

People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
Mohamed Boudhief University, M'sila

**Faculty of Letters
and Languages
Department of
Foreign Languages**
N°:.....



**Domain: Foreign
Languages
Stream: English Language
Option: Didactics and
Applied languages**

Examining the Relationship Between EFL Students' Self-Regulated Learning and Digital Literacy in Online Master's Programs. The case of Online Master's Students at M'sila University.

Dissertation Submitted to the Department of English in a Partial Fulfilment of the Requirements for the Degree of Master in Didactics and Applied languages.

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ACADEMIC YEAR: 2024/ 2025

Dedication:

All thanks and praises are to Allah, the most graceful, the most compassionate, the Almighty, who gave us strength to carry out this work.

This dissertation is respectfully dedicated to our esteemed families, whose endless support facilitated this academic journey ; to our distinguished mentor, whose intellectual rigor and perspicacious guidance propelled our academic inquiry toward greater theoretical depth and methodological precision; and to all colleagues and interlocutors whose substantive discourse and constructive critique have been instrumental in refining the epistemological framework herein presented. Their contributions to the cultivation of conducive scholarly environment and their patience during periods of conceptual uncertainty have proven vital to the fruition of this work. This manuscript stands as a testament to the efficacy of collaborative intellectual engagement and the profound significance of an academic community that nurtures both rigorous inquiry and scholarly resilience.

AMEL OUCHENE

TITRAOUI CHAIMA

Acknowledgements:

We offer our sincere thanks to our supervisor, Dr. Hamoudi Aboubaker, whose expert guidance, continuous support, and valuable insights have been essential to completing this work. His patience, encouragement, and thoughtful feedback have enhanced our academic growth, inspiring us to explore new intellectual areas and carefully develop our ideas.

We also thank our respected teachers: (Pr. Bouazid. T), (Dr. Touati.M,) (Ms. Belkhouja .I.) and (Chriet.I.) Whose excellent teaching and mentorship have greatly shaped our academic enhancement, their educational expertise and scholarly standards have significantly influenced our research approach and theoretical understanding throughout this project.

Abstract

This quantitative study examines the relationship between Self-Regulated Learning (SRL) and Digital Literacy (DL) among English as Foreign Language (EFL) students in online learning program at department of English. The research involved 30 second-year Master's participants from the Didactics and Applied Languages program at Mohamed Boudiaf University, M'sila, Algeria, representing 50% of the total population .Data collection employed two validated questionnaires: the Online Self-Regulated Learning Questionnaire (**OSLQ**) and the Digital Literacy Questionnaire for Language Learners (**DLQ-LL**). The study addressed three research questions examine students' SRL levels, DL proficiency, and the correlation between these variables. Statistical analysis revealed a significant positive correlation between participants' self-regulated learning capabilities and digital literacy competencies in which the significance value is **0,048**, confirms the alternative hypothesis (H1). Students with higher self-regulation skills demonstrated correspondingly enhanced digital literacy proficiency. The findings address a gap in literature and provide empirical evidence for the interconnected nature of SRL and DL. Results offer valuable insights for curriculum development, assessment improvement, and support system improvement for online EFL students, inform educational practitioners to develop effective strategies that simultaneously foster both competencies.

Keywords: self-regulated learning, Digital Literacy, Online Learning, EFL Learners

List of Abbreviations

- 1- **SRL**: Self-Regulated Learning.
- 2- **DL**: Digital Literacy.
- 3- **OL**: On Line Learning
- 4- **EFL**: English as a Foreign Language.
- 5- **ELL**: English Language Learning.
- 6- **OLSQ**: The Online Self-Regulated Learning Questionnaire
- 7- **DLQ-LL**: Digital Literacy Questionnaire – Language Learners (DLQ-LL).
- 8- **D-Tech**: Digital Technology.
- 9- **LL**: Language Learning

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¹ General Introduction

1.1 Background and the Research Project

Online education has accelerated significantly over the last recent years. COVID-19 Pandemic as a global event has highlighted the need for learners to independently navigate digital learning platforms which now have adopted worldwide in higher education. Algeria's higher educational system has increasingly embraced online learning in post-pandemic era, this learning environment presents unique challenges that expand beyond language acquisition to include digital navigation and self-assessment skills.

The rapid advancement of technology has fundamentally transformed 21st century students who are continuously exposed to digital environments. These students readily adapt to new technologies, considering them a normal aspect of their lives (Oblinger, D. G., & Hawkins, B. L., 2006)). The proliferation of online education has significantly expanded learning opportunities while simultaneously increasing responsibilities for both students and instructors. As Beldarrain (2006) observes, technological innovations have redefined the roles of learners and instructors due to the emergence of new tools employed in online educational contexts.

Interest in online learning has grown substantially in recent years because it offers learners flexibility in scheduling and more affordable access to education (Howell, S. L., Williams, P. B., & Lindsay, N. K., 2003). Students from diverse backgrounds now benefit from extensive and cost-effective online learning options previously unavailable to them (Rovai, A. P., & Downey, J. R., 2010).

Research indicates that Self-Regulated learning (SRL) encompassing planning, goal setting, and self-assessment and Digital Literacy (DL) including critical evaluation of online resources, tool navigation are critical factors for academic success in virtual environment. However, while numerous studies have explored either SRL or DL independently; there remains a gap in understanding this interconnection particularly among English as Foreign Language (EFL) learners in non-western countries such as Algeria.

M'sila University in Algeria has implemented online Master's programs for EFL students, creating an opportunity to investigate how students SRL capabilities interact with their DL levels in this specific education. Students in this program face the triple challenge of mastering advanced academic content using non-native language and navigating digital learning environment simultaneously. Understanding how SRL and DL interact and correlate could provide a valuable insight for improving curriculum design, student support services and learning outcomes in Online EFL Master's programs.

1.2 Statement of the problem:

Although many studies and researches have separately examined SRL and DL, there is still a limited understanding of how these areas connect, especially in educational setting in Arab countries and particularly for EFL students pursuing their postgraduate studies, who face multi-challenges as mastering academic materials, using non-native language and navigating digital learning platforms.

Exploring the relationship between SRL and DL, which is the main objective of the current study, could provide important insights, to reduce the mentioned challenges as well as improving the curriculum and helping the online students to obtain better outcomes.

1.3 Research Objectives/Rationale of the Study

The current study investigates the relationship between self-regulated learning (SRL) and digital literacy (DL) among English as Foreign Language (EFL) students who pursue online master's programs within Arab educational contexts. The research addresses a significant gap in understanding how these two critical competencies intersect and mutually influence each other in digital learning settings, particularly within Algerian universities.

By examining this intersection, the study aims to identify the mechanisms and strategies through which SRL and DL interact to impact learning processes and academic performance,

primarily seeking to ameliorate educational outcomes for postgraduate EFL students navigating the challenges of online learning. Moreover, conducting an extensive literature review to establish theoretical foundations for both SRL and DL, examining empirical correlations between SRL strategies and DL competencies among the target population, and investigating how varying levels of digital literacy influence students' effectiveness of self-regulated learning strategies. Additionally, the research aims to analyse the specific challenges encountered by Arab EFL students when implementing SRL approaches within digital learning environments, while ultimately providing evidence-based recommendations for educational stakeholders, curriculum designers, and policymakers to optimize online learning experiences for the coming generations.

1.4 Significance of the study

Nowadays, the majority of the world's educational systems focus on online learning and teaching. Therefore, this study has a vital function and makes valuable contributions. First, it addresses a gap in the literature on Algerian higher education. Second, it establishes focused interventions to improve SRL and DL capacities. Third, it updates and improves the curriculum and evaluation methods, and it provides stronger support systems for online EFL students.

1.5 Research Questions and Hypothesis

The following questions guided the current study which examines the interrelation between Self-Regulated Learning and Digital Literacy among EFL students in Masters' Online Program at Mohamed Boudiaf , Msila University.

Main Question: Is there a statistically significant correlation between EFL students' levels of **SRL** and their **DL**?

In order to answer this question, two sub questions are formulated:

Sub-Question 1: What are EFL students' levels of **SRL** in Masters online program at Msila University?

Sub-Question 2: What are EFL students' levels of **DL** in Masters Online program at Msila University?

To answer the main question the following hypotheses are formulated

- ✓ **Null Hypothesis (H₀):** There is no statistically significant correlation between the EFL students' levels of SRL and their DL.
- ✓ **Alternative Hypothesis (H₁):** There might be statistically significant correlation between the EFL students' levels of SRL and their DL.

1.6 Previous Studies:

For effective online learning, self-regulation (SR) emerges as a crucial factor. Numerous studies have addressed this topic based on different theoretical frameworks. Zimmerman's (Zimmerman, Attaining self-regulation: A social cognitive perspective., 2000) Cyclical Model of Self-Regulated Learning (SRL) is structured around three phases functioning cyclically: Forethought, Performance, and Self-reflection. The outcomes of each phase provide feedback for subsequent learning cycles, helping students develop independent learning skills in digital contexts.

Pintrich (2000) introduced his Motivation-based Model of SRL, integrating four phases (Forethought, Planning and Activation, Monitoring Control and Reaction and Reflection) with four areas of regulation (Cognition, Motivation, Behaviour, and Context). Winne and Hadwin (1998) developed a four-stage model emphasizing cognitive and meta-cognitive processes: Task Definition, Goal Setting, Strategy Enactment, and Meta-cognitive Adaptation.

Regarding Digital Literacy (DL), Ng's (2012) framework categorizes it into three key dimensions: Technical, Cognitive, and Social-emotional. Belshaw's study described eight essential elements of DL: Cognitive, Constructive, Communicative, Civic, Critical, Creative, Confident, and Cultural ones. His descriptive approach makes it adaptable across different contexts and suitable for learners with varying levels of digital fluency. Moore (The theory of transactional distance, 2013)

introduced his theory of Transactional Distance, conceptualizing the psychological gap between instructors and learners in distance education, with implications for understanding self-regulation in online environments.

Despite extensive research, most studies have focused on either SRL or DL in isolation, rarely examining their interconnection. Existing research has predominantly targeted undergraduate learners or non-academic digital contexts, with minimal investigation into how these constructs manifest among postgraduate students. This gap is particularly pronounced in research concerning Arab-world postgraduate students, presenting an opportunity to explore how self-regulated learning and digital literacy interact to influence academic success in this specific cultural and educational context.

1.7 Methodology

Correlation Research design was used in this study to find out the interrelation between the two variables (SRL and DL) and quantitative research method is used to collect data in this study as an effective way to measure the EFL students' levels in both Self-regulated learning and digital literacy and find out if they are interrelated or not.

A sample 50% is taken as the whole population number is too small (Master Didactics One Line Second year = 65 students.) that represents thirty (30) students, who are chosen randomly, through simple random sampling, to represent the whole population, as well as to ensure objectivity and unbiased findings.

The study was explained to the participants, and conducted at the University of Mohamed Boudiaf, M'sila via Online platforms. Two questionnaires OSLQ and DLQ-LL were chosen and cited to test and measure the levels of DL and SRL then shared in online group of Master two EFL students.

The Online Self-Regulated Learning Questionnaire (**OSLQ**) was developed by Barnard et al. in 2009 (Barnard, 2009) as a measurement tool to assess students' self-regulation skills specifically in online and blended learning environments. The OSLQ is a 24-item self-report instrument designed to measure six dimensions of self-regulated learning in online contexts.

Digital Literacy Questionnaire – Language Learners (**DLQ-LL**) developed by Jeong-Bae Son (Son, J. B., Park, S. S., & Park, M., 2017), it is designed to measure DL skills and use of digital technologies among language learners. The DL questionnaire is built on five sections.

1.8 Definition of key Terminology:

Self-regulated Learning is one of the domains of self-regulation, and is aligned most closely with educational aims. It refers to learning that is guided by meta-cognition strategic action (planning, monitoring, and evaluating personal progress against a standard), and motivation to learn. A self-regulated learner "monitors, directs, and regulates actions toward goals of information acquisition, expanding expertise, and self-improvement". (Burman, Jeremy T.; Green, Christopher D.; Shanker, Stuart, september 2015, pp. 1507–1521.).

Digital Literacy is the individual's ability to find, evaluate, and communicate information using digital media platforms. Digital literacy combines technical and cognitive abilities; it consists of using information and communication technologies to create, evaluate, and share information, (Kietzmann, Jan H.; Hermkens, Kristopher, 2011) or critically examining the social and political impacts of information and communication technologies (Obar, Jonathan A.; Wildman, Steve , 2015) Digital literacy initially focused on digital skills and stand-alone computers, but the advent of the internet and social media use has shifted some of its focus to mobile devices. (Matthew, 2022)

Online Learning is learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, laptops, etc.) with internet access. In these environments, students can be anywhere (independent) to learn and interact with instructors. In other words, a term

to describe an emerging approach to learn at students' own premise through advanced information-communication technologies (such as Blackboard, Moodle, YouTube, Virtual Reality) (Singh, V., & Thurman, A., 2019).

EFL: abbreviation for English as a Foreign Language .Teaching English to students whose first language is not English.(*Definition of EFL from the Cambridge Learner's Dictionary* © Cambridge University Press). **EFL learners** are individuals who are learning English as a foreign language, meaning they are studying English in a country where English is not the primary language.

² **Chapter one:**

Self-Regulation Learning,

Digital Literacy and

Online Learning

Introduction:

This chapter provides a comprehensive literature review examine the theoretical foundations, empirical research, and practical implications of three interconnected concepts central to this study: self-regulated learning, digital literacy, and online learning environments. The convergence of these domains creates a robust theoretical framework essential for understanding how contemporary learners can be equipped to succeed in complex, technology-mediated educational contexts. This integration holds particular promise for supporting academic achievement among all student populations.

2.1 Self -Regulated Learning

2.1.1 Definition of Self-regulated Learning (SRL)

Self-regulated learning (SRL) has evolved considerably within educational psychology over recent decades, progressing from Zimmerman and Schunk's (1989) foundational conceptualization of managing thoughts, emotions, and actions toward personal goals to increasingly sophisticated theoretical frameworks. Contemporary scholarship defines SRL as a cyclical, adaptive process where learners actively establish objectives, monitor their progress, and strategically adjust their approaches based on performance feedback (Zimmerman, 2000).

This multifaceted construct encompasses not merely cognitive self-management but also motivational and autonomy dimensions, transforming students into "active participants in their own learning process" (Zimmerman, 2008, p. 167). Pintrich (2000, p. 451) conceptualizes SRL as "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behaviour," emphasizing its deliberate, judgmental, and adaptive nature that incorporates both contextual factors and personal experience (Paris, S. G., Byrnes, J. P., & Paris, A. H., 2001). Through this comprehensive framework, SRL empowers students to effectively pursue academic and personal objectives (Perry,

N. E., Phillips, L., & Hutchinson, L. , 2006) , enabling them to transcend traditional grade-level expectations and developmental constraints (Garrido-Vargas M. , 2012). Fundamentally, SRL represents a transformative, self-directed process that converts inherent mental abilities into task-specific academic skills (Zimmerman, 2015), positioning learners as autonomous agents capable of orchestrating their educational experiences.

Self-regulated learning (SRL) encompasses monitoring and integrating knowledge, motivation, and autonomy to achieve learning objectives. It represents the capacity to exceed established educational benchmarks for respective age groups and grade levels, while acknowledging that both experiential and contextual factors significantly influence its development. Fundamentally, SRL promotes students' independence in pursuing both educational and broader life goals. (Boekaerts M. , 1996).

In summary, as articulated by Zimmerman (1990), comprehensive definitions of self-regulated learning encompass three essential features: the implementation of self-regulated learning strategies, responsiveness to self-oriented feedback regarding learning effectiveness, and interdependent motivational processes. Self-regulated students deliberately select and deploy appropriate learning strategies to achieve desired academic outcomes, demonstrating the fundamental characteristics of effective self-regulation in educational contexts.

2.1.2 Models of Self-regulated Learning:

Self-regulated learning (SRL) is a key concept of learning psychology, especially in research related to learning strategies, providing a foundational framework for understanding the cognitive, motivational, and emotional aspects of learning. The concept of self-regulation (SR) first appeared in educational literature in the 1960s, broadly referring to the actions individuals take to achieve their goals. The specific phrase "self-regulated learning" was coined in the 1980s to describe the key behaviours that learners undertake to fulfil academic or learning objectives. (Diaz, R. M., Neal, C. J., & Amaya-Williams, M., 1990)

SR is closely associated with Bandura's social cognitive theory (1986, 2001), which posits that human actions are guided and controlled by self-influencing or self-regulatory mechanisms. The exploration of self-regulation can be traced back to Bandura's social cognitive theory (1997). Zimmerman was the pioneer who introduced the term SRL in Contemporary Educational Psychology in 1986. Since that time, researchers in educational psychology have investigated SRL from various viewpoints.

As noted by Zimmerman and Schunk (1989) and (1994), self-regulated learning takes place when learners proactively establish their own learning objectives and consistently monitor, adjust, and assess their cognition, motivation, emotions, behaviours, and surroundings to meet these objectives. While definitions may differ, they consistently highlight the vital role of learners' initiative and goal-setting in the SRL process. There were six models of self-regulated learning which developed different leaders; each leader organized his model with different phases:

2.1.2.1 Zimmerman's Cyclical Phases Model

Zimmerman was among the initial authors on self-regulated learning (SRL). Zimmerman's (2000) model outlines self-regulated learning as a **cyclical process** comprising three phases: forethought, performance, and self-reflection. The forethought phase involves task analysis, such as goal-setting and strategic planning. The performance phase includes self-control strategies such as imagery, self-consequences, time management. The self-reflection phase consists of self-judgement and self-reaction. (Panadero, A review of self-regulated learning: Six models and four directions for research., 2017)

Zimmerman, one of the most influential SRL theorists and first authors in this concept, (Zimmerman, 1986) has created three distinct models of self-regulated learning (Panadero, E., & Alonso-Tapia, J, 2014). His first model (**Figure 1**), **the Triadic Analysis of SRL**, illustrates the interaction between three SRL dimensions: environment, behaviour, and person level (Zimmerman, 1989). This model conceptualizes SRL within Bandura's triadic social-cognition Framework. His

second model commonly referred to as Zimmerman's model **or the Cyclical Phases of SRL**, and explains how meta-cognitive and motivational processes interrelate at the individual level. While initially presented in a 2000 handbook chapter, the sub-processes for each phase weren't incorporated into the figure until 2003, (Zimmerman, B. J., & Campillo, M, 2003). The model was further refined in Zimmerman and Moylan (2009) with the addition of new meta-cognitive and volitional strategies in the performance phase. Zimmerman's third model (**Figure 2**), now often called the **Multi-Level model**, outlines the four developmental stages through which students acquire self-regulatory competency (Zimmerman, 2000).

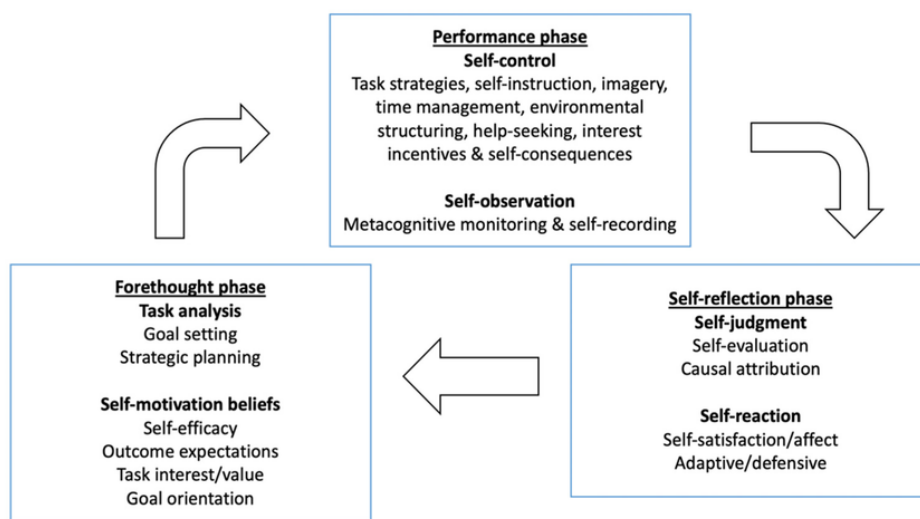


Figure 1: Triadic SRL Model. (Zimmerman, 1989, p. 329)

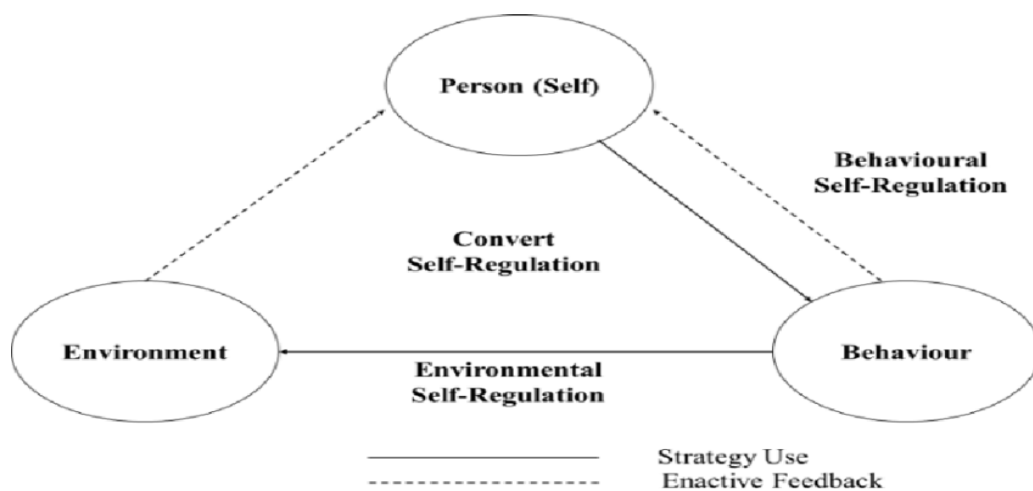


Figure 2: Multi-level Model (Zimmerman, 2000, p. 13)

2.1.2.2 Boekaerts' Different Goal Roadmaps (Top-Down, Bottom-Up) and the Role of Emotions

Boekaerts's research is among the earliest contributions to the self-regulated learning (SRL) literature, originating in the late 1980s (e.g., Boekaerts, 1988). Shortly thereafter, she introduced her initial SRL model (Boekaerts M. (., 1991). Her studies have concentrated on explaining the function of goals, specifically how students engage various types of goals concerning SRL, and she was the pioneer in implementing situation-specific measures to assess motivation and SRL. Additionally, Boekaerts has shown extensive familiarity with the clinical psychology research related to self-regulation and emotional regulation; see (Boekaerts M. , 2011).

Boekaerts developed two SRL models, starting with a **structural model** that divides self-regulation into six components: (1) domain-specific knowledge and skills, (2) cognitive strategies, (3) cognitive self-regulatory strategies, (4) motivational beliefs and theory of mind, (5) motivation strategies, and (6) motivational self-regulatory strategies (Boekaerts M. , Self-regulated learning at the junction of cognition and motivation, 1996). These components were organized around what she identified as the two fundamental mechanisms of self-regulated learning: cognitive self-regulation and affective/motivational self-regulation. This model has been primarily utilized for four purposes, (a) enhancing understanding of domain-specific SRL components, (b) providing teacher training, (c) developing new research measurement instruments, and (d) designing intervention programs.

A second model of self-regulated learning (SRL), referred to as **the Adaptable Learning Model**. This model (**Figure 3**) was introduced in the early 1990s (Boekaerts, 1991, 1992). It illustrates the dynamic characteristics of SRL. The Adaptable Learning Model provided a theoretical framework for interpreting findings from various psychological perspectives, encompassing motivation, emotion, meta-cognition, self-concept, and learning.

Boekaerts identified two parallel processing modes in her model: (a) a mastery/learning mode and (b) a coping/well-being mode. While initial concepts about goal paths were presented in the 2000 Handbook of self-regulation (Boekaerts, M., & Niemivirta, M., 2000) ,her ideas on **top-down**

and **bottom-up** theory weren't clearly articulated until later, when her framework was renamed **the Dual Processing self-regulation model** (Boekaerts, M., & Cascallar, E, 2006). In the 2011 SRL handbook, Boekaerts presented an expanded version highlighting three distinct purposes of self-regulation in learning: (1) expanding knowledge and skills, (2) protecting commitment to learning activities, and (3) preventing threat and harm to the self. This updated model emphasized the crucial role of emotions in SRL and described two specific bottom-up strategies: volitional strategies and emotion regulation strategies.

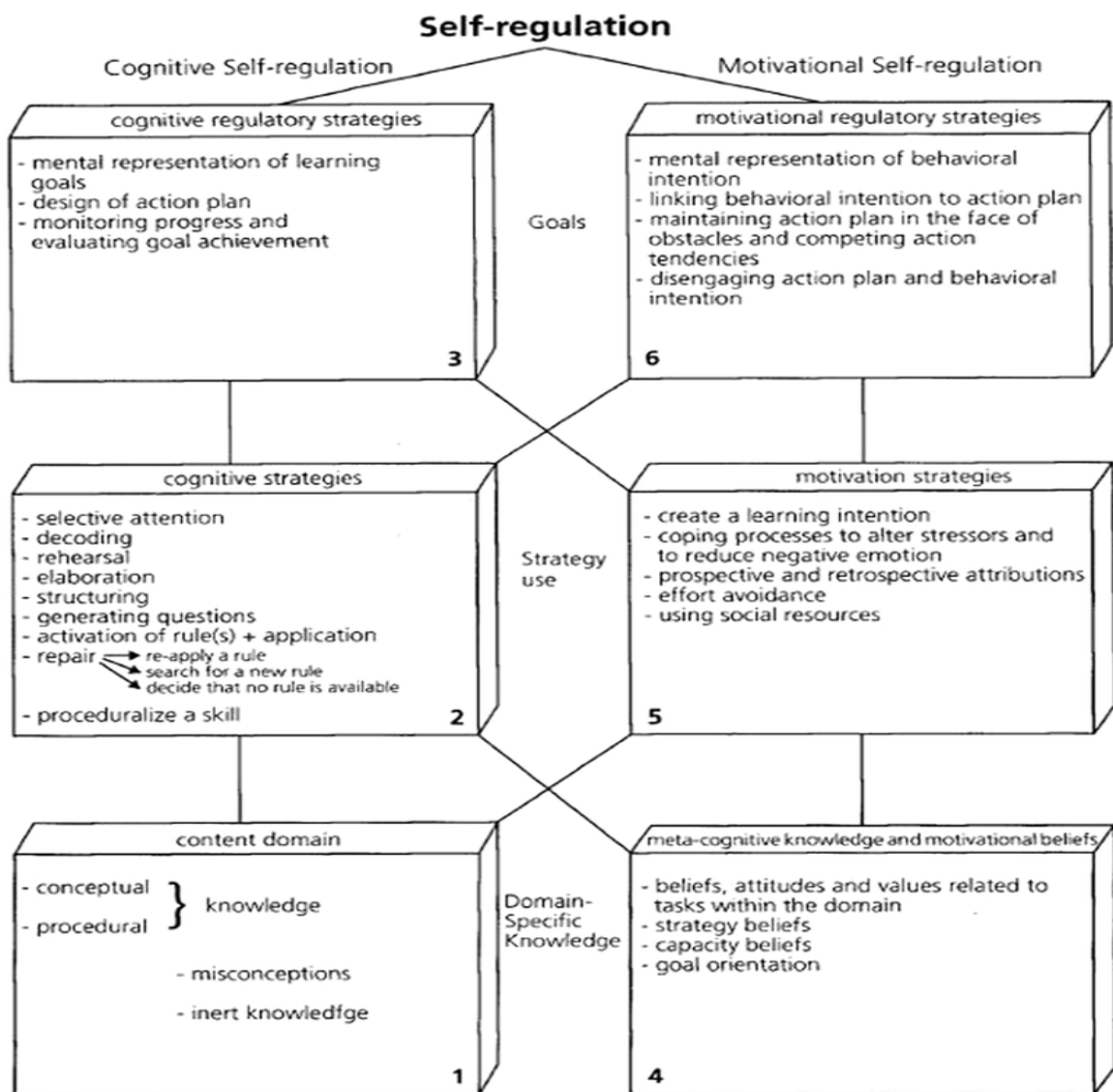


Figure 3: Six-Component model of SRL. (Boekaerts M. , 1996, p. 112)

2.1.2.3 Winne and Hadwin's Model: Exploring SRL from a Meta-cognitive Perspective

Winne and Hadwin's SRL model features a strong meta-cognitive orientation that views self-regulated learners as active participants who manage their learning through monitoring and primarily through (Meta) cognitive strategies (Winne, 1995, 1996, 1997; Winne and Hadwin, 1998). Their model recognizes the goal-driven nature of self-regulated learning and acknowledges how self-regulatory actions impact motivation (Winne and Hadwin, 2008). This framework has been widely adopted; particularly in research involving computer supported learning environments. (Malmberg, J., Järvelä, S., Järvenoja, H., & Panadero, E). In this model (Winne, 2011), SRL powers learning over four open and recursive phases, with feedback loops. **Figure 4** depicts the next four phases: The learning process involves task definition, goal setting and planning, enacting study tactics and strategies, and meta-cognitive adaptation.

Meta-cognitive adaptation occurs after the main processes are completed and students decide to make long-term changes in their motivations, beliefs, and strategies for the future. Winne emphasizes the possibility of detecting mistakes after they have occurred. Winne's (2011) model provides detailed explanations of students' cognitive processing during task planning, performance, and evaluation. Using criteria and standards matched with self-assessment research is critical for setting objectives, monitoring progress, and evaluating outcomes (Panadero, E., & Alonso-Tapia, J., 2013).

According to Winne and Hadwin's (1998) model, students utilize techniques to complete assignments while constantly monitoring their performance against standards. The model figure does not mention emotions and instead emphasizes motivation. Winne and Hadwin agree that SRL is goal-driven and connect their model to research on motivation regulation by Pintrich (2003), Wolters (2003) and (Winne and Hadwin, 2008). They also emphasize that mistakes can be detected after the fact.

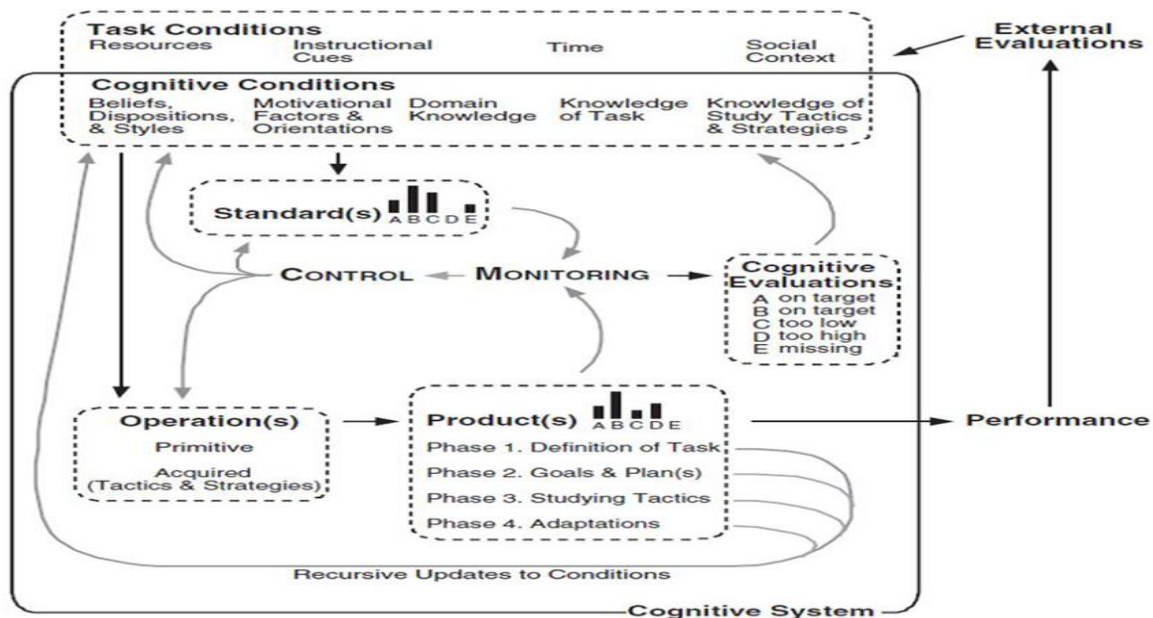


Figure 4: Current version of Winne's SRL model (Winne, 2011, p. 30)

2.1.2.4 Pintrich: Grounding the Field and Emphasizing the Role of Motivation in SRL:

Pintrich's work remains significant in the field, as he helped clarify the SRL conceptual framework (Pintrich, P. R., & De Groot, E. V. , 1990, p. 33) and conducted vital empirical research on the relationship between SRL and motivation. (Pintrich, P. R., Smith, D. A., Garcia, T., & McKeachie, W. J., 1993, pp. 801-813), and his questionnaire, the MSLQ (1993, pp. 801-813), is still extensively used.

Pintrich's (2000) model describes SRL as consisting of four phases: (1) Forethought, planning and activation, (2) Monitoring, (3) Control, and (4) Reaction and reflection. Each phase operates across four regulatory areas: cognition, motivation/affect, behaviour, and context. This structure creates a comprehensive framework encompassing numerous SRL processes (e.g., prior content knowledge activation, efficacy judgments, and self-observations of behaviour) as shown in **(Figure 5)**. Pintrich detailed how various SRL components function within each phase and area. For cognition regulation, he incorporated meta-cognitive research on judgments of learning and feelings of knowing, highlighting cognition's central importance in his model.

The motivation/affect regulation area built on Pintrich's empirical work (Pintrich et al., 1993a; Pintrich, 2004), with Wolters (2003) later providing additional supporting evidence. The behaviour regulation area drew from Bandura's work (1977, 1986, 1997) and Zimmerman's Triadic model (1989), uniquely focusing on "individual's attempts to control their own overt behaviour" (Pintrich P. R., 2000, p. 451).

Finally, the context regulation area addressed how students "monitor, control and regulate the (learning) context" (p. 469), a distinctive element not found in other SRL models analyzed.

TABLE 1 Phases and Areas for Self-Regulated Learning

Phases	Areas for regulation			
	Cognition	Motivation/affect	Behavior	Context
1. Forethought, planning, and activation	Target goal setting	Goal orientation adoption	[Time and effort planning]	[Perceptions of task]
	Prior content knowledge activation	Efficacy judgments	[Planning for self-observations of behavior]	[Perceptions of context]
	Metacognitive knowledge activation	Ease of learning judgements (EOLs); perceptions of task difficulty Task value activation Interest activation		
2. Monitoring	Metacognitive awareness and monitoring of cognition (FOKs, JOLs)	Awareness and monitoring of motivation and affect	Awareness and monitoring of effort, time use, need for help Self-observation of behavior	Monitoring changing task and context conditions
3. Control	Selection and adaptation of cognitive strategies for learning, thinking	Selection and adaptation of strategies for managing motivation and affect	Increase/decrease effort	Change or renegotiate task
			Persist, give up Help-seeking behavior	Change or leave context
4. Reaction and reflection	Cognitive judgments	Affective reactions	Choice behavior	Evaluation of task
	Attributions	Attributions		Evaluation of context

Figure 5: Pintrich's SRL model (Pintrich P. R., 2000, p. 452)

2.1.2.5 Efklides: The Metacognitive and Affective Model of SRL

Efklides (2011) introduced the **Meta-cognitive and Affective Model** of Self-Regulated Learning (MASRL), which built upon her earlier theoretical work (Efklides, 2006, 2008). The model is explicitly rooted in Bandura's (1986) socio-cognitive theory and has been influenced by

both existing SRL frameworks and meta-cognitive models, including those by Dunlosky and Metcalfe (2008), Areil et al, (2009) and Koriat and Nussinson (2009). What distinguishes Efklides' approach from other meta-cognitive models is its theoretical foundation in established SRL frameworks (such as Zimmerman's, Winne and Hadwin's, and Pintrich's). Furthermore, Efklides' model contributes to the SRL literature by thoroughly integrating meta-cognitive principles into self-regulated learning theory.

In the MASRL model, Efklides outlines two levels as shown in **Figure 6**. The first is the Person level (or macro level), which represents the more traditional view of SRL by encompassing students' personal characteristics. As Efklides (2011) explains, the Person level signifies a broad aspect of self-regulated learning (SRL) performance. It comes into play when an individual approaches a task primarily relying on their memory, knowledge, skills, motivational factors, meta-cognitive beliefs, and emotional state. This level consists of seven components: (a) cognition, (b) motivation, (c) self-concept, (d) affect, (e) volition, (f) meta-cognitive knowledge, and (g) meta-cognitive skills. A crucial aspect of this model is that Efklides the Person level works top-down, meaning students' goals drive everything else. How students direct their goals, focus their thinking, and decide how much effort to put in depends on the interaction between their abilities, self-image, motivation, and emotions, all in relation to how they see the task and what it requires. (Efklides A. , 2011).

The Task \times Person level, or micro-level, represents the interaction between specific tasks and student characteristics, operating in a bottom-up fashion where meta-cognitive activity controls student actions. At this level, attention shifts from general learning goals to specific task mechanisms, making the process "data-driven" as students focus on particular aspects of task execution (like checking for spelling mistakes rather than just completing a summary). Micro-level monitoring serves as the primary process, with motivation and affective reactions dependent on meta-cognitive resources and performance feedback. Efklides identifies four basic functions at this level cognition, meta-cognition, affect, and regulation of affect and effort which can be

conceptualized either independently (vertically) or in an integrated manner (horizontally), as illustrated in Figure 6. (Efklides A. , 2011).

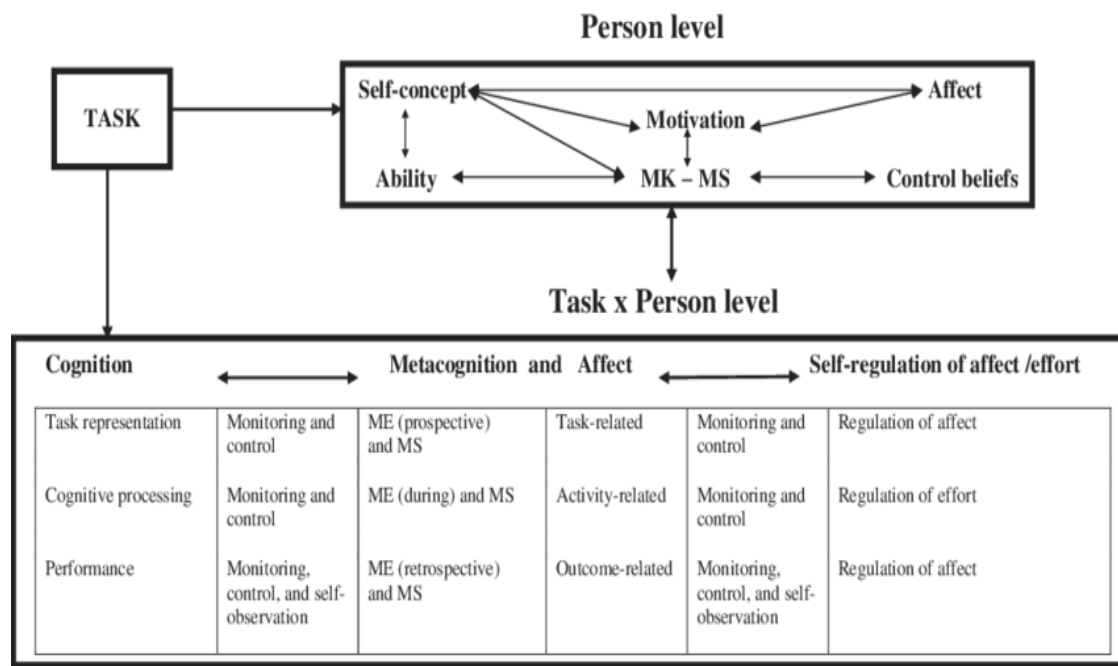


Figure 6: The MASRL model (Efklides A. , 2011, p. 12)

2.1.2.6 Hadwin, Järvelä, and Miller: Socially Shared regulated Learning (SSRL) Model:

Hadwin, Järvelä, and Miller's Socially Shared Regulated Learning (SSRL) Model (Hadwin, A. F., Järvelä, S., & Miller, M., 2011) extends beyond individual self-regulation to examine how groups collectively regulate their learning. The model emphasizes how team members jointly negotiate, coordinate, and regulate their cognition, behaviour, motivation, and emotions during collaborative tasks. SSRL **Figure 7** involves shared processes including task understanding, goal setting, planning, monitoring, evaluation, and adaptation—all constructed collectively through group interaction. This distinguishes SSRL from co-regulation (where one member guides others) and from self-regulation that merely occurs in group settings. The model provides a framework for understanding how successful groups collaboratively navigate complex learning tasks through interdependent regulatory processes.

