

Received: 10/02/2026

Accepted: 06/04/2026

The Correlation between Digital Literacy and Critical Thinking among EFL Master 2 Learners in Didactics: An Investigation within a Research Skills Module

Imene BILOUK¹¹ University of Blida 2 (Algeria)

RIDILCA Research Laboratory

i.bilouk@univ-blida2.dz<https://orcid.org/0009-0005-4246-9098>

Abstract

In today's evolving world, possessing digital literacy and critical thinking skills is crucial for effectively navigating and discerning pertinent information. This is especially true in the Research Skills module, where learners are required to access, comprehend, and critically evaluate sources of information related to real-world inquiries. The present investigation thus attempts to understand the connection between digital literacy and critical thinking of Master's learners specializing in Didactics of Foreign Languages at the English Department, Blida 2 University. The investigation employed a correlational, quantitative research design. The sample consisted of 68 learners (n=68) conveniently and purposively drawn from the population of EFL Master 2 didactics. Data were gathered through an online survey, a quantitative measure used to identify different facets of digital literacy. Two exploratory tests were administered as part of the Research Skills module to measure their critical thinking performance. The correlations between critical thinking test 1 and the digital literacy scale ($r = -.16$, $p = .17$), and between critical thinking test 2 and the digital literacy scale ($r = -.15$, $p = .20$), were weak and not statistically significant, indicating that digital literacy is not a predictor of critical thinking in the Research Skills module. Teachers should take the lead in creating learning activities and pedagogical practices that incorporate digital literacy and critical thinking components so that students can learn when, why, and how to use technology efficiently and effectively for research.

Keywords: correlation, digital literacy, EFL master 2 learners, didactics, research skills module

1. Introduction

The use of web-based instruction, mobile-assisted learning, and flipped classrooms, all products of technological advancements, has essentially transformed education (Haryanto et al., 2022). Incorporating technology into higher education enhances accessibility, flexibility, and promotes

¹ Corresponding author: i.bilouk@univ-blida2.dz

lifelong learning. In this context, university learners have become very interested in digital platforms and mobile devices (Bilouk, 2025; Pritika et al., 2020). Applications, social media, and online networks make it easier for learners to share knowledge, which helps them learn more (Indah et al., 2022). Learners indisputably enhance their digital competencies and critical thinking skills through the utilization of these technologies, which are fundamental prerequisites for academic success (European School Education Platform, 2024). Indeed, digital literacy and critical thinking are closely intertwined. The ability to synthesize knowledge, evaluate sources, and engage in meaningful collaboration relies on both skills, as highlighted by Indah et al. (2022). This connection is predominantly apparent in Research Skills modules, wherein learners are required to access, analyse, and generate knowledge based on real-world inquiries. Mastery of these competencies enables them to confidently navigate the digital age (Salimi et al., 2023; Tinnaz et al., 2023). Regardless of the acknowledgment of the significance of both critical thinking and digital literacy (Abdelhalim, 2024; Indah et al., 2022), there is limited empirical research exploring the intersection of these two components, particularly among postgraduate students in Algeria. While previous studies have addressed each domain separately (Fadhloune & Madoui, 2024; Kerma, 2025; Sarnou, 2024), investigations into their interrelationship remain scarce. Our investigation attempts to fill this gap by investigating the connection between digital literacy and critical thinking among postgraduate learners enrolled in a research methodology course. To this end, insights from this research could inform pedagogical practices, offering strategies to integrate these skills and support research and academic decision-making more effectively.

Thereupon, the present investigation is guided by the following research questions:

1. What digital literacy skills (digital communication and collaboration skills, digital research tools, digital engagement, and digital critical thinking) do EFL Master's learners specializing in the Didactics of Foreign Languages possess in the Research Skills module?
2. What is the level of critical thinking, as measured formally, demonstrated by EFL Master's learners specializing in the Didactics of Foreign Languages in the Research Skills module?
3. Is there a significant correlation between digital literacy and critical thinking among EFL Master's learners specializing in the Didactics of Foreign Languages in the Research Skills module?
4. Is there a significant correlation between the different dimensions of digital literacy (digital communication and collaboration skills, digital research tools, digital engagement, and digital critical thinking) and critical thinking performance among EFL Master's learners specializing in the Didactics of Foreign Languages in the Research Skills module?

2. Literature Review

2.1 Digital Literacy

The digital transformation in teaching and learning demonstrates that learners can build knowledge through the Internet. Students enrolled in a master's program need to focus on research and information management skills. They are essential ingredients for conducting real-world research across various subjects and for enhancing their scientific research as well as cultural competencies. To achieve this, they should effectively search for, access, select, organize, and evaluate information. Therefore, digital literacy is indispensable (Pegalajar-

Palomino & Rodríguez Torres, 2023). Amin et al. (2021) define digital literacy as a multidimensional concept that involves understanding how, when, and where to use digital technologies responsibly and safely. Digital literacy is vital in education; for it promotes access to information, digital knowledge, skills, and facilitates collaboration and communication between teachers and students. It further aids learners filter online information by fostering critical, analytical, and creative thinking, enabling them to use technology purposefully for learning, and thus ensures lifelong learning (Bashear et al., 2024; Haryanto et al., 2022; Rahayu et al., 2022). In this regard, the capacity to use information wisely and safely makes learning more effective and enjoyable (Haryanto et al., 2022). Accordingly, the consequences of ICT for learners' edification are beneficial because it enhances not only higher cognitive skills, but also knowledge construction and collaboration. The shift in learning practices, due to ICT, has led to inquiry-based methods, such as blended and e-learning (Pritika et al., 2020). It is pertinent to note that digital literacy improves the quality of education, allowing both teachers and students to stay updated on the latest trends in education (Bashear et al., 2024).

2.2 Digital Literacy Dimensions

Chen's (2015) model is deemed the most comprehensive among the various frameworks to measure digital literacy competencies. According to Amin et al. (2021), this framework combines technical, cognitive, and ethical competencies necessary for responsible digital citizenship. The 9C's of digital literacy—creativity, curation, copyright, collaboration, and critical thinking—represent a multifaceted approach to digital competence. These competencies would facilitate critical evaluation and organization of online information (Clifford et al., 2020; Haryanto et al., 2022). As outlined by Pritika et al. (2020), digital literacy skills are foundational for achievement in an increasingly unified world. The key components of digital literacy include:

- Information Literacy: Locating, analysing, and synthesizing information while evaluating the credibility of sources.
- Computer Literacy: Using computers and digital technologies effectively.
- Media Literacy: Accessing, analysing, and communicating information through digital platforms.
- Communication Literacy: Using digital tools for communication and collaboration.
- Visual Literacy: Interpreting information through visual representations.
- Technology Literacy: Employing digital technologies to enhance learning performance.

