

University EFL Teachers' Perceptions on the Integration of AI Training in the Professional Development Program

Perceptions des Enseignants Universitaires d'Anglais- sur l'intégration de la Formation IA dans le Programme de Développement Professionnel

Dr. SELOUGUI Soumia

University of Oum el Bouaghi -Algeria-

soumia.selougui@univ-ueb.dz

Date of receipt:16-07-2025	Date of revision: 29-10-2025	Date of acceptance:10-12-2025
----------------------------	------------------------------	-------------------------------

Abstract

The increased use of AI applications has resulted in unintended outcomes, which advocate the need for prompting ethical considerations. AI applications used in the field of education is no exception. Within this emerging field, there is a need to equip university EFL teachers with the necessary training on the ethical and safe use of GenAI. This study, therefore, aims to investigate whether EFL teachers use AI applications in their classrooms and to what extent they guide their students when using these applications. Exploring teachers' views on the training they receive regarding the use of the AI applications in their teaching practices is seen as another aim. For this study, a Likert questionnaire was used to collect the data. The participants in this study were forty (39) university EFL teachers working in different universities in Algeria. The findings showed the use of the AI tools by the teachers. Additionally, it was found out that some EFL instructors were not able to offer guidance to their students when using the AI applications, while others stated the opposite. The findings also indicated that EFL teachers received no training on the use of the AI tools. On the basis of these findings, recommendations are suggested to policy makers to review the professional development programs designed for university EFL teachers.

Keywords:Artificial Intelligence tools; Teachers' professional development; University EFL teachers; English learning and teaching

Résumé

L'utilisation accrue des applications de l'IA a entraîné des résultats inattendus, ce qui justifie la nécessité de susciter des considérations éthiques. Les applications d'IA utilisées dans le domaine de l'éducation ne font pas exception. Dans ce domaine émergent, il est nécessaire de doter les enseignants universitaires d'Anglais de la formation nécessaire à l'utilisation éthique et sûre de la GenAI. Cette étude vise donc à déterminer si les enseignants d'anglais langue étrangère utilisent des applications d'IA dans leurs classes et dans quelle mesure ils guident leurs étudiants lors de l'utilisation de ces applications. Un autre objectif est d'explorer le point de vue des enseignants sur la formation qu'ils reçoivent concernant l'utilisation des applications d'IA dans leurs pratiques d'enseignement. Pour cette étude, un questionnaire de Likert a été utilisé pour collecter les données. Les participants à cette étude étaient quarante (39) enseignants universitaires d'anglais travaillant dans différentes universités en Algérie. Les résultats ont montré que les enseignants utilisent les outils d'IA. En outre, il a été constaté que certains enseignants d'anglais ne peuvent pas guider leurs étudiants lorsqu'ils utilisent les applications d'intelligence artificielle, tandis que d'autres affirmaient le contraire. Les résultats indiquent également que les enseignants d'anglais n'ont reçu aucune formation sur l'utilisation des outils d'IA. Sur la base de ces résultats, des recommandations sont suggérées aux décideurs politiques pour revoir les programmes de développement professionnel conçus pour les enseignants universitaires d'anglais.

Motsclés : Outils d'intelligence artificielle ; Développement professionnel des enseignants ; Enseignants universitaires d'anglais; Apprentissage et enseignement de l'anglais

* Corresponding Author:

1. Introduction

Learning English as a foreign language (EFL) becomes a necessity for the individual during the era of globalization (Wu, Li, Yu, & Lin, 2024). Additionally,

the use of AI applications is considered as a significant innovation in teaching languages (Dilzhan, 2024). As AI advanced in various fields, there was a notable shift towards emphasising the ethical and the responsible use of the AI. By doing so, EFL teachers might be asked to critically evaluate these technologies, communicate proficiently with AI, and use these applications effectively in diverse contexts. In other words, when using AI applications in the educational settings, one should consider doing it in the right and unbiased way. In this respect, Cukurova, Kralj, Hertz, and Saltidou(2024) stated that ‘any AI tool that is going to be used in a classroom should be thoroughly tested to make sure that it is accurate and reliable. It is critical that teachers apply their professional expertise when analysing AI tools’ (p.15). In Algeria, it can be said that the professional development (PD) programs initiated by the Algerian Ministry of Higher Education for newly hired teachers cannot offer special AI training for university EFL. This might lead to teachers having limited practical guidance on how to use these AI tools effectively.

In this vein, fostering an ethical integration of technology in the learning environment requires training teachers on how to use the AI applications, especially with many options they are offered with. By doing so, teachers can select the most appropriate AI tool that is adequate to different contexts and needs of students. Additionally, by offering AI training, EFL teachers can guide their students when using the AI tools to do their activities.

