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Using artificial intelligence to improve Beninese ESP advanced learners' communication skills in Institut de Formation et de Recherche en Informatique (IFRI) and Haute Ecole de Commerce et de Management (HECM) in Benin Republic

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ABSTRACT: This paper explores the use of artificial intelligence (AI) to enhance the communication skills of advanced learners in English for Specific Purposes (ESP). The impact of integrating AI technology on ESP learners' communication skills is examined. A mixed and quasi-experimental methodology was employed, involving data collection from teachers and learners through classroom observation, interviews, and questionnaires. These were addressed to three (03) ESP teachers and three hundred (300) learners at HECM and IFRI. The experimental process involved an experimental group (EG) that used AI tools for three months, and a control group (CG) that did not. The collected data was analyzed using a one-way ANOVA test in SPSS 26. The results showed a statistical significant improvement in the oral communication skills of ESP learners who used AI tools. This study suggests that integrating AI technology into the curriculum can enhance learners' communication skills.

KEYWORDS: Artificial Intelligence, communication skills, ESP, advanced learners.

1 INTRODUCTION

The 21st century is marked by a rapid surge in technological advancements that are shaping society at large. This exponential growth in technology has led to an increasing reliance on digital platforms, which now occupy a significant place in today's tool market. The evolution of technology enables adaptation to the current job market, which demands innovative solutions that cater to the needs of a digitally-driven world. Furthermore, learners' interest in technology prompts them to spend more time connected to digital tools. Many are adept at using technology to communicate, conduct research, and even play games. They find it easier to learn through technology tools, leveraging their critical thinking, creativity, communication, connectivity, and collaboration skills. These skills are the pivotal pillars shaping the design and functionality of today's tools, enabling seamless connectivity, personalized experiences, effective communication channels, and collaborative capabilities, all of which are quintessential for success in an interconnected global environment.

In Benin, the education system, particularly in ESP classes, is failing and deemed inappropriate as it does not facilitate learning from home. This approach often struggles to adapt to contemporary education, failing to incorporate modern pedagogical techniques and technological advancements. Limited resources, non-existent curricula, and large class sizes pose significant challenges, hindering personalized learning experiences and learner engagement. The inadequacy and ineffectiveness of the traditional teaching approach result in a lack of interest and motivation among learners, as the current education system is no longer aligned with their needs and interests.

Since the advent of technology, it's important to note that learners, being accustomed to new technology tools, find it easier to learn the English language with virtual coaches. These artificial intelligence tools are efficient, unbiased, and tireless, and they facilitate learning through games. Similarly, some teachers use technology tools to better plan lessons and find suitable exercises for their learners. The integration of technology in education refers to the use of machines to enhance students' learning experiences. The use of diverse technology tools in the classroom, including a virtual classroom, creates

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active and engaged learners with clear learning objectives. Technology integration into education is a multi-layered endeavor that requires a series of strategic assessments and planning.

Therefore, any effective teaching approach should consider the current nature of today's learners and their needs. If this issue is not addressed in the coming years, the Beninese educational system will struggle to adapt to the job market. Ultimately, incorporating technology, especially AI-based tools, in a manner that is effective and easy to use, can enable learners to communicate better in English. The significance of this study lies in the potential benefits of using artificial intelligence technologies in English language teaching and learning in Beninese ESP advanced classes and similar contexts.

Artificial intelligence can be very helpful in teaching English language to the ESP learners. The main purpose of the study is to explore the benefits of using AI in language teaching and learning for improvement of the communication skills of Beninese ESP advanced learners. Then, the specific purposes of the study are:

- identify oral communication skills development challenges in Beninese ESP classes;
- expose AI-based language learning contributions to ESP advanced learners' communication skills;
- examine and provide suggestions for effectively incorporating adequate AI technologies in Beninese ESP classrooms.

The following research questions have guided the development of this research work:

1. What challenges do Beninese ESP learners encounter in developing communication skills?
2. What contributions do AI-based language learning apps make to the communication skills of ESP advanced learners?
3. How can AI technology be implemented in ESP teaching and learning to improve advanced learners' communication skills?

These questions aim to explore the intersection of technology and language learning, with a specific focus on the role of AI in enhancing communication skills. They provide a structured approach to investigating the potential benefits and challenges of integrating AI into ESP teaching and learning.

2 THEORETICAL KEYSTONES

2.1 ORAL COMMUNICATION CHALLENGES IN 21ST CENTURY

In the 21st century, the language classroom goes beyond teaching and learning language skills and particularly language such as grammar and vocabulary. According to the National Education Association (2015), in today's world, basic skills are not sufficient; learners must also develop into adept critical thinkers, proficient communicators, innovative individuals and effective collaborators. Then, to reach the purpose and overcome the challenges of the new age, the learners must master not only language skills but also their critical thinking, collaboration, communication and creativity. Communication is important for the improvement of the learner's language learning process. The main goal of teaching and learning language is to allow learners to communicate easily. According to the Partnership for 21st Century Learning (2019), communication involves the ability to articulate thoughts and ideas effectively using oral, written, and nonverbal communication skills in a variety of forms and contexts, to listen effectively to decipher meaning, including knowledge, values, attitudes, and intentions, to use communication for a range of purposes (e.g. to inform, instruct, motivate, and persuade), to utilize multiple media and technologies, and know how to judge their effectiveness a priority as well as assess their impact and to communicate effectively in diverse environments (including multi-lingual).