Within this set, critical thinking is a vital component of digital literacy. It is more than acquiring technical abilities to embrace the capability to produce, understand, access, and critically assess information from various digital sources. This is especially essential for distinguishing between reliable and unreliable information in the digital world (Fischer, 2011). Critical digital literacy is fundamental for learners' educational achievement, as well as personal and professional life (Chen, 2015). Given the widespread use of digital technologies, it is worth noting that educators should teach students responsible engagement, addressing concerns like data privacy and online safety.

2.3 Overview of Critical Thinking

Critical thinking is indispensable for active citizenship and assuredly a major challenge in the modern, ever-changing world. Essentially, it involves reflective thinking, which assists in thinking about things in a way that helps you decide what to do or what to believe (Hunter, 2014). Critical thinking stands for analysing, evaluating, and interpreting ideas and arguments (Fischer, 2011). It requires structured decision-making and problem-solving, with the goal of reaching well-informed conclusions (Haryanto et al., 2022). As per Ennis (1996), critical thinking involves introspective thought, and the importance of finding alternatives and remaining open to them. In line with Paul and Elder (2006), critical thinkers are self-directed, disciplined, and focused on analysing and evaluating information. They go beyond surface-level understanding and apply these skills across various subjects and contexts, critically questioning the information, conclusions, and viewpoints presented.

2.4 Critical Thinking Models

A foundational approach for incorporating critical thinking into education is Bloom's Taxonomy, which organizes learning objectives into six cognitive categories: Comprehension, Analysis, Application, Knowledge, Evaluation and Synthesis (Bloom et al., 1956). This hierarchy encourages the gradual development from basic recall of information to more complicated processes, notably problem-solving and creativity. Paul (1993, p. 526) described Bloom's taxonomy as a "remarkable tour de force in education," because it emphasizes intellectual development, and it is equally used as a reference in curriculum design and assessment planning. In essence, each level of Bloom's original taxonomy pyramid is associated with specific action verbs that help teachers formulate learning objectives that should be indisputably measurable. Verbs such as identify, explain, analyse, and evaluate exemplify the active nature of cognitive processes and aid teachers in aligning instructional strategies with targeted cognitive outcomes. Anderson and Krathwohl (2001) revised the taxonomy, placing "Creating" at the highest level so as to emphasize innovation, synthesis, and originality.

In line with Ennis's (1996) model, critical thinking dispositions can be relevant to both research and education. Ennis (1996) proposed six criteria for assessing critical thinking dispositions, such as comprehensibility and simplicity. These traits can be evaluated through performance-based assessments, ensuring authenticity over multiple-choice tests.

Paul and Elder's (2006) Framework emphasizes components of thought, intellectual criteria, and characteristics. A good critical thinker employs reasoning systematically, and evidently promoting skills such as autonomy, self-confidence, and persistence.

These models help educators structure and assess learning objectives across cognitive levels. Effective course design requires measurable outcomes and activities that stimulate higher-order thinking, guiding teachers in assessing critical thinking in real-life contexts. However, before nurturing critical thinking in learners, teachers should first enhance their own critical thinking skills (Brookfield, 2012; Facione, 2015).

2.5 Overview of Related Studies

While previous research has explored critical thinking's role in digital literacy, few studies have directly addressed their relationship in educational settings. Indah et al. (2022) obtained a positive connection between research competence and digital literacy, but no significant link between digital literacy and critical thinking. Similarly, Salimi et al. (2023) reported no connection between these factors in elementary students. However, Abdelhalim (2024) found that critical digital literacy practices in Saudi EFL undergraduates promoted engagement and critical thinking. These findings suggest a gap in the literature, highlighting the call for additional enquiry on the relationship between digital literacy and critical thinking.

3. Methodology

3.1 Description of Participants and the Research Skills Module

The participants were 68 EFL Master's learners (Mean age = 23.79 years) at the English Department, Blida 2 University, specializing in the didactics of foreign languages. A combination of convenience and purposive sampling was employed. They were conveniently selected from a population of 112 students, as the researcher was also their instructor in the Research Skills module. The researcher's role as an instructor may raise concerns regarding a potential conflict of interest. No personal identifiers were linked to the responses, and all results were anonymized. Participants' names were replaced with numerical codes to protect their privacy. However, the decision to focus on this cohort was based on several factors. These include ease of access and engagement with students. Importantly, the sample was purposively chosen because the module requires learners to use digital tools to read, critically evaluate, and summarize research-related papers, making this cohort particularly relevant to the study.

They had all been learning English for at least five years and had completed a three-year Bachelor's degree in English, qualifying them to earn a Master's degree in either Literature and Civilization or Didactics. Additionally, they had been studying the Research Skills module for three years. This module, essential for their Master's dissertation preparation, covers foundational principles of scientific writing, including research designs, formulating and refining research questions, conducting literature reviews, data collection methods, and ethical considerations in research.

The inclusion criteria required participants to have completed the Research Skills module, and students who were absent on test days or failed to complete the online questionnaire were left out to ensure data reliability. This exclusion was necessary to maintain the validity of the analysis, ensuring that only participants with complete data were included.

The Research Skills module, specifically designed for Master's students in Didactics, provides the tools needed to develop research proposals and conduct academic research. It emphasizes critical thinking and the practical utilization of digital tools for reading and analysing scientific articles, Master's dissertations, and PhD theses. The learners' ability to engage with these resources—either individually or in pairs—aligns with the objectives of this study, making them an appropriate and relevant sample for investigating digital tools usage and research skills in EFL education.

3.2 Research Design

We attempted to investigate the nature of the relationship between digital literacy dimensions and critical thinking so as to provide an understanding of how digital literacy facets relate to critical thinking components. The instruments employed included a digital literacy scale and two exploratory critical thinking tests. In this respect, a correlational, quantitative design was used to assess how these constructs correlate, without implying causality. To achieve this aim, we assessed the digital literacy of EFL Master's students (Master 2) through an online survey, utilizing quantitative measures to identify various aspects of digital literacy. In addition, students' critical thinking skills were evaluated through formal critical thinking tests within a Research Skills module, providing quantitative data on their performance. We used SPSS version 26 to analyse the qualitative data.

