

*Research Article*

## **Artificial Intelligence (AI) Tools and Their Role in Fostering EFL Teachers' Engagement in Self-Directed Teaching Advancement**

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### **Abstract**

The fostering of artificial intelligence (AI) technologies has been told to affect various aspects of second language (L2) education in recent years. However, the interact of AI and teacher professionalism has gained little attention among researchers. To address the gap, this study employed a qualitative research design to examine the contribution of AI technologies to English as a foreign language (EFL) teachers' self-directed professional development (SDPD). A sample of 25 Iranian EFL teachers was interviewed individually. The results of manual thematic analysis showed four ways in which AI tools could foster Iranian EFL teachers' SDPD. Specifically, it was frequently declared that by 'providing access to latest resources and trends', 'reducing workload and pressure', 'fostering reflection and personalized instruction', and 'enhancing enthusiasm and novelty in teaching', AI technologies contributed to EFL teachers' passion for SDPD. A comprehensive discussion of the findings and implications for EFL teachers and teacher educators is presented to augment their AI literacy and passion for involving in and devising AI-mediated SDPD practices in L2 settings.

**Keywords:** Artificial intelligence (AI) EFL teachers, Professional development, Teacher passion, Self-directed professional development (SDPD)

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## 1.Introduction

The rise of popularity and use of artificial intelligence (AI) technologies in various aspects of human life and career has spurred a growing interest among educational researchers across the world (Bengesi et al., 2024; Chen et al., 2025; Derakhshan et al., 2026; Mai et al., 2024; Wang, Derakhshan, & Ghiasvand, 2025; Zare et al., 2025). It has been argued that AI tools, especially Generative AI as the focus of this study, has the potential to revolutionize teaching and learning with their vast databases and algorithms (Guo & Wang, 2025; Pan & Wang, 2025; Wang & Reynolds, 2024; Wang & Wang, 2024; Zhou, 2025; Zhou & Ma, 2025). In second language (L2) education, AI technologies may provide a personalized instruction, enhanced student engagement, and upgraded educational efficiency (Derakhshan & Taghizadeh, 2025; Huang et al., 2023; Xia et al., 2022; Zhi & Wang, 2024). Teachers can employ different AI bots and chatbots to renovate and accelerate their classroom practices such as task design, lesson planning, students' performance evaluation, and test development and scoring (Tlili et al., 2021; Wu & Wang, 2025). AI tools provide immediate feedback on students' knowledge and ability in performing in complex learning domains (Chen et al., 2022; Chiu et al., 2023; Gao et al., 2024; Wang, Gao, et al., 2025; Yan & Zhang, 2025). The incorporation of AI tools in L2 education can add novelty to teaching approaches and leverage the instruction to students' needs, levels, and interests in a shifting world (Dai & Liu, 2024; Fathi et al., 2024). Additionally, it has been found that AI-mediated L2 education shapes and reshapes English language teachers' identity and professionalism (Minnillo et al., 2024). With such potentials, there is a dire need to reorient, revisit, and reimagine professional development practices of L2 teachers in the age of AI as well. Teachers can be informed of the ethical, emotional, pedagogical, and social consequences of AI-based L2 education in light of teacher professional development (TPD).

One such endeavor to raise AI literacy in EFL teachers is to trigger and promote their passion for self-directed professional development (SDPD). This teacher practice fits well with the autonomous nature of AI technologies that can be used individually. Technically, SDPD refers to a personal learning practice in which teachers and teacher educators engage in to improve their own professional growth (Tembe, 2011). It is an ongoing process of professional development with the help of self- motivation, self-initiation, and strong willpower (Bhatt, 2021). SDPD ignites self-reflection, self-evaluation, and autonomy in controlling professional experiences and practices (Lopes & Cunha, 2017). Operationally, SDPD pertains what a teacher does to professionally develop as initiated and governed by self. In this type of TPD, one has the power to make decisions for him/herself in contrast to other-initiated and guided TPD (Richards & Farrell, 2005). SDPD has potentials to increase teaching quality, but there are complexities due to the multi- dimensionality of L2 education (Bhatt, 2021; Lee, 2015). Though there are some studies on how teachers can practically engage in SDPD in the literature (Lopes & Cunha, 2017; Porter & Freeman, 2020), the intersection of AI technologies and passion for SDPD has received scant (if any) scholarly

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attention, to date. Yet, the impact of AI-powered TPDs on EFL teachers' professionalism, in general, has recently begun to position itself in this line of inquiry (Mehranirad, 2025). As shifting practices and contexts influence teachers' perceptions and practices of professionalism (Farrell, 2016), it can be postulated that the emergence of AI tools may trigger a change in their passion for SDPD as well. Yet, no empirical evidence exists in support of this interplay in EFL contexts.