2. Theoretical Background

Numerous studies are currently devoting much focus to the field of AI, which makes this field as rich and diverse. AI has been defined by Xu et al (2021) as ‘the simulation of human intelligence by a system or a machine. The goal of AI is to

develop a machine that can think like humans and mimic human behaviors, including perceiving, reasoning, learning, planning, predicting, and so on' (p.1).

2.1. The Application of Artificial Intelligence in Teaching English as a Foreign Language

Due to the rapid development of AI technology, its use in the field of teaching English as a foreign language is seen as significant (Wu, Li, Yu, & Lin, 2024; Dilzhan, 2024). Additionally, the use of the AI tools in the field of teaching English as a foreign language has significantly influenced the methods of teaching and learning experiences (Wu et al., 2024).

There are several AI powered tools and platforms used in the EFL context. These can be classified into the following categories: adaptive learning, translation, chatbots, voice assistants, pronunciation, lesson design and content creation, quiz/assessment, feedback, and online platforms (Heras Blasco, 2024). For instance, the AI translation platform aims to help learners translate from one language to another like Google Translator. For chatbots, it mainly stimulates intelligent human interaction. The ChatGPT is one example of these AI tools. Additionally, voice assistants use speech recognition and respond to spoken questions or commands (Heras Blasco, 2024). Furthermore, lesson design and content creation AI tools aim to help teachers design their lessons and to elaborate activities for their classes easily. For the category of AI assessment and quizzes, this type of AI tool helps in assessing students' level, and how much they show progress with their studies. Additionally, teachers just need to sort and choose any AI application according to their needs (Fitria, 2021).

2.2. Teachers' Development Programs

As a concept, Rudduck (1991) referred to the professional development of the teacher as 'the teacher's ability to maintain the curiosity of the class; to identify significant interests in the teaching and learning processes; to value and seek dialogue with experienced colleagues as a source of support in the analysis of situations' (p. 129).

The most important aspect in the development of education is to improve its quality. In order to do so, teacher training and professional development are seen as important mechanisms for improving teachers' knowledge and skills. Additionally, the process of professional development is seen as an individual and as a collaborative process that should take place in the workplace of the teacher (Marcelo, 2009). In other words, the process of professional development must be taken into consideration if the aim is to improve the quality of learning that students receive. This idea was also supported in the literature indicating that the quality of teachers and the way they teach is the most important factor in explaining the students' results. Additionally, 'the professional development of teachers goes beyond a merely informative stage; it implies adaptation to change with a view to changing teaching and learning activities, altering teacher attitudes and improving the academic results of students. The professional development of teachers is concerned with individual, professional and organisational needs' (Heideman, 1990, p. 4).

In Algeria, the teacher training focuses much on training teachers on the modern methods that are used internationally. In this vein, 'the Algerian Ministry of Higher Education has adopted a program to accompany newly-hired university professors in order to ensure pedagogical activity that keeps up with contemporary changes in scientific research, both in general and specifically in Algeria' (Aissaoui,

Djahnit, & Benazouaou, 2024, p.286). Moreover, the newly recruited teachers are trained on legislation, pedagogy and didactics, psychology and educational psychology, students' assessment, distance education, and the use of information and communication technologies (Aissaoui et al, 2024). Significantly, the newly recruited teachers are trained on several subjects. However, they have not received training on how to ethically use the AI apps in the teaching/ learning process, or on how to guide their students when using the AI applications. Thus, training university EFL teachers on the effective and the ethical use of the AI applications is still limited in the Algerian educational context.

2.3. Artificial Intelligence Integration in Teachers' Professional Development

Integrating artificial intelligence in teachers' professional development is seen as important. In this matter, Cukurova, Kralj, Hertz, and Saltidou (2024) worked on highlighting some key aspects needed for teacher training, so that they are prepared for the AI use. First, promoting and recommending ethics is one of the core pillars when employing the AI systems in education. Second, explaining how ethical principles and values are considered and negotiated in codesign and co-creation of learning practices that use AI and data. Third, contributing actively to the improvement of the AI systems by reporting errors, risks, biases or misconceptions in data or outputs. Moreover, comparing ethical principles built into AI tools with the ethical principles that teachers implement in the teaching process.