However, effective communication faces a myriad of challenges from technological advancements and globalization to cultural diversity. Moreover, this rise of technology also favors remote work to learners. Additionally, the global interconnectedness introduces linguistic and cultural differences demanding heightened sensitivity and adaptability to improve oral communication skills. Overcoming these challenges requires cultivating adaptable communication skills that embrace technology, intercultural competence and the ability to convey messages seamlessly across various contexts and platforms.

2.2 COMMUNICATION SKILLS AND COMPUTER ASSISTED LANGUAGE LEARNING (CALL)

Communication is a process of exchanging thoughts, information, emotions through speech, signal and writing. Communication skills encompass the ability to solve problems or perceive the information comprising listening, speaking, reading and writing. Each type of communication skills is compulsory for enhancing communicative competence. Productive skills such as speaking and writing skills are used to find solutions in various domains. Speaking involves the transmission of message verbally through face-to-face conversations, telephone calls, online voice communication, television, radio and

meeting. It aims to enhance fluency in English, addressing issues like pronunciation and vocabulary. Similarly, writing aids in resolving grammar and vocabulary problems, involving the transfer of message via written signs and symbols in communication through web sites, letters and other forms of communication. Moreover, written message influences learners' English vocabulary, grammar and writing style.

Accordingly, Mc Connell (2003), receptive skills are behaviour other than speaking and writing skills and then include the gestures, facial expressions. The listening and reading skills are the different receptive skills. Their purpose is to receive the information. Listening involves understanding the message conveyed in the sounds that the learners hear and answering to it. The good listening skill is then the ability to actively receive, interpret and understand spoken auditory information effectively. Thus, the major components of listening skill are attention and reflection. Reading skill refers to the ability and technique to understand and interpret effectively the written texts by learners. It enables to comprehend written texts, to access a vast array of information and enhance the learners' knowledge. On the other hand, communication skills are not sufficient for the development of communicative competence but technology also plays a vital role in the improvement of language learning. The use of computer media in education has more advantages as dissemination and storage the information in English language learning.

In the last decades, the rise of technology favors the learners' interest for language learning through the use of technology-based tool (machines, computers, connected devices...) and internet to enhance their language learning and personalize learning experience. Nachoua (2012) "*One pedagogy which interests many researchers is computer-assisted language learning (CALL).*" Computer assisted language learning (CALL) stands as a crucial tool and techniques with a substantial influence on learners' language learning proficiency (Hashemifardnia, A., Shafiee, S., Esfahani, F. R., & Sepehri, M, 2021). Computer assisted language learning (CALL) is then a tool to improve learners' communication skills like listening, reading, speaking and writing in language education. Furthermore, perceived as an approach to language teaching and learning, CALL relies on computers as an aid to the presentation, reinforcement and assessment of material to be learned, usually including a substantial interactive element (Davis, 2002). Computer Assisted Language Learning (CALL) is a teaching and learning approach that uses computer and computerbased resources including the internet to present, reinforce and assess specific educational content. According to Hubbard (2009: 3)

Collectively, CALL theory is the set of perspectives, models, frameworks and specific theories that offer generalizations to account for phenomena related to the use of computers and the pursuit of language learning objectives, to ground relevant research agendas and to inform effective CALL design and practice... a CALL theory is a set of claims about the meaningful elements and processes within some domain of CALL, their interrelationships and the impact that they have on language learning development and outcomes.

One of the advantages of CALL is its ability to provide personalized learning experiences. Additionally, it enhances learners' creativity and productivity while effectively accommodating individual variations in learning. Thus, the field development process in technology education involves translating design specifications into a tangible physical form, including:

- printing technology;
- audio-visual technology;
- computer-based technology;

Integrated technology CALL has been employed in the field of language acquisition for various objectives such as using Computer-Assisted Language Learning (CALL) to develop the EFL learners' communication skills particularly those who are non-native

2.3 ARTIFICIAL INTELLIGENCE AND ENGLISH FOR SPECIFIC PURPOSE

In educational system, especially in teaching learning language in English for specific purpose classes, teachers use the software facility of application to implement English learning process. Thus, AI application is used to help learners improve their English language skills. Vasiljeva et al (2021) define artificial intelligence as a *"simulation of human intelligence on machine programmed to think like a human and imitate its actions"*. Through AI application, learners can focus on grammar, vocabulary, sentences construction and receive feedback on their mistakes, as emphasized by Mozgovoy (2011) who highlights the significance of grammar examination in language learning and text writing. This AI-driven feedback motivates learners by correcting their errors and contributes to their language learning activities.

