Revue algérienne des lettres **Issn 2602-621X | Eissn 2661-4447**

Volume 9, n°2 | 2025 pages 294-306

Soumission : 03/04/2025 | Acceptation : 21/12/2025| Publication : 30/12/2025

The relationship between efl teachers' digital literacy practices and their informal professional development in algerian higher education

La relation entre les pratiques de littératie numérique des enseignants d'anglais langue étrangère et leur développement professionnel informel dans l'enseignement supérieur algérien

Mounira AMAROUCHE [1]
University of Ali Lounici Blida 2 |Algeria
(RIDILCA) research Lab – Blida | Algeria
m.amarouche.etu@univ-blida.dz

Imene BILOUK
University of Ali Lounici Blida 2|Algeria
i.bilouk@univ-blida2.dz

Abstract: *In the perpetually changing digital environment, the integration of digital tools and platforms has transformed how educators access, engage with, and implement professional learning opportunities. Efforts to promote those professional learning opportunities cannot overlook digital literacy as an important contributing factor. This descriptive study delves into the realm of Algerian EFL teachers' digital literacy practices, with an emphasis on their engagement in informal professional development. To this end, 33 EFL university teachers completed a quantitative online questionnaire. The findings revealed that educators demonstrated a high level of competence in communication and collaboration. Besides, their competence in information and data literacy, as well as in digital content creation, is moderate. This paved the way to them to engage in various informal professional development practices. Nevertheless, the findings demonstrated that the teachers exhibit insufficient competencies in the areas of safety and problem-solving, which undermine optimal professional development purposes.*

Keywords : *Algerian higher education, digital literacy, EFL teachers, informal professional development*

Résumé: *Dans un environnement numérique en perpétuelle évolution, l'intégration des outils et plateformes numériques a transformé la manière dont les éducateurs accèdent aux opportunités de formation professionnelle, y participent et les mettent en œuvre. Toute initiative visant à promouvoir ces opportunités ne peut ignorer la littérature numérique comme un facteur clé. Cette étude descriptive explore les pratiques de littératie numérique des enseignants d'anglais langue étrangère (EFL) en Algérie, en mettant l'accent sur leur engagement dans le développement professionnel informel. À cette fin, 33 enseignants universitaires d'EFL ont répondu à un questionnaire en ligne quantitatif. Les résultats ont révélé que les enseignants possédaient un haut niveau de compétence en communication et en collaboration. Par ailleurs, leur maîtrise de la littérature informationnelle et des données, ainsi que de la création de contenus numériques, est jugée modérée. Cela leur a néanmoins permis de s'engager dans diverses pratiques de développement professionnel informel. Cependant, les résultats ont également mis en évidence des lacunes dans les compétences liées à la cybersécurité et à la résolution de problèmes, ce qui constitue un frein à un développement professionnel optimal.*

Mots-clés : *Enseignement supérieur algérien,* littératie *numérique, enseignants d'anglais langue étrangère, développement professionnel informel*

[1] Corresponding author: MOUNIRA AMAROUCHE | m.amarouche.etu@univ-blida.dz

Higher education is actively embracing digital advancements, including the area of teacher professional development (the ongoing education and training that teachers undergo throughout their careers). The development of ICTs such as computers and digital platforms engendered the proliferation of new digital teacher professional development (TPD) practices (e.g. online courses, virtual workshops, and collaborative learning communities). Accordingly, digital literacy has emerged as an essential skill for educators to attain in academia. As a case in point, Covid-19 underscored the significance of engaging in digital literacy practices for TPD since education rapidly shifted to online teaching methods (Kamalodeen, 2024). Owing to the fact that technology-based teacher professional development was promoted through synchronous and asynchronous mode of learning, teachers were required to use digital tools in their professional learning. These practices involved, for instance, engaging in zoom-based workshops and joining social media groups to connect with other educators and learners (Kamalodeen, 2024). Supporting teachers' engagement in digital literacy practices with regard to professional development remains persistent beyond the pandemic. Accordingly, it is essential to understand the connection between digital literacy and informal teacher professional development since it demonstrates how higher education instructors adapt to technological changes, improve their lifelong learning and enhance their teaching and research capabilities. Nevertheless, the existing research on digital literacy revealed that most of the studies primarily looked into teachers' digital literacy within the classroom context. In the realm of professional development, few studies (Yustika, & Iswati , 2020; Soekamto et al., 2022) have been examining the role of EFL teachers' digital literacy in enhancing their professional growth. The limited body of existing studies predominantly focused on the formal training of teachers.This is may be owing to the fact that formal professional development activities are structured, formalized, and closely linked to educational standards. Accordingly, little attention has been devoted to examining teachers' digital literacy with regard to their ongoing professional growth outside of formalized training environments (Minea-Pic,2020; Kerkhoff & Makubuya, 2022).Thus, the present study differentiates itself by investigating digital literacy practices of English as a Foreign Language (EFL) teachers in relation to their informal professional development, thus filling a significant gap in the current body of knowledge.This study is descriptive in nature as the objective of the investigation is to offer a comprehensive account of the digital literacy practices that educators implement and their correlation with informal professional development. Specifically, this research aims to address the following key research questions:

Within the setting of higher education in Algeria,

1. What are EFL teachers' perceptions of their digital literacy?

2. What are the digital literacy practices of EFL teachers in relation to their informal professional development?

1. Review of the Literature

1.1 Digital Literacy

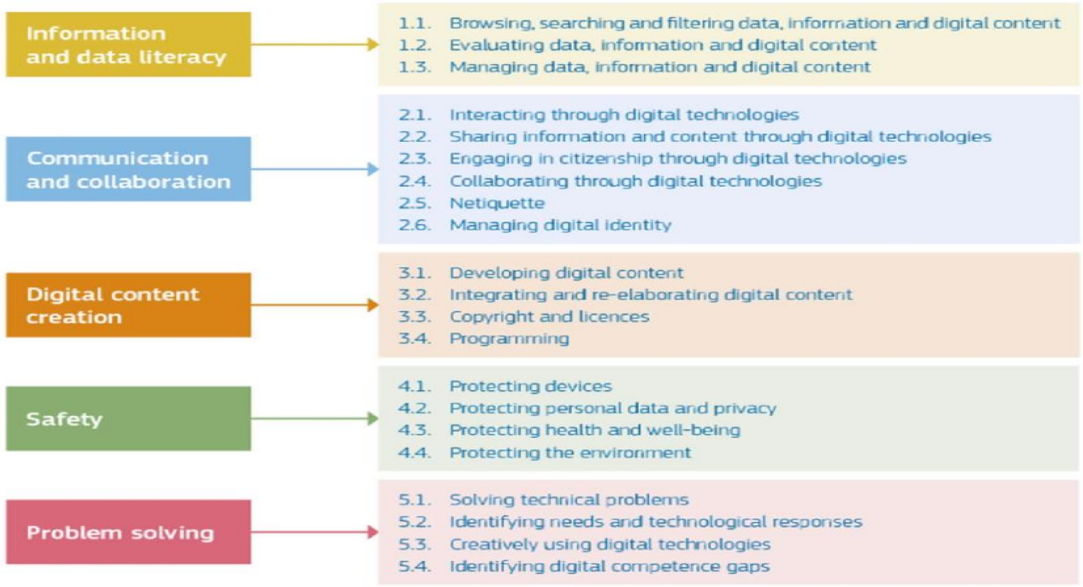
Digital literacy is a relatively new concept that has emerged in the fields of education and technology, influencing how individuals engage with digital tools and information.The

notion of digital literacy has evolved in tandem with the historical evolution of literacy itself, influenced by the cognitive and sociocultural perspectives. Initially, literacy was narrowly defined as the ability to read and write, overlooking sociocultural settings (Gee, 2008). This separation of reading and writing from social practices characterized literacy as an internal cognitive process (Gee, 2008), commonly referred to as 'traditional literacy'. Over time, literacy has been recognized as an integral aspect of social practices, leading to the emergence of New Literacy Studies (NLS) in the 1980s. NLS, rooted in sociocultural theory, expanded the concept of literacy to encompass various social practices and contexts (Rinekso et al., 2021). As evidenced by the NLS framework, literacy extends beyond reading and writing skills, acknowledging diverse types such as health, financial, academic, and digital literacy. Each type of literacy focuses on specific contexts and boundaries. In education, digital literacy is considered as a new form of literacy. The emergence of the latter was prompted by the extensive reliance on digital technology in many spheres, including the workplace and education. According to the review of frameworks of government and non-government agencies for UNESCO, digital literacy is described as the capability to securely and properly retrieve, organize, comprehend, incorporate, share information, examine and examine data through tech-based tools (Law, 2018). That is to say, digital literacy encompasses not only the mastery of ICTs but also the capacity to possess analytical, evaluative, and selective skills in the perception, utilization, and dissemination of information. According to the 2018 report of the International Literacy Association (ILA), digital literacy is highlighted as the foremost priority among the key educational challenges to be looked into in education. Nevertheless, in the Algerian context, digital literacy is still in its infancy as limited research has been dedicated to the topic (Elottri & Gasmi , 2022; Hassani & Meharet, 2024). More importantly, studies within the Algerian context have largely neglected the connection between digital literacy and teachers' professional development. This gap suggests a missed opportunity to investigate how digital literacy practices are related to teachers' professional learning.