Cukurova's et al (2024) further added some significant examples that teachers' training should focus on. First, the used AI tools require analysis and evaluation and their appropriateness for the diverse types of learners and their peers. Moreover, evaluating critically the extent these AI tools do match the objectives of

teaching and learning is another example. Additionally, teachers should be trained on how to use AI tools in an effective way. More importantly, identifying and discussing the presence and impact of AI in an educational context is also required. Furthermore, teachers' training may also consider how all students from different cognitive, cultural, economic and physical differences can benefit from these tools. They also have to be aware that AI is changing and its impact on education can be unpredictable.

To sum up, by considering the aforementioned key areas, university teacher training programs can effectively empower EFL teachers to make purposeful and responsible use of AI.

Previous studies related to the study:

The use of AI in EFL classrooms has been the subject of numerous studies. Pokrivcakova (2019) claimed that foreign language learners and teachers could utilize various AI-powered tools to simplify their learning and teaching.

One study was conducted by Jamal (2023). This study was mainly about exploring the role of AI in teacher education, including its potential benefits, drawbacks, and challenges. The main findings of this study indicated that AI has the potential to transform teacher education, but it requires careful implementation and ethical considerations. In a similar vein, Uygun (2024) conducted a study to investigate teachers' attitudes regarding the AI applications in order to revolutionize the teaching and learning process. Additionally, a questionnaire was used to obtain the data for this study. Furthermore, a study of Hazaymeh, Remache, and Bouzenoun (2024) was about exploring EFL teachers' views on the use of AI applications in teaching and learning English as a foreign language in a variety of universities in the UAE. A survey was used to gather data

from 46 EFL instructors. The results showed that the instructors strongly relied on AI applications to manage their classroom. The findings also showed that, despite teaching experience, there were no significant differences in perceptions regarding the challenges of utilizing AI apps. Moreover, another study was conducted by Al-Zyoud (2020). It was about investigating the use of AI tools and their impact on teachers' professional development. The study also explored the technical applications that support AI education, and the problems that were encountered by the users. A theoretical survey was used to collect the data and to answer the research questions.

A similar study conducted by Brandão, Pedro, and Zagalo (2024). It was a literature review that discusses the components of teacher professional development that could empower teachers to guide their students towards the ethical and safe use of GenAI. It was found that one important key of TPD is to train teachers about the AI literacy, which involves understanding of the AI, its capabilities and limitations, in addition to the AI potential benefits and drawbacks in education.

In conclusion, referring to previous studies related to the topic of this study, there are not many Algerian, Arab, and foreign investigations that worked on the importance of training university EFL teachers on the use of the AI tools and platforms as a part of their professional development training. EFL teachers as, primary users and key decision-makers in education, possess valuable perspectives about the potential challenges, advantages, and nuances of incorporation of the GenAI tools. Thus, integrating AI as a part of teachers' training programs in order to train them on how to ethically use these tools, how to inform them, and how to

make decisions when using these applications in the classroom is seen as important.

3. Methodology

3.1. Research questions

The current study seeks to answer the following questions:

- Do EFL teachers use AI applications in their classrooms?
- To what extent do EFL teachers guide their students when using AI tools in their teaching activities?
- To what extent does the professional development program offer university EFL teachers with the training on the AI applications in their teaching practices?

3.2. Study approach

This study is more descriptive in nature. A descriptive approach was chosen to conduct this study. The current study aims to investigate the views of EFL instructors working in a variety of universities in Algeria on the AI training they receive when attending the teachers' professional development program. Additionally, the questionnaire was used as a tool for data collection to answer the research questions.

3.3. Study sample

For this study, thirty-nine (39) male and female university EFL instructors currently working in a variety of universities in Algeria took part in this study. They were EFL instructors, who had attended their training program. Additionally, the Ministry of Higher Education is responsible for designing the content of the teachers' training programs. Such a training is given much importance by policy makers in Algeria.

3.4. Data collection method

The main data collection tool used in this study is the questionnaire. A five-point Likert scale was used by following these response options: strongly disagree, disagree, neutral, agree, and strongly agree. As a concept, a questionnaire is an important quantitative tool used for data gathering (Flick, 2018).

The questionnaire was divided into five main parts. Part one, consists of a list of items about the demographic data of the respondents. This includes the respondents' age, years of experience, and their level. In the second part of the questionnaire, a list of three items about EFL teachers' views on the use of AI applications in the classroom. Part three, was designed to collect data about EFL instructors' guidance of their students when using AI tools. Additionally, part four of the questionnaire, was devoted to ask respondents about the extent professional development program offers training on the ethical integration of the AI applications in the classroom. For part five, participants were asked to provide general recommendations and suggestions if there are any.