Furthermore, AI applications and tools play a pivotal role in improving ESP learners' language skills. Schmidt and Straser (2022) suggested general AI concepts in AI-powered language learning.

a) Natural Language Processing (NLP) Natural language processing is a domain that generally combines AI and linguistics and is concerned with the automated processing of human language. For Meurers (2012: 817), NLP can be viewed as the applied aspect of computational linguistics, which is an interdisciplinary field focused on formal analysis and modeling of language. This field applies its findings at the intersection of linguistics, computer science and psychology.

b) Machine Learning (ML) A subfield of AI, machine learning is focused on development of algorithms and models that enable computers to learn from data and make predictions or decisions without explicit programming. According to Alpaydin (2014: 3), ML "*helps us find solutions to many problems in vision, speech, recognition and robotics"*. Furthermore, it includes using of statistical techniques to enable computers to improve their performance on a specific task through experience or data, often categorized into supervision and reinforcement learning. In education, the data used is personal data which demands levels of data privacy and data security.

c) Deep Learning (DL) One of AI type, deep learning uses artificial neural networks for extensive data sets learning. It based on vision categories and NLP purposes. AI powered systems can be used as a guide and a controller of language learning and then facilitate language skills development of learners. In this part of the study, foreign learners have the opportunity to discuss with native speakers to foster their language. In this order, Sharma (2021) suggest that AI technologies provide the helping in learning teaching English in ESP classes.

d) Machine Translation (MT) A process of computer software used to translate text or speech from one language to another, machine translation is tools for limited language learning purposes. AI technologies improve then the quality of translation. There are more machine translation services such as Google translator, translator Online, Foreign World and other services in web.

e) AI Writing Assistants AI writing assistants are AI systems that use natural language process and machine learning to assist users in various steps of the written content. These assistants aim for correcting grammatical errors, providing recommendations and different resources to the good achievement of written text. It makes easy the learner's self-regulation and autonomy.

f) Chatting Robots (Chatbots) Chatbots are communicative gadgets which is an example of humanmachine interaction which are frequently used in marketing communication. Chatbots provide customized answers in response to learners' questions by messages or conversation, improve their performance. In this result, Fryer and Carpenter (2006) showed that the majority of learners liked using chatbots and then discuss easily and comfortably with the robots than a partner or teacher or guide. Chatting robots is a motivation for learning English language. During their investigation, Jia and Chen (2008) found that chatbots could be a motivation field to English language learning. Likewise, Lotze (2018) argued that chat AI systems should respond some key criteria in sight of serving as substitutes for a real-life language teacher.

2.4 ARTIFICIAL INTELLIGENCE (AI) AND COMMUNICATIVE LANGUAGE TEACHING (CLT)

The Artificial Intelligence is machine with human-like abilities. The Council of Europe (2021) defines artificial intelligence as a set of sciences, theories and techniques whose purpose is to reproduce the cognitive abilities of a human being. Current developments in AI aim, for instance at providing the ability to entrust a machine with complex tasks previously delegated to human. Artificial Intelligence (AI) is also the digital ability or computer-controlled robot's ability to execute tasks commonly associated with intelligent beings. Typical applications include game playing, language translation, expert systems and robotics. According to UNICEF and OECD (2021: 16):

AI encompasses systems driven by machines that, based on objectives set by humans, can forecast, suggest, or decide on actions impacting both real and virtual settings. These AI systems engage with and affect our surroundings, sometimes seeming to function independently. They are capable of modifying their behavior by understanding and learning from their environment.

AI is one of the main ways to language teaching improvement. The enhancement of communicative aspects is important in the use of AI technology. Thus, communicative language teaching refers to a communicative approach which requires the improvement of the communicative aspects. Furthermore, Harmer (2007: 69) defines Communicative Language Teaching (CLT) as the meaning and the way in which communication, task and the meaningfulness principles can be applied. The CLT is important for improvement of the learners' communication and interaction skills. This approach allows the effectiveness of the learners' communication in real-life situations through student-to-student interaction and student-to-teacher interaction. The communicative approach employs tools and technology to facilitate personalised learning experience. Richards suggests that CLT can be understood as a set of principles about the goals of language, the kind of classroom activities that best facilitate learning and the roles of teachers and learners in the classroom (Richards, 2010: 21).

In summary, artificial intelligence could play role in the enhancement of communicative language learning by providing personalized, immersive and effective experiences through immediate feedback and progress tracking

2.5 THEORETICAL FRAMEWORK FOR THE IMPLEMENTATION OF AI TECHNOLOGIES IN ESP CLASSES

Communication is a process of exchanging information, ideas between people. Communicative language teaching is a set of principles about methods and techniques of English language learning. In the Dictionary of language Teaching and Applied Linguistics, according to Richards et al (1992: 65), communicative language teaching is defined as *"an approach to foreign or second language teaching which emphasises that the goal of language learning is communicative competence"*. The main goal of communicative language teaching is the communicative competence improvement. Indeed, according to Haider and Chowdhry (2012), based on the communicative patterns actually produced by learners through the use of software or other electronic materials, today's learners are capable of reaching higher language proficiency.