1.2 A Framework of Reference on Digital Literacy Skills

Several digital competence frameworks categorize and detail what it means to be "digitally literate. For instance, in 2013, the Joint Research Centre (JRC) of the European Commission developed the Digital Competence Framework (DigComp), which focuses on lifelong learning (Sánchez-Cruzado et al., 2021). The latter breaks down digital literacy into structured competence areas that describe the essential skills people need in the digital world. These areas include: digital content creation, communication and collaboration, information and data literacy, safety and problem solving (Vuorikari et al.,2016). It is crucial for teachers to develop these digital literacy competencies to equip themselves with the skills needed to navigate, understand, and engage with the digital world effectively. The DigComp framework is updated to reflect the advancements in society (Zhao et al., 2021). Figure 1 represents one of the updated versions which was composed to meet the updated demands of the digital era. In this study, the Digital Competence Framework 2.0 (2016) is selected from among other frameworks. The latter refines the original framework by offering a thorough explanation of the five competence areas that are crucial for examining the digital literacy practices of educators in relation to their professional development.

Fig.1 The DigComp Conceptual Reference Model



Source : Riina et al., (2022:04)

1.3 Teacher Professional Development Defined

Teachers' growth remains a continuous process after they enter the classroom. Accordingly, their professional development is a key aspect of their career. Owing to the growing interest in the importance of teacher professional development (TPD) in the field of education, many educators and researchers attempted to define it. This, in turn, generated several definitions of TPD and led to the emergence of a plethora of terms that have been coined to replace it, including lifelong learning, in-service training, professional development, and continuous/continuing education. According to the OECD (2009), teacher professional development (TPD) encompasses various practices that support educators in meeting their requirements (needs) in relation to their work as educators. Adding depth to the definition of teacher professional development, Ganser (2000) suggests that professional development entails both structured activities (e.g. workshops and conferences) and unstructured ones (e.g. reading academic works and watching documentaries related to education). Hence, professional development can be seen as an ongoing journey that includes both formal and informal learning opportunities, enabling educators to develop individually and in collaboration with others.

1.4 Types of Teacher Professional Development

Extensive academic research indicates the existence of two prominent and widely acknowledged types of teacher professional learning.

1.4.1 Formal Professional Development

In the field of education, teachers bear the responsibility of enhancing their professional expertise through formal teacher professional development. The latter is often known as "the deficit model of knowledge" (Hawkes, 2000: 268). In this model, subject matter specialists typically deliver content in full- or half-day sessions, providing knowledge that is applicable in the workplace (Mccarthy, 2016). For instance, instructors engage in formal professional development through participating in training programs, workshops, courses,

or seminars. These activities afford them the avenue to remain up to date with the latest knowledge, develop basic skills related to teaching, or procure in-service credit for certification (Dabbagh & Kitsantas, 2012). Formal professional development practices are usually organized in structured educational settings with a predetermined curriculum. In Algeria, there is a recognized need for formal teacher professional development. Initial teacher training programs are accredited by the Algerian Ministry of Higher Education and Scientific Research (Bentaleb, 2022). In fact, the existing formal professional development opportunities are often regarded as distressingly inadequate (Borko, 2004). These top-down, lecture-based environments can offer minimal opportunities for teachers to collaborate, share experiences, and develop new knowledge bases. Nevertheless, formal professional development remains supported in the literature and legislature. In the Algerian context, as an integral part of formal professional development, considerable emphasis has been placed on integrating ICT training into higher education setting, particularly in the light of the challenges of the Covid-19 pandemic (Bensafa, 2015; Bentaleb, 2022). According to the account of current ICT formal training of Algerian university teachers, the ICT training program mainly encompasses three tiers:

1. Basic training: a profound priority has been accorded to training the basics of utilizing windows-based applications and emails as well as navigating the internet.

