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# Implementing AI applications to improve English language learning among EFL students in Algeria: A survey study from university students' perspective

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**Abstract**
Since its emergence, Artificial Intelligence (AI) has experienced major developments which resulted in revolutionizing human beings' lives. In addition to its presence in many sectors, AI has already been integrated in education, both teaching and learning. Like ICTs, AI has many advantages in teaching/ and learning process. As AI applications and software enable learners to interact with both robots and teachers, they motivate learners in their pace to better their learning skills. In the case of EFL, learners, especially non- native speakers, can improve their EFL skills and become highly competent in EFL. In this context, it has been proven that AI applications for EFL provide learners with more interactivity. They interact with AI applications at any time and everywhere. With trial and error, AI applications help learners to foster their EFL skills.

Although many countries in the world have recently published its AI strategies at the national level to promote the use of intelligent autonomous products and predictive models for the real world, Algeria has recently started in the integration of AI in its economic, educational, and other important related fields. Because of its importance and benefits, Tayeb Bouzid, the ex- minister of higher education and scientific research, announced the Algerian plan for deployment of AI strategy. This announcement proves that Algeria intends to keep up with the technological revolution and innovations the world has witnessed.

The present paper attempts to analyze the possibility of integrating AI applications in English language to improve EFL learning. Using EFL students of M'sila University as a case study, the researchers adopted a descriptive approach to highlight whether AI applications could provide the necessary feedback to EFL students in their learning process. In the study, a questionnaire, which is used as a primary instrument, is administered to EFL students in order to examine students' views and opinions about the integration of AI applications in EFL context. As for the findings of the research, the present study revealed that EFL students were aware of the importance of integrating AI applications in EFL learning; yet, a number of factors appeared to influence students' willingness and readability to implement AI applications in their learning process. In addition, students positively affirmed the efficacy of integrating AI applications in EFL. The results of the study may contribute to provide a thorough understanding of the significance of integrating AI applications as a substitute for ICTs in EFL so as to provide feedback to EFL students in improve their learning process.

**Keywords:** AI applications, EFL learning, EFL students, Feedback

## Introduction
Being an international language, English is, currently, the dominant lingua franca in the world. Its uniqueness lies in its global status, being the language of international diplomacy, business, popular culture, medicine, and technology. In addition, it is the first language of scientific publications, and the global language of communication among peoples of the world. Outside UK and US, over 1 billion people speak and understand English. In addition, 67 countries of the world have set English as their official language, and 27 made English as their second official language. This; in fact, has augmented number of English speakers throughout the world.

The aforementioned facts have made from English an important language to learn. Thus, learning English as a foreign language has become important, and people throughout the world learn English; either as a foreign language, or a second language. Among the reasons which make English an important language to learn are as follows:
▪ An international common tongue;
▪ A language of academia and scientific publishing;
▪ A language of media industry and the Internet;

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- A language of international business and commerce;
- A language of Hollywood movies;

Furthermore, amongst the main reasons which made English language retain its global status is the fact that English has been the dominant language in education. It is used as a medium of instruction in most world universities, institutions, and research centers. World universities have adopted English as a Medium of Instruction (EMI) in their syllabi and curricula so as to attract students worldwide. In addition, mastery of English has become a criterion for enhancing students' acceptance in schools and universities, and for graduates in looking for jobs.

The technological revolution of the new millennium has affected human life in all aspects. With the technological boom, the Information Society (IS) has emerged, and the latter has been identified by the explosion and circulation of information, which are shared by members of society through the Internet and Information and Communication Technologies (ICTs). It is worth mentioning that technology, the Internet, and ICTs have revolutionized both the EFL teaching/ and learning. The integration of ICTs in EFL teaching/ and learning has become a crucial factor of success of teaching syllabi and curricula.

In current modern era, on which ICTs play a crucial role in the development of science, technology, and knowledge acquisition, it is necessary for learners to master English, since ICTs are used as medium of instruction. Based on ICTs' exploitation and implementation, several software tools have been created and integrated in EFL teaching and learning. Computer Assisted Language Learning (CALL) is a very powerful tool in EFL teaching and learning. The integration of CALL in EFL classrooms is beneficial for both teachers and students. Recently, there has been a plethora of software application programs; such as, vocabulary, grammar, pronunciation, spelling check, electronic workbooks, reading, and writing. These software tools have been useful in EFL context due to their assistance and feedback to teachers and learners.

