Almuqadimah of Human and Social Studies Journal Volume (07) Issue (01), (june- 2022) pp1065-1080
ISSN: 2602-5566 EISSN :2716-8999

New Trends in EFL Online Learning and Teaching through the Lens of Artificial Intelligence

اتجاهات جديدة في التعلم والتعليم عن بعد من خلال عدسة الذكاء الاصطناعي

Khadidja Samira Zitouni [1*]

[1] University center of Barika (Algeria), khadidja.zitouni@cu-barika.dz

Received Date:25/01/2022 **Acceptance Date:29/03/2022**

Abstract

This paper attempts to tackle new ideas concerning the utilization of Artificial Intelligence (AI) in online EFL learning in higher education. It hypothesizes that introducing AI in EFL online learning will optimize the quality of learning and guarantee its success. The study aims to shed lights on the importance of AI in online learning and unveils its pros and cons. In this regard, qualitative descriptive research was carried out. A questionnaire and an opinionnaire were administered to teachers and learners from the English department at Barika University center. The findings collected reveal that AI apps have a salient role in facilitating and ameliorating the EFL learning/teaching process. These apps will, for sure, improve the quality and success of online learning. Therefore, the study at hand highlights the potentiality of AI in reducing the online learning barriers and challenges and enhancing the learning outcomes.

Keywords: Artificial intelligence; online learning; online teaching; EFL.

ملخص:

تحاول هذه الورقة معالجة الأفكار الجديدة المتعلقة باستخدام الذكاء الاصطناعي في تعلم اللغة الإنجليزية كلغة أجنبية عبر الإنترنت في التعليم العالي. تفترض هذه الدراسة أن إدماج الذكاء الاصطناعي في تعلم اللغة الإنجليزية كلغة أجنبية عبر الإنترنت سيعزز جودة التعلم ويضمن نجاحه. تهدف الدراسة إلى كشف أهمية الذكاء الاصطناعي في التعلم عبر الإنترنت والكشف عن إيجابياته وسلبياته. في هذا الصدد، تم إجراء بحث وصفي نوعي حيث انه تم إرسال استبيان إلى المعلمين والطلبة من قسم اللغة الإنجليزية في المركز الجامعي ببريكة. كشفت النتائج التي تم جمعها أن تطبيقات الذكاء الاصطناعي لها دور بارز في تسهيل وتحسين عملية تعلم/تدريس اللغة الإنجليزية كلغة أجنبية. تساعد هذه التطبيقات على تحسين جودة ونجاح التعلم عبر الإنترنت. وبالتالي، ساهمت هذه الدراسة في تسليط الضوء على إمكانات الذكاء الاصطناعي في تقليل حواجز التعلم عبر الإنترنت والتحديات وتعزيز نتائج التعلم.

كلمات مفتاحية: ذكاء اصطناعي؛ تعلم عبر الإنترنت؛ تدريس عبر الإنترنت؛ لغة إنجليزية كلغة أجنبية.

* Corresponding author.

1. Introduction

Artificial intelligence (AI) is constantly penetrating all domains of human life. Its iniquitousness is evident in numerous fields such as medicine, computing, marketing and research. Its utilization in foreign language learning is restricted even by all attempts made by AI to modernize the learning process. The present pandemic, however, has speeded up its implementation, specifically within the advent of online learning.

Indeed, integrating online learning in higher education in Covid-19 pandemics was the only solution that guaranteed the continuity of online learning. Thus, without innovative approaches or techniques, online learning will lack quality and sustainability, which will surely display a real threat to the educational system.

Evidently, the unplanned integration of online learning in Algerian higher education has urged educators and researchers to find solutions to make it successful. For this reason, the present paper implies that AI is at the forefront of the rapidly evolving changes. In the time of the present pandemic, AI provides various opportunities and, therefore, underpins the foreign language learning by the power to feat the needs of both the teachers, who impart knowledge and develop the lectures, and the students who are centered for their learning and have the need to retrieve information and knowledge (Pikhart, 2020). In this account, the study at hand tries to answer the following research questions: Can AI be efficient and helpful in online learning? How could AI be implemented in EFL learning?

Crucially, the study hypotheses that implementing AI in EFL online learning will improve the quality of learning and guarantee the success of online learning. The line of inquiry of this paper is to first, bring attention to the utilization of AI in EFL online learning. Second, the study aims to optimize the use of AI in online learning, and develop a general awareness of the importance of the issue. Finally, it attempts to highlight and analyse the pros and cons related to AI in the field of foreign language learning.