2. Interactive training: places emphasis on integrating technology into the classroom setting, including the use of Internet as a helpful teaching resource.

3. Advanced training: involves designing online courses and making multimedia presentations.

Some studies conducted in Algeria (Bensafa, 2015; Bentaleb, 2022) highlight that though the ICT formal training programs have the tendency to enhance teachers' digital literacy, they may not encompass all areas of digital literacy, including problem-solving and safety. Besides, ICT training programs target mainly novice teachers, disregarding the inclusion of previously hired instructors in the same training. Accordingly, a notable gap in digital literacy practices is more likely to be created between the two groups over time.

1.4.2 Informal Teacher Professional Development

Informal teacher professional development (TPD) is deemed as another recognized form of professional growth. Since the latter covers a variety of practices and happens in several circumstances, it can be elusive to define it. Nevertheless, informal TPD is widely recognized as learning that occurs outside of formal, organized environments—like the workplace or via personal experiences. It frequently happens accidentally and may be brought about by trial and error, reflection, and observation. Informal learning practices are not limited to certain settings or adhere to a set curriculum (Desimone, 2009). Several researchers (Kwakman, 2003; Desimone, 2009; Kyndt ey al.,2016) claimed that informal teacher professional development consists of both individual practices like reading books, doing class observation, as well as group- based practices such as workshops, mentorship programs , and engaging in discussions with parents and coworkers . Based on their systematic analytical research, Kyndt et al. (2016) found that there are 129 distinct learning activities in informal learning for teachers. These activities have been categorized differently by researchers. For instance, Kwakman (2003) delineated informal

professional learning into distinct types, including: learning by reading (e.g. reading academic works), experimenting (e.g. trying a new teaching method), reflection (e.g. learners' feedback), and collaboration (e.g. informal group discussions). Owing to the distinct types of informal activities, there is a general consensus that instructors can gain control over their own learning through informal learning.Accordingly, they are able to benefit from what they learn and apply it directly to their teaching practices (Dabbagh & Kitsantas, 2012).

1.5 The Role of Digital Literacy in Teacher Professional Development

The integration of technological tools into teacher professional development practices has transformed how educators access, engage with, and implement professional learning opportunities. Presently, digitalization urged the development of technology-mediated professional development (TMPD) (Adsit, 2004). Through this framework, emerging web-based models are embraced. Some key models include:

1. Interactive learning: through social media sites, including Facebook and Instagram, educators have the opportunity to join virtual communities, exchange resources and take part in peer-to-peer learning. Besides, interactive learning can encompass the use of platforms like Google classroom to support synchronous and asynchronous training (Adsit, 2004).

2. Personalized learning: this involves self-paced learning where teachers access digital tools including podcasts, blogs, and platforms like YouTube for the sake of accommodating their needs, learning style and schedules (Adsit, 2004).

Amidst the constant evolution of education and the development of Technology-Mediated Professional Development (TMPD), the importance of developing and honing digital literacy for teacher professional development (TPD) cannot be overstated. According to List's (2019) research, being digitally literate allows instructors to utilize a variety of digital tools that can provide them with the opportunity to foster their creativity in their teaching practices. That is to say, digital literacy encourages teachers to experiment with new educational technologies and implement innovative practices in their classrooms, thus fostering a culture of innovation and continuous improvement. From a more intricate level, digital literacy urges teachers to become autonomous learners as they engage in self-paced online learning, tailoring their professional development to their individual needs and schedules.This perspective is supported by List (2019) who pointed to the fact that teacher digital literacy is pivotal in developing teachers' autonomy, thereby enhancing professional development practices. Beyond the classroom, instructors' capacities to participate remotely can be enhanced and facilitated when teachers are digitally competent (Bond et al., 2019). For instance, digital literacy enables teachers to join online professional learning communities in educational forums and social media groups where they can share ideas, resources, and experiences with peers from around the world.The points above highlight the substantial direct impact of digital literacy on professionalism. The higher teachers' level of digital literacy, the more likely they are able to manage activities, work efficiently, communicate effectively via digital platforms, and maintain a professional image in a digital context.