With technological progress achieved during globalization, the emergence of Artificial intelligence in human life has led to noticeable impacts in various fields of human life, including education. In spite of the stormy debates held about AI, researches and studies have suggested that AI applications can solve problems in EFL learning and improve the learning practices among EFL learning, in addition to other advantages that AI can offer. It is worth mentioning that AI applications have been developed in service of EFL learning are used by EFL learners both inside and outside classrooms.

As a result of this AI revolution, Artificial intelligence is receiving widespread attention in the Algerian scientific community. In this context, a national higher school for artificial intelligence was established, which opened in the academic season 2021- 2022. This school provides high-level training for students in AI skills. According to experts, this interest in innovation and the development of artificial intelligence aims to benefit from its fruits in key sectors related to health, food security, education, energy and sustainable development.

This national higher school for AI is established with sole mission: to train engineers and experts specialized in AI, both theory and applications, and data science, so as to empower its graduates with the ability to develop and publish practical and innovative solutions to the problems of the various social and economic sectors, such as health, energy, agriculture, transportation, security, … etc. Thus, to contribute to the scientific and economic development of the country.

The Ministry of Higher Education and Scientific Research in Algeria formed a scientific council for AI that includes researchers, experts, and specialized professors in order to introduce AI into higher education and scientific research. Moreover, Kamel Badari, the Algerian Minister of Higher Education and Scientific Research, has announced that the year 2023 will be allocated to the edifice of AI, provided that these spaces are generalized in most universities and research centers, in partnership with the Ministry of Knowledge Economy and start- up companies. All these efforts confirm the fact that the Algerian policymakers have determined to invest heavily in the field of AI so that it will have positive impacts and repercussions on Algeria in several sectors.

Since AI applications constitutes the main topic of the research, the present study adopts the descriptive analytical approach in order to analyze the possibility of employing and integrating AI applications in English language to improve EFL learning. A19- item questionnaire was used with EFL students of M'sila University. It covers the following fields: background information, overview of AI, and AI integration in EFL context. The study sample consisted of 178 randomly selected students, both males and females, from the English department of M'sila University. As a part of the overall objective of the research, the purpose of the questionnaire is to highlight whether AI applications could provide the necessary feedback to EFL students in their learning process. The results of the study indicated the absence of employment of AI strategies for teaching/ and learning English. Also, they will be effective if used in EFL context. In the present, a plan was suggested, which included the basics, objectives, content, processors, and evaluation methods for the employment of AI applications in EFL learning. In addition, the study revealed that EFL students were aware of the importance of integrating AI applications in EFL learning; yet, a number of factors appeared to influence students' willingness and readability to implement AI applications in their learning process. In addition, students positively affirmed the efficacy of integrating AI applications in EFL. The results of the study may contribute to provide a thorough understanding of the significance of integrating AI applications as a substitute for ICTs in EFL so as to provide feedback to EFL students in improve their learning process.

**Artificial Intelligence (AI): Definition and Character**
Despite the recent increased interest in AI by the academia, industry, and public institutions, no standard definition of AI has been adopted. The latter has been described by certain approaches in relation to human intelligence. The plethora of literature provides several definitions which identify AI as machines that behave like humans, or capable of acting in intelligent ways (McCarthy, 2007; Nilsson, 1998; Albus, 1991; Gardner, 1987; Newell and Simon, 1976; Bellman, 1978) [21, 14, 16, 1, 10, 15, 4].

Artificial Intelligence is that intelligence which is demonstrated by machines, contrary to natural human intelligence; such as, speech recognition, learning, planning, and problem solving. Having a central role in Robotics, AI addresses the following questions:

- What knowledge is required in any aspect of thinking?
- How that knowledge should be represented; and how should that knowledge be used? (Ziyad, 2019, p. 2) [24]

As a software, AI has the capability of self-learning. Defined by the Russian National Strategy of Artificial Intelligence Development, AI: shall mean a set of technological solutions allowing imitating human cognitive functions and achieving results at least compatible with results of human intellectual activity when performing specific tasks. The set of technological solutions includes information and communication infrastructure, software …, processes and services to process data and search for solutions. Artificial intelligence technologies shall mean technologies based on AI application including computer vision, natural language processing, voice recognition and simulation, intelligent decision-making support, and prospective artificial intelligence methods. ('Artificial intelligence definition,' 2021, p. 1)

According to Minsky (1968) [14], AI is defined as the science of making machines able to do activities that would require human intelligence (p. v). Additionally, Boden (1977) [5] stated that AI is the use of computer programs and programming techniques to cast light on the principles of intelligence in general and human thought in particular (p. 5). As a branch of Computer Science (CS), Rapport (2017) defined AI as the scientific study which deals with (1) what problems can be solved, (2) what tasks can be accomplished, (3) what features of the world can be understood computationally, and (4) what appropriate algorithms can be used to do activities efficiently,

practically, physically, and ethically (p. 16).