2. What is Artificial Intelligence?

"Can machines think?" a simple question that has changed the world by yielding to the establishment of the bases and visions of artificial intelligence. This question was asked by the mathematician Alan Turning in 1950 in his famous paper entitled Computing Machinery and Intelligence. At its core, it is a wide-ranging branch of computer science focuses on replicating human intelligence in machines.

The official idea and earliest definition of AI was first coined in 1955 by John McCarthy at a Dartmouth conference. Undoubtedly, there exists previous research which was done on AI such as the one of Alan Turning. Nonetheless, before 1955, all that was presented was still an undefined field. In this account, (McCarthy, Minsky, Rochester, & Shannon, 2006, p. 1) quote:

> "Every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to stimulate it. An attempt will be made to find how to make machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves".

Generally speaking, AI refers to the ability of digital computers or robots to conduct tasks that are commonly associated with intelligent human beings. According to (Russel & Norving, 2009, p. viii), AI includes "the study of agents that receive precepts from the environment and perform actions". AI is concerned with building computer programs that endeavour to conduct tasks that would require human intelligence. It encompasses the fields of learning, problem solving, language understanding, speech recognition, logical reasoning, and so on. Nowadays, the use of AI is evolving rapidly and it is incorporated in various domains due to its similarity with human intelligence processes through computer systems.

Assuredly, AI is a machine designed to perform tasks and solve issues that are generally conducted by humans' intelligence. (McCarthy, Minsky, Rochester, & Shannon, 2006) proposed seven original aspects of AI that consist of:

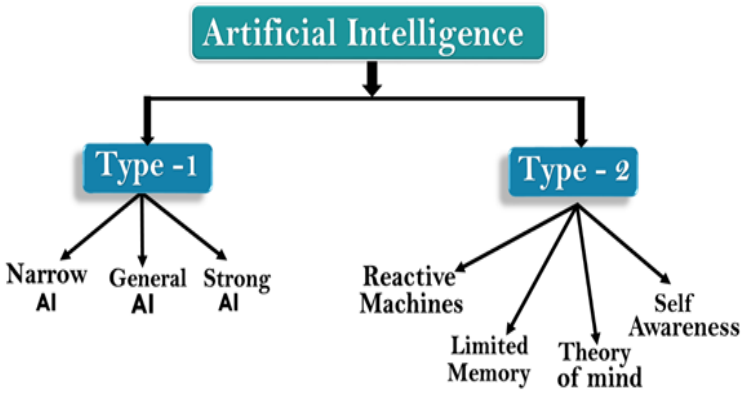
1. Stimulating higher functions of the human brain.
2. Programming a computer to use general language.
3. Arranging hypothetical neurons in a manner so that they can form concepts.
4. A way to determine and measure problem complexity.
5. Self-improvement.
6. Abstraction: defined as the quality of dealing with ideas rather than events.
7. Randomness and creativity.

After 66 years, research in AI has succeeded to complete language, measure problem complexity, and self-improvement to some degree. However, randomness and creativity has just started to be explored.

3. Types of Artificial Intelligence

Artificial intelligence is mainly categorised into two types which are based on capabilities and on functionality as it is depicted in the below figure (figure 01).

Figure (1): Types of artificial intelligence



Source: https://static.javatpoint.com/tutorial/ai/images/types-of-artificial-intelligence.png

3.1. Type 01: Based on capacities

- **Narrow AI: (also known as weak AI)**

  In todays' world, the most common and available artificial intelligence is Narrow AI. This kind of AI cannot perform outside its limitations and scope, as it is typically designed to perform a specific task. It is called narrow AI because it can undergo unpredictable ways or situations if it goes beyond its limits. Narrow AI can imitate humans' intelligence at its specific domain and task, like solving equations, self-driving cars, plagiarism detection, speech recognition, and image recognition.

- **General AI:**

  Unlike narrow AI, general AI is a level of intelligence that could solve tasks related to intellectual intelligence in an efficient way without limitations. The long-term goal of many researchers is to develop and create a system that could effectively perform intelligence to any kind of problem, which could be as smart as a typical human and outperform on its own.