Delving into a world where language mastery is of prior importance, it is necessary to explore CALL, an acronym that has revolutionized the way language teaching and learning occurs. Computer Assisted language learning (CALL) involves the learning enhancement by the use of computer programs. In ESP classes, the use of computer and technological gadgets are becoming frequent. CALL proposes many ways of English language learning comfortably by use of online activities (games, texts, films, songs, etc...) and improves the learners' communicative skills. Then, Tiwari, Khandelwal & Roy (2008) argued that CALL can contribute in majority the improvement of four critical skills in language learning: listening, speaking, reading and writing. One of the most important type of CALL is Integrative computer assisted language learning (ICALL). According to Norazmi (2020) ICALL get a fundamental role in language teaching and learning of foreign language. The use of multimedia technology is the one of the special parts of ICALL. Norazmi et al (2019) argued that multimedia technology holds particular valuable in language teaching due to it is able to offer learners immediate access to visuals and interactions with native speakers. Therefore, ICALL can be an approach in language learning that combines the different language skills and technology (Norazmi et al., 2020). As Zaid et al. (2020), the interaction and communication develop globally. Through ICALL, learners interact with the computer to get information.

After introducing the transformative concept of CALL, let's pivot the focus the processes of language acquisition. According to Chomsky (1970) "*Language is a process of free creation; its laws and principles are fixed, but the manner in which the principles of generation are used is free and infinity varied. "Interpreting and utilizing words entails a process of creative freedom."* Language acquisition refers to the process through which humans gain the ability of perception, production, comprehension and use of words and sentences for communication.

3 RESEARCH DESIGN

This study employs both mixed methods and quasi-experimental designs placing emphasis on internal validity while specifically tackling the selection bias frequently encountered in the research methodology. Mixed methods research integrates qualitative and quantitative data, leveraging the strengths of both to provide comprehension insights. This approach bridges the gap between detailed contextual understanding and broader generalizability, enriching findings by validating qualitative results and deepening quantitative analyses with participants' lived experiences. Conversely, quasi-experimental designs excel in balancing external and internal validity. Both approaches represent powerful tools in research, providing researchers with a spectrum of possibilities to address diverse research questions and derive robust conclusions.

3.1 SAMPLING

Table 1. Sample size

Schools	Number of Classes	Number of learners	Number of teachers	School Authorities
HECM	02	95	01	02
IFRI	02	205	02	01
Total	04	300	03	03

3.2 EXPERIMENTAL SAMPLING

Table 2. Experimental Sampling

School	Groups	Number of Teachers	Number of Students
HECM	CG	01	30
	EG		30
TOTAL		01	60

3.3 RESEARCH INSTRUMENTS

For acquirement and analysis of data collected from the sampling, different instruments have been used in this research:

Questionnaire to ESP teachers and learners,

Interviews to ESP teachers and school authorities,

Experimentation

These instruments have served in data collection, and each of them deserve to be detailed.

3.3.1 QUESTIONNAIRE TO ESP TEACHERS AND LEARNERS

Questionnaire is a structured set of printed or written questions designed to collect information or data from individuals or groups of people (teachers and learners). It is used for various purposes but also help to collect efficiently information from sizeable sample volume. This research study addresses a set of ten (10) questions to three (03) ESP teachers and three hundred (300) ESP learners.

3.3.2 INTERVIEWS TO ESP TEACHERS AND SCHOOL AUTHORITIES

An interview is a research approach about question-and-answer sessions about a specific subject. This method allows the researcher to acquire information that may not be accessible by alternative research methods. This research study addresses a set of five (05) questions to three (03) ESP teachers and three (03) school authorities.

3.4 EXPERIMENTATION

The experiment is a structured and controlled scientific procedure carried out to investigate and gather information, test, confirm or infirm hypothesis. It includes manipulation of variables and identification of potential source of error.

In this study, the experimental sample includes a group of sixty (60) learners from HECM divide into two groups and randomly assigned to experimental or group control. The pre-test of experimentation is based on assessment of the two groups to ensure that both of them have the same level.

For the experimentation, "Duolingo" and "Memrise" applications have been used on the experimental group (EG) to improve learners' oral skills and a post-test has been administered to both groups and the overall performance of experimental group have been compared to control group

3.5 DATA COLLECTION PROCEDURES

During the data collection procedure, the questionnaire has been distributed to ESP teachers and learners. The learners fill out and return the questionnaire as assistance have been provided by teachers or school authorities. The questionnaire is also sent to teachers and all answers have been collected. All questionnaires have unanimously (100%) been returned by learners.

To ensure that the results are unbiased, learners have been evaluated by the same examinator. Many teachers and school authorities have been interviewed and their answers are collected and analysed. Classroom observation have been conducted to have insights on teachers' performance and learners' behavior in classroom situation.

3.6 METHODS OF DATA ANALYSIS

These methods enable to collect valuable and specific data of the questionnaires attributed to the teachers and learners. These data obtained through questionnaires were analysed and processed using SPSS 26 which is statistical software tool and Excel 2021. The results of the data analysis have been exposed in tables, chart and pie-chart. The research findings will be presented the results of the investigations in next chapter.