As defined by the European Commission (2018), AI is a set of systems which display smart behavior by analysing their environment and taking action to achieve specific goals (as cited in Boucher, 2020, p. III). Accordingly, AI refers to several techniques and expert systems used in advisory roles with complex data driven algorithms that automatically implement decisions about individuals.

As a branch of computer science, AI studies computers which are designed to imitate the human thinking and reasoning. i. e. AI studies how to create machines and software capable of performing tasks which require human intelligence. In this context, AI is an effective tool that enables machines to learn from their experience, adapt to new changes, and perform human. AI has the ability to design smart machines, or to develop intelligent applications that can self-learn and imitate the traits of the human mind and reasoning, sensory applications, planning, optimal decision-making, and problem-solving techniques. AI technology offers numerous benefits over traditional methods; it can operate faster than humans with greater accuracy and learn from its mistakes. Furthermore, through increased automation it allows us to perform more complex tasks without significant investment or training time. The table below provides definitions of AI within four categories.

**Table 1:** Definitions of AI.

| AI | Définition |
|---|---|
| Thinking Humanly | "The exciting new effort to make computers think … machines with minds, in the full and literal sense."(Haugeland, 1985)"[The automation of] activities that we associate with human thinking, activities such as decision-making, problem-solving, learning" (Bellman, 1978) [4] |
| Thinking Rationally | "The study of mental faculties through the use of computational models."(Charniak and McDermott, 1985) [4] "The study of the computations that make it possible to perceive, reason, and act."(Winston, 1992) [24] |
| Acting Humanly | "The art of creating machines that perform functions that require intelligence when performed by people"(Kurzweil, 1990) [12]" The study of how to make computers do things at which, at the moment, people are better"(Rich and Knight, 1991) [21] |
| Acting Rationally | "Computational Intelligence is the study of the design of intelligent agents." (Poole *et al*., 1998) [19] "AI is concerned with intelligent behavior in artifacts." (Nilsson, 1998) [17] |

Through stimulating human intelligence, AI relies on algorithms to achieve human goals. Also, AI establishes a relationship between goal seeking, data processing, and acquisition.

**The use of AI Powered Tools in Language Teaching and Learning:** AI can be viewed from the linguistic and language teachers' perspectives. AI and Natural Language Processing (NLP) are used to help construct more accurate representations of natural languages, better- processed, and a better understanding of mental processes which occur in the human brain during verbal interaction. In addition, AI-powered tools are used in computational linguistics, machine translations, and human-machine communication. Similarly, AI-powered tools are amongst the newest areas of educational technology which can have major benefits for language learners. Within this context, believed that AI-

powered learning (AIL): [13]

- Offers opportunities of more personalized, customizable, inclusive, and engaging learning.
- Gives language learners the resources they need to adapt what and how they are learning,
- Assists learners' acquisition of knowledge and skills that teachers seek to develop more sophisticated learning environments,
- Promotes collective learning by ensuring that the appropriate group is formed for the task at hand, and by offering personalized support at the appropriate time (p. 11).

In regard to AI tools in education, Baker and Smith (2019) [3] classify these (AI) tools into the three following categories:

**Table 2:** Categories of AI.

| AI Catégorie | |
|---|---|
| Learner-facing AI resources | These are programs that help learners learn a subject (p. 11). |
| Teacher-facing systems | Used by teachers in order to reduce their workload and make their output more effective in specific automating tasks; such as administration, assessment, and plagiarism detection (pp. 12- 3). |
| System-facing AI tools | They provide information to administrators and managers, such as turnover rates through faculties or schools. The recent research is limited to the first two groups (p. 14). |

Since they are available, language learners and teachers can choose the best from a range of AI-powered applications to support the learning process and activities. In the field of EFL learning, AI provides learners with immediate and highly personalized feedback. As teachers cannot continuously analyze learners' output, diagnose their individual learning needs, adjust the learning material appropriately, and provide learners with well-structed input, AI-powered tools will gather vast quantities of data on a learner's progress and use it to model their personal learning curves and adjust learning material. As a result, teachers can use these programs and software tools with supporting resources because they can relieve teachers of exhausting, energy-and time-consuming tasks (Baker & Smith, 2019, pp. 16- 7) [3].