  Up to now, there exists no such system categorized under general AI and capable of performing any task as perfect as a human does. Nonetheless, systems with general AI are still under research, and researchers all over the world are competing on developing machines with such criteria.

- **Super AI: (also known as strong AI)**

  Super AI is a type of Intelligence at which machines could surpass and overcome human intelligence. Super AI, with its cognitive

properties, could practice any task or solve problems better than humans. The key features of strong AI include the capability to think and reason, make judgments, solve the puzzle, learn, plan and communicate on its own. Just like general AI, super AI is still a hypothetical concept. It is, therefore, an outcome of general AI.

3.2. Type 02: Based on functionality

- **Reactive Machines**

  A reactive machine is the most basic type of AI and it follows its basic principles. As the name implies, this type of AI is capable of only performing its intelligence to perceive and react to the world around it. Such AI systems cannot store memories and as a result cannot rely on past experiences for future actions (Johnson, 2020).

  These machines are designed to focus on specific scenarios and perform only a limited number of specialized duties. Though limited in its scope, reactive machine AI may well reach a level of complexity, and display reliability when designed to accomplish repeatable tasks (Johnson, 2020). IBM's Deep Blue system and Google's AlphaGo are good examples of reactive machines.

- **Limited Memory**

  Limited memory artificial intelligence is able to store previous data or past experiences for a short and limited period of time (Johnson, 2020). This type of AI is more complex than reactive machines and includes better possibilities.

  Six steps have to be followed when applying limited memory AI in learning. First of all, training data has to be created. Second, the machine learning model must also be created. Third, the model needs to be capable of prediction. After that, the model should be able to receive feedback from humans or the environment. Then, the received feedback has been saved and stored as data. Finally, all these steps need to be reiterated as a cycle (Johnson, 2020).

- **Theory of Mind**

  Theory of Mind refers to the ability to understand human emotions, feelings, beliefs, and to be capable of interacting socially like humans (Johnson, 2020). This type of AI machine is still theoretical and not yet developed. However, researchers are making many efforts to achieve the technological and scientific capabilities necessary to develop such AI machines. Thus, this type of AI is based on the psychological feature such as thoughts and emotions that help to understand other living things.

- **Self-Awareness**

  Self-awareness AI is the far-reaching aim of artificial intelligence. Actually, once theory of mind can be successfully achieved, the final step will be for AI to become self-aware. These machines are targeted to be super intelligent with the ability to maintain consciousness, feelings, and self-awareness. In other words, this kind of artificial intelligence holds human-level consciousness with the ability to understand its own presence in the world, along with the existence of others (Johnson, 2020). Self-Awareness AI has not reached yet and it is still a hypothetical concept just like theory of mind.

4. The integration Artificial Intelligence in EFL learning

The continuous and rapid advancement of artificial intelligence has influenced almost all domains of human life. Education is one good example. Obviously, the 21st century has witnessed an increase in the implementation of AI technologies and applications in educational settings with the purpose of facilitating the learning and teaching processes (MGwo-Jen, Haoran, Benjamin, & Dragan, 2020). Generally speaking, AI educational applications help to provide personal guidance and support to learners.

Educationalists and scholars received AI with huge enthusiasm due to its limitless capabilities (Pikhart, 2020). Numerous programs and applications sought the chance to be integrated in education, especially in foreign language learning. Each program is designed to have specific function such as tackling learners' writing, reading, speaking, listening and even their communication skills. In todays' pandemic, it is quite important for both teachers and learners to learn the appropriate use of technology and the available digital resources that stimulate active collaboration and enhance students' learning experience (Ribeiro, 2020).

"Education will be profoundly transformed by AI, teaching tools, ways of learning, access to knowledge, and teacher training will be revolutionized." says UNESCO Director-General Audrey Azoulay. Indeed, (UNESCO, 2019) focuses on the potential of integrating AI in education to reduce barriers and manipulate challenges to improve learning outcomes and to optimize autonomy in learning. One of the four key issues discussed by (UNESCO, 2017) is Leveraging AI to enhance education and learning which is the focus of this study. This component is directly related and focuses on identifying new facets of personalized learning that help teachers and tackle learning difficulties and challenges.

