

From Innovation to Practice: Moroccan EFL Teachers' Perceptions of AI-Enhanced Language Instruction

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ABSTRACT

By leveraging the power of Artificial Intelligence (AI) in education, the new AI tools are making its participation in improving the quality of educational practices limitless. Even though the amount of research conducted on teachers' perceptions from an international perspective is significant, little attention is paid to research on EFL teachers' perceptions and integration of AI tools in the field of English language teaching from a Moroccan perspective. In this regard, the purpose of this study is to investigate Moroccan EFL teachers' perceptions and insights into how the new AI tools and platforms can be used for enhancing both their instructional and pedagogical language teaching practices. By adopting a qualitative case study design, the study examined Moroccan EFL teachers' perceptions and gained insights into how AI tools are manipulated by teachers in Moroccan EFL language classrooms. By conducting a GoTo webinar on AI integration in English language teaching focusing on Midelt directorate as a case study, 22 Moroccan EFL teachers participated and 12 were selected based not only on voluntary participation but also on having ≥ 3 years' teaching experience as well as acquaintance with AI in general. The researcher gathered data through conducting semi-structured interviews and focus groups. The data were analysed using inductive thematic analysis. With the help of NVivo 12, the researcher was able to successfully establish member checking and achieve 81% inter-coder agreement. The findings showed that Moroccan EFL teachers hold positive perceptions on integrating AI tools in language teaching. The data analysis also revealed that AI tools offer promising opportunities for promoting Moroccan EFL teachers' pedagogical teaching practices in terms of creating personalized learning environment, generating lesson plans, creating content as well as enriching their teaching resources. To sum up, the findings undoubtedly contribute to the broader body of literature on understanding how AI can improve language teaching and learning, while also addressing challenges related to teachers' AI literacy and continuous professional development regarding AI integration in ELT from a Moroccan educational perspective.

Keywords: Artificial Intelligence; English Language Teaching; Teaching Practices; English as a Foreign Language; Technology Acceptance Model (TAM); Intelligent Technology Enhanced- Language Learning (ITELL)

INTRODUCTION

The Rise and Transformative Role of Artificial Intelligence (AI) in Education

The idea of embracing Artificial Intelligence (AI) in education in general stems from the fact that AI has become increasingly integrated into various environments and contexts of modern life in which education isn't

an exception (Ali et al., 2019). The emergence of Artificial Intelligence (AI) has created a transformative force in education, enabling different roles of AI tools to take place including personalized learning, automating administrative tasks, and providing new tools for curriculum development. Therefore, educational systems worldwide have known an increasing demand for teachers' AI literacy for adequately and effectively embracing AI in education (Cheng & Yim, 2024). Accordingly, research conducted on the integration of Artificial Intelligence (AI) in education holds the potential to revolutionize both education in general and English language teaching in particular (Liang et al., 2021). However, making the role of AI successful in education depends on adequate teachers' training, professional development as well as ethical considerations (Luckin et al., 2016).

The adequate use of AI tools can offer tailored resources and feedback based on individual's performance, which opens several avenues for interactive and creative teaching opportunities. Accordingly, the idea that AI platforms and tools offer distinguished and endless possibilities that stimulate human intelligence through creating and supporting autonomous learning experiences for both teachers and students, has played a significant role in terms of developing tools that cater for language teaching and learning, offering numerous possibilities for language proficiency and pedagogical improvement (Guo et al., 2022). Similarly, Van Deursen and Van Dijk (2019) argue that the way teachers perceive and implement AI tools in the classroom depends on the educational functions of such tools and the various facilities they provide for both teaching and learning in different educational contexts and settings.

Theoretical Understanding and Relevant Research

Literature available regarding the importance of having a theoretical understanding in research indicates that it plays a significant role in shaping the way studies are theoretically developed. By enabling researchers to classify their studies within the broader body of literature, a theoretical understanding is essential in this context in terms of providing valuable insights into how the links between the research problem, research questions and the different phenomena under investigation are linked (Creswell & Creswell, 2017).