### Integrating AI tools in Foreign Language Teaching and Learning: Reasons and Benefits

*Since* AI has become an important factor in accomplishing multiple human tasks in everyday life, the dependency on AI will be natural among humans. The rapid advances in AI in recent years are likely to transform the ELT industry and revolutionize the way in which languages are taught and learnt. As a result of these changes, CALL will evolve to Intelligent CALL (ICALL) (Zuraina, 2020, p. 1) [26].

According to Pikhart (2020) [18], there are three aspects of AI that can enhance education. These are explained below as follows:

- First, when big data processing and data mining are used, it will result in new challenges for teachers. Also, data mining will be an indispensable tool and a rich source which will prove useful for learners´ process;

- Second, the connection of 2.0 to AI makes education informatized. Using only eLearning platform, the educational process only relies on repositories of texts, tests, videos and communication tools. However, when implementing AI in learning platforms, this will strengthen educational innovation and active promotion of new theories and practices;

- Third, since individual, personalized learning is based on intelligent learner information processing, the use of big data algorithms will help learners create their own profile so that AI applications will present information to learners with their specific needs. In this regard, learners will be equipped with optimized information and data. (pp. 1413- 4)

Moreover, integrating AI technology in EFL teaching and learning enables learners to speed up their language learning. Learners are able to learn a language based on repetition of sentence patterns. For example, the use of Siri to converse in English is relevant for EFL/ESL learners. In addition, it helps EFL learners to improve their speaking, pronunciation, and listening skills (Zuraina, 2020, pp. 2- 3) [26].

The integration of AI tools in EFL learning has many benefits. In addition, it makes the learning process more personalized and proactive. Some of the benefits are cited below:

- **Providing instant feedback:** Using traditional teaching methods, feedback is slow. As teachers read and grade students' works, it takes more time to deliver results. However, using AI- powered language learning tools, feedback arrives instantaneously. Assignments and tests are submitted, evaluated, and graded electronically through AI-based platforms. These AI tools are capable of pointing out errors, and provide ways to fix them. As a result, EFL learners will be able to act instantly and correct their errors and avoid them in the future. Additionally, AI language learning tools can help teachers pinpoint weaknesses in curriculum by identifying misleading questions and learning needs ('Essentials of Artificial Intelligence for Language Learning', 2023, para. 15) [8]

- **Eliminating the fear of failing:** As a part of the learning process, making mistakes is natural. However, EFL students' fear of making mistakes can negatively affect their learning process. With AI- powered language learning tools, EFL students are not reprimanded, embarrassed, or threatened. They simply evaluate EFL learners without judging their linguistic talent; ('Essentials of Artificial Intelligence for Language Learning', 2023, para. 16). [8]

- **Personalizing the needs of learners:** As argued by Hovsepyan (2022) [9], AI tools help EFL learners to create their own learning paths, according to their personal needs and interests; (para. 12)

- **Gamification:** Using gamification; such as, quizzes, marathons, and contests, this; in fact, increases motivation, competitiveness, engagement, and enjoyment among learners; (Hovsepyan, 2022, para. 13) [9]

- **Adapting to student needs:** An important benefit of AI is the personalization of the learning process. With the use AI- powered tools, learning a new language will be easier, and learners' individual needs will be fulfilled. Also, teachers will be able to collect data about their learners, abilities, and styles and analyze them. Moreover, the use of AI-powered language learning platforms allows learners to work at their own pace; ('Essentials of Artificial Intelligence for Language Learning', 2023, para. 13) [8]

- **Deeper involvement in the learning process:** The use of AI tools for learning languages enables learners to learn at their own pace and set their own goals. Additionally, AI helps teachers to design curricula with personalized lessons and activities relevant to learners' needs and interests. ('Essentials of Artificial Intelligence for Language Learning', 2023, para. 18) [8]

AI has the potential to personalize digital language learning for EFL students, decreasing the time, cost, and aggravation associated with completing online or app-based courses. In addition, AI algorithms have the potential to enhance eLearning. Learners can use AI- powered language learning tools to learn effectively and broaden students' prospects. Also, educational institutions can integrate AI tools in EFL learning.

All in all, AI is the technology which both teachers and learners need to be exposed to. Using AI in EFL learning makes the learning process to be more learner-centered and, consequently, it leads to the empowerment of the learners' process.