Fortunately, there are some AI applications available free of charge that can assist both teachers and students in the learning/teaching foreign languages (Pikhart M. , 2021). For instance, AI apps afford the possibility to transcribe

speech, check pronunciation and answer voice commands. Among the numerous English learning apps there are:

4.1. Google Docs speech recognition

Recently, Google Docs, a widely-known system, has added the possibility of speech editing voice recognition. Previously, the application deals only with simple commands. Up to now, the app is free of charge and can assist during conversational activities as a mobile-friendly tool.

4.2. Interacting with Google Assistant

A great and efficient way to evaluate the intelligibility of learners' pronunciation is by making them interview Google Assistant. They can communicate and address simple questions to the assistant that will automatically replay. Teachers should encourage their learners to take notes and share their findings with classmates at the end of the session.

4.3. Google Maps

Google Maps is an AI mapping application that is created to provide satellite imagery (Bodzin, 2011). It has gained an important interest among teachers and educators because of its user-friendly interface (Demirci, Karaburun, A., & Kilar, H., 2013).When students get to learn lectures related to directions, places and countries, it is very useful and functional for teachers to integrate this navigation that is available on most mobile devices.

Various strategies can be applied with Google Maps apps like dialogues of giving directions and locations. Therefore, students will be more confident when demonstrating any direction to their classmates by referring to the digital map.

4.4. Grammarly

Among the most powerful and effective products of AI is Grammarly application. It is a digital writing tool that identifies and corrects mistakes related to writing (Taguma, Feron, E., & Lim, M. H., 2018).In this vein, (Nazari, Shabbir, & Setiawan, 2021, p. 4) claims that Grammarly "offers an AWE, AES, and AWCF application in one digital writing tool with more than 20 million international users".

Furthermore, Grammarly app involves computer and mobile internet browsers, social media platforms, and e-mail smartphone applications. Grammarly is presented in two kinds: the free version and the premium version. The premium version covers plagiarism detection. The free version, on the other hand, provides feedback and corrections.

5. The study

In an attempt to profoundly unveil and closely reflect what is happening, a qualitative descriptive research was carried out. This type of study is widely acknowledged in research for its discovery of the meaning, interpretation of situations, and analysis of participants' perspectives on particular issues (Woods, 2005). In qualitative studies, researchers focus on observing or interacting with participants about their perceptions and viewpoints on particular situations (Satterly, 1989). In this respect, the present research is employed to describe and analyze the answers obtained from a questionnaire administered to teachers and an opinionnaire to students both from Barika university center.

The questionnaire consisted of both close and open-ended questions that seek to collect data related to variables that determine the participants' attitudes and point of views regarding the integration of AI in online learning and to cross check the results. Additionally, the questionnaire endeavors to uncover whether this integration has any impact on EFL learning. In the same regard, the opinionnaire is devoted to collecting students' opinions and thoughts about the same issue. Actually, the second tool is composed of three-point Likert scale items in which learners only select if they agree, disagree or have a neutral position.

5. The participants

The population of this study consists of both teachers and students from the English department at Barika university center. Concerning the students, they consist of 130 Master students enrolled during the academic year 2021-2022. It is worthy to mention that Master phase's learners were selected mainly because they are well-informed about the current status of online learning since they have experienced its integration right from the beginning. Moreover, the same learners took part in the traditional learning, i.e. before implementing online learning. Thus, these participants have some experience that can be helpful in their evaluation. Besides, their opinions and attitudes can be considered very reliable and useful, as well. These major reasons give them an advantage to take part in this work. Assuredly, a call for a sample was necessary since it was unmanageable to work on the whole population. So, thirty students were randomly selected to undergo the fieldwork.

Teachers, on the other side, were targeted to collect their opinions and perceptions about the status of online learning. They were, also, questioned about the efficiency of incorporating AI in online learning. As a whole, our teachers consist of three females and three males. Due to the small number of teachers, we saw that it was manageable to conduct the fieldwork with all participants. So, we decided to work on the whole population without sampling.

6. Findings

Based on the goal of this study, both teachers' and students' opinions and attitudes towards the implication of AI in online learning were collected. The analysis and interpretation of the obtained results revealed salient facts regarding the actual issue. Furthermore, the obtained results were described and analyzed with the help of a statistical software named SPSS. The scores are organized in tables or depicted in figures.

6.1. Learners' opinionnaire

The first tool designed in this article concerns an opinionnaire administered to learners of Master degree. This tool addressed six statements through which learners were asked to provide their opinions by following three-point Likert scale ranging from disagree to agree. To gauge the reliability of the opinionnaire, a Cronbach's alpha psychometric test was applied and resulted as 0,786. Therefore, this result clearly maintains that the opinionnaire is reliable.