3.3 Research Instruments

3.3.1 Digital Literacy Scale

To assess digital literacy, a scale was administered online via Google Forms prior to the main study. It took approximately one month to complete the scale, as participants were concurrently engaged in other academic responsibilities. The scale was piloted with 10 EFL Master's students, who were enrolled in the same department, specializing in Literature and Civilization. They were notified that participation in the pilot study was voluntary as well as the confidentiality of their answers. The data collected was used only for refining the scale and ensuring its reliability. No personal identifiers were linked to the responses, and all results were anonymized, and participants' names were replaced with numerical codes to protect participant privacy either in the pilot or main study. Analysis of the pilot data revealed several areas for improvement. Specifically, four items in the final section of the scale were found to be redundant, and confusion was observed regarding the reversed Likert scale options, which ranged from "disagreement" to "agreement." To address these issues, revisions were made to eliminate redundancies and clarify the Likert scale options. The scale was developed based on Chen's (2015) The 9C's of Digital Literacy and the DigCamp framework; and it covers four key sections designed to evaluate different aspects of digital literacy. The scale was scored on a 5-point Likert scale, ranging from strongly agree to strongly disagree, which can be summarized as follows:

- Section 1 measures digital communication and collaboration skills. It assesses learners' capability to communicate and collaborate successfully via digital platforms for mere research purposes (7 items).
- Section 2 deals with digital research tools and skills of novice researchers. It assesses learners' ability to organize, store, and retrieve digital content to fulfil research and academic purposes (14 items).
- Section 3 evaluates digital engagement in research academic activities. It explores learners' participation in online learning activities, collaboration, and academic research using digital tools (3 items).

- Section 4 assesses critical thinking practices. It measures learners' critical assessment of digital content, evaluating the reliability of information, and using digital tools to support their research work (6 items).

3.3.2 Critical Thinking Tests

Critical thinking was assessed through two exploratory tests, conducted as part of the participants' ongoing assessment, using a pen-and-paper format, during regular Research Skills sessions. They were informed in advance of the timing and nature of the tests to ensure preparedness and fairness. These tests aimed to evaluate the capacity of students to analyse, evaluate, and synthesize information in a research context. Thus, they were required to provide arguments and evidence to explain their points of view and understanding of key concepts via open-ended answers. The first test was held before the winter break (December 2024) and the second in January 2025. Both tests focused on students' application of digital literacy and critical thinking skills using real-world research scenarios.

➤ *Description of Test 1*

Test 1, scored out of 17.50, included four exercises:

1. Qualitative Research Design Suitability: Learners assessed the appropriateness of research questions for qualitative methods, suggesting suitable techniques and potential limitations (Max: 7.50 points).
2. Credibility of Online Sources: Learners evaluated the reliability of online sources for literature reviews, identifying factors influencing source credibility (Max: 2.50 points).
3. Evaluation of Research Methodology: Learners analysed a methodology excerpt to determine its effectiveness in answering research questions and the appropriateness of the sample (Max: 6 points).
4. Qualitative Data Analysis: Learners described and justified methods for analyzing qualitative data (Max: 1.50 points).

➤ *Description of Test 2*

Test 2, scored out of 21, evaluated research design understanding, plagiarism, and clarity of research problems; and it consisted of six exercises:

1. Research Design Selection: Learners identified the most suitable research design for a given scenario with arguments (Max: 5 Points).
2. Proper Use of Sources: Learners compared two sources in order to assess proper citation and plagiarism awareness (Max: 3 Points).
3. Database Search Engines: Learners demonstrated their ability to use academic search engines (Max: 3 points).

4. Evaluation of Research Problem: Learners assessed the clarity and relevance of a research problem statement (Max: 5 Points).

5. Research Subjects: Learners evaluated the appropriateness of the sample size and selection method (Max: 3 Points).

6. Refining a Research Question: Students revised a vague research question to make it suitable for exploratory research (Max: 2 Points).

By summing the two marks of the tests, learners obtain their total marks. It should be noted that the questions in the tests were formulated to involve learners in higher-order thinking, such as making-decisions, analysing, evaluating, providing justifications to support their arguments and synthesizing information. This aligns with the higher levels of Bloom's Taxonomy (1956), in addition to the different frameworks cited in the literature, namely Ennis's (1996) critical thinking model and Paul and Elder's (2006) critical thinking framework, which stimulates learners to apply critical thinking throughout the research process. Many questions present real-world research scenarios (e.g., evaluating the adequacy of a research problem, assessing the use of sources) that help students practice how to apply critical thinking in practical situations. This blends theoretical knowledge and practical research skills. Likewise, the question of assessing the credibility of online sources is particularly valuable in today's information age. This inspires learners to question the reliability of information, which is a key skill for research and academic work. The question asking students to rewrite vague research questions into clear and focused ones challenges them to think about clarity, precision, and communication, which are critical elements in academic writing.

4. Results

4.1 Internal Consistency of the Digital Literacy Scale and its Subscales

The Cronbach's alpha for the entire Digital Literacy Scale was 0.90, indicating excellent internal consistency. The Digital Research Tools and Skills subscale exhibited an alpha of 0.81, which meets the acceptable threshold of 0.70, implying that the items in this subscale are reliable. The Digital Engagement in Research Activities and Critical Thinking Practices subscales had Cronbach's alpha values of 0.69. Although these values are a little below the commonly recommended threshold of 0.70, they are still within an acceptable range and suggest moderate reliability. The Digital Communication and Collaboration subscale, however, had a notably low Cronbach's alpha of 0.59, representing poor internal consistency and suggesting that the items in this subscale may not be sufficiently consistent.

Table N°01: Reliability Coefficients of the Digital Literacy Scale and its Subscales

Scale	Cronbach's α	Number of Items
Digital Research Tools and Skills Subscale	0.81	14
Digital Engagement in Research Activities Subscale	0.69	7
Critical Thinking Practices Subscale	0.69	3
Digital Communication and Collaboration Subscale	0.59	6

Entire Scale	0.90	30
---------------------	-------------	-----------

Note. α = Cronbach's alpha.