Regarding the present study, the Intelligent Technology Enhanced- Language Learning model known as (ITELL) is of paramount importance in this context. The model refers to intelligence-based technologies that can be used and employed in language learning and teaching (Novawan et al., 2024). According to literature, AI technologies and tools can create different types of learning models including audio, video, text and image contents. Similarly, the newly developed generative AI tools such as Chat GPT and Copilot has opened the door for numerous possibilities for AI integration in education particularly English language teaching (Law, 2024).

A further important model that aligns with the integration of technology in language education in general and AI technologies in particular is the Technology Acceptance Model (TAM), which highlights the importance of adopting and integrating technologies in education in general (Davis, 1986). Based on its two main technology acceptance measures namely: "ease of use" and "usefulness", Davis model is regarded as one of the most widely adopted models of users' integrating technology in education. With the advent of AI in education, several extensions of TAM have appeared including the Extended Technology Acceptance Model (eTAM). Such an extended version centres on teachers' acceptance and willingness to using AI in education, which are determined by several aspects including teachers' technology, pedagogy, content and knowledge known as (TPCK) and their motivation as well (Jang et al., 2021).

Overall, AI integration in education particularly language teaching and learning has enormously supported and supplemented teachers' teaching experiences. In this context, Koraishi (2023), argued that AI tools have simplified the way teachers deal with administrative tasks, creating content, searching for and enriching educational resources, planning lessons and generating classroom activities and assignments. By offering such possibilities for teachers, AI tools have enabled teachers to critically increase their productivity and improve the quality of their teaching practices (Law, 2024). However, to effectively promote teachers' readiness of

using AI, it is worth mentioning that considering teachers' technological skills and offering high quality training opportunities are of paramount importance in this regard (Jiang, 2022).

Teachers' Perceptions Regarding AI Integration in Education

The imperative need for demystifying and uncovering teachers' perceptions towards AI integration in educational settings is significant according to recent research (Lin et al., 2022). However, such an imperative need is sometimes faced by several challenges including teachers' limited awareness of AI potentials in education. This undoubtedly would yield valuable and clear insights into how AI can be integrated effectively in education. Therefore, developing a clear understanding concerning the most successful educational and pedagogical experiences of AI integration is necessary and highly demanded (Chounta et al., 2022). Therefore, it is worth noting that teachers' appreciation of AI adaptability in education is clear, particularly when it comes to the different possibilities it offers related to differentiated instruction (Kim et al., 2016).

AI Challenges in Education

Previous research conducted have documented several challenges related to the integration of AI tools in education particularly in English language teaching. The first challenge is related to teachers' training and professional development on how to use and deal with AI tools effectively for enhancing their educational and pedagogical practices. Ertmer and Ottenbreit-Leftwich (2010) point out that understanding how AI tools work in education as well as their potentials and possibilities functions as a real challenge for effectively implementing IA in education. In other words, teachers' effective engagement in professional development opportunities that target AI implementation in education has become vital and necessary for both novice and experienced teachers. The second challenge related is related to both teachers' and students' overdependence on AI for performing several tasks including content creation and doing classroom assignments, which may put students' critical thinking and problem-solving skills at risk (Lotze, 2018). Therefore, teachers' worries regarding learners' complete reliance on AI tools for developing their language levels as the learners' collaborative learning and critical thinking decrease is critical in this regard (Liang et al., 2021). A further important challenge sheds light on ethical and moral implications of AI in education. Concerns exist regarding the ethical ramifications of Artificial Intelligence (AI) in education, including the possibility that AI may eventually take the role of human teachers in some learning tasks and environments. AI use may also result in less face-to-face interaction between teachers themselves and students as well, which is crucial for developing social and critical thinking abilities (Selwyn, 2019).

It should be borne in mind that the significance of this study stems from various sources including paving the ground for a clear understanding with regard to the role of AI tools in promoting Moroccan EFL teachers' educational and pedagogical practices. The study also seeks to provides a golden chance for Moroccan EFL teachers to explore and reflect upon their perceptions and effective practices regarding AI integration in ELT classrooms. Additionally, the study undoubtedly opens the door for curriculum designers and policy makers to deepen their understanding in terms of the way Moroccan EFL instructors perceive the role of AI tools in language teaching.