Item 1. Integrating online learning is efficient and successful

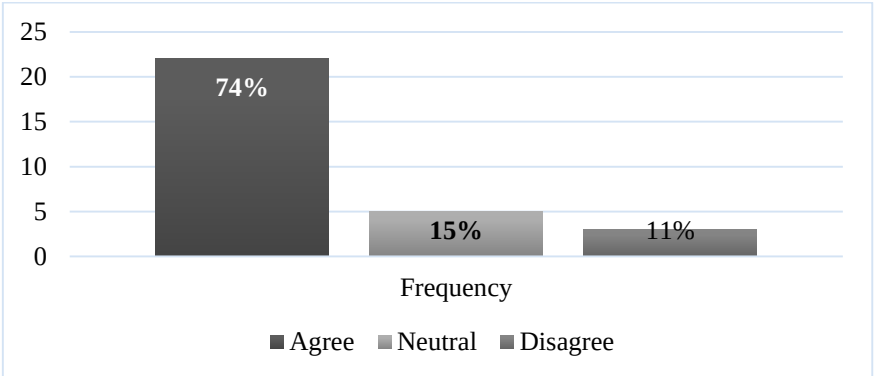
The first item solicits learners' opinions about the efficiency of online learning. In this account, more than a half (70%) of respondents disagreed with the statement. They evaluate the online learning process negatively.

Table (1): The efficiency of online learning

	Agree	Disagree
Participants' number	9	21
Participants' frequency	30%	70%

Item 2. Learning online is a challenging and difficult task

Figure (2): The difficulty of online learning



Seventy-four percent (74%) of the participants are represented by the category of people who found online learning not an easy task and challenging to some points. Actually, learners' lack of experience and the sudden shift to online education were the main hindrances. Indeed, learning online is much more complex than imagined. Our students have not yet assimilated the shift of roles from total receiver to autonomous learners. They are still dependent on their teachers to supply and control their learning process.

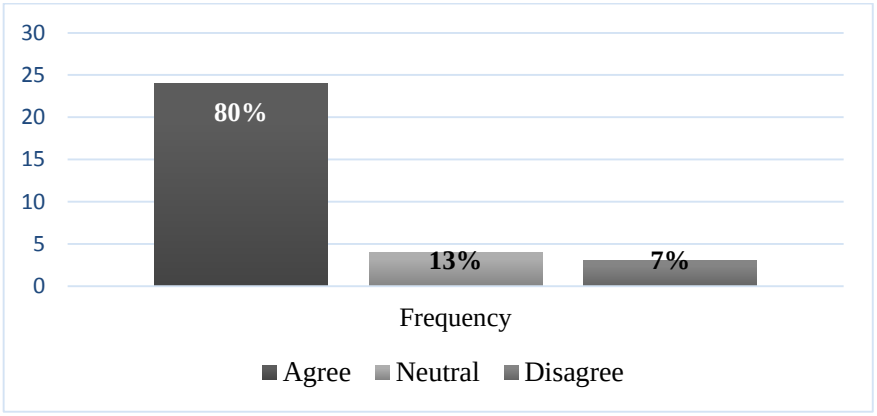
Item 3. You have received educational training in online learning applications

This sentence was included to verify whether our respondents have been trained to use online learning applications or not. All respondents uniformly disagree on the fact that they have received training on how to learn virtually and how to use the online learning apps. Unfortunately, this is among the major reasons that influenced the efficacy and successfulness of online learning.

Item 4. Artificial intelligence (AI) makes online learning easier

The fourth item depicts learners' opinions and viewpoints regarding the role of Artificial Intelligence in improving the online learning process. In terms of data, results obtained show that most respondents (80%) hold a positive view toward AI. Some respondents (13%) hold a neutral position whereas very few (7%) reveal a negative view.

Figure (3): AI makes online learning easier



This clearly indicates that most participants feel optimized regarding the implementation of AI in online learning.

Item 5. You believe that AI will enhance the quality of online learning.

This item targets students' awareness toward AI applications and their vital role in online learning.

Table (2): AI enhancement to the quality of online learning

	Agree	Disagree
Participants' number	26	4
Participants' frequency	87%	13%

Precisely, almost all the participants (87%) believe that AI will bring a positive feedback when using it in their online learning. Consequently, participants' awareness and confidence regarding AI benefits was highly revealed.