4 RESULTS

4.1 LEARNERS' ORAL COMMUNICATION SKILLS IMPROVEMENT CHALLENGES

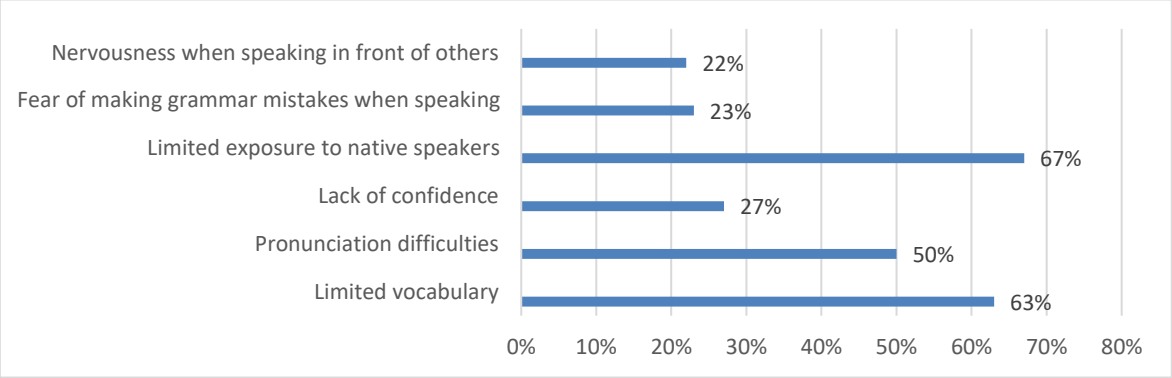

Fig. 1. Learners' Difficulties about Improving Oral Communication Skills

In figure 1, it is noticeable that sixty-seven percent (67%) of the learners have limited exposure to native speakers, sixty-three percent (63%) of them have limited vocabulary, fifty percent (50%) have a lack of confidence, twenty-three percent (23%) of these learners are fear of making grammar mistakes when speaking and twenty-two percent (22%) are nervousness when speaking in front of others.

4.2 LEARNERS' FEELING ABOUT THE IDEA OF INCORPORATION AI TECHNOLOGY INTO ENGLISH LANGUAGE LEARNING EXPERIENCE

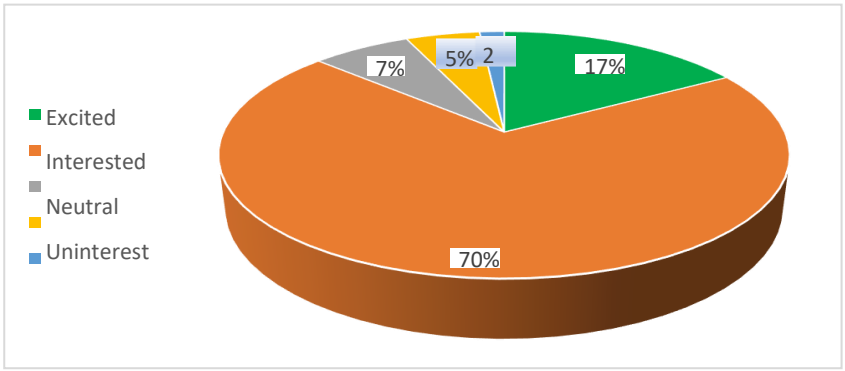

Fig. 2. Learners' Impression about the Idea of Integration AI Technology into English Language Learning Process

The results from figure 2 show that seventy percent (70%) of the learners are interested about the idea of incorporating AI technology into English language learning experience, seventeen percent (17%) are excited about the implementation of AI technology, seven percent (7%) are neutral about the idea of incorporation AI technology, five percent (5%) are uninterested and two percent (2%) are opposed about this idea.