While there is a significant amount of research conducted internationally speaking on embracing AI tools in English language teaching, little amount of research is conducted on this research area from a Moroccan perspective. Thus, there is a noticeable gap in terms of investigating Moroccan EFL teachers' perceptions on integrating AI tools in their educational settings. At the same time, there is a noticeable imperative need for examining the ways in which such tools are manipulated and used from a Moroccan educational perspective. In this regard, the study aims at investigating Moroccan EFL teachers' perceptions towards the implementation of AI tools and platforms in classroom-based settings for promoting their language teaching practices and ultimately improving their AI literacy. The research questions guiding the current study are: (i) How do Moroccan EFL teachers perceive implementing AI tools in their language classrooms? (ii) In what ways do Moroccan EFL teachers use AI tools for empowering their educational practices? (iii) What are the challenges faced by EFL Teachers while using AI tools from a Moroccan educational perspective?

RESEARCH METHODOLOGY

Research Design

To approach the research gap addressed in the current study, a qualitative approach was adopted. The choice of this approach stems from the idea that this kind of approaches enable researchers to obtain a detailed description and valuable insights into the main problem raised in the study (Yin, 2018). In this regard, the study adopted a case study research design which is appropriate as it aims at providing an in-depth understanding and valuable insights into the implications of AI tools from a Moroccan educational perspective.

Sampling Techniques and Participants

It should be borne in mind that the GoTo webinar titled “EFL Teachers’ Perceptions on IA Integration in Language Teaching” enabled to the researcher to effectively address the research problem of the study as well as raise AI literacy and awareness of the target population. To address the participants’ willingness in terms of actively interacting and participating in the webinar, the researcher employed different multimedia tools including ensuring a good quality of connection and sound as well as providing comment and Q&A spaces where the participants can as ask questions and comment freely. Among the 22 EFL teachers belonging to Midelt directorate, a subset of 12 respondents were purposefully chosen using purposive sampling based on the following criteria: (1) having ≥ 3 years’ teaching experience; (2) acquaintance with AI tools and active participation in in-service training; (3) voluntary participation.

Table1: Research Participants Demographic Data

		N = 12	%
Gender	Male	5	41.7%
	Female	7	58.3%
Age	25–29	2	16.7%
	30–34	3	25%
	35–39	3	25%
	40–44	3	25%
	45+	1	8.3%
Teaching Experience	3–5 years	4	33.3%
	6–10 years	4	33.3%
	11–15 years	3	25%
	16–20 years	1	8.3%
Academic Degree	MA student	3	25%
	MA	4	33.3%
	PhD student	4	33.3%
	PhD	1	8.3%

It is important to note that the GoTo link webinar was sent to 21 EFL teachers belonging to Midelt directorate. However, only 12 attended and showed a strong interest through their active participation in the whole sections of the webinar. In terms of the participants’ gender, 7 (58.3%) were female, while 5 (41.7%) were male as the demographic table indicated. With regard to the participants’ age, most of them were between 30 and 44 years old. With regard to the teaching experience, all the participants had at least three years of teaching as the table showed. The participants held different academic qualifications including MA and PhD degrees while 25% of them were MA students.

It should be also considered that all participants were already informed about the study and that their data will be published only for research and academic purposes. Prior to conducting the study, informed consent was obtained from the participant.

Data Collection

The researcher made use of two complimentary qualitative data collection methods including semi-structured interviews and focused groups. In details, the interviews included 10 designed questions to elicit rich and detailed responses from the respondents. It should be borne in mind that the use of different and various data collection method would have a great impact on yielding reliable data, which increases the validity of the data obtained in terms of data generalizability. Accordingly, employing various data collection methods enables researchers to gain deep and valuable insights into the research gap as well as providing a thorough understanding over the various perspectives of the study (Salmons, 2014).

Semi-Structured Interviews

Semi-structured interviews were conducted over one month period. The interviews followed a logical and guided framework for the sake of covering topics including EFL teachers' perceptions, ways in which they integrate AI tools in their language classrooms and the challenges faced. Moreover, the questions were designed in a way that allows teachers to describe situations specific to the participants' teaching experiences with AI tools for educational practices using probes like "could you explain more" and "could you elaborate more on". The researcher also tried to capture non-verbal and contextual information through field note and later integrated into the data analysis. As the transcripts were ready for analysis, they were reviewed and coded for content using thematic analysis as a qualitative data analysis procedure. For the sake of reaching the comprehensiveness of the insights gained, the researcher has tried to analyse the transcripts multiple times with the assistance of two PhD students.