### The Research Methodology

The present study was conducted for the sake of examining students' views and perspectives in regard to the integration of AI applications to improve EFL learning in Algeria. The

researcher designed a questionnaire for the above-mentioned purpose. Using a descriptive quantitative approach, the main aim of the research is to analyze students' perspectives and opinions to examine whether Algerian EFL learners are ready to use AI applications to improve their EFL. In addition, the research analyses whether AI applications can provide necessary feedback for EFL learners and can substitute ICTs in improving EFL learning, or not.

**Sample/ Participants**
For the purpose of the study, the participants who participated in the present research were EFL students from the university Mohammed Boudiaf of M'sila, Algeria. They EFL students, who comprised the sample of the study, were mainly bachelor, master, and doctorate students. They were randomly selected. They were concerned with the current issue of the research, the integration of AI applications in EFL learning.

**Instrument(s)**
A questionnaire was designed for collection of data from research participants. It comprised three sections. The first section consisted of personal information about EFL students in ICTs' skills and AI skills. The second section was about an overview of AI. i. e. examining EFL students' views and opinions about their knowledge in AI applications. The third section included questions about the integration of AI applications in EFL context.

**Data collection procedures**
Since the present research relied basically on exploring EFL students' views and opinions about the integration of AI applications in EFL context to improve EFL learning, the researcher used a students' questionnaire for this end. In order to easily convince EFL students to answer the research questionnaire, the researcher met with EFL students in the English department and convinced and mobilized them to participate in the research, since the current issue of the present study is important. The researcher was provided with EFL students' emails so that he would send them the research questionnaire through electronic email. As far as the questionnaire is concerned, it was written in English. The questionnaire was sent to one hundred and seventy-nine EFL students who are enrolled in EFL studies in the English department in the university Mohammed Boudiaf in M'sila, Algeria. Responses of the questionnaire were received electronically through the personal email of the researcher after three weeks.

**Results and Discussion**
This section of the present research presents the results, together with a discussion, of the questionnaire which was used; primarily, to investigate students' opinions and perspectives on the implementation of AI applications in EFL learning, and what benefits will these AI applications have on EFL students' skills' development.

In this regard, EFL students who comprised the sample of the study were 43% license degree students, 50% were master students, and 7% were Ph D students.

As for rating computer and Internet skills, 14% of EFL students confirmed that they possessed excellent skills, 20% possessed very good skills, 60% had good skills, and 4% stated they had weak skills. It is clear from these results that 94% of EFL students are obsessed by ICTs and Internet technology and they work with most of the times. ICTs and Internet play a great deal in students' lives, with their smart phones and laptops. When they encountered problems, EFL students stated that they relied on their ICTs and Internet skills to solve problems related to their EFL learning. Accordingly, these EFL students managed to solve these problems through the following ways:

**Table 3:** Students' abilities to solve problems in your EFL learning.

| | |
|---|---|
| Reading PDF Documents | 12% |
| Downloading Books and Articles and different materials | 09% |
| Watching lessons on YouTube | 37% |
| Searching the web for useful information | 40% |
| Downloading and using software for improving EFL skills | 02% |

According to the data in the abovementioned table, EFL learners rely on ICT-based learning media to improve their EFL learning skills and problem solving in EFL. This; in fact, is to seen as amongst the benefits of ICT revolution to solve problems in daily life. Since problem-solving ability is very useful in life, it can be integrated into EFL learning as an important critical thinking skill. Therefore, the use of ICT-based media in EFL learning can improve the quality of learning.

When EFL students were asked to choose an AI definition amongst the six definitions in the table below, 25% stick to the first definition, 23% stick to the second definition, and 22% stick to the sixth definition. According to the data in the table below, EFL students are well aware of what AI means. Based on the answers, EFL students believed that AI is not natural, and it is a phenomenon which is not related to the living things. It; however, the ability of a machine, computer, or another non-living thing to think, learn, and solve problems. It seems that EFL students are knowledgeable in the field of AI, since they know what AI means. In addition, 79% of EFL students were able to differentiate between human vs. artificial intelligence. For them, human intelligence is the ability of humans to create and innovate using different cognitive processes and human knowledge. In contrast, artificial intelligence relies on machines and computers which are powered with algorithms so as to imitate human behavior.

**Table 4:** EFL students' answers on AI definitions.

| | |
|---|---|
| Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. AI applications include expert systems, natural language processing, speech recognition, and machine vision. | 25% |
| AI is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence. | 23% |
| AI refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. | 09% |
| AI is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. | 10% |
| AI is a branch of computer science dealing with the simulation of intelligent behavior in computers. | 11% |
| AI is the capability of a machine to imitate intelligent human behavior. | 22% |

When EFL students were asked about the fact whether AI will be more intelligent than humans, 56% of the students believed so, while 44% stated that this is not true. On the one hand, EFL students who agreed that there is no doubt that AI will be more intelligent than humans based their belief on the fact that AI is capable of acquiring a human-like cognitive capabilities, and will surpass human intelligence. Also, AI can tackle any intellectual task a human can. Currently, current AI models are held back by a lack of certain human traits such as true creativity and emotional awareness.