4.3 PRIMARILY USEFULNESS OF AI TOOLS

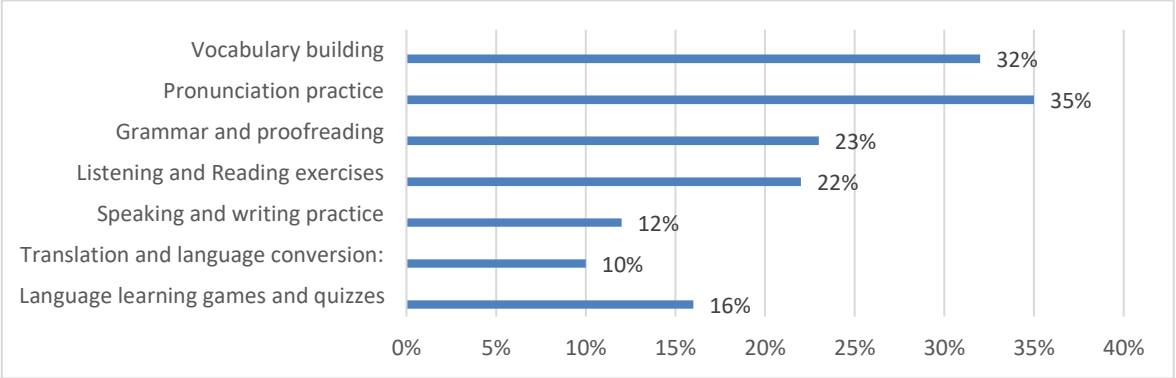

Fig. 3. Utility of AI Tools

Concerning the primarily utility of AI tools, figure 3 presented that thirty-five percent (35%) of the learners use AI tools to practice their pronunciation, thirty-two percent (32%) of them use AI tools to build vocabulary, twenty-three percent (23%) of the learners use AI tools for grammar and proofreading, twenty-two percent (22%) of these learners use AI tools to exercise in listening and reading, sixteen percent (16%) of them use AI tools for language learning games and quizzes, twelve percent (12%) to practice in speaking and writing and finally ten percent (10%) for translation and language conversion.

4.4 DIFFICULTIES IN THE IMPLEMENTATION OF AI TOOLS IN ESP CLASSES

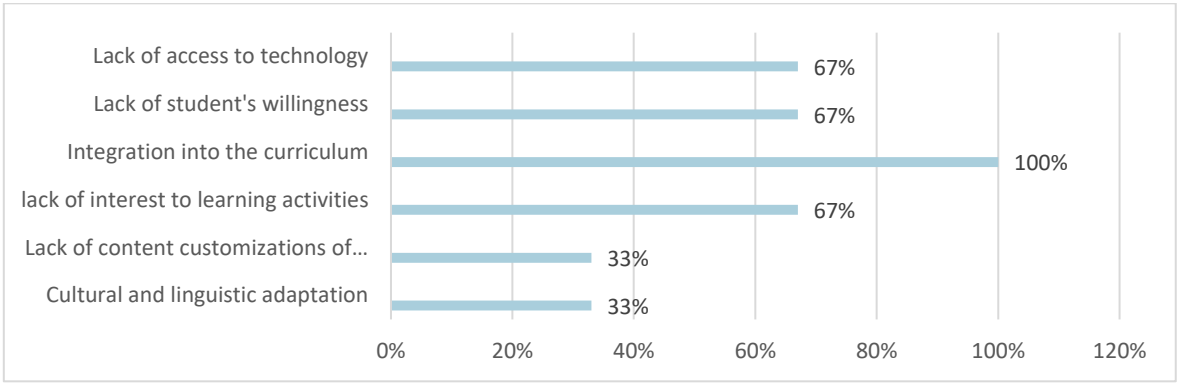

Fig. 4. Challenges in the Implementing AI Tools in ESP Classes

In figure 4, it is noticeable that one hundred percent (100%) of the teachers have the difficulty of integration of AI tools into the curriculum, sixty-seven percent (67%) of them have the difficulties of lack of access to technology, lack of student's willingness and lack of interest to learning activities. For thirty-three percent (33%) of the teachers, the difficulties encountered are lack of content customizations of AI driven and cultural and linguistic adaptation.

4.5 EXPERIMENTATION RESULTS

This experimentation consists of assessing the impact of using AI tools (Duolingo and Memrise apps) for three (03) months on HECM studies ESP learners' Oral communication skills. Before the experimentation, TOEFL iBT listening and speaking tests has been administered and ensure that all students from both groups have almost the same oral proficiency level. The data collected after experimentation have been statistically assessed using SPSS 26 and analysis of variance by one-way ANOVA under following conditions:

4.6 HYPOTHESIS

A null hypothesis H0 and alternative hypothesis H1 are formulated:

H0: There is no statistical significance between the effect of AI tools integration in teaching and learning English language and ESP learners' oral communication skills.

H1: There is a statistical significance between the effect of AI tools integration in teaching and learning English language and ESP learners' oral communication skills.

Statistical significance level:

The level of statistical significance is expressed as a p-value between 0 and 1. A p-value less than 0.05 (typically ≤ 0.05) is statistically significant. It shows strong evidence against the null hypothesis that indicate there is less than 5% probability for the null hypothesis to be validated.

Rejection of hypothesis:

If H0 is rejected, then H1 is supported. This indicates that the data offer sufficient evidence to conclude a statistically significant effect.

The practical significance or the real-life significance:

It expresses the strength of the correlation between the independent variable and the dependant variable is assessed through the effect size expressed in ETA squared value.

The purpose is to reject the null hypothesis (H0) by the use of the analysis of variance ANOVA test for proving the statistical significance of the impact of AI tools integration and ESP learners' oral communication skills. Two values are expected p-value $\alpha < 0.05$ indicating statistical significance and ETA squared value expressing the Measure of Association assessing the effect size between the variables. The ETA square helps to measure the impact of the use AI tools on ESP learners' oral communication skills within the sample chosen.