Focus Group

To address the purpose of the study, which focuses on investigating Moroccan EFL teachers' perceptions in terms of integrating AI tools in their language teaching, the researcher organized 4 focus group sessions with the participants. The aim was to gain deep understanding of the research problem being investigated in terms of sharing perceptions and teaching experiences collectively. All the 12 participants took part actively in the focus group sessions that were titled based on the three basic research questions targeted while the last session tackled feedback and a general discussion. Each session last for 15 to 20 minutes depending on the rate of the participants' interaction and data saturation.

Data Analysis

Following the procedures of becoming acquainted with the data which include creating preliminary codes, looking for themes, evaluating themes, defining and labelling themes, and creating the report, inductive thematic analysis, were all employed to analyse the data. According to Braun and Clarke (2006), inductive thematic analysis helps in producing categories from the gathered data while giving more emphasis of the participants' opinions and points of views. The use of NVivo 12 software enabled the researcher to code and organize themes and find patterns for methodical classification. The study was iterative, with each topic being refined for depth and consistency over many phases including reading the data multiple times, organizing them for uncovering implicit themes, organizing and coding themes as well as developing a thematic map for data analysis and interpretation.

Data Credibility, Transferability and Dependability,

It is important to highlight that three elements were focused on to achieve the current study's rigor. Regarding data credibility, the data gained stems from the idea that two PhD students were asked by the researcher to review different parts of the data to check data consistency. The member checking technique was also employed for the same purpose. As far as data transferability is concerned, it was clear that cross-case

comparison was employed by the researcher for the sake of increasing data generalizability. Concerning data dependability, the 81% inter-code agreement achieved suggests a high level of data consistency and dependability.

Table 2: Frequency of Themes and Sub-Themes (N = 12)

Theme	Sub-theme	Frequency (f)	%
Teachers' Perceptions of AI Integration	Positive attitudes toward AI implementation in ELT	10	83.3%
	AI enhances teaching efficiency	9	75%
	AI supports innovative teaching practices	8	66.7%
	AI facilitates access to educational resources	7	58.3%
Uses of AI Tools in English Language Teaching	Content creation and adaptation	10	83.3%
	Generating lesson plans	9	75%
	Improving and enriching educational resources	8	66.7%
	Conversational AI engagement (language interaction)	7	58.3%
	Educational consultation and pedagogical guidance	6	50%
Challenges of AI Integration in ELT	Technical challenges (internet access, lack of technical skills, tool limitations)	8	66.7%
	Teachers and students-related challenges (limited AI literacy, resistance to change, overreliance on AI)	7	58.3%
	Ethical and moral challenges (academic integrity, plagiarism, data privacy)	6	50%

RESULTS

The findings related to the first research question focused on Moroccan EFL teachers' perceptions on integrating AI tools in ELT reveal that the majority of the participants (83.3%) hold positive perceptions towards AI employability for enhancing Moroccan EFL teachers' educational and pedagogical practices. The sub-themes related to the main theme of the first research question as shown in table two include (i) AI enhances teaching efficiency; (ii) AI supports innovative teaching practices; (iii) AI facilitates access to educational resources. With regard to second question raised in the study related to AI tools manipulation, the results reveal that EFL teachers use IA tools particularly ChatGPT for different purposes including content creation and adaptation, generating lesson plans, improving and enriching educational resources, conversational AI engagement and educational consultation and pedagogical guidance as shown in table 2. As far as the third research question of the study is concerned, the findings showed several challenges related to AI integration in ELT. These challenges as indicated in table 2 are divided into 3 sub-themes including technical, teachers and students as well as ethical and moral challenges.