2. The Study

2.1 Participants

The participants who took part in the research were selected at random from several English departments in Algeria. This included educators from universities and institutions located in various regions, ensuring a wide representation of teaching contexts and experiences. More than 120 teachers were approached by email. 33 teachers (male **48.5%** , female **51.5%**) returned the completed questionnaire. The respondents come from (08) universities: (03) teachers from the University of Algiers 2, (10) from Blida 2 University, (02) from Medea, (01) from El oued, (03) from Khmis Miliana University, (04) from the University of Guelma, (05) from Tlemcen University, and (05) from Oran University. The sample features all levels of teaching experience. Concerning the participant instructors' experience in teaching EFL, 07 teachers had 1 to 5 years of experience,14 had between 6 to 10 years, 09 had 11 to 20 years, and 03 had over 20 years of experience in English language teaching. Consequently, the participants had been teaching at university for varying lengths of time when they completed the online questionnaire.

2.2 Research Instrument

The present descriptive study strategically employed a structured questionnaire as its primary data collection tool, ensuring methodological alignment with its purpose. The major aim of the questionnaire is to gather information on digital literacy practices of English Foreign Language (EFL) teachers in relation to their informal professional development. The questions primarily elicit information regarding

A. Teachers' awareness of digital literacy (item 04).

B. The respondents' frequent use of digital tools and platforms for informal TPD (items 5,7,9,and 11).

C.Types of informal professional development activities teachers engage using their digital literacy (items 6,8, and 12).

D. Respondents' self evaluation of their digital literacy (items 13,14).

The questionnaire used in this study was created using a quantitative method, consisting of closed-ended items. The questionnaire was presented using Google Form for the sake of flexibility and accessibility. The process of collecting responses lasted for three weeks.

2.3 Key Findings of the Study

Table 1 : Teachers' Awareness of Digital Literacy

Definitions of Digital Literacy	Respondents	Percentage
● Definition A	10	30.3%
● Definition B	23	69.7%
● Definition C	00	0.0%

The data in the table 1 presents an overview of teachers' understanding of digital literacy, reflecting their level of awareness. A particularly striking finding is the dominant selection of Definition B, which describes digital literacy as "the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies" (Law, 2018: 06). This definition received the highest number of selections with 23 responses (**69.7%**). In other words, the majority of teachers are aware of what digital literacy encompasses. In contrast, Definition A "the ability to use computers at an adequate level for creation, communication and collaboration in a literate society" (Son et al., 2011: 27) was only endorsed by **30.3%** of respondents. Still, although this is lower than the preference for Definition B, it reflects a considerable portion of teachers who defined digital literacy differently. Interestingly, Definition C which describes digital literacy as "the ability to access, analyse, evaluate and create messages across a variety of contexts"(Livingstone, 2004: 18) received no support **(0%)**. That is to say, teachers might deem this definition irrelevant to their understanding of digital literacy.

Table 2: Frequency and Purposes of Using ICTs Within and Beyond Classroom Settings

(R= Respondents ; P= Percentage)

ICTs	Inside the Classroom					Outside the Classroom				
	Frequency		**Purpose**			**Frequency**		**Purpose**		
	R	P		R	P	R	P		R	P
Computer	27	81.1 %	1.Designing digital lessons (preparing interactive PowerPoint presentation or videos)	26	78.7 %	30	90.9%	1.Reading academic research 2.Online forum with learners 3.Action research	29 23 24	87.8 % 69% 72.7 %
Mobile Phone	10	30.3 %	1.Peer observation	9	27.2 %	28	84.8%	1.Watching videos 2.Podcasts 3.online forum with colleagues	27 9 26	81.1 % 27.2 % 78.7 %

In table 2, the focus was on highlighting the frequency and the purposes of using ICTs within and beyond the classroom settings, revealing distinct patterns. Within the classroom setting, the computer is frequently preferred (**81.1%**) due to its streamlined functionality for designing digital lessons (**78.7%**). Outside the classroom, the computer dominates (**90.9%**) as a tool for reading academic works (**87.8**), engaging in action research (**72.7%**) or online forum with learners (**69%**). Whereas, mobile phones show low-frequency usage in educational settings as they are mainly used by some teachers (**30.3%**) for peer-observation (**27.2%**). This suggests their limited practicality as an academic tool. Nevertheless, outside the classroom, mobile devices show high-frequency usage (**84.8%**), particularly for watching videos (**81.8%**), communicating with colleagues (**78.7%**) or listening to podcasts (**27.2%**).