To address the gaps, this qualitative study aims to unveil Chinese EFL teachers' perceptions about the ways through which AI technologies may contribute to their passion for SDPD. The study moves beyond conceptual assumptions about the interplay of AI and SDPD by collecting empirical data from teachers. It provides fresh ideas about the potentials of AI tools for language teacher education and professional growth in the AI age as well. The study holds value in clarifying the intersection of technology and teacher education. The main impetus behind the study was adding a self-directed and agentic element to AI- oriented TPD in L2 education, which is novel and significant for teachers and educators.

## **2.Literature review**

### **2.1. Artificial intelligence (AI) and L2 education**

In the past couple of years, an increasing body of research has substantiated the positive contributions of AI technologies to various aspects of education in general (Chen et al., 2022; Guo et al., 2023; Rudolph et al., 2023; Zheng et al., 2024). Likewise, such affordances and opportunities bestowed by AI found their way into L2 education with bulks of studies highlighting the incorporation of AI bots and chatbots in teaching, learning, and assessment of L2 education (e.g., Fathi et al., 2024; Huang et al., 2023; Ji et al., 2023; Wu & Dong, 2025). It has been reported that AI technologies cause important transformations in L2 education by providing a personalized path to learning, appealing classroom tasks, and renovating teaching practices (Guo et al., 2023). Since AI outputs are based on learners' needs, paces, and interests, AI technologies can tailor L2 education to what students aspire and desire to happen in the class (Chiu et al., 2023). It has also been claimed that AI tools, with their capacity in fostering autonomy and immediate feedback provision, can establish an immersive learning experience in language education (Chen et al., 2022). Furthermore, AI-based chatbots has the potential to revolutionize materials, resources, and tasks in the classroom making them authentic and diverse for teachers and learners (Huang et al., 2023). AI technologies can save teachers' time and energy by helping them focus on more essential parts of the course rather than time- consuming activities like lesson planning (Farrokhnia et al., 2023). Within this direction, AI tools have also significantly reduced teachers' workload in the class (Celik et al., 2022). Test questions, communicative tasks, and other complex activities can be devised through AI technologies in L2 classes (Farrokhnia et al., 2023).

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Research also shows that AI tools can be used in L2 classes to improve different language skills and sub-skills in EFL students (Fathi et al., 2024; Jeon, 2022; Wu et al., 2024; Wu & Liu, 2025). The emotional consequences of using AI bots and chatbots in L2 classes have also been the subject of research in recent years. For example, Seyri and Ghiasvand (2025) carried out a qualitative study on 21 Iranian EFL teachers' AI-induced emotions and regulation techniques using interviews and narrative frames. They found a wide range of positive and negative emotions during AI adoption in speaking and writing instruction, which were regulated via upregulating and downregulating strategies. Moreover, Derakhshan (2025) interviewed 30 postgraduate EFL students in Iran and found that AI technologies had positive effects on students' emotional engagement and goal orientation. In China, it was found that EFL students had experienced emotional fluctuations from anxiety to excitement in AI-mediated L2 classes (Xin & Derakhshan, 2025). Moreover, the potentials and challenges of specific AI tools (e.g., ChatGPT) for different stakeholders in L2 education have been investigated in recent studies (Derakhshan & Ghiasvand, 2024; Wu & Pan, 2025). Concerning teachers, AI technologies can increase their work efficiency by simplifying and handling many routine classroom tasks (Chiu et al., 2023). The review of the literature indicates that most studies on AI and L2 education focus on learners and their learning in light of the potential of AI bots and chatbots. Research on AI and L2 teachers is still scant and if there is any, it is confined to their perceptions about AI benefits and misfits (Farrokhnia et al., 2023). Other than emotions, perceptions, and actual experiences of using AI technologies, it is essential to unveil the impact of such cutting-edge tools on EFL teachers' professionalism and growth. This assumption formed the kernel of the present study, which is further elaborated in the subsequent parts.