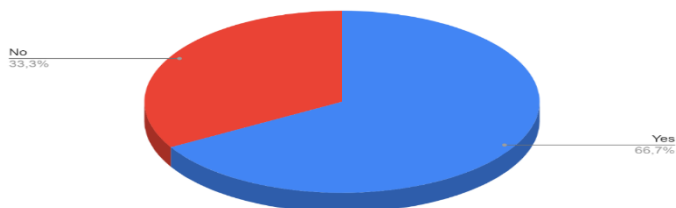
3.5. Data collection and analysis

The participants were given a link to a questionnaire to participate voluntarily in collecting the data. The researcher sent the link of the questionnaire via emails to be answered by the respondents. After the data gathering phase ended, descriptive statistics, including frequencies and percentages was conducted.

4. Research Results

1. The Informants' Characteristics

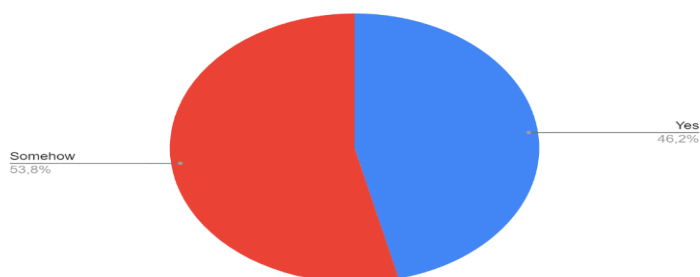
Figure 1. EFL Teachers' In-service Training Program Attendance



From the percentages shown in the pie chart above, it can be clearly seen that a greater percentage of EFL instructors (66.7%) attended the in-service training program offered by the Ministry of Higher Education. However, only (33.3 %) of them did not attend the training program.

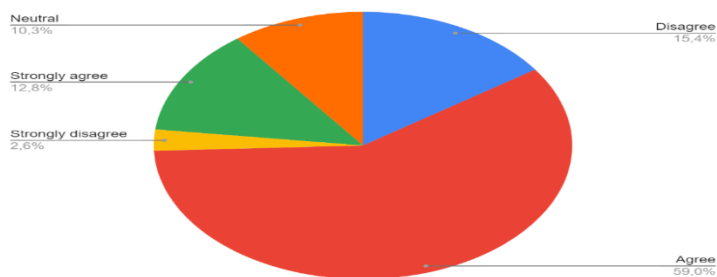
2. EFL Teachers' Views on the Use of AI Applications in the classroom

Figure 2. EFL Teachers' Good Understanding of the AI and what it is Capable



The pie chart above presents data about the participants' knowledge of the AI applications and their role in the field of English language teaching. The finding showed that more than half of the participants (53.8%) was not fully aware of this innovation and how it functions. The percentage of those teachers who have a good understanding of what AI is and what is capable of is (46.2%). From these statistics, it can be said that university EFL teachers should be offered a training on the AI tools and how they function. By doing so, the use of these applications would be done in a safer way.

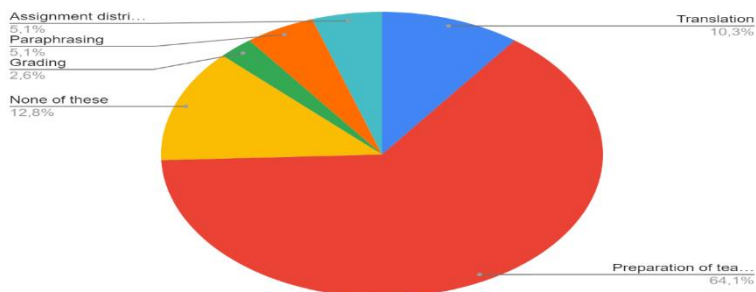
Figure 3. The use of AI -empowered Tools in Language Teaching by University EFL Teachers



The quantitative data presented above indicates the percentages of participants' use of the AI- empowered tools when teaching English as a foreign language. The highest percentage of the participants, (71.8 %) showed their agreement of using AI tools in their classroom, while (18%) of them disagreed with this statement(10.3%) of the respondents opted for a neutral option.

With regard to this statement, the majority of the participants use AI applications in their teaching practices. This contradicts with the results from **Figure (2)** where (53.8%) of the respondents stated that they are not fully aware of these AI tools and how they function. Such a discrepancy could be due to using AI tools by the respondents randomly without having guidance on how to use them. Another possible reason can refer to the teachers' use of one AI tool only, which is the ChatGPT. More details are presented in the **Figure(4)** below.