4.2 Digital Literacy Dimensions

Table 2 summarizes the dimensions of the digital literacy scale. We presented descriptive statistics for each dimension, but additional details on the individual item means are referenced in the analysis to support our interpretation of the results. The score of 3.84 (SD = 1.12), demonstrating that learners are confident in their ability to collaborate online (M = 3.56, SD = 1.05), work on shared documents (M = 3.76, SD = 1.18), and manage access (M = 4.15, SD = .81) using platforms like WhatsApp and Telegram (M = 3.91, SD = 1.18) to communicate. However, their participation in online learning activities was moderate (M = 3.35, SD = 1.32), indicating a positive level of digital engagement, with a mean of 3.68 (SD = 1.14), with learners actively applying digital tools in research-related activities such as data collection and analysis (M = 3.76, SD = 1.81). However, the same participants displayed moderate ability to frame research questions (M = 3.59, SD = 1.04). The digital research tools and skills dimension scored a mean of 3.51 (SD = 1.14), reflecting moderate proficiency in basic research tools, such as word processing (M = 3.59, SD = 1.04), data analysis (Excel, SPSS) (M = 3.35, SD = 0.98), and cloud services (M = 3.03, SD = 1.05). Learners were more confident in accessing academic articles (M = 4.44, SD = 0.78) and formatting bibliographies (M = 3.96, SD = 1.12); still, they had limited skills in creating online forms (M = 3.10, SD = .18) and storing research links (M = 3.57, SD = 1.08). This suggests that learners' skills were moderate. Regarding critical thinking practices (M = 3.75, SD = 1.07), this reflects learners' awareness of academic honesty and their critical thinking abilities in the digital environment. Learners demonstrated high levels of awareness in evaluating the credibility of online sources (M = 4.07, SD = .96) and identifying copyright symbols (M = 3.91, SD = 1.01). Conversely, their academic involvement, including the use of plagiarism detection tools such as Turnitin (M = 3.24, SD = 1.19), was fair.

Table N°02: Digital Literacy Dimensions

	M	SD	Min	Max	Items	N
Digital Communication and Collaboration	3.84	1.12	3.35	4.14	7	68
Digital Research Tools and Skills	3.51	1.14	2.72	4.44	14	68
Digital Engagement in Research Activities	3.68	1.14	3.58	3.76	3	68
Critical Thinking Practices	3.75	1.07	3.23	4.07	6	68

Note. M = mean; SD = standard deviation; N = number of participants

4.3 Internal Consistency of the Critical Thinking Test 1

The computed overall Cronbach's alpha for their critical thinking performance (test 1) was 0.41, indicating poor internal consistency. The item-total correlations (Table 3) varied from 0.16 (Evaluation of Research Methodology) to 0.45 (Qualitative Research Design), as several items show weak correlations. Notably, the Cronbach's alpha if item deleted column proposes that removing the Qualitative Research Design exercise would lead to a substantial decrease in alpha (to 0.01), signifying it may not line up with the critical thinking test's construct. Conversely, removing other items like Credibility of Online Sources or Qualitative Data Analysis exercises would result in marginal improvements in the alpha, but still the overall reliability of the critical thinking test 1 remains low.

Table N°03: Internal Consistency of Test 1

	Item-Total Correlation	Cronbach's α if Item Deleted	Cronbach's α	Items
Qualitative Research Design	0.45	0.01	0.41	4
Credibility of Online Sources	0.25	0.39		
Evaluation of Research Methodology	0.16	0.48		
Qualitative Data Analysis	0.26	0.36		

Note. α = Cronbach's alpha.

4.4 Internal Consistency of the Critical Thinking Test 2

The results of the critical thinking (Test 2) demonstrate variability in the internal consistency and the strength of relationships between exercises and the overall test (Table 4). The Cronbach's Alpha for the entire test is 0.49, which signifies a poor internal reliability of the test. Cronbach's Alpha values if item deleted range from very low (0.35) for Evaluation of Research Problem exercise to relatively higher (0.52) for Research Subjects exercise, indicating that some exercises may not consistently measure critical thinking in this area. Item-total correlations also yield weak relationships, ranging from 0.08 to 0.50, which shows a low internal consistency for the test.

Table N°04: Internal Consistency of Test 2

	Item-Total Correlation	Cronbach's α if Item Deleted	Cronbach's α	Items
Research Design	0.26	0.46	0.49	6
Proper Use of Sources	0.22	0.46		
Database Search Engines	0.22	0.46		
Evaluation of Research Problem	0.40	0.35		

Research Subjects	0.08	0.52		
Refining a Research Question	0.50	0.39		

Note. α = Cronbach's alpha.

4.5 Critical Thinking Test 1

The average score of the critical thinking test1 was 1.94, signifying a moderate level of performance among students (Table 5). The highest score was 7.5, which was achieved in the Qualitative Research Design exercise. However, the Qualitative Data Analysis exercise had a mean score of 0.38, indicating that students struggled with applying critical thinking in this area. The Credibility of Online Sources (1.13), and Evaluation of Research Methodology exercises (2.45) indicated that students had challenges with these exercises, showing a lower level of critical thinking performance overall. The wide range in scores suggests significant variability in student performance, in that some demonstrating stronger critical thinking skills than others.

Table N°05: Results of Critical Thinking Test 1

	N	M	SD	Min	Max
Qualitative Research Design	68	1.94	1.54	0.00	7.5
Credibility of Online Sources	68	1.13	0.43	0.00	2.50
Evaluation of Research Methodology	68	2.45	1.59	0.00	6.00
Qualitative Data Analysis	68	0.38	0.63	0.00	1.50

Note. N = numbers of participants; M = mean; SD = standard deviation; Min = minimum; Max = maximum.

4.6 Critical Thinking Test 2

The average score for the second critical thinking test was approximately 1.85, with a maximum score of 5 (Table 6). The average suggests a moderate level of performance. However, there were observed variations across the exercises. The Research Design and Proper Use of Sources exercises had mean scores of 1.85 and 2.48, indicating moderate performance in these areas. On the other hand, exercises on Evaluating Research Problems (M = 2.26), Database Search Engines (M = 0.93), and Research Subjects (M = 1.68) exhibited some inconsistency in student performance. The lowest average score was for refining a Research Question (M = 0.66), which shows that this aspect was particularly challenging for learners.

