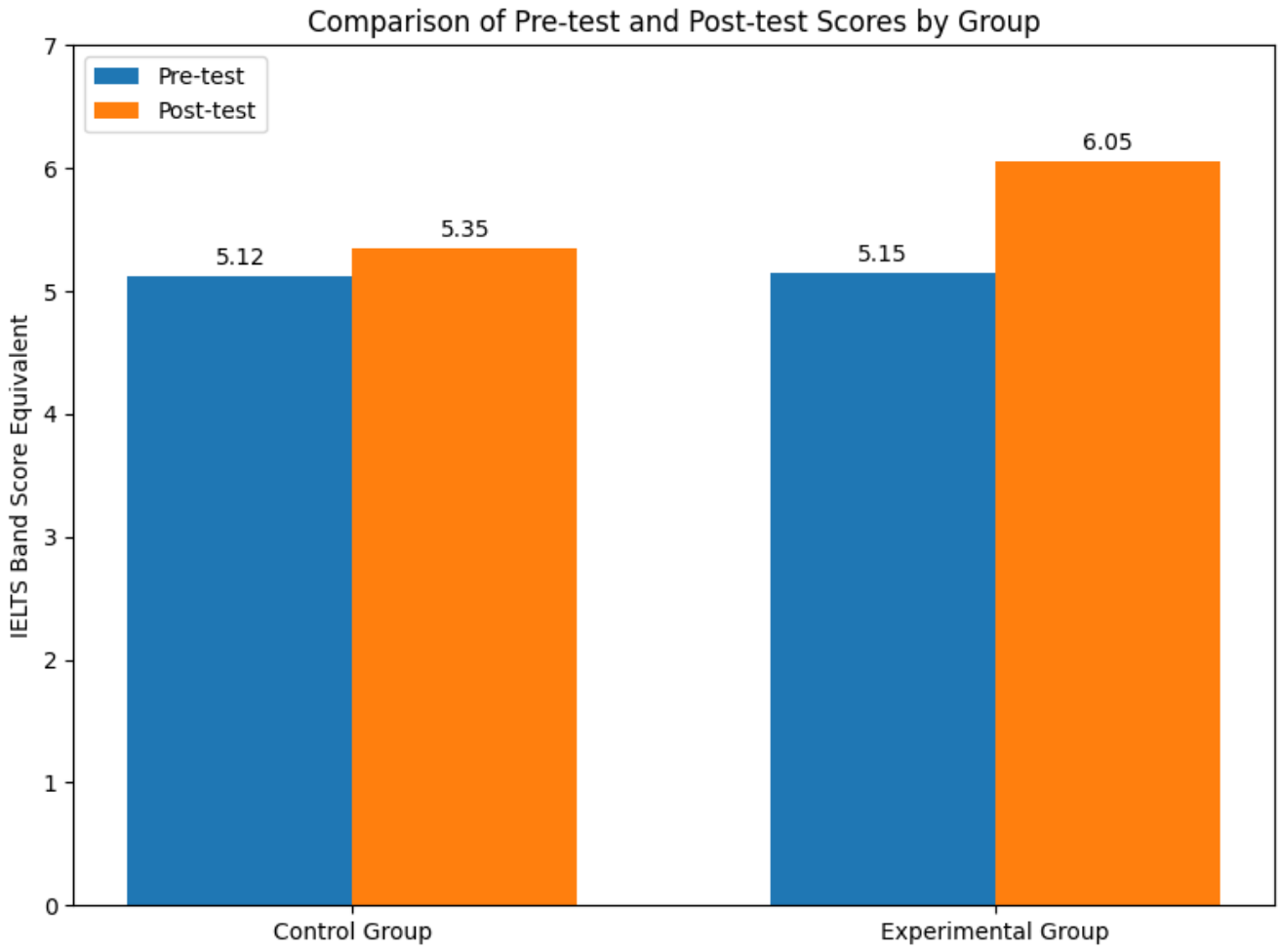

Figure 1. Comparison of Pre-test and Post-test Scores by Group[2]

This bar chart visually depicts the comparative English language proficiency of the Control Group and the Experimental Group, measured in IELTS band score equivalents, both before (Pre-test) and after (Post-test) the 16-week intervention.

- Baseline Equivalency (Blue Bars): The pre-test scores indicate that both groups commenced the study with a nearly identical level of baseline proficiency. The Control Group recorded a mean score of 5.12, while the Experimental Group scored 5.15. This marginal difference confirms that the participants were evenly matched prior to the experiment, ensuring the objective validity and reliability of the subsequent findings.
- Control Group Progression (Left Side): The cohort instructed exclusively through traditional Communicative Language Teaching (CLT) methods demonstrated a minimal increase in their language proficiency. Their average score progressed from 5.12 to 5.35 (represented by the orange bar), reflecting a modest natural growth of merely 0.23 bands over the entire academic semester.
- Experimental Group Progression (Right Side): In stark contrast, the students who supplemented their traditional coursework with Artificial Intelligence (AI) tools exhibited a highly significant improvement. Their post-test average surged from 5.15 to 6.05. This substantial increase of 0.90 bands highlights the profound and direct impact of the AI intervention.