Table 03: The Purposes of Using Other Digital Applications

	Microsoft Apps		**Social Media**					**Content Creation Tools**	**Learning Management System Tools**		
	Word	Power Point	YouTube	Facebook	Instagram	E-mail	linkdin	Video Editing	Google classroom	Canva	Blackboard
Peer observation	12 36.3%	0	0	0	0	0	0	0	0	0	0
Action research	24 72.7%	15 45.4%	20 60.6%	11 33.3%	0	14 42.4%	4 12.1%	5 15.1%	9 27.2%	7 21.2%	5 15.1%
Participation in conference	15 45.4%	27 81.8%	0	0	3 9.0%	26 78.7%	1 3.0%	0	11 33.3%	7 21.2%	0
Online forum with colleagues	12 36.3%	15 45.4%	0	17 51.5%	0	19 57.5%	1 3.0%	0	4 12.1%	4 12.1%	1 3.0%
Online forum with learners	9 27.2%	15 45.4%	6 18.1%	15 45.4%	3 9.0%	15 45.4%	1 3.0%	0	19 57.5%	4 12.1%	1 3.0%
Individual lesson planning	24 72.7%	14 42.4%	14 42.4%	7 21.2%	0	13 39.3%	2 6.0	8 24.2%	0	0	0
Collaborative lesson planning	18 54.5%	5 15.1%	30 90.9%	17 51.5%	8 24.2%	0	1 3.0%	8 24.2%	1 3.0%	0	0

The results displayed in table 3 demonstrate some of the digital tools used by EFL teachers, which can be summarized as follows:

1. **Microsoft apps:** The participants deemed word processing software as essential for action research (**72.7%**), planning the lessons individually (**72.7%**) and collaboratively (**54.5%**), as well as participating in conferences (**45.4%**) . Moreover, power point is mostly used for participating in conferences (**81.8%**), action research (**45.4%**), and engaging in online forum with colleagues and students (**45.4%**).

2. **Online collaboration tools**: EFL teachers use email to participate in conferences (**78.7%**) and engaging in online forum with colleagues (**57.5%**) and students (**45.4%**). Besides, Facebook is used for online forum with colleagues (**51.5%**), collaborative lesson planning (**51.5%**), and online forum with learners (**45.4%**).

3. **Learning management systems tools:** Google classroom is used by few teachers for online forum with learners (**57.5%**).

4. **Content creation tools**: The main content creation tool used is video editing software. It is used by few teachers for individual (**24.2%**) and collaborative lesson planning (**24.2%**) Hence, its usage remains infrequent.

Therefore, the most frequently employed tools for teacher professional development are Microsoft apps and social media tools.The least frequently used are content creation tools and learning management systems tools (LMS). For instance, despite their continued value, Google Classroom is used less often compared to other digital apps.

Table 04: Teachers' Self Evaluation of Digital Literacy

M = (Mean)

Competence Area	Competences	M	M
Area1	1. Browsing data	4.03	
	2. Searching data	4	
	3.Filtering data	3.12	
	4. Evaluating data	4.3	**3.81**
	5. Managing data	4	
Area 2	1. Interacting through digital tools	4.1	**4.1**
Area 3	1. Editing digital content	3.7	**3.1**
	2. Creating digital content (e.g. games)	2.5	
Area 4	1. Protecting data	2.9	**2.9**
Area 5	1. Solving technical problems	2.73	**2.73**

A deeper analysis of teachers' self evaluation of digital literacy based on digital competency framework revealed that the participants' average level of competence in communication is **4.1**, indicating a strong level of ability to use digital tools for maintaining communication with colleagues and students. Besides, their competence in information and data literacy is moderate (**3.81**). The majority of teachers can search for, use digital information and evaluate the downloaded materials and online resources. Regarding the area of digital content creation, the participants have average ability to create digital content (**3.1**). However, the findings demonstrate that EFL teachers demonstrate low levels of safety (**2.9**) and problem solving competence (**2.73**). First, the majority of teachers encounter prominent challenges in maintaining safety in digital contexts. For instance, they struggle with using measures to protect their personal data. Second, while few teachers have average level in problem solving literacy, the majority

lack sufficient capability to address technical problems. Without strong problem-solving skills, teachers may escape from participating in online webinars and conference; thus, hindering their career progression.