## 2.2. Teacher professional development (TPD) and AI technologies

Given the pivotal role of teachers in education, they need to constantly work on their own professional learning and growth (Borg, 2018). AI technologies have affected numerous aspects of L2 education and TPD and teacher education are no exceptions (Al-Zyoud, 2020; Nazaretsky et al., 2022; Tan et al., 2024). TPD refers to a continuous process of reflection, learning, and action to improve a teacher's knowledge and skills in his/her job (Avalos, 2011). It involves different formal and informal activities that a teacher uses to enhance the required skills, knowledge, and expertise in teaching practices (Borg, 2018). In the context of AI, TPD concerns teachers' efforts to adopt and adapt to different bots and chatbots as agents of professional growth and development. TPD programs can function as transformative agents and catalysts of change and development for teachers in case teacher AI literacy and integration are fully covered (Ding et al., 2024). With the spread of AI tools, it is essential to re-orient TPDs to keep up with the shifting era of education. TPDs powered by AI can teach teachers how to leverage different capacities and potentials of AI tools to improve learning and teaching in the classroom (Ding et al., 2024; Tan et al., 2025). Previous research indicates that AI-mediated TPD increases teachers' lecture design quality, satisfaction, and student engagement (Nguyen, 2024). However, teachers' attendance to such programs has been

affected by different factors including attitudes toward AI, AI readiness, learning confidence, anxiety, and resources/infrastructures (Ahmed et al., 2022; Ayanwale et al., 2024).

Practically, some studies have used TPACK framework to enhance teachers' AI-oriented TPD. For example, Kim (2024) used TPACK in a course and found it effective in increasing the teaching capabilities of pre-service teachers. Conceptual models of AI-based TPD have also been proposed by some researchers using 3D metaverse perceptions, Intelligent-TPACK, and complex learning analytics (Agrati, 2023; Lee et al., 2024; Tammets & Ley, 2023). Empirical evidence also shows that AI-mediated TPDs have significantly improved teachers' AI Literacy, AI knowledge, AI teaching skills, and AI teaching self-efficacy in different contexts as well (Ding et al., 2024; Sun et al., 2023). Traditional and ChatGPT-based TPDs have also been compared by Chang and Hwang (2024), who argued that ChatGPT-based approaches better cause self-worth, self-confidence, and success in teachers. AI tools have provided a chance for teachers to co-journey the process of professional growth (Tsou et al., 2024). The missing point in the literature is that most studies on AI-based TPD are in the context of science, mathematics, engineering, and general education rather than L2 education. Recently some studies have focused on this gap. For instance, Yeh (2024) found ChatGPT effective in increasing EFL teachers' teaching quality, interactive and adaptive material delivery, and dynamic classroom interaction establishment. Moreover, Kusuma et al. (2024) ran a qualitative study on pre-service EFL teachers' professional development in light of ChatGPT. They found the program effective for teachers as it could help them create innovative teaching materials, form collaborative teaching strategies, and design effective assessments. In Iran, Mehranirad (2025) examined the influence of an AI-oriented TPD on 18 private EFL teachers and found the program significantly effective in improving teachers' instructional practices. It could enable them to develop tailored materials, augment teaching efficiency, and facilitate critical reflection. While these studies on TPD and AI are insightful, they have been confined to general, other-directed TPDs rather than SDPD courses. As both SDPD and AI adoption value autonomy and independence on the part of teachers, their interaction merits further exploration in EFL settings.

### 2.3. Self-directed professional development

The concept of SDPD is a type of teacher learning, which is initiated and directed by teachers themselves (Mushayikwa & Lubben, 2009). It is a practical venue to teachers to explore alternate practices (Brown et al., 2001; Fraser-Seeto et al., 2014). SDPD can take different forms and activities that are formal and informal (Goh & Loh, 2013). It is a self-development act that highlights teacher agency and deliberate attempts to promote in areas that one perceives to be lacking (Mushayikwa, 2013). Thus, engaging in SDPD largely depends on teachers' perceptions and decisions (Koay, 2023). Context and beliefs about the need for teacher learning also affect SDPD willingness and passion among teachers (Van Eekelen et al., 2006). As SDPD is internally started and guided, it improves teachers' self-concept by helping them handle their professional experiences with intrinsic motivation (Bhatt, 2021). Simply, SDPD is a choice and interest driven professional development. With this practice, teachers

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are responsible for their learning, development, and management of socio-cultural challenges of teaching (Shurr et al., 2014). Via SDPD and its provision of self-control and agency, teachers can continuously oversee and adjust their instructional demands and look for ways to satisfy them (Spruce & Bol, 2015).