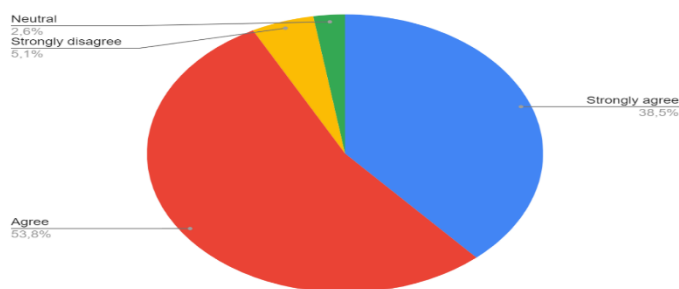
Figure 4. The Use of AI Tool or Platform for Doing Activities



It can be clearly seen in **Figure (4)** above, over half of the participants (64.1%) use the AI applications for the preparation of teaching materials. They believed that AI applications are useful when preparing lessons for their students. The use of AI tools may save teachers' time in assignment preparation. However, (12%) of them do not use any of these tools in their teaching. Additionally, (10.3%) reflects the percentage of the respondents who use these tools for machine translation in their teaching process. (5.1%) of the respondents use AI applications for distributing assignments and paraphrasing. Finally, the lowest percentage (2.6%) refers to participants who use AI tools for grading their students' papers.

3. FL Instructors' Guidance of their Students when Using AI Tools

Figure 5. The Use of AI apps by EFL Students when Doing their Activities

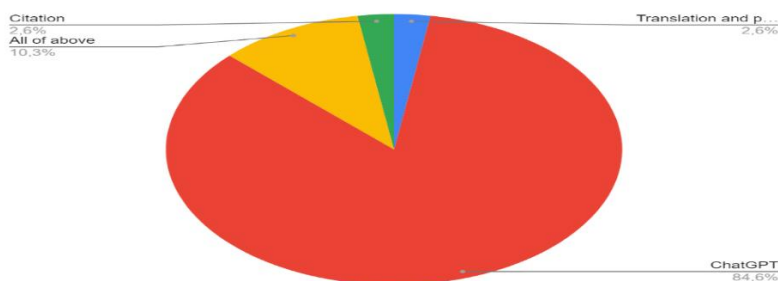


The findings above show the use of the AI tools by EFL students when doing their practical exercises. The highest percentage of (92.3%) refers to participants who agreed that their students usually use the AI tools when doing their activities.

However, only (2.6%) of participants are not either in agreement or disagreement with this statement. The lowest percentage (5.1 %) refers to participants who disagreed with this statement.

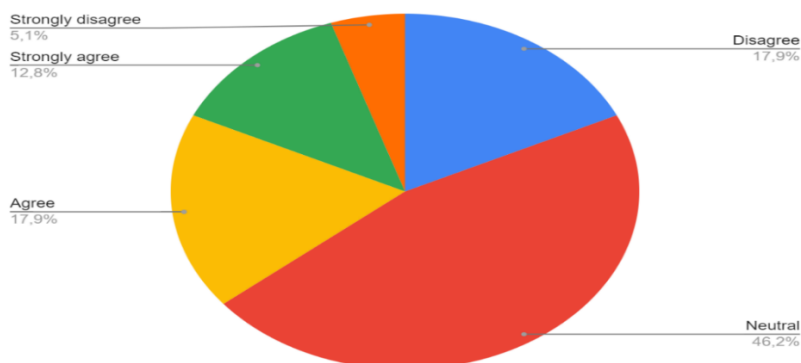
Remarkably, the majority of EFL students use AI applications when doing on their practical activities. However, some challenges may arise when using the AI for doing activities, because these AI tools may provide incorrect information. Thus, guiding students to use these AI applications is recommended in order to ensure an effective use of these tools.

Figure 6. AI Methods Utilised by Students



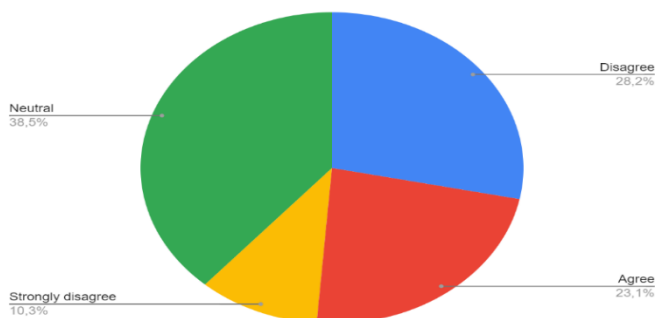
It is significant that the majority of the respondents (84.6%) indicated that their students mostly use the ChatGPT application. (10.3%) of them stated that their students use the AI tools for citing information, translating and paraphrasing, and ChatGPT. However, the lowest percentage of (2.6%) refers to the participants who stated that AI applications for citation only used by their students.