Table 3. Descriptive Statistics for Pre-test Scores

Group	N	Mean	Standard Deviation	Standard Error
Experimental	30	33	5	0.912
Control	30	31	5	0.912

The table 3 shows the descriptive statistics for pre-test scores. In experimental group, thirty (30) learners are considered, the mean of marks obtained is thirty-three (33). The standard deviation of experimental group is five (5) and its standard error is 0.912. In control group, the size of learners is thirty (30), the average of marks obtained is thirty-one (31) and the standard deviation is five (5). The standard error of control group is 0.912.

Table 4. Descriptive Statistics for Post-test Scores

Group	N	Mean	Standard Deviation	Standard Error
Experimental	30	42	5	0.912
Control	30	33	4	0.72

Table 4 presents the descriptive statistics for post-test scores. In experimental group, the learners' size is thirty (30), the average of marks obtained is forty-two (42), standard deviation is five (5) and the standard error is 0.912. In control group, the size of learners is thirty (30), the mean of marks obtained is thirty-three (33), the standard deviation is four (4) and the standard error is 0.72.

Table 5. ANOVA Post-tests Scores

Source	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Value	p-Value
Between Groups	1488.62	1	1088.62	121.63	≈0.0001
Within Group	878.00	98	8.95		

In table 5, it is remarkable that between groups, the sum of squares is 1088.62, the degrees of freedom are 1 and the mean square is 1088.62. Within groups, the sum of squares is 878.00, the degrees of freedom are 98 and the mean square is 8.95. the F-value for this analysis is 121.63 while the p-value is approximatively 0.0001.

Table 6. Hypothesis Testing and the Measure of Effect Size for Post-test

Hypothesis	Null Hypothesis (H0)	Alternative Hypothesis	Effect Size (η^2)
Decision	Rejected	Accepted since $p \leq 0.05$	0.62

Table 6 exposes hypothesis testing and the measure of effect size for posttest. The hypothesis tests reject the null hypothesis (there is no statistical significance between the effect of AI tools integration in teaching and learning English language and ESP learners' oral communication skills) and accept the alternative hypothesis: there is a statistical significance between the effect of AI tools integration in teaching and learning English language and ESP learners' oral communication skills. In these results, the integration of AI tools in ESP classes at HECM and IFRI has positive impact (69%) on advanced learners' oral communication skills.

4.7 INTERVIEWS RESULTS

During this research work, several ESP teachers and school authorities are interviewed and results are obtained. It is noticeable that teaching English language in ESP classes are not an easy activity. Some teachers describe their experience by asking the learners' needs to learn English in their specific domains and gathering necessary tools and materials to effectively plan the lessons. According to these teachers, learners' speaking skills do not really improve in ESP classes. To enhance oral communication skills for advanced ESP learners, different tips and strategies are used. Among these strategies, it is important to notice that teachers can behave in a friendly manner, being helpful and cooperative, making learners feel comfortable when speaking in the classroom environment and reducing the anxiety between learners and teachers to a considerable extent. The teachers can also examine the feelings that cause fear and anxiety among students and encourage students to be confident in making mistakes to obtain communicative skills and their response towards students' errors should be tactful and pedagogical. Organising talks through topics of learners' interest, lexical exercises and conducting oral evaluation are important strategies to enhance language skills. The integration of technology (use audio and video tools) offers them insights into their strengths and areas needing improvement.

The artificial intelligence tools are important tools in the English language learning process and motivate the learners. It can enable learners to learn at their own pace and receive additional support in areas where they need it, enhancing then their learning experience. They usually draw learners' attention to the core of the message being delivered. In effectively implementing AI tools for ESP teaching, school authorities can facilitate training to teachers, create internet access to teachers and learners and build language labs and equip them. The continued use of AI tools in language skills enhancement for advanced learners is expected to offer instant feedback on pronunciation, grammar and vocabulary usage allowing learners to correct mistakes promptly.

5 DISCUSSION

5.1 ORAL COMMUNICATION SKILLS CHALLENGES ENCOUNTERED BY BENINESE ESP LEARNER

During the investigation, it was observed that the challenges encountered by advanced learners of English for Specific Purposes (ESP) in Benin in improving their oral communication skills primarily include limited vocabulary, pronunciation difficulties, limited exposure to native speakers, lack of confidence, and fear of making grammatical mistakes when speaking (figure 1). One obstacle lies in the complexity of mastering technical vocabulary relevant to their specialized field. As Dewi and Jimmi (2018) noted, a lack of vocabulary can hinder learners' ability to construct sentences due to a restricted range of words, leading to less confidence and difficulty interacting with others. Vocabulary is thus crucial to English language learning and for the improvement of oral communication skills.

In the Beninese educational system, learners are not sufficiently exposed to the English language, despite the country's proximity to Nigeria. Moreover, the educational system lacks a lesson schedule tailored for improving oral communication skills in ESP teaching and learning. Most teachers rely on available official documents, which are outdated, for the teaching-learning process. Additionally, class activities are often boring and ineffective due to the use of traditional methods. In language

learning, motivational activities are needed to facilitate the improvement of oral communication. Jin (2014) emphasized the importance of motivation as a key to success in language learning.