Effective SDPD programs require careful planning and solid teacher characters in order to yield a high-quality teaching and professionalism that may not be there in one-shot workshops (Bhatt, 2021). Regarding real manifestations and practices of SDPD, different activities have been suggested including action research, peer coaching, peer observation, daily reflection, writing reports and diaries, discussions with colleagues, creating research groups, searching the net, visiting library, attending conferences, seminars, and webinars, and preparing a teaching portfolio (Bhatt, 2021; Kerr, 1999; Richards & Farrell, 2005; Visser et al., 2014). Another effective way to engage in SDPD is through adopting AI technologies inside and outside classroom contexts. This is supported by previous studies that substantiated the role of AI in TPD programs (Ding et al., 2024; Mehranirad, 2025; Tan et al., 2025; Yeh, 2024). Existing studies in SDPD are mostly related to its conceptualization, practices, and teachers' perceptions about its advantages. Few (if any) research has adopted an empirical approach to study the confluence of AI and SDPD. There are some studies on AI and TPD in general, but SDPD, which varies from general TPD programs has remained overlooked by scholars. Additionally, the impact of technology, in general, on SDPD has already been reported in the literature (Ezell, 2017; Visser et al., 2014), but AI-mediated SDPD is a new line of thinking that this study aims to shed light on. Specifically, the study intended to find out how AI tools affect and contribute to EFL teachers' SDPD. The following research question guided the study:

**RQ.** How do AI tools affect EFL teachers' passion for self-directed professional development (SDPD)?

### **3.Method**

#### **3.1. Participants and context**

Taking advantage of convenience sampling technique, which selects available participants, this study involved 25 Iranian EFL teachers. They were 20 females (76 %) and 5 males (24 %) in the sample. The age of the participants ranged from 26 to 65 years old. They majored in TESOL, Linguistics, English Translation, and Education. Regarding teaching experience level, the participants had 0–5 (17, 50 %), 6–10 (3, 9 %), and above 10 years (14, 41 %) teaching experiences. They had different academic degrees including BA (5, 15 %), MA (23, 67 %), and PhD (6, 18 %). The participants also reported to be familiar with different AI tools in L2 education at the outset of data collection. They willingly participated in the study as well.

#### **3.2. Instrument**

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A semi-structured interview was employed to explore Iranian EFL teachers' perceptions about the impact of AI tools on their SDPD. The interview was audio-recorded and face-to-face. Three questions on the familiarity of teachers with AI, its impact on their teaching, and contributions to SDPD were asked from all the participants individually. The interview was held in English lasting 15 min on average. The time and place of interviews were scheduled according to each participants' desire and free time. Non-instructional time was suggested by the respondents.

### 3.3. Data collection procedure

To find out the participants' perceptions about how AI affects SDPD, an interview was carried out with Iranian EFL teachers. First, an invitation message was sent over social media to invite willing teachers. After a week, 34 teachers agreed to lend a hand. Second, the goal and process of the study were completely explained to all respondents. Their privacy and confidentiality were ensured. No conflict of interest was declared in the study. Then precise time and place for interviews were set with teachers based on their schedules. The interviews were individually done including a pre-specified set of questions. Open-ended questions were asked followed by probing and clarification items. The content validity of the interview questions was already approved by two experts in qualitative research in Iran with associate professor position at university. The interviews were interactive encouraging teachers to explain their views with real examples of using AI tools. A voice-recorder was used to record the audios for later transcription. It took three weeks to collect the whole interview data. Afterwards, the audio files were double-checked once more before transcription and data analysis.

### 3.4. Data analysis

The interview data, in this study, were analyzed through thematic analysis. First, all the interview audio files were transcribed word by word with the assistance of two MA students. Then, based on Braun and Clarke's (2006) framework, the interview data were analyzed for common themes and patterns. The transcriptions were read a couple of times and important parts were highlighted and underlined. Next, significant parts of responses were re-examined and used in forming a list of initial codes. The codes were then combined to generate larger themes. This phase was repeated until the extracted themes covered all the initial codes and echo the objective of the study. Eight initial codes were created, which were later combined to generate four themes in the interview data. As a transparent example, two codes of 'AI reduces workload' and 'AI minimizes our pressure' were merged to produce the second theme of the study. Afterwards, the themes were reviewed for their reliability and validity using experts' opinions. Labelling and defining the themes was the next stage in the data analysis. Finally, a report of the findings, extracted themes, and their supporting interview answers was provided.