Discussion and conclusion

The current study seeks to examine digital literacy practices of EFL teachers in relation to their informal professional development. The findings related to the participants' perceptions seem to indicate that the majority of teachers rate their own digital literacy as fair. These findings align with the work of Elottri and Gasmi (2022). In contrast, the findings of Hassani and Meharet (2024) demonstrated that, while holding positive attitudes towards the integration of ICT in education, EFL instructors demonstrate insufficient digital literacy.This discrepancy may be ascribed to teachers' knowledge of technology and their use of technological tools. It is worth mentioning that considering teachers' digital literacy as fair in this study indicates a moderate level of confidence in their digital skills and suggests their ongoing efforts to incorporate technology into their professional development practices. Nevertheless, rating digital literacy as moderate means that there is still improvement to be done in this area. More importantly, echoing the findings of Zhang et al., (2024), it was revealed that out of the five DL competency dimensions, information and data literacy, digital content creation and communication literacy were the major positive predictors of digital practices for teacher professional development. Informal professional development practices are increasingly prevalent among the participating instructors (e.g. doing action research and participating in webinars and forums).Their comfort with digital tools (e.g. Microsoft and social media-apps) allows them to access diverse learning resources, collaborate with peers, and seek out latest trends in education. However, the results of this investigation showed that the competencies in the areas of safety and problem-solving have not been optimally utilized for professional development purposes as many teachers may still at the level of knowledge. This means that teachers may know these competencies but lack the practical experience and training to use them effectively in their professional development practices. For instance, exhibiting a low level of competence in problem-solving demonstrates teachers' tendency to avoid incorporating some technological tools (e.g. Canva and Video Editing) into their digital professional development activities.

The findings of this research offer significant implications. As far as theory is concerned, this study contributes to the existing educational research by connecting the relatively under-explored type of informal professional development with digital literacy. For instance, connecting those two variables proved that digital literacy enhances teacher autonomy by empowering them to autonomously pursue professional development in informal settings. From a practical standpoint, owing to the deficiencies in some areas of digital literacy among teachers, the ministry of education should mandate a comprehensive digital literacy training across the five critical areas of digital literacy. Rather than focusing solely on training teachers on ICTs' use, the training should extend to the critical and ethical use of digital literacy.

Bibliographical references

ADSIT, J. N. 2004. *Technology-Mediated Professional Development Programs for Teachers and School Leaders*. American Association of Colleges for Teacher Education, Washington, DC

BENSAFA A. 2015. *ICT in Algerian Education: Current Trends and Future Challenges*.(2), Arab World English Journal.P. 226 – 234

BENTALEB I. 2022. ICT *Training at the Algerian University: Insufficient Teacher Training and Complete Neglect of Learner Training*. 2(2),Journal of Languages & Translation.P. 148-153.

BOND M. ZAWACKI- RICHTER O. & NICHOLS M. 2019. *Revisiting Five Decades of Educational Technology Research: A Content and Authorship Analysis of the British Journal of Educational Technology*. 50(1), British journal of educational technology.P. 12-63.

BORKO H. 2004. *Professional Development and Teacher Learning: Mapping the Terrain*. 33(8), Educational researcher.P. 3-15.

DABBAGH N. & KITSANTAS A. 2012. *Personal Learning Environments, Social Media, and Self-regulated Learning: A Natural Formula for Connecting Formal and Informal Learning*.15(1), Internet and Higher Education.P. 3-8.

DESIMONE L. M. 2009. *Improving Impact Studies of Teachers' Professional Development: Toward Better Conceptualizations and Measures*. 38(3), Educational Researcher.P. 181–19

ELOTTRI E. & GASMI M. 2022. *Investigating the Digital Literacy of EFL Teachers in Algerian Universities to Promote Blended Learning*. 16(2),Social Sciences Journal.P. 524-539.

GANSER T. 2000. An Ambitious Vision of Professional Development for Teachers. 84 (618),NASSP Bulletin, 6-12.

GEE J.P. 2008. *Social Linguistics and Literacies: Ideology in Discourses* (3rd ed.). Taylor & Francis.

GISBERT CERVERA M. and LAZARO CANTABRANA J. L. 2015. *Professional Development in Teacher Digital Competence and Improving School Quality from the Teachers' Perspective: a Case Study*.4(2), Journal of New Approaches in Educational Research. P. 115-122.

HASSANI M. and Meharet S. 2024. *Exploring Algerian Teachers' Digital Literacy under the CBA: Case of EFL Secondary School Teachers*. 4(2), Journal of Languages and Translation.P. 144-160.