Item 6. You have already used AI in your virtual learning.

The last statement aims to check if participants have any experience regarding the use of AI in their learning. Factually, data obtained elucidates that AI is implemented only among the minority (11%). However, the great proportion of students (89%) hold no experience with AI in online learning.

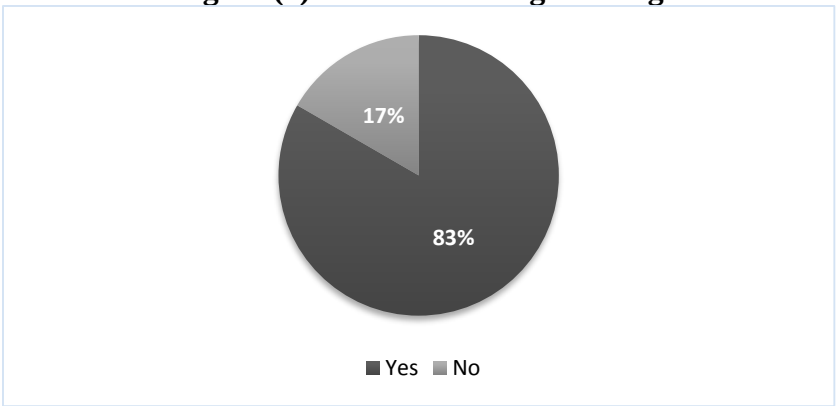
6.2. Teachers' questionnaire

The second tool used in this study was a questionnaire administered to teachers from the English department at Barika university center. The central aim of this questionnaire is to unveil not only teachers' opinions but also their beliefs and suggestions concerning online learning/teaching. The reliability of this tool was also verified by Cronbach's alpha test and a result of 0,793 was obtained. This indicates that the questionnaire is reliable, as well.

Item 1. Have you ever received any training in online learning?

The first question aims to check if our teachers have been trained and instructed to teach online. As illustrated in the below figure (figure 04), results reveal that almost all teachers have got trained on teaching virtually except for one teacher.

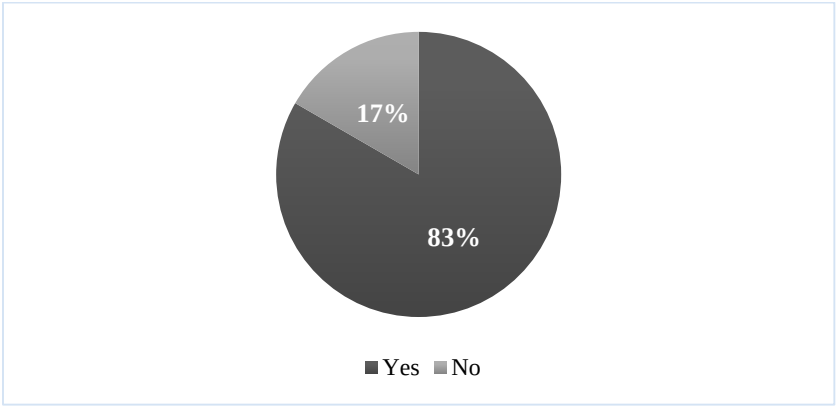
Figure (4): Online teaching training



In the same question, teachers who have been trained were asked to clarify which type of training they have received. The type varied in their answers between Francophone confederation, training of newly recruited teachers, and training course on network education techniques. This clearly indicates that none of our teachers has received a training organised by their institution but they either were a personal act or organised by the higher-education ministry.

Item 2. Do you find online teaching a challenging type?

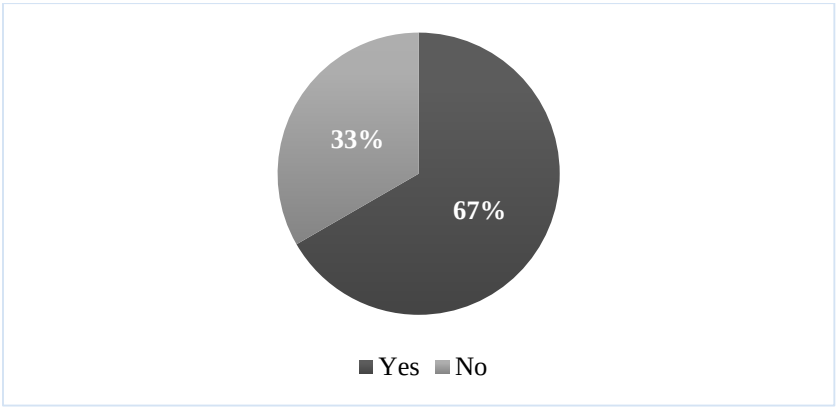
Figure (5): Online teaching as a challenging process