To address trustworthiness, different attempts were made in the study as well. The dependability of the themes was ensured by asking a second coder to re-code the interviews. An inter-coder reliability index of 0.81 was obtained, which is satisfactory. Moreover, an external researcher was invited to examine and audit the data analysis stages as a measure of confirmability. To establish credibility, the participating teachers were asked to member-check the extracted themes. Furthermore, a thick description was provided regarding where, when, and how the study was carried out to address the transferability maxim. As for researcher positionality, in this study, an outsider stance was taken in order to leave the interview data authentic and intact. The data analysis was also done with the exclusion of personal beliefs, ideas, and experiences of AI tools as professional development agents. Technically, researcher self-bracketing was done to remove bias and subjectivity in the study.

#### 4.Findings

To find out the ways in which the use of AI technologies could affect Iranian EFL teachers' passion for SDPD, the interview questions were thematically analyzed one by one. The analysis of interviews revealed four common and large themes in this regard. The first extracted theme pertained the ability of AI tools in 'providing access to latest resources and trends' in L2 teaching and learning, which facilitates SDPD in teachers. In support of this idea, (T1) stated "AI tools give me access to the latest teaching resources, research articles, and innovative methodologies, keeping me motivated to learn and grow. I find new trends in language teaching, get lesson ideas, or analyze student performance to improve myself". Likewise, it was declared that AI tools let us "have easy access to a wide range of educational resources. This wealth of information allows us to explore different aspects of the field and discover new areas of interest, having passion for further learning" (T15). Another teacher maintained that "AI accelerates knowledge access and provides instant and high-quality information that keep me engaged in the profession" (T16).

The second path through which AI could foster SDPD among teachers was by 'reducing workload and pressure'. As stated by T10, "AI can reduce teachers' workload and pressure by minimizing time spend on repetitive tasks like language knowledge explanation, homework grading, and pronunciation correction. This makes the teacher's work easier have more time to do some other related work". Another person declared "AI is a permanent assistance to teachers. They can ask questions from AI bots and get ideas, activities, and materials in few seconds. This really reduces pressure on teachers" (T18). To give an example, one of the participants argued that "with AI tools we can manage our time and work on essential pedagogical tasks and practices instead of looking for multiple-choice tests of grammar. AI provides nice tests with a good prompt" (T19). The next common opinion across interviews was related to the capacity of AI tools in 'fostering reflection and personalized instruction'. In this respect, it was contended that "AI tools offer immediate feedback by which I can reflect on my strengths and weaknesses, identify areas for improvement, and



adjust my teaching strategies. This continuous self-reflection keeps me engaged and passionate about enhancing my teaching skills and expertise” (T20). Another teacher referred to AI tools' ability to offer personalized teaching practices. She stated “many AI tools provide materials and tasks based on students' level and pace of development. Teachers, then, may provide a personalized instruction given their professional growth via AI” (T21). Furthermore, it was asserted that “AI technologies trigger reflective teaching and personalization through their instant feedback. These capabilities really foster self-initiated and directed professionalism among teachers” (T4).

The last frequently mentioned theme concerned the capacity of AI tools in ‘enhancing enthusiasm and novelty in teaching’ among EFL teachers. According to T6, “AI tools provide real-time feedback and this stimulates curiosity and creativity in teaching. It also increases enthusiasm for continuously exploring professional knowledge”. The vast database of AI technologies “leads teachers to find interesting and novel ways of teaching and presenting language skills in the classroom. Such novelty and newness make teachers passionate about professional development as well” (T22). One of the participants also explained how the use of AI tools by other teachers and colleagues inspired his enthusiasm to employ AI and engage in self-professional development. Specifically, he argued that “some colleagues told me how the use of Duolingo in L2 speaking classes improve students' pronunciation and interaction skills. This story really made me enthusiastic about AI tools benefits, so I decided to use them and raise my AI literacy” (T23).