DISCUSSION

Teachers' Perceptions on AI Integration in ELT

It should be borne in mind that the study's findings showed that the majority of the participants hold positive perceptions towards the use of AI tools in their EFL classrooms. As participants indicated that AI promotes

innovative teaching and enables teachers to easily gain access to educational resources, which aligns with the existing body of literature highlighting the growing interest of teachers in terms of their widely appreciation of the integration of AI tools in their classrooms (Cheng &Yim, 2024). Additionally, it is important to highlight that teachers who are technologically literate particularly in AI are more likely to hold positive attitudes regarding the use of AI tools in education particularly English language teaching, which highlights that the participants' awareness regarding the educational and pedagogical benefits and merits of AI tools is growing in this context.

Uses of AI Tools in English Language Teaching

Pedagogically speaking, the findings of the current study revealed that EFL teachers use AI tools for different purposes, including content creation' generating lesson plans, conversational AI engagement supporting their educational resources and getting feedback. "With CHATGPT I can generate as many as lesson plans as I can quickly" as a participant stated. "I always rely on CHATGPT for generation lessons for my students especially reading comprehension text" another participant reported. This suggests that AI opportunities and offers in education particularly English language teaching are increasingly growing and rising. These findings also suggest consistency with the existing body of literature emphasising the rising and growing acquaintance of teachers with the manipulation of AI tools in education. For instance, Waris and Subhan (2021) conducted a study on AI adoption for educational purposes. They found that AI integration in language teaching and learning assists teachers in generating lesson plans as well as creating and adapting teaching content to meet their learning requirements and objectives. In agreement with this, Liang (2021) state that AI tools in general can support teachers in terms of providing adaptive materials and enhance personalized learning in many different learning environments. Therefore, it is important to highlight that AI tools if used effectively can function as reliable materials for empowering and enhancing teachers' instructional and pedagogical practices.

Challenges

Technical Challenges

The findings revealed that technical challenges are commonly faced by ELT teachers. Some participants reported that internet access, lack of technical skills and tool limitations were the main technical challenges faced. "I find it difficult to use AI in my classroom due to connection problems" a participant stated. "I use CHATGPT for content creation, but I need more training on how to make video stories" another participant reported. These challenges are relevant in contexts where gaining access to technology in general and AI tools in particular remains unequal and difficult. Such findings go had in gloves with a study conducted by Liang and colleagues (2021) who highlighted that effective AI integration in education depends on providing enough technological infrastructures, and equipping teachers with sufficient digital competence.

Teachers' and Learners' Challenges

The findings related this sub-theme indicated several challenges related to teachers and learners including AI literacy, changing teachers' mindsets and attitudes regarding AI integration as well as teachers' and students' overreliance on IA. Research conducted on this research area indicates that teachers' AI literacy plays a very essential and important role in establishing an effective learning environment for integrating AI in English language teaching (Cheng &Yim, 2024).

Ethical and Moral Challenges

The results obtained reveal that ethical and moral considerations have also been raised by the participants. Such considerations include issues related to autonomy, bias and privacy. Research conducted show that both teachers' and students' privacy and autonomy might be threatened by AI tools and platforms. In this regard, the challenges raised in the study support the body of literature in terms of highlighting the idea that while AI offers in education are limitless, raising teachers' AI literacy through continuous professional development.

Overall, the findings of the current study highlight several insights into the research gap being investigated. The first insight is that Moroccan EFL teachers' hold positive perceptions towards AI integration in their EFL classrooms. The findings also emphasize the growing interest of Moroccan EFL teachers in terms of employing AI tools in their classrooms for different purposes. This includes content creation, lesson plans' generation, conversational AI engagement and resource enhancement. While AI integration in education shows promising potentials, the study uncovers several challenges which can be categorized into technical, teachers' and students' as well as ethical and moral challenges.

Implications

The study's findings have significant implications for safely and appropriately adopting AI in English language instruction from a Moroccan perspective. A number of crucial areas that potentially revolutionize teaching strategies and students' learning experiences are emerging as Moroccan EFL teachers become more aware of AI's potential to improve their instructional and pedagogical practices.

Pedagogical Practices Enhancement

More creative teaching methods in Moroccan classrooms may result from the incorporation of AI into English language instruction. To meet the diverse needs of EFL learners, teachers can employ AI tools to assist differentiated instruction, enhance students' engagement, and develop personalized and adaptable learning experiences for learners.