Table N°06: Results of Critical Thinking Test 2

	N	M	SD	Min	Max
Research Design	68	1.85	1.38	0.00	5.00
Proper Use of Sources	68	2.48	0.65	0.00	3.0
Database Search Engines	68	0.93	0.71	0.00	3.00
Evaluation of Research Problem	68	2.26	1.33	0.00	5.0
Research Subjects	68	1.68	0.80	0.00	3.00

Refining a Research Question	68	0.66	0.54	0.00	2.00
------------------------------	----	------	------	------	------

Note. N = number of participants; M = mean; SD = standard deviation; Min = minimum; Max = maximum.

4.7 Correlation between Digital Literacy Dimensions and Critical Thinking Test 1

The Pearson correlation analysis revealed several significant associations between the variables. Qualitative Research Design exhibited a positive correlation with both the Credibility of Online Sources ($r = 0.25$, $p = 0.036$) and Qualitative Data Analysis ($r = 0.43$, $p = 0.001$). The Credibility of Online Sources was positively correlated with the Evaluation of Research Methodology ($r = 0.26$, $p = 0.011$) and Qualitative Data Analysis ($r = 0.45$, $p = 0.001$). Digital Communication and Collaboration exhibited a negative correlation with Qualitative Research Design ($r = -0.21$, $p = 0.017$), however, a positive correlation with Digital Engagement in Research Activities ($r = 0.60$, $p = 0.001$). Digital Research Tools and Skills exhibited a good association with both Digital Communication ($r = 0.73$, $p = 0.001$) and Digital Engagement ($r = 0.66$, $p = 0.001$). Critical Thinking Practices exhibited a positive correlation with both Digital Communication ($r = 0.60$, $p = 0.001$) and Digital Research Tools and Skills ($r = 0.62$, $p = 0.001$), while demonstrating a negative correlation with Evaluation of Research Methodology ($r = -0.29$, $p = 0.001$).

Table N°07: Correlation between Digital Literacy Dimensions and Critical Thinking Test 1

	Qualitative Research Design	Credibility of Online Sources	Evaluation of Research Methodology	Qualitative Data Analysis	Digital Communication and Collaboration	Digital Research Tools and Skills	Digital Engagement in Research Activities
Qualitative Research Design	1						
Credibility of Online Sources	0.25*	1					
Evaluation of Research Methodology	0.26*	0.01	1				
Qualitative Data Analysis	0.43**	0.45**	-0.11	1			
Digital Communication and Collaboration	-0.21	0.01	-0.03	-0.14	1		
Digital Research Tools and Skills	-0.17	0.10	-0.16	-0.00	0.73**	1	
Digital Engagement in Research Activities	-0.13	0.02	-0.13	0.00	0.60**	0.66**	1
Critical Thinking Practices	-0.23	0.05	-0.29*	0.00	0.60**	0.62**	0.61**

Note. *. The correlation is significant at the 0.05 level (two-tailed). **. The correlation is significant at the 0.01 level (two-tailed)

4.8 Correlation between Digital Literacy Dimensions and Critical Thinking Test

The Pearson correlation analysis reveals significant relationships between various digital literacy dimensions and critical thinking performance. Strong positive correlations were

observed between Digital Communication and Collaboration and Digital Research Tools and Skills ($r = 0.73$), as well as between Digital Research Tools and Skills and Digital Engagement in Research Activities ($r = 0.66$). Critical Thinking Practices as well showed positive correlations with both Digital Communication and Collaboration ($r = 0.60$) and Digital Research Tools and Skills ($r = 0.62$). Qualitative Research Design, on the other hand, exhibited weak negative correlations with digital research tools and skills ($r = -0.24$) as well as engagement ($r = -0.20$). Finally, Evaluation of Research Problem was positively correlated with Proper Use of Sources ($r = 0.37$). Overall, the results emphasize the interconnectedness of digital skills and research practices, though some variables, like Research Subjects, showed minimal correlations.

Table N°08: Correlation between Digital Literacy Dimensions and Critical Thinking Test 2

	Digital Communication and Collaboration	Digital Research Tools and Skills	Digital Engagement in Research Activities	Critical Thinking Practices	Qualitative Research Design	Proper Use of Sources	Database Search Engines	Evaluation of Research Problem	Research Subjects	Refining a Research Question
Digital Communication and Collaboration	1									
Digital Research Tools and Skills	0.73**	1								
Digital Engagement in Research Activities	0.60**	0.66**	1							
Critical Thinking Practices	0.60**	0.62**	0.61**	1						
Qualitative Research design	-0.09	-0.24*	-0.20	-0.13	1					
Proper Use of Sources	-0.05	-0.02	-0.09	0.10	0.16	1				
Database Search Engines	-0.06	0.01	0.10	0.09	0.06	0.04	1			
Evaluation of Research Problem	-0.24*	-0.17	-0.03	-0.09	0.22	0.37**	0.12	1		
Research Subjects	-0.14	-0.00	0.00	0.00	-0.12	0.02	0.09	-0.05	1	
Refining a Research Question	0.09	-0.00	0.10	0.08	0.03	-0.19	0.10	0.11	0.05	1

Note. *. The correlation is significant at the 0.05 level (two-tailed). **. The correlation is significant at the 0.01 level (two-tailed)

4.9 Correlation between Digital Literacy Dimensions and Critical Thinking Tests

After computing the individual item correlation, we now present the Pearson correlation between the digital literacy scale and critical thinking tests (Table 9). A moderate positive correlation of 0.32 ($p = 0.007$) was found between critical thinking test 1 and critical thinking test 2, indicating a statistically significant connection. Whereas, the correlations between critical thinking test1 and the digital literacy scale ($r = -0.16$, $p = 0.17$), and between critical thinking test 2 and the digital literacy scale ($r = -0.15$, $p = 0.20$), were weak and not statistically significant, signifying no reliable linear relationship between the test scores and the scale.