All in all, the results of interview analysis showed that the use of AI technologies by Iranian EFL teachers could foster their SDPD in four ways, namely by ‘providing access to latest resources and trends’, ‘reducing workload and pressure’, ‘fostering reflection and personalized instruction’, and ‘enhancing enthusiasm and novelty in teaching’. These findings indicate that AI tools have several capacities and potentials to assist L2 teaching and learning provided that they are properly taught and supported.

## 5. Discussion

This study aimed to explore the ways through which AI technologies could contribute to Iranian EFL teachers' passion for engaging in SDPD practices. It employed a qualitative design through interviews with EFL teachers. The findings demonstrated four common venues of impact among the teachers. The first contribution area was through ‘providing access to latest resources and trends’, which is in line with Huang et al. (2023), who found AI-based tools influential in diversifying and revolutionizing teaching resources and materials. Additionally, highlighting the importance of access to resources in TPD echoes previous studies (e.g., Ahmed et al., 2022; Ayanwale et al., 2024). A possible reason for this finding might be the capacity of AI technologies in designing and providing numerous tasks and resources in few seconds given their vast databases. The algorithm of such technologies may have provided such a potential. As AI tools are constantly updated, they can deliver latest Artificial Intelligence (AI) Tools and Their Role in Fostering EFL Teachers' Engagement in Self-Directed Teaching Advancement

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information to users making them familiar with field trends. Moreover, since SDPD is individually conducted, having access to diverse resources by AI tools is significant. That is why, the participants highlighted this theme in the interviews. Without latest resources of teaching and education, it would be difficult to engage in SDPD and show any passion for it.

The second extracted theme pertained the ability of AI tools in 'reducing workload and pressure' on the part of teachers, hence fostering their passion for SDPD. This finding is consistent with Celik et al. (2022) and Derakhshan and Ghiasvand (2024), who reported the significant influence of AI bots and chatbots in reducing teachers' workload in the classroom given their rapid responds to one's posed prompts. Teachers' perceived pressure is reduced in light of AI tools because they can assign routine tasks to AI and spend most of their time on important classroom practices and issues. This may save their energy as well (Farrokhnia et al., 2023). An explanation for this theme can be teachers' concerns about the required time for SDPD as it is an ongoing process demanding constant engagement and practice. Therefore, in case a portion of their workload and duties are handled by AI technologies, they may become passionate to personally work on their professional growth reading articles and books and attend workshops. AI tools provide teachers with more free time, which is a good chance to engage in SDPD. When they see AI tools are assisting them in some aspects of the instruction, they feel relieved and calm to work on personal development in their job.

The third way through which AI tools could enhance passion for SDPD was by 'fostering reflection and personalized instruction', a finding concurring previous studies that pinpointed the ability of AI bots in providing personalized instruction (via immediate and person-specific feedback) and making users reflect on self and others' practice and performance (e.g., Huang et al., 2023; Xia et al., 2022). The autonomous and self-governed nature of AI technologies can justify this finding. As SDPD is internally and individually initiated and directed, the use of AI tools fits it. Teachers can independently ask questions from AI bots about various aspects of their teaching and professionalism and improve their quality. For example, they can ask for summaries of recent articles on L2 TPD and their quick replies may create passion for going deeper in self-growth. Referring to reflection in SDPD is also in line with Borg (2018), who found TPD and reflection as interconnected. The reflective personality trait of the participating teachers may justify this finding further.

Finally, it was found that AI tools led to passion for SDPD by 'enhancing enthusiasm and novelty in teaching' among EFL teachers. This theme is in agreement with previous investigations that reported the positive impact of AI tools on enhancing L2 education novelty and willingness to engage in (Dai & Liu, 2024; Derakhshan, 2025; Guo et al., 2023; Xia et al., 2022). The finding implies that AI products and outputs renovate teaching approaches and capture teachers' attention in a way that they become interested in working on their professional growth further. The finding can be attributed to the engaging and new atmosphere of AI technologies for EFL teachers, which has exponentially engrossed them. Such newness has created enthusiasm and passion in teachers to think twice of their instructional and professional decisions and practices. With AI tools, teachers can simply

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pose a prompt and obtain many engaging activities and plans for the class. They really renovate L2 education and teacher education. Teachers' AI literacy and AI readiness may explain the findings of the study as well (Wang, Derakhshan, & Ghiasvand, 2025; Wu, Wang, & Lalli, 2025; Wu, Zeng, et al., 2025). AI infrastructure and support in China may have also played a role in such enthusiasm. In sum, the study reveals that AI tools have the potentiality to affect teachers' SDPD in different areas.