On the other hand, EFL students who stated that AI will not be more intelligent than human based their belief on the fact that AI is far from human- level intelligence. It will not have the ability to achieve a high level of proficiency like the human intelligence possess. In addition, AI does not have the potentials of creativity and competency that the human intelligence has. It only operates within its functional terms. Therefore, based on these answers and beliefs, it seems that EFL students are knowledgeable enough in the topic of AI.

In the field of integrating AI in education, 51% of the students believed that AI reinforces the learners' learning process, while 49% believed the opposite. In fact, the recent integration of AI in education has significantly changed the shape of both teaching and learning and the school's structure. This AI technology has also considerably influenced educational practices, and efforts have been constantly made to incorporate AI into teaching and learning. Furthermore, the remarkable development of AI algorithms has brought about successful results in the ways that AI can support learners' performance of complex pedagogical tasks, such as speaking skills listening skills, and writing skills. According to EFL students, AI reinforces the learners' learning process through (1) practise of EFL skills 39%, (2) mastery of language knowledge 22%, and mastery of fluency 39%.

In regard to the use of AI, 61% of EFL students agreed that we need to work with AI, while 39% believed that there is no need to work with AI. According to the students who agreed to the need to work with AI, they believed that due to the great potentials of AI-enabled learning supports, the use of AI technology in education, and EFL; in particular, guarantees both teachers' and learners' abilities to work with this technology in classrooms. Accordingly, they believed that AI helps EFL students in their learning process (42%), acquire a native like speech (33%), and develop independent learners (25%). In addition, it helps improve the quality of teaching and the learning process. Although EFL teachers and learners are not yet fully prepared to implement AI-based education, they can proceed with AI integration through extensive tutoring programs that will help them master AI technology.

As far as the use of AI programming languages, only 11% of EFL students confirmed that they use this AI technology, such as 'Speak English Like American' and 'I Speak Fluent English', while 89% claimed that they do not use none of these AI programs. These AI programming languages are types of AI dialogue systems which can improve EFL learners' speaking and listening skills. Therefore, EFL students rely on these AI dialogue systems to strengthen their EFL skills.

**Table 5:** EFL students' attitudes on AI integration on EFL context.

| | |
|---|---|
| Very Negative | 4% |
| Negative | 18% |
| Neutral | 15% |
| Positive | 46% |
| Very Positive | 17% |

The table above highlights that EFL students' attitudes toward the integration of AI in EFL context tend to vary from being very negative (4%) to positive (46%) to very positive (17%). In fact, these results indicate and findings indicate that less- experienced students usually struggle to work these new AI technologies, which led to their reluctance and lower acceptance. Hence, from EFL students' perspective, it is important to relieve negative emotions and promote AI acceptance, aiming to deploy AI's pedagogical applications so as to improve AI acceptance through boosting confidence in applying AI and extending knowledge of AI.

In regard to integrating AI in EFL context, the table below illustrates EFL students' answers about the purposes for using AI in EFL context. According to EFL students' perspective, the use of AI and its new trends in technology in EFL context helps to facilitate the overall English language learning process. In addition, integrating AI technology makes both EFL teachers and students keep up to date on recent technological developments, and AI technological applications have the potential to assist in EFL teaching and learning. Accordingly, EFL students believed that AI can be integrated in EFL context to, mainly, foster students' independent learning, improving EFL learners' pronunciation errors, boosting EFL learners' motivation, and strengthening EFL mastery of language and knowledge.

**Table 6:** Purposes of using AI in EFL context.

| A | Strengthening EFL learners' mastery of language knowledge. | 16% |
|---|---|---|
| B | Improving EFL learners' skills. | 10% |
| C | Boosting EFL learners' motivation. | 19% |
| D | Improving EFL learners' pronunciation errors. | 21% |
| F | Reducing EFL learners' anxiety. | 8% |
| G | Fostering learners' independence. | 23% |
| H | Enhancing learners' experience. | 3% |

Among the AI applications, 65% of EFL students used *Ivy Chabot* and 35% of them used *Century Tech* in EFL context. From the students' perspective, they used the aforementioned AI applications for the three purposes described below:

- To successfully answer students' basic questions in regard to research topics in library website, and look for instructions to access electronic resources from off-campus;
- To reveal the kinds of topics students search for via library websites;
- To serve as another access point for basic reference questions.