Table N°09: Correlation between Digital Literacy and Critical Thinking Tests

		Test1	Test2	Scale
Test 1	Pearson Correlations	1	0.32**	-0.16
	Sig. (2 tailed)		0.007	0.17

	N	68	68	68
Test 2	Pearson Correlations	0.32**	1	-0.15
	Sig. (2 tailed)	0.00		0.20
	N	68	68	68
Scale	Pearson Correlations	-0.16	-0.15	1
	Sig. (2 tailed)	0.17	0.20	
	N	68	68	68

Note. **. The correlation is significant at the 0.01 level (two-tailed)

5. Discussion

With regard to the digital literacy skills possessed by Master 2 learners in the Research Skills module, they demonstrated satisfactory digital communication and collaboration ($M = 3.84$). This reflects the collaborative nature of their studies, as they frequently communicate online with teachers, supervisors, and classmates. Such skills are also crucial for their dissertation work, especially considering that students often work in groups. Their media literacy was moderate, as indicated by their participation in online learning. This finding corresponds with the results of Haryanto et al. (2022) and Pritika et al. (2020), who observed similar trends. However, because digital literacy develops through practice, learners still need to regularly apply these digital literacy skills as part of their academic engagement (Indah et al., 2022), which highlights the need to enhance media literacy through increased motivation and engagement on digital platforms. By supporting EFL students in developing their research skills through regular online instruction, their awareness of the critical importance of using digital tools and platforms would be raised. As Indah et al. (2022) suggest, this increased awareness could significantly impact the meaningful use of information technology.

While they exhibited favourable digital engagement in research activities ($M = 3.68$), learners demonstrated a moderate ability to formulate research questions ($M = 3.59$, $SD = 1.04$). This reflects the need for additional instruction in this area. The findings also reveal a moderate level of competence with fundamental research tools ($M = 3.51$), including word processing, cloud services, and data analysis (Excel, SPSS). The findings are similar to those of Indah et al. (2022), who noted that not all EFL students in their study possessed sufficient information technology knowledge and skills. As emphasized by Haryanto et al. (2022) and Pritika et al. (2020), improving computer and information literacy remains a priority in light of the current state of online and onsite learning (Indah et al., 2022). Learners also demonstrated satisfactory critical thinking skills ($M = 3.75$), still additional training in academic engagement, particularly in the use of plagiarism detection tools, is essential for their future success, as highlighted by Chen (2015).

The exploratory tests for critical thinking showed low internal consistency, with Test 1 ($\alpha = 0.41$) and Test 2 ($\alpha = 0.49$). This means that some parts of critical thinking in research may need to be improved to better measure the skills they are intended to measure and make the tests more reliable. When evaluating research questions for qualitative methods, checking how reliable online sources are for literature reviews, figuring out what makes a source credible, analysing a methodology excerpt to determine its strength, and evaluate if the sample is appropriate, along with describing and justifying ways to analyse qualitative data, poor

correlations were found, with values between $r = 0.16$ and $r = 0.45$. The second test, which measured understanding of research design, plagiarism, and the clarity of research problems, also revealed weak correlations ($r = 0.08$ to $r = 0.50$). Critical thinking is a complex construct, potentially leading to variability in internal consistency, as certain dimensions of critical thinking are challenging to measure consistently in assessments, especially since these evaluations depend on open-ended questions that promote thorough contemplation rather than mere factual recall (Facione, 1990; 2015). Moreover, Popham (2011) notes that classroom-based assessments are generally crafted with particular learning objectives and are often less formal than standardised tests, which may account for their diminished reliability. Nonetheless, these assessments remain significant for formative evaluation, particularly in assessing intricate skills such as critical thinking.

In addition, Hair et al. (2010) stress that a Cronbach's alpha value of 0.70 is typically regarded as the benchmark for reliability, although values as low as 0.60 may be permissible in exploratory research. Allen et al. (2004) found low reliability in critical thinking assessments, arguing that performance is influenced not only by the potential for bias (via heuristic reasoning) but also by the learner's possession of essential cognitive skills, including rules and logical reasoning. This illustrates the intrinsic difficulties associated with assessing critical thinking through open-ended questions. According to Tavakol and Dennick (2011), a low Cronbach's alpha can result from using a relatively small number of test items or from characteristics of the specific sample of test-takers. In this study, both tests consisted of only 10 open-ended tasks, and the sample size was relatively small ($n = 68$), which may have contributed to the low alpha values. This sample size was smaller compared to other studies (Abdelhalim, 2024; Amin et al., 2021; Indah et al., 2022), which could have made the results less reliable, as Allen et al. (2004) suggest. Based on their research, larger and more diverse samples are essential to ensure the reliability and generalizability of critical thinking assessments.

Learners' utilization of critical thinking skills in academic research, particularly in analysing, evaluating, and synthesizing information through real-world scenarios, ranged from low to moderate. This can be summarized as follows: Using academic search engines ($M = 0.93$), evaluating the reliability of online sources for literature reviews by identifying factors influencing source credibility ($M = 1.13$), applying appropriate sampling techniques ($M = 1.68$), identifying the most suitable research design for a given scenario with well-supported arguments ($M = 1.85$), assessing the appropriateness of research questions for qualitative methods and suggesting suitable techniques along with potential limitations ($M = 1.94$), describing and justifying methods for analysing qualitative data ($M = 1.94$), assessing the clarity and relevance of a research problem statement ($M = 2.26$), analysing methodology excerpts to determine their effectiveness in answering research questions ($M = 2.45$), and comparing sources to assess proper citation and plagiarism awareness ($M = 2.48$). It is pertinent to note that this finding is opposed to the qualities of a good critical thinker outlined in relevant studies (E.g., Ennis, 1996; European School Education Platform, 2024; Haryanto et al., 2022; Paul & Elder, 2006; Tinnaz et al., 2023). While the exercises involving the Qualitative Research Design, Research Design, Proper Use of Sources, Problem Evaluation, and Research Methodology section were generally satisfactory, reflecting fair levels of critical thinking in these areas, learners' performance in Qualitative Data Analysis, assessing the Credibility of

Online Sources, navigating Database Search Engines, Research Subjects and Research Questions showed lower levels of critical thinking performance. This variability in the scores between tests 1 and 2 indicates that learners struggled to apply critical thinking to these exercises unlike what they reported. Learners did not really use their critical thinking in these research-related activities, which can be explicated by the finding of Indah et al. (2022) in that developing critical thinking in research-related activities is challenging