Figure 7.EFL Teachers' Competency of Guiding their Students when Using AI Applications in the Classroom



It is noticeable that the highest percentage of participants (46.2%) indicated a neutral option and showed their ambivalence, whereas, (30.7%) of the participants agreed that they are competent enough to guide their students when using AI applications in the classroom. Only a few of them (23 %) stated the opposite. The analysis of this question showed that the majority of participants chose the neutral option as an answer. This question may be unclear or vague to the respondents, so that they chose the neutral option. More detailed questions were posed below.

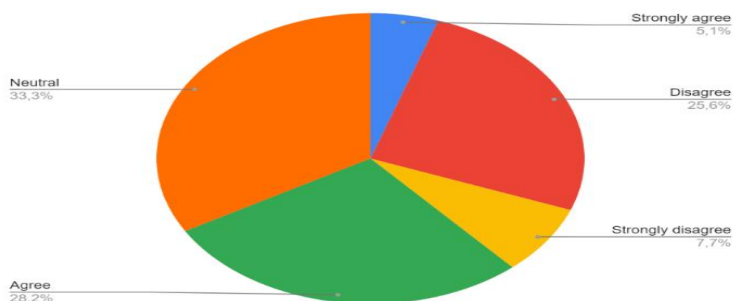
Figure 8.EFL Teachers' Guidance of their Students when Using ChatGPT toStructure their Masters' Dissertations



From the **Figure (8)** above, (38.4%) of the respondents indicated that they do not guide their students when using ChatGPT to structure their Masters' dissertations. However, a similar percentage of (38.5%) of the respondents chose the neutral

option. Only (23.1%) agreed with this statement and stated that they guide their students when using the ChatGPT to structure their dissertations. Significantly, one possible explanation for the teachers' disagreement with this statement could refer to considering the use of ChatGPT in structuring dissertations as a form of plagiarism.

Figure 9.EFL Teachers' Guidance of their Students when Using AI Tools in the Classroom Discussions and Interactions



Accordingly, it appears that a sizeable proportion of the participants (33.3%) were of the professional opinion that they guide their students when using AI applications for classroom discussions and interactions. Additionally, (33.3%) of them chose the neutral option. A similar percentage of (33.3%) disagreed with this statement.

4. The Extent Professional Development Program Offers Training on the Ethical Integration of AI Applications in the Classroom

Figure 10. The acquired Knowledge and Skills for Understanding and Using AI by Attending the Training Program

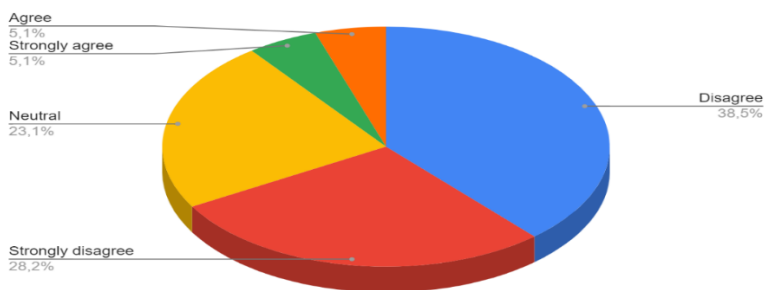


The results also showed that the majority of the participants (64.1%) did not have the necessary skills and knowledge of using the AI applications when they attended the training program. However, (35.9%) of them had acquired the skills and knowledge for using the AI tools when they attended the training.

It is noticeable from the **Figure(10)** above that EFL teachers did not acquire sufficient knowledge and the skills needed for using the AI tools in the classroom.

This indicates that further training regarding the use of the AI is highly required.

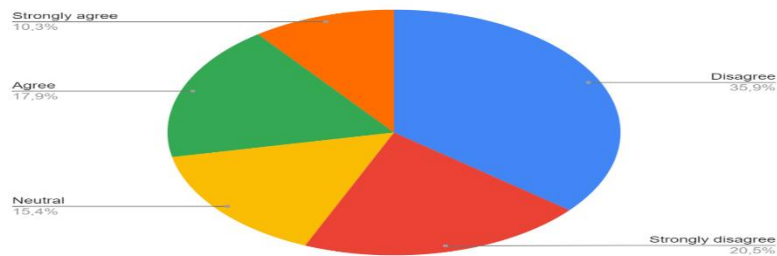
Figure 11. EFL Teachers' Training on how to Guide their Students when Using AI Applications



Figure(12) above demonstrates the percentages of the training received by teachers on how to guide their students when using AI applications. (66.7%) is a significant percentage of the participants who stated that they have not been trained on how to guide their students when using the AI applications in doing their practical exercises. Only (10.2 %) of the respondents agreed with this