The chart provides compelling visual evidence that the integration of AI tools into the language learning ecosystem yields a developmental trajectory that is nearly four times higher than that of traditional teaching methodologies alone. The distinct disparity in the height of the post-test bars clearly validates the efficacy of AI-assisted autonomous learning in accelerating overall language acquisition.

Qualitative Analysis. To understand the underlying mechanisms driving these numerical improvements, a post-intervention survey was administered exclusively to the Experimental Group (N=60). The constructs measured included Motivation, Autonomy, Immediate Feedback utility, and AI Dependency (Table 2).

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Table 2. Qualitative Survey Results on AI Integration (Experimental Group, N=60) [3]

Construct / Item	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Mean Score
Motivation: AI tools made learning English more engaging.	0	2	5	28	25	4.27
Autonomy: I feel more capable of studying independently.	1	4	8	30	17	3.97
Feedback: The instant error correction helped me learn faster.	0	1	3	20	36	4.52
Anxiety: Practicing speaking with a bot reduced my fear of making mistakes.	2	3	10	25	20	3.97
Dependency: I worry I rely too much on AI to fix my grammar.	5	15	12	18	10	3.22
Usability: The AI platforms were easy to navigate and use.	0	2	4	35	19	4.18
Relevance: The AI-generated content was relevant to my major.	3	8	15	24	10	3.50

The survey data highlights a strongly positive reception of AI tools among students. The highest-rated construct was “Feedback” (Mean = 4.52), indicating that students highly value the instantaneous and personalized corrections provided by AI, an affordance traditional classroom environments struggle to provide consistently. Motivation also scored exceptionally high (Mean = 4.27), aligning with the focus group data where students reported that gamified and interactive AI interfaces made mundane tasks enjoyable. Notably, speaking anxiety was demonstrably reduced (Mean = 3.97), as the non-judgmental nature of AI chatbots created a safe space for phonetic and syntactic experimentation.

However, a critical finding emerged regarding “Dependency.” With a mean score of 3.22 (clustering around Neutral/Agree), a significant portion of the cohort expressed genuine concern that over-reliance on AI (particularly AWE tools) might erode their inherent cognitive retention of grammar rules. This data suggests that while AI drastically improves output quality, educators must remain vigilant to ensure it is used for skill acquisition rather than mere task delegation.

CONCLUSION AND RECOMMENDATIONS

The findings of this comprehensive study clearly demonstrate that the strategic integration of Artificial Intelligence (AI) tools into the TEFL curriculum within higher education institutions contributes to positive and effective pedagogical outcomes. Quantitative results indicate that students in the experimental group, who utilized platforms such as ChatGPT, Grammarly, and AI-based conversational tools, achieved significantly higher results compared to those in the control group. The most notable improvements were observed in productive language skills—particularly writing and speaking—where AI-enabled personalized, immediate, and continuous feedback effectively supports the learning process and enhances skill development.

Qualitative findings further reveal that the use of AI technologies fosters greater learner autonomy, creates a more supportive and engaging learning environment, and strengthens students’ academic motivation. In particular, AI-assisted learning contributes to increased confidence in language use and encourages active participation in the learning process.

At the same time, the transition toward AI-supported education requires a balanced and well-managed approach. The study highlights the importance of maintaining students’ independent thinking skills, encouraging critical analysis, and ensuring responsible use of technological tools. In addition, promoting academic integrity in the context of advanced digital technologies remains an important consideration for higher education institutions. In this regard, the role of the teacher becomes even more significant, evolving toward that of a mentor, facilitator, and guide who supports students in effectively and ethically utilizing AI tools.

Based on the empirical findings and theoretical analysis, the following practical recommendations are proposed for higher education policymakers, curriculum developers, and university administrators:

1. Curriculum Modernization: Higher education institutions are encouraged to incorporate AI literacy into EFL curricula. Structured learning activities can be designed to help students critically evaluate, refine, and effectively use AI-generated content, thereby enhancing analytical and language skills.

3 author’s development

2. Faculty Professional Development: Universities should implement continuous professional development programs to equip educators with the necessary competencies to effectively use AI tools and interpret learning analytics, enabling more targeted and personalized instructional support.

3. Development of Ethical Guidelines: It is advisable to establish clear and transparent academic integrity guidelines that define appropriate and responsible use of AI in academic work, ensuring a balance between innovation and ethical standards.

4. Promotion of Blended Learning Approaches: AI technologies can be effectively utilized to support blended learning models, such as the "flipped classroom." Routine language practice can be conducted independently with AI tools, while classroom time can be dedicated to interactive, communicative, and collaborative learning activities.

Overall, the integration of AI into language education presents valuable opportunities for enhancing teaching effectiveness and learning outcomes. With a well-structured and responsible approach, AI can serve as a powerful supportive tool that complements traditional pedagogy and contributes to the continuous improvement of higher education quality.

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