HAWKES M. 2000. *Structuring Computer-Mediated Communication for Collaborative Teacher Development*. 33(4), Journal of Research and Development in Education.P. 268-277.

KAMALODEEN V. 2024. *Rapid Response to Professional Development: How Online Teacher Professional Learning Networks Supported Teachers in Pandemic Times*.1(3),Caribbean Journal of Education and Development.P. 149-156.

KERKHOFF S. N. and MAKUBUYA T. 2022. *Professional Development on Digital Literacy and Transformative Teaching in a Low-Income Country: A Case Study of Rural Kenya*. 57(1),Reading Research Quarterly.P. 287-305.

KWAKMAN K. 2003. *Factors Affecting Teachers' Participation in Professional Learning Activities*.19(2), Teaching and teacher education. P.149-170.

KYNDT E. GIJBELS D. GROSEMANS I. and DONCHE V. 2016. *Teachers' Everyday Professional Development: Mapping Informal Learning Activities, Antecedents, and Learning Outcomes*. 86(4), Review of educational research.P. 1111-1150.

LAW N. W. Y. WOO D. J. DE LA TORRE J. and WONG K. W. G. 2018. *A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2*. https://hub.hku.hk/bitstream

LIST, A. 2019. *Defining Digital Literacy Development: An Examination of Pre-service Teachers' Beliefs.138*(1), Computers & Education.P. 146-158.

LIVINGSTONE S. 2004. *What is media literacy?*. 32(3),Intermedia. P. 18-20.

MCCARTHY K. E. 2016. An analysis of the formal and informal professional learning practices of middle and high school mathematics teachers. University of South Florida.

MINEA-PIC A. 2020. *Innovating Teachers' Professional Learning through Digital Technologies*. OECD Education Working Papers. https://www.oecd.org/content/dam/oecd/en/publications/reports/2020

OECD. 2009. C*reating Effective Teaching and Learning Environments: First Results from TALIS*. OECD Publishing. http://www.oecd.org/dataoecd/17/51/43023606.pdf.

RIINA V. STEFANO K., and YVES P. 2022. *DigComp 2.2: The Digital Competence Framework for Citizens-With New Examples of Knowledge, Skills and Attitudes* (No. JRC128415). Joint Research Centre.

RINESKO A. B. RODLIYAH R. S. and PERTIWI I. 2021. *Digital literacy Practices in Tertiary Education: A Case of EFL Postgraduate Students*. 8(2), Studies in English Language and Education.P. 622-641.

SANCHEZ-CRUZADO C. SANTIAGO CAMPION R. and SANCHEZ- COMPANA M. T. 2021. *Teacher Digital Literacy: The Indisputable Challenge after COVID-19*.13(4), Sustainability.

SOEKAMTO H., NIKOLAEVA I. ABBOO A. GRACHEV D. KOSOV M. YUMASHEV A. & NIKITINA N. 2022. *Professional Development of Rural Teachers Based on Digital Literacy*. 6(6),Emerging Science Journal.P. 1525-1540.

SON J. B. ROBB T., and CHARISMIA DJI I. 2011. *Computer literacy and competency: A survey of Indonesian teachers of English as a foreign language*. 12(1),Computer-Assisted Language Learning Electronic Journal (CALL-EJ). P. 26-42.

VUORIKARI R. PUNIE Y. GOMEZ S. C., & VAN DEN BRANDE G. 2016. *DigComp 2.0: The Digital Competence Framework for Citizens. Update Phase 1: The Conceptual Reference Model*. Joint Research Centre.

YUSTIKA G. P. and ISWATI S. 2020. *Digital Literacy in Formal Online Education: A Short Review.* 15(1), Dinamika Pendidikan. P. 66-76.

ZHANG S. MINGUE GU M. SUN W. and JIN T. 2024. *Digital Literacy Competence, Digital Literacy Practices and Teacher Identity among Pre-service Teachers.* 50(3),Journal of Education for Teaching. P. 464-478.

ZHAO Y. PINTO LORENTE A. M. SANCHEZ GOMEZ M. C. and ZHAO L. 2021. *The Impact of Gender and Years of Teaching Experience on College Teachers' Digital Competence: An Empirical Study on Teachers in Gansu Agricultural University.* 13(8), Sustainability. P. 4163.