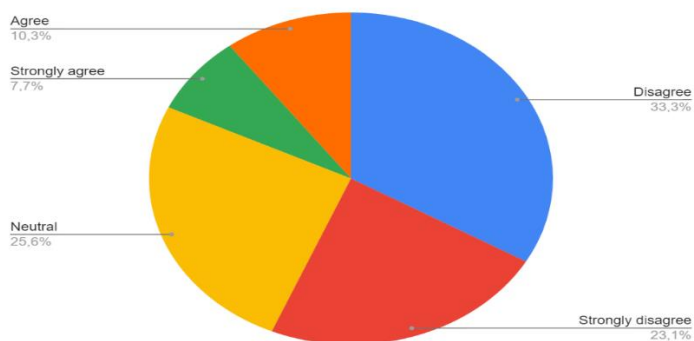
statement and believed that they have received enough training regarding the use of the AI tools. However, (23.1%) chose the neutral option.

Figure 12.EFL Teachers' Training on the Ethical Issues Raised when Generating Contents Using AI Apps



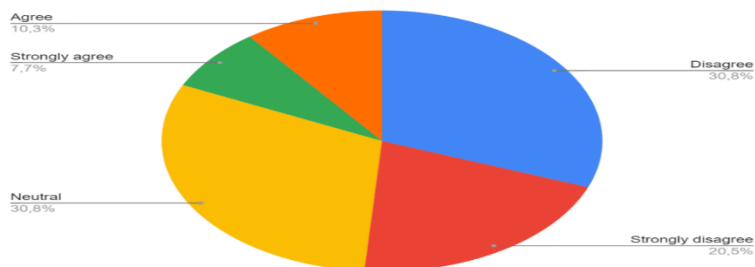
From the above figure, it can be seen that the highest proportion (56.4%) of the participants indicated that they have not been trained on the ethical issues, which could be raised when generating any content using the AI apps. However, more than a fifth of the participants (28.2%) believed the opposite. Only (15.4%) were ambivalent about the answer, having chosen the neutral category. In this sense, some of the participants claimed 'undecided' choice maybe due to their uncertainty of the answer. Interestingly, from the results above, one can say that the training programs offered to the Algerian university EFL instructors do not provide training on the ethical issues, which might be raised when generating a content.

Figure 13. EFL Teachers' Training on Critically Evaluating the AI Technologies



It is discernible that (56.4%) of the participants showed their disagreement and stated that they have not been trained on how to critically evaluate the utility of the AI applications, whereas, (18%) of them stated the opposite and thought that they have been trained on evaluating these technologies. (25.6%) of the respondents chose the neutral option. Again, these results indicate the weaknesses of the training programs in terms of offering training to teachers on how to evaluate a variety of the AI applications used by the students in their actual learning practices.

Figure 14.EFL Teachers' Training on Evaluating the Compatibility between the AI Tools and the Teaching and Learning Objectives



The findings in **Figure(14)** revealed that more than half of the participants (51.3%) stated that no training on evaluating critically the matching between the use of the AI applications and the teaching and learning objectives set by the

authorities. However, (18%) of them stated the opposite. The remainder of the participants (30.8%) were ambivalent in their response.

5. Discussion

The present study investigated the integration of AI training in the professional development programs attended by university EFL teachers. First, it was indicated that EFL instructors use some of the AI applications in their teaching practices. The **Figure(3)** showed that a lot of participants use the AI applications. However, it was also revealed that the participants did not have enough understanding of what these AI applications and how they function as shown in **Figure(2)**. This could be possibly explained by the idea of using these tools blindly without having full understanding on how to use these tools. Thus, it is highly recommended to equip university EFL instructors with the AI literacy, that involves the understanding of the AI, its capabilities and limitations, in addition to the AI potential benefits and drawbacks in education (Brandão, Pedro, & Zagalo, 2024). Second, according to the current study, the majority of respondents agreed that their EFL students were utilizing AI applications to a significant extent when doing their practical activities. In this vein, Pokrivcakova (2019) claimed that foreign language learners and teachers could utilize various AI-powered tools to simplify their learning and teaching. Additionally, among the applications that are used by the EFL students is the ChatGPT as indicated in **Figure (6)**. In this respect, Heras Blasco (2024) listed ChatGPT as one of the AI applications used mostly by students. Additionally, the study found out that the participants did not acquire the knowledge and skills for using the AI applications in their teaching practices. The finding showed that the professional training received by EFL instructors lacks AI training. The result contradicts with Cukurova's (2024) idea that stated the need for equipping

teachers with the AI skills and knowledge in order to be fully prepared for the AI use.