In regard to the implementation of AI applications in English departments for EFL learning, EFL students (100%)

confirmed that this option is not available in their departments for the following reasons: (1) lack of AI facilities (78%) and both EFL teachers and students are not well trained in AI applications (22%). Moreover, EFL students do not find total support, feedback, motivation, and guidance from their teachers to use AI applications in their learning process. This; in fact, because of (1) lack of AI subject in EFL curriculum (87%), and (2) time constraints to study AI (13%). The aforementioned results and data indicate that there are some constraints and challenges in the integration of AI in EFL context which should be addressed to.

When EFL students were asked about the mastery of AI knowledge whether it is necessary for successful use of AI applications in EFL context or not, (96%) confirmed that successful use of AI relies basically on mastery and knowledge of AI. In this context, students, in general, need to be taught and well informed about AI applications and how to use them appropriately, and avoid falling into the negative perspective of using AI applications in wrong contexts.

In regard to the effectiveness of AI in EFL context, EFL students' answers varied across the statements below:

**Table 7:** Effectiveness of integrating AI in EFL context.

| Statements | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| Integrating AI into EFL classrooms encourages learners to take an active role in their learning | 48% | 50% | 2% | 0% | 0% |
| The use of AI is a major source of inspiration for students | 44% | 18% | 21% | 14% | 3% |
| Integrating AI into EFL classrooms enriches the course material | 41% | 40% | 0% | 0% | 19% |
| Integrating AI into EFL classrooms increases the standards of EFL teaching | 42% | 40% | 0% | 9% | 9% |
| AI offers a range of real-world opportunities for fluency in English | 57% | 43% | 0% | 0% | 0% |
| AI can be used to assess students' language skills in a variety of ways | 54% | 46% | 0% | 0% | 0% |
| AI aids students' self-directed learning | 39% | 31% | 4% | 17% | 9% |
| Employing AI applications of translation programs develop skills of reading, writing, and translation of English texts | 36% | 41% | 12% | 6% | 5% |
| Employing Smart voice communication and interactive communicative language strategies improves students' EFL communication skills | 57% | 27% | 0% | 11% | 5% |
| AI Intelligent tools help solve problems of language teaching. | 62% | 21% | 17% | 0% | 0% |
| AI applications augment self-study activities by providing varied cognitive tracks and preference models. | 45% | 21% | 27% | 7% | 0% |
| AI tools enhance knowledge representation processes by smart machines | 40% | 45% | 11% | 0% | 4% |
| AI tools support EFL students by simulating natural phenomena, and introduce interpretation that enhances reading comprehension. | 35% | 42% | 10% | 0% | 13% |
| AI applications boost highly complicated educational tasks that save time and effort. | 32% | 33% | 34% | 0% | 0% |
| AI strategies augment EFL students' attention and motivation levels. | 61% | 39% | 0% | 0% | 0% |
| AI applications enhance students' listening skills. | 67% | 29% | 0% | 4% | 0% |
| AI applications enhance students' ability to master the skill of speaking in English. | 74% | 23% | 00 | 00 | 3% |
| AI applications enhance students' ability to master EFL reading skills | 68% | 26% | 6% | 1% | 0% |
| AI applications enhance students' ability to master writing skills | 67% | 23% | 0% | 7% | 3% |

As seen in the table above, there are positive statements from EFL students' perspective toward the effectiveness of integrating and implementing AI in EFL context. Nearly, EFL students agreed most of the statements in the table. EFL students' agreement to items (1) and (2) explain strong agreement among the students with the statement that Integrating AI into EFL classrooms encourages learners to take an active role in their learning, and AI offers a range of real-world opportunities for fluency in English. However, using AI technology could pose several challenges to both EFL teachers and learners since it requires technology-based knowledge, speedy internet connection, and financial capabilities.

EFL students Instructors' responses to questions (5), (7), (9), and (10) show that EFL students are well aware of the fact that the emergence and implementation of AI brings changes to the learners' learning process. According to their perspective, EFL students believed that AI encourages EFL learners to take an active role in their learning, and offers a range of real-world opportunities for to practice and improve their fluency in English. Additionally, AI Intelligent tools help EFL learners to solve problems of EFL teaching/ and learning. Also, using AI strategies augment EFL students' attention and motivation levels and AI applications enhance students' listening skills. The use of AI

applications enhance students' ability to master the EFL speaking skills and master EFL reading and writing skills. All in all, the integration of AI in EFL context significantly promotes EFL skills and improves EFL learners' learning process.