Teachers' Training and Professional Development

The results of the study emphasize how crucial it is for educators to seek for ongoing training on AI literacy. Teachers will probably grow more skilled at using AI technologies to improve language instruction as they get more practice and confidence with them. This may have wider ramifications for Morocco's professional development regulations and teachers' educational initiatives.

Enhancing Students' Motivation and Autonomous Learning

By providing students with individualized language learning routes, particularly outside the classroom, AI can promote greater students' autonomy. As students interact with AI-powered systems that provide real-time feedback, gamified learning opportunities, and personalized information, this would boost students' motivation and accountability.

Changing Teachers' Roles

AI has the potential to change the traditional function of the teacher from imparting knowledge to facilitating and guiding. In this regard, teachers' concentration on higher-order thinking skills including fostering students' creativity, critical thinking, and English communication abilities becomes easier and more practical.

RECOMMENDATIONS

_ Continuing professional development initiatives ought to concentrate on providing educators with the abilities and information needed to successfully incorporate AI into their EFL classrooms. Both educational uses of AI technologies in EFL situations as well as their technical aspects should be covered and effectively dealt with.

_ It's critical to think about the ethical ramifications of the expanding uses of AI in education, particularly with regard to data privacy and the usage of students' information. In order to preserve students' privacy, educators and educational institutions are urged to deepen their own understanding of how AI systems gather and use data.

It should be born in mind that not every AI technology is equally useful for teaching languages. It is important for educators to use AI tools that support their learning objectives and improve facets of English language acquisition, such as listening, speaking, reading, and writing.

Limitations

The study has several limitations. First, by adopting a quantitative approach to investigate the research problem, in which a huge number of respondents are involved in. this may yield different views and insights into understanding the impact of integrating AI in education. Therefore, the researcher's adoption of a qualitative approach in this regard is considered as limitations. In the same way, the use of quantitative data collection and analysis procedures is likely to provide concrete and more valid and reliable results form a statistical perspective. Lastly, the researcher's employment of a cross-sectional approach is regarded as a limitation from a research perspective. Therefore, longitudinal research on AI integration from a Moroccan EFL perspective is of paramount importance that might provide a thorough, comprehensive and more detailed understanding for effectively embracing AI in our Moroccan educational system.

CONCLUSION

The current study highlights the issue of how AI tools are adopted by Moroccan EFL teachers in their English language classrooms for the sake of improving their educational and pedagogical practices. The study also highlights how AI tools such as ChatGPT and other tools have enabled Moroccan EFL teachers to enhance and improve their educational practices. This includes content creation, lesson plans' designing, conversational AI engagement, content adaptation and getting educational feedback and suggestions regarding their students' needs within EFL contexts. However, the study underscored some challenges technical, teachers' and students' as well as ethical and moral challenges.

In this regard, Moroccan EFL teachers are required to consider AI potentials for enhancing their educational practices as an agent that support and supplement teachers' educational practices rather than a replacement for teachers' roles in the classroom. In other words, AI use in education in general and English language teaching in particular should be seen as a mean instead of an end.

Overall, the study's contribution to the existing body of literature is significant from a Moroccan educational perspective through shedding light on uncovering Moroccan EFL teachers' perceptions regarding AI tools' integration in language teaching. At the same time, the study puts more emphasis on the way AI tools are being manipulated and used by EFL teachers from a Moroccan perspective, which provides a theoretical basis for understanding the educational potentials of such tools in Morocco. It should be born in mind that the researcher's decision of highlighting the challenges related to the use of AI tools in Moroccan EFL classrooms makes the study more inclusive and significant.

In terms of future research directions, the current study opens the door for investigating new and promising research areas. This includes investigating Moroccan EFL students' perceptions and use of AI tools from a Moroccan perspective, examining the impact of EFL students' overdependence on AI regarding their critical thinking and productivity, examining the differences between AI equipped classes with non-equipped AI classes in terms of students' motivation and learning outcomes. Finally, further future research is needed with respect to the challenges highlighted in the current study in terms of developing ethical guidelines for safely manipulating AI tools in educational settings as well as tackling issues related to data privacy and plagiarism for effective integration of AI tools in English language teaching and learning.

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