Concerning this question, data collected reveals that almost all teachers (83%) find online teaching a challenging and difficult task. They asserted that teaching online is more time consuming. Besides, the biggest challenge that impedes our teachers as well as learners is the low and limited internet accessibility. Lack of learners' readiness and training to engage in such change are also among the encountered challenges.

Item 3. Have you ever integrated artificial intelligence (AI) in your classroom?

Figure (6): Integration of AI in classes



Respondents were asked to indicate if they have used AI in their classrooms. Astonishingly, results collected reveal that only two teachers have already integrated AI apps while teaching. The remaining 66% have not yet used them.

Item 4. Do you think that AI will enhance the quality of online learning?

There is a general agreement among all respondents that AI will enhance the quality of online learning. Obviously, this reveals that our teachers are not against the implementation of AI apps in the online classes. They are all aware of its benefits and advantages**.**

Item 5. If given the opportunity, how will you incorporate AI in your virtual classroom?

In this open question, a general agreement among respondents that AI is a facilitating and supporting tool in online learning/teaching. Their suggestions on how to incorporate AI in their digital classroom turn around the following points:

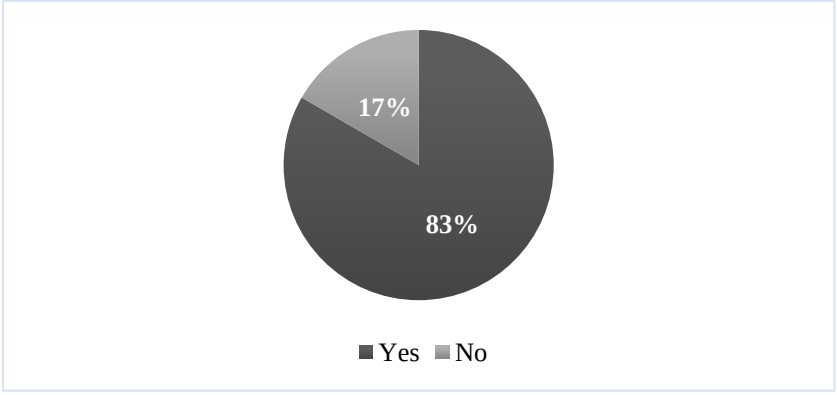
- Creating an online evaluation with automatic response and automatic grading.
- Using several online apps such as Zoom, Moodle, Google tools, …
- Partnership with foreign universities by attending virtual classrooms, seminars, …
- Making the virtual classes more interactive through video conferences, group works and workshops**.**

Item 6. Do you think that AI is beneficial to EFL learning?

According to the data provided in item six, all our teachers confirmed the fact that AI is beneficial and helpful to EFL learning, except for one teacher who was not sure about its feedback. Thus, almost all informants report positive attitudes toward AI and do not dismiss its advantages to EFL learners.

Item 7. According to you, is there any specific strategy to make online learning successful?

Figure (7): Strategies that make online learning successful



As elucidated in figure 07, the majority of informants (83%) believe in some strategies that could make online learning successful. These strategies are summarized in the points below:

- Being well trained on using online learning applications (teachers and students).
- The availability of the needed tools and materials.
- Designing a syllabus that feats learners' needs.
- Applying various techniques such as creating videos, virtual real classes, images and diagrams, etc.

7. Discussion

In an attempt to determine how the data obtained explores the research questions as well as the aim of this study, this section reviews the research findings displayed previously. Thoroughly, results collected from both the questionnaire and the opinionnaire mainly reveal that Artificial Intelligence apps will, indeed, improve the quality and success of online learning.

Concerning the first research question, Can AI be efficient and helpful in online learning?, it is found by both teachers and students that AI is complementary to, and interrelated with, online learning. All respondents admitted the vital role of AI in facilitating and ameliorating the learning and teaching processes. This gives support to previous research in the field (MGwo-Jen, Haoran, Benjamin, & Dragan, 2020).

How could AI be implemented in EFL learning? is the second research question. In this account, the research informants highlighted some points in which AI could really be beneficial such as making interactive virtual classes through video conferences, group works and workshops, integrating online evaluation with automatic response and automatic grading, referring to a plagiarism checker while conducting or correcting assignments. Almost all participants confirm the potentiality of AI in reducing the online learning barriers and challenges and its role in enhancing learning outcomes as claimed by (UNESCO, 2019).

Therefore, what our teachers and students really lack is not the capacity nor the readiness to adopt online learning, but they lack the means and experience to apply it.

6- Conclusion

The current development in online learning has witnessed an unprecedented rise in the last two years due to the covid-19 pandemic, which was adopted worldwide even in countries that were still rather reluctant in this respect. This paper attempts to uncover new ideas concerning the implementation of artificial intelligence apps in EFL online learning.

Overall, the major strength of this study is targeting the attitudes and viewpoints of both teachers and learners through a questionnaire and an

opinionnaire. This ensures the validity of the research. The findings collected in the present study determine the utility of applying AI apps and programs to improve the quality of online learning process.

To recapitulate, the main results reveal that AI apps could efficiently assist EFL online learning and enhance learners' vocabulary, writing, speaking, listening and communication. Consequently, allying teachers' guidance and creativity along with AI tools are found to be a powerful means to boost EFL learners in their online learning journey.

References

1. Bodzin, A. M. (2011). he implementation of a Geospatial Information Technology (GIT)-supported land use change curriculum with urban middle school learners to promote spatial thinking. *Journal of Research in Science Teaching,* 48(3), 281-300.
2. Demirci, A., Karaburun, A., & Kilar, H. (2013). Using Google Earth as an educational tool in secondary school geography lessons. .*International Research in Geographical and Environmental Education*, 22(4), 277-290.
3. Johnson, J. (2020). 4 Types of Artificial Intelligence. *Machine Learning & Big Data Blog*. Retrieved from https://www.bmc.com/blogs/artificial-intelligence-types/
4. McCarthy, J., Minsky, M., Rochester, N., & Shannon, C. E. (2006). A proposal for the Dartmouth summer research project on Artificial intelligence, August 31, 1955. *AI Magazine*, 27(4), 12.
5. MGwo-Jen, H., Haoran, X., Benjamin, W., & Dragan, G. (2020). Vision, challenges, roles and research issues. *Science direct*. Retrieved from https://www.sciencedirect.com/science/article/pii/S2666920X20300011
6. Nazari, N., Shabbir, M. S., & Setiawan, R. (2021). Application of Artificial Intelligence powered digital writing assistant in higher education: randomized controlled trial. *Heliyon*, 2405-8440.
7. Pikhart, M. (2020). Intelligent information processing for language education: The use of artificial intelligence in language learning apps. *Procedia Computer Science*, 176.
8. Pikhart, M. (2021). Human-computer interaction in foreign language learning applications: Applied linguistics viewpoint of mobile learning. *Procedia Computer Science*, 92-98.
9. Ribeiro, R. (2020). The most practical ways English language teachers can use Artificial Intelligence in the ELT classroom. *World of better learning*. Retrieved from https://www.cambridge.org/elt/blog/2020/03/09/artificial-intelligence-english-language-learning/

10. Russel, S., & Norving, P. (2009). *Artificial Intelligence: A Modern Approach (3rd edition).* England : Pearson.
11. Satterly, D. (1989). *Assessment in School (2nd ed.)* . Oxford: Basil Blackwell.
12. Taguma, M., Feron, E., & Lim, M. H. (2018). Education and AI: preparing for the future & AI, Attitudes and Values. *Future of Education and Skills 2030: Conceptual Learning Framework*, 1-55. Retrieved from www.oecd.org/education/2030/Education-and-AI-preparing-for-the-future-AI-Attitudes-and-Values.pdf
13. *UNESCO*. (2017). Retrieved from Artificial Intelligence: Opportunities, threats and the future of learning: https://unesdoc.unesco.org
14. *UNESCO*. (2019). Retrieved from Digital Library, Artificial intelligence in education: challenges and opportunities for sustainable development: https://unesdoc.unesco.org
15. Woods, P. (2005). *Successful writing for qualitative researchers (2nd edition).* Abingdon, Oxon, UK: Routledge.