The experimental results show that there is no significant difference between the oral communication skills of both groups before the experiment using AI tools. However, after using AI tools like Duolingo and Memrise for three months, the experimental group showed a significant improvement in oral communication skills (mean=42) compared to the control group (mean=33). The analysis of variance (ANOVA) of the post-test scores presented in Table 5 shows a p-value of approximately 0.0001, which is less than 0.05. This value indicates a statistical significance between the effect of integrating AI tools in teaching and learning English language and the oral communication skills of ESP learners. The practical level of association between the use of AI tools and the learners' oral communication skills, assessed by the measure of association in Table 6 with an ETA squared value of effect size (ES=0.62), shows a strong correlation between the dependent variable and the independent variable with the use of AI tools. This means that the use of AI tools had a significant impact on the learners' oral communication skills, with a record of sixty-two percent (62%). This result corroborates the respondents' unanimous acknowledgment of the effectiveness of AI tools in improving fluency.

This progress is possible thanks to the use of AI tools, which stimulate and motivate learners' oral communication skills. Moreover, the assessment is instant and constructive with any AI tools based on language learning. The AI tools allow for personalized experiences and self-directed learning for learners. As Haseski (2019: 14) stated, *"the use of artificial intelligence in education will make learning more individual, provide effective learning experiences, enable students to discover their talents, improve their creativity, and reduce teachers' workload."*

Furthermore, AI can customize the academic curriculum and assist teachers in progressing through course content in classes. Teachers become tutors to their learners with the integration of AI tools. Sekeroglu, Dimililer, and Tuncal (2019) state that learners' personalized education improvement is thanks to artificial intelligence. In the same vein, Pedro, Subosa, Rivas, and Valverde (2019) added that artificial intelligence is a main way to promote access to appropriate and better learning opportunities for excluded people and communities, people with disabilities, refugees, people out of school and those living in isolated communities. The artificial intelligence tools are also capable to improve learners' vocabulary and grammar. AI tools allow the learners to interact with native speakers and robots to improve their oral communication skills.

5.2 Integration Of AI Technology On Learners' Communication Skills In ESP Teaching Learning

In Beninese educational system, the integration of AI is subject to numerous challenges. In the learners' respondents, figure 2 shows that majority of learners are interested about the idea of incorporating AI technology into English language learning experience (87%) and figure 4 presents the difficulties in the implementation of AI tools in ESP classes. The difficulties encountered in implementation of AI tools by teachers are the concerns to integrate AI tools into the curriculum, the lack of access to technology, the lack of student's willingness and the lack of interest to learning activities. According to Akram et al (2022) and Yang (2022), the integration of AI into curriculum requires curriculum designers to determine the content and methodology for teaching within the curriculum. Thus, there are two different aspects of AI integration into curriculum: the orientation which is selection of teaching content based on learners' needs and the pedagogy, is the whole educational strategies and materials allowing the improvement of learners' oral communication skills.

With the booming of technology, learners are able to use technological tools like smartphones, personal computers to make research, to communicate with others and to play. In the same wake, Long & Magerko (2020: 598) define AI literacy as: *"a set of competencies that enables individuals to critically evaluate AI technologies; communicate and collaborate effectively with AI; and use AI as a tool online, at home and in the workplace"*. Then, the integration of AI tools in ESP classes will be beneficial for learners. Moreover, respondent teachers identify that the major part of teachers is agree about the implementation of AI technology in ESP classes (66%). However, learners need the willingness to learn because, despite AI integration, the goal might not be reached. Therefore, it is crucial for them to get a desire to learn the English language and aim to expand their vocabulary.

6 Conclusion

This study presentes the effect of AI technology integration on the oral communication skills of advanced learners of English for Specific Purposes (ESP) in Benin. Using a quasi-experimental methodology, the study collects relevant information from both quantitative and qualitative sources. It highlights the importance and impact of AI technology on learners' oral communication skills in an ESP context, arguing that traditional teaching methods should evolve to meet the requirements of today's world and improve learners' oral communication skills. The TOEFL iBT test was used to measure learners' oral performance. The results, derived from questionnaires addressed to ESP teachers and advanced learners, interviews with some teachers and school authorities, classroom observations, and experimentation, show that the level of learners' oral

communication skills can be improved through the use of AI tools in classes. These results also highlight the challenges encountered by learners in oral communication and the impact of integrating AI tools into the English language learning process.

However, it is important to recognize that integrating AI technology into the educational system in ESP classes will be a real challenge due to the ban on using technology tools in classes and the lack of technology literacy among teachers. Nonetheless, AI has been shown to improve personalized experiences, vocabulary, grammar, and pronunciation. It plays a significant role in customizing the curriculum to improve the oral communication process.

Finally, this research work offers suggestions to ESP teachers and learners to address issues related to learners' oral communication skills. The teaching approach should be assessed regularly, and the curriculum should be reviewed. Teachers must evaluate their learners to understand their oral communication level, taking into account learners' nature, interests, and needs.

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