The results disclose a fair positive correlation between the critical thinking tests ($r = 0.32$, $p = .007$). By the same token, the correlations between critical thinking test 1 and the digital literacy scale ($r = -0.16$, $p = 0.17$) and between critical thinking test 2 and the digital literacy scale ($r = -0.15$, $p = 0.20$) were weak and insignificant. A positive correlation was obtained between Qualitative Research Design and the Credibility of Online Sources ($r = 0.25$, $p = 0.036$), as well as with Qualitative Data Analysis ($r = 0.43$, $p = 0.001$). This suggests that the ability to evaluate online sources and data analysis fosters students' awareness of research design suitability. Likewise, Digital Communication and Collaboration exhibited a significant positive correlation with Digital Engagement in Research Activities ($r = 0.60$, $p = 0.001$), revealing that online communicate skills facilitate digital engagement. Digital Research Tools and Skills exhibited a positive correlation with both Digital Communication ($r = 0.73$, $p = 0.001$) and Digital Engagement ($r = 0.66$, $p = 0.001$), stressing the rapport between digital tools and communication. Critical Thinking Practices correlated positively with both Digital Communication ($r = 0.60$, $p = 0.001$) and Digital Research Tools and Skills ($r = 0.62$, $p = 0.001$). This advocates the significant role of digital skills in fostering critical thinking. On the contrary, negative correlations were identified: Qualitative Research Design exhibited a negative correlation with Digital Research Tools and Skills ($r = -0.24$), and Digital Communication and Collaboration showed a negative correlation with Qualitative Research Design ($r = -0.21$, $p = 0.017$). Critical Thinking Practices demonstrated a negative association with the Evaluation of Research Methodology ($r = -0.29$, $p = 0.001$), suggesting that critical thinking does not necessarily assist in evaluating research methodology sections. The current findings contradict with Abdelhalim (2024) who demonstrated a high degree of critical digital learning practices among EFL undergraduates, which may be justified by digital natives' unawareness of applying fundamental critical digital literacy skills in research.

These findings support previous studies (Abdelhalim, 2024; Indah et al., 2022; Salimi et al., 2023), which indicated that components of digital literacy do not serve as predictors of critical thinking. It is pertinent to integrate research-based learning activities and online projects, as Bougherara and Khaldi, 2021; Paronyan and Ayunts, 2025 stressed, that encompass diverse facets of digital literacy, while emphasizing critical thinking, within the research skills module by engaging student in open-ended questions instead of simple recall of facts. This method helps students become more aware and learn skills like information literacy, creative thinking, and online collaboration and communication, especially when they are doing tasks that require analysis, synthesis, evaluation, and academic engagement. The present findings show the interconnection between digital literacy dimensions and critical thinking components in research. Further research could deepen our understanding of how these digital and cognitive skills shape modern research, along with how digital literacy can influence research engagement and methodology evaluation among students.

6. Conclusion and Recommendations

Throughout this correlational, quantitative investigation, we attempted to study the relationship between digital literacy and critical thinking among 68 Master 2 learners specialising in Didactics of Foreign Languages at the English Department of Blida 2 University, Algeria. Utilising an online digital literacy survey and exploratory critical thinking tests, it was noted that the students exhibited moderate digital literacy in several areas, including digital communication and collaboration, critical thinking practices, digital engagement in research activities, and the application of digital research tools. Learners' critical thinking skills in academic research vary from low to moderate; and applying critical thinking in these tasks was difficult. This indicates that learners did not effectively employ critical thinking in these research-related tasks. The findings further indicate that digital literacy does not serve as a predictor of critical thinking within the Research Skills module, supporting prior studies (Abdelhalim, 2024; Indah et al., 2022; Salimi et al., 2023). The evolution of digital technology and platforms has made the imperative for both teachers and students to attain digital literacy increasingly clear (Bilouk 2025). This is especially vital in the context of globalisation, as students must develop into proficient digital critical thinkers who can employ technology effectively and productively to attain diverse learning goals. Digital literacy is also a critical skill for students, particularly when working on their dissertations, as it is often considered a prerequisite for graduation. EFL Master's learners specializing in the Didactics of Foreign Languages should be proficient in searching, accessing, selecting, organizing, and evaluating information from various digital sources. These skills are crucial for achieving both learning and research objectives and are essential for becoming effective digital citizens. Thereupon, EFL teachers need to integrate critical thinking into their teaching practice, as recommended by Hamouma (2026). Cultivating critical thinking in Research Skills modules can be achieved by designing online learning activities that enhance creativity, digital collaboration, assessment, and synthesis. The study indicated that learners found it especially difficult to refine research questions and assess problem statements. Consequently, educators ought to dedicate additional time to digitally engaging students in evaluative tasks to improve their capacity for critical analysis prior to developing their own viewpoints, thereby fostering deeper learning beyond superficial comprehension. Moreover, prompting students to scrutinize the sources of Internet materials, attribute these sources, and verify for plagiarism can substantially improve their ethical and critical thinking abilities. As digital literacy becomes more prioritized in education, recognized as a hallmark of lifelong learning (Tinnaz et al., 2023), teachers should then integrate digital platforms to enhance learners' digital literacy skills. This would enhance learning, simplify teaching, and empower learners to apply material in innovative ways, analyse it, and substantiate their work. In this regard, Khurliman (2025) found that integrating digital platforms into EFL instruction enhances learners' analytical skills, language proficiency, and intercultural awareness.

Limitations

The exploratory critical thinking tests provide valuable insights into assessing various dimensions of research-based critical thinking, reflecting aspects of Bloom's Taxonomy (1956), Ennis' (1996) and Paul and Elder's (2006) theoretical frameworks. However, the tests exhibit poor internal consistency in their current form, limiting their reliability as standalone measures. Future research could refine these instruments through factor analysis, item revision, and piloting, creating a more robust tool for assessing Algerian EFL learners' critical thinking in research contexts. Likewise, interventions could include structured training in critical thinking strategies, guided analysis of research articles, and integration of digital tools to support analytical reasoning. Other limitations include the convenience sampling of Master's students in a single university, which may restrict the generalizability of results, and the potential influence of the researcher serving as instructor, despite anonymization and coding of participant responses.