## 6. Conclusion

This study sought to examine the contribution of AI tools to Iranian EFL teachers' passion for SDPD. The findings indicated, like other areas of L2 education, AI tools have different contributions to TPD and SDPD among EFL teachers. With their self-governed nature and vast databases, AI technologies had the capacity to enhance teachers' passion and enthusiasm to work on their professional growth. It is also asserted that AI technologies provide many opportunities for EFL teachers to have more free time, less pressure, and more access to myriads of resources to engage in self-development. Another conclusion is that AI technologies can improve L2 teacher education programs and TPDs by renovating them for a shifting world. Many potentials of AI technologies in EFL contexts are still unknown. Yet, this study indicated how they could foster teacher professionalism.

## 7. Implications and limitations

The findings have implications in different grounds as well. First, the study can theoretically contribute to TPACK models by calling for adding an AI element to them. Second, TPD models and frameworks in language education can draw on the findings to include AI technologies in conceptualizing TPD, too. Third, the existing literature on SDPD can be expanded via the findings of this study in that AI is now added to this line of inquiry. On the practical side, the study can inform EFL teachers of the significance of AI tools in raising teacher professionalism, especially SDPD. Teachers can become encouraged to use AI tools further as agents and boosters of TPD rather than simple text translators and content providers for grammar points. AI literacy and readiness of EFL teachers may increase in light of the current research. Moreover, the findings can be significant for L2 teacher educators, who can augment and revise their pre-service and in-service TPDs by incorporating AI technologies with their vast potentials for pedagogy and professional growth. They can explicitly teach EFL teachers how to work with different AI bots and chatbots referring to their merits and demerits at the same time. Teacher educators should update their programs consistent with the rapid shift toward AI-mediated L2 education. Real examples and activities driven from AI tools for the purpose of SDPD can be introduced to teachers in such courses. Workshops and seminars on AI-mediated TPD can be offered as well. As the use of AI tools require external support and infrastructure, the findings can be momentous for language policymakers and macro decisionmakers at the educational system level, who are expected to increase the needed budget and tools for encouraging teachers and learners to use AI in L2 Artificial Intelligence (AI) Tools and Their Role in Fostering EFL Teachers' Engagement in Self-Directed Teaching Advancement

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classes. Job advantages, promoters, and motivators can be planned by policymakers to inspire EFL teachers to engage in constant SDPD in light of AI technologies.

The present study is, however, limited in some areas. First, the small sample size constraints ascribing the outcomes to other contexts. Care is suggested in interpreting the findings then. Future studies are recommended to gather data from larger samples. The second limitation pertains the non-random sampling technique that may have caused selection bias in this study. Hence, further research is needed using other sampling techniques that consider diverse perspectives from diverse participants. Third, the use of a single data collection tool (i.e., interview) leaves the data non-triangulated. Future researchers are suggested to use more tools in mixed-methods designs. This study took a pure qualitative approach, while future researchers can take advantage of quantitative and mixed-methods designs as well. This would provide a richer image of AI-mediated SDPD in L2 education. Future research is also advised to compare different AI technologies (monomodal vs. multimodal) regarding their impact of EFL teachers' TPD. The mediating role of EFL teachers' AI literacy (Wang, Derakhshan, & Ghiasvand, 2025), AI competence (Wu, Wang, & Lalli, 2025; Wu, Zeng, et al., 2025), and AI readiness (Ghiasvand et al., 2024) in perceiving the contribution of AI to TPD is also an interesting topic for future research. Researchers can also focus on the emotional aspect of AI adoption by EFL teachers and students in the future (Seyri & Ghiasvand, 2025; Yang & Zhao, 2024). Likewise, cross-cultural studies can be conducted to develop universal AI-mediated TPD and SDPD models and frameworks in the future. Finally, innovative approaches to study AI-induced emotions are suggested to future scholars, who can use Q methodology, time-series analysis, retrodictive qualitative modeling, chaos complexity approaches and so forth in researching emotional fluctuations.

### **Interview questions Demographics:**

- Age:
- Gender:
- Major:
- Teaching Experience:
- Academic Degree:

### **Interview questions:**

- Have you ever used AI tools in your L2 teaching?
- Does the use of AI technologies affect you as a teacher?

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- In what ways, do AI tools affect your passion for self-directed professional development? Please explain your opinion.

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