The present study also showed that EFL instructors have not been trained on how to guide their students when using the AI tools in their practical activities as indicated in Figure(11). This may result in affecting negatively the students' learning outcomes. That is to say, students are not capable of managing their learning using the AI applications. Hence, Brandão, Pedro, and Zagalo (2024) stated the significant role of teacher professional development in empowering teachers to guide their students for the ethical and safe use of GenAI. Last, the present study showed that EFL instructors have not received training on the ethical issues, which might be raised when generating a content using the AI applications. This indicates the necessity for integrating training on the ethical issues, which might be raised when generating a content using the AI applications.

6. Conclusion

In this study, teacher professional development is an essential trigger in adopting a variety of emerging technologies. The study's findings suggest important recommendations for Algerian policy makers. EFL instructors had limited practical guidance on how to apply the AI tools in their actual teaching practices. Thus, offering appropriate training about the use of the AI is highly recommended. Additionally, EFL instructors should be equipped with the AI competences to actively participate in the development of a more ethically AI ecosystem in the field of education. EFL instructors require training on how to evaluate and test the AI applications to make sure that these tools are accurate and reliable. Moreover, EFL teachers require more training on the ethical issues, which might be raised when generating a content using AI apps. In this vein, organizing training sessions for teachers to employ AI applications when teaching the English

language in the classroom might be useful. Furthermore, raising awareness among university EFL teachers about the limitations of the AI apps is highlighted too.

7. Bibliography List

- Al-Zyoud, H. M. M. (2020). The role of artificial intelligence in teacher professional development. *Universal Journal of Educational Research*, 8(11), 6263–6272. <https://doi.org/10.13189/ujer.2020.082265>
- Brandão, A., Pedro, L., & Zagalo, N. (2024). Teacher professional development for a future with generative artificial intelligence – An integrative literature review. *Digital Education Review* (45), 151–157. <https://doi.org/10.1344/der.2024.45.151-157>
- Dilzhan, B. (2024). *Teaching English and Artificial Intelligence: EFL Teachers' Perceptions and Use of ChatGPT*.
- Fitria, T. N. (2021). The use technology based on artificial intelligence in English teaching and learning. *ELT Echo: The Journal of English Language Teaching in Foreign Language Context*, 6(2), 213–223. <https://doi.org/10.24235/eltecho.v6i2.9299>
- Flick, U. (2018). *An Introduction to Qualitative Research*. 6th ed. Los Angeles, London, New Delhi: Sage Publications.
- Hazaymeh, W. A., Bouzenoun, A., & Remache, A. (2024). EFL instructors' perspective on using AI applications in English as a foreign language teaching and learning. *Emerging Science Journal*, 8, 73–87. <https://doi.org/10.28991/ESJ-2024-SIED1-05>
- Heras, B. A. (2024). *Artificial Intelligence in Teaching a foreign language: Tools and uses*.
- Jamal, A. (2023). The role of artificial intelligence (AI) in teacher education: Opportunities & challenges. *International Journal of Research and Analytical Reviews*. <https://www.researchgate.net/publication/369384184>
- Marcelo, C. (2009). Professional development of teachers: past and future. *Sísifo. Educational Sciences Journal*, 8, 5-20.
- Pokrivcakova, S. (2019). Preparing teachers for the application of AI-powered technologies in foreign language education. *Journal of Language and Cultural Education*, 7(3), 135-153.
- Rudduck, J. (1991). *Innovation and Change*. Milton Keynes: Open University.

Uygun, D. (2024). Teachers' perspectives on artificial intelligence in education. *Advances in Mobile Learning Educational Research*, 4(1), 931–939.

<https://doi.org/10.25082/amler.2024.01.005>

Wu, L., Li, K., Yu, M., & Lin, Y. (2024). Application of artificial intelligence in teaching English as a foreign language: Progress, challenges, and trends. *English Language Teaching and Linguistics Studies*, 6(4), 215-. <https://doi.org/10.22158/eltls.v6n4p215>

Xu, Y., Liu, X., Cao, X., Huang, C., Liu, E., Qian, S., Liu, X., Wu, Y., Dong, F., Qiu, C. W., Qiu, J., Hua, K., Su, W., Wu, J., Xu, H., Han, Y., Fu, C., Yin, Z., Liu, M., ... Zhang, J. (2021). Artificial intelligence: A powerful paradigm for scientific research. *Innovation*, 2(4), 1-19.

<https://doi.org/10.1016/j.xinn.2021.100179>