References

- Abdelhalim, S. M. (2024). Critical digital literacy and the dynamics of English language learning practices: Saudi perspectives. *3L: The Southeast Asian Journal of English Language Studies*, 30(4), 306–324. <https://doi.org/10.17576/3L-2024-3004-21>
- Allen, G. D., Rubenfeld, M. G., & Scheffer, B. K. (2004). Reliability of assessment of critical thinking. *Journal of Professional Nursing*, 20(1), 15–22. <https://doi.org/10.1016/j.profnurs.2003.12.004>
- Amin, H., Malik, M., & Akkaya, B. (2021). Development and validation of Digital Literacy Scale (DLS) and its implication for higher education. *International Journal of Distance Education and E-Learning*, 7(1), 24–44. <https://doi.org/10.36261/ijdeel.v7i1.2224>
- Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York: Longman.
- Bashear, U., Israel, N., & Naaz, S. (2024). The importance, initiatives, and challenges. *International Research Journal of Modernization in Engineering Technology and Science*, 6(5), 6218–6223.
- Bilouk, I. (2025). Towards understanding new digital-based reading practices in higher education institutions. *Journal of Studies in Language, Culture, and Society (JSLCS)*, 8(2), 307–321.
- Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). *Taxonomy of educational objectives: The classification of educational goals. Vol. Handbook I: Cognitive domain*. David McKay Company.
- Bougherara, R., & Khaldi, K. (2021). Investigating the role of multimodality in promoting Algerian EFL students' critical thinking skills case study: Third year EFL students at Biskra university. *Revue Traduction et Langues*, 20(2), 149–164.
- Brookfield, S. D. (2012). *Teaching for critical thinking: Tools and techniques to help students question their assumptions*. San Francisco: Jossey-Bass.

- Chen, A. (2015). The 9 C's of digital literacy. *Alice in Wonder Tech*. <http://wondertechedu.blogspot.com/2015/02/the-9-cs-of-digital-literacy.html>
- Clifford, I., Kluzer, S., Troia, S., Jakobsone, M., & Zandbergs, U. (2020). *DigCompSAT: A self-reflection tool for the European Digital Competence Framework for Citizens (JRC123226)*. Publications Office of the European Union. <https://doi.org/10.2760/77437>
- Ennis, R. H. (1996). Critical thinking dispositions: Their nature and assessability. *Informal Logic*, 18(2), 165-182. <https://doi.org/10.22329/il.v18i2.2378>
- European School Education Platform. (2024, January 19). Critical thinking: A life skill in the internet era. *European Commission*. <https://school-education.ec.europa.eu/en/discover/news/critical-thinking-life-skill-internet-era>
- Facione, P. A. (1990). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction (The Delphi Report)*. American Philosophical Association.
- Facione, P. A. (2015). *Critical thinking: What it is and why it counts*. Millbrae, CA: Insight Assessment.
- Fadhloune, A., & Madoui, M. (2024). Media literacy educational concerns in Algeria: What does the national curriculum offer to shield and empower digital native generation? *The Journal of El-Ryssala for Media Studies*, 8(2), 45–55
- Fischer, A. (2011). *Critical thinking: An introduction*. Cambridge: Cambridge University Press.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis*. Pearson College Division.
- Hamouma, A. (2026). The application of critical thinking in EFL classrooms of first-year EFL master students. *Journal of English Language Teaching*, 15(2), 45–60. <https://asjp.cerist.dz/en/article/287413>
- Haryanto, H., Ghufon, A., Suyantiningsih, S., & Kumala, F. N. (2022). The correlation between digital literacy and parents' roles towards elementary school students' critical thinking. *Cypriot Journal of Educational Sciences*, 17(3), 828–839. <https://doi.org/10.18844/cjes.v17i3.6890>
- Hunter, D. A. (2014). *A practical guide to critical thinking: Deciding what to do and believe*. Hoboken, NJ: Wiley & Sons.
- Indah, R., Toyyibah, T., Budhiningrum, A., & Afifi, N. (2022). The research competence, critical thinking skills, and digital literacy of Indonesian EFL students. *Journal of Language Teaching and Research*, 13(2), 315–324. <https://doi.org/10.17507/jltr.1302.11>
- Kerma, M. (2025). The impact of artificial intelligence on Algerian learners' critical thinking. *ATRAS*, 6(1), 125–136.
- Khurliman, A. (2025). Integrating critical thinking into English language learning through an interactive online platform. *European Journal of Research and Reflection in Educational Sciences*, 13(4), 42–48.

- Paronyan, S., & Ayunts, A. (2025). Collaborative online international learning (COIL) for multicultural development: Pedagogical strategies and outcomes. *Revue Traduction et Langues*, 24(1), 60–76
- Paul, R. (1993). *Critical thinking: What every person needs to survive in a rapidly changing world* (3rd Ed.). Sonoma, CA: Sonoma State University Press.
- Paul, R., & Elder, L. (2006). *Critical thinking tools for taking charge of your learning and your life*. Upper Saddle River, NJ: Prentice Hall Publishing.
- Pegalajar-Palomino, M. D. C., & Rodríguez Torres, A. F. (2023). Digital literacy in university students of education degrees in Ecuador. *Frontiers in Education*, 8, Article 1299059. <https://doi.org/10.3389/feduc.2023.1299059>
- Popham, W. James. (2011). *Classroom assessment: What teachers need to know* (7th Ed.). Pearson.
- Pritika, R., Bibhya, S., & Kaulash, C. (2020). Digital literacy: A review of literature. *International Journal of Techno ethics*, 11(2), 65-94.
- Rahayu, S., Isnaeni, W., & Masturi, M. (2022). Critical thinking skills and digital literacy of high school students in science learning using e-learning with STEM vision. *Journal of Innovative Science Education*, 11(3), 347–361. <https://doi.org/10.15294/jise.v11i1.57281>
- Salimi, M., Gunarhadi, H., Hidayah, R., & Nugraha, D. A. (Eds.) (2023). Peer-review statements. In M. Salimi, H. Gunarhadi, R. Hidayah, & D. A. Nugraha (Eds.), *Proceedings of the 6th International Conference on Learning Innovation and Quality Education (ICLIQE 2022) (Advances in Social Science, Education and Humanities Research, Vol.767, pp.1-3)*. Atlantis Press. https://doi.org/10.2991/978-2-38476-114-2_43
- Sarnou, D. (2024). Beyond access: Empowering Algerian students in online learning through digital literacy and apedagogy of abundance. *EDUTREND*, 1(2), 76-91. <https://doi.org/10.59110/edutrend.324>
- Tavakol M., & Dennick R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53-55. <https://doi.org/10.5116/ijme.4dfb.8dfd>
- Tinnaz, H., Fanea-Ivanovici, M., & Baber, H. (2023). A snapshot of digital literacy. *Library Hi Tech News*, 40(1), 1–6. <https://doi.org/10.1108/LHTN-12-2021-0095>