In the last question of the questionnaire, EFL students expressed their views in regard to the barriers which hinder the integration of AI in EFL context. According to their perspective, the main obstacles of integrating AI in EFL context are shortage of administrative support for using and implementing AI (21%), scarcity of AI tools; such as, computers and teaching software (20%), shortage of AI tool training (18%), shortage of awareness about AI integration (12%). In fact, these are the main barriers and obstacles which lay behind successful integration of AI in EFL context.

The lack of administrative and technical support to use and implement AI is critical in the use of AI in EFL context. In addition, lack of awareness of AI technology and AI tools make it difficult toward the integration and implementation of AI. Other barriers include, overburdence of the curriculum, increased workload from integration of AI tools in EFL, time planning for integrating AI applications, large class size, lack of awareness or enthusiasm among EFL students, and teachers' unwillingness to use AI tools.

Generally, we conclude from the results of the study that EFL students of the English department in the University of M'sila generally support the integration and implementation of AI in EFL context. As they frequently used and worked with AI applications in their learning process, they pointed out that AI applications should be integrated in EFL context so as help learners improve and master their EFL skills, and strengthen their knowledge in the English language.

Based on the data and results of the present study, the following recommendations can be useful in integrating and implementing AI in EFL context:

**Inclusion of AI as a general subject in EFL curriculum for EFL learners:** To better help EFL students understand the subject of AI and all ethical issues and considerations surrounding it, it is better to include AI as a teaching subject in EFL curriculum. When EFL students study the subject of AI in classrooms, they will be able to understand how AI functions and how to make AI applications work and how to implement AI applications in EFL learning. Acting so, EFL learners will avoid falling in the negative aspects of AI and concentrate on how to exploit AI applications in EFL context to improve their learning process.

**Providing EFL teachers with special training in AI-based technologies:** In order for EFL teachers to change their views on AI and change their willingness to work with AI, special trainings and workshops should be provided to EFL teachers by the ministry of higher education. Accordingly, EFL teachers will acquire basic and necessary knowledge of AI so that they will be able to work with AI and find it easier to implement AI tools and applications in EFL context.

**Technological readiness and support**
A notable challenge identified in the present research is the need for adequate technological readiness and support for EFL teachers and students. The participants who took part in the study expressed concerns about their skills in utilizing AI tools and the lack of training and support available. Addressing these challenges through professional development opportunities and institutional support is essential for successful AI implementation.

**Orienting and guiding EFL students to the best AI applications in EFL learning**
To promote motivation and boost interest among EFL students to utilize AI tools and applications, it is necessary for universities and departments to organize ordinary sessions between AI experts and EFL students for the sake of guiding EFL students to the best AI applications in their EFL learning process.

**Mobilizing EFL students to use AI technologies to gain access to educational resources**
EFL students should be mobilized and guided to the right path of how to use AI tools and applications so as to best exploit these AI tools to gain access to the best educational resources in EFL context.

**Increasing the understanding of both EFL teachers and students regarding AI technology to keep updated with the latest AI educational practices**
Through mobilization and guidance, EFL teachers and students will be able to overcome fear and frustration of using AI tools and applications. They will be able to keep up with the newest AI technologies and applications in educational practices in EFL context.

**Urging policymakers and authorities to finance projects for AI implementation in educational context**
Policymakers at the level of the Algerian government and the ministry of higher education should finance projects for AI implementation and integration in educational context. Acting in this way, research in AI technologies will be encouraged and financed by the government and the ministry of higher education. This will result in producing several AI applications which will be integrated and implemented and exploited by teachers and students in EFL context.

**Conclusion**
The present paper analyzed the fact of integrating AI applications in EFL context to improve EFL students' learning. The findings of the study showed that there was a positive trend among EFL students toward the integration and implementation of AI tools and applications in EFL learning. Moreover, EFL students positively affirmed the efficacy of integrating AI applications in EFL. However, there are challenges and obstacles that should be addressed to for successful integration and implementation of AI tools in EFL context.

The conclusions drawn from this study have recommendations for EFL students, teachers, and policymakers. The positive EFL students' perspectives and benefits of AI- based technological applications highlight the potential for their effective integration into instructional practices. However, addressing technological readiness, providing training and support for EFL students and teachers, and ensuring a balance between AI and human interaction are crucial for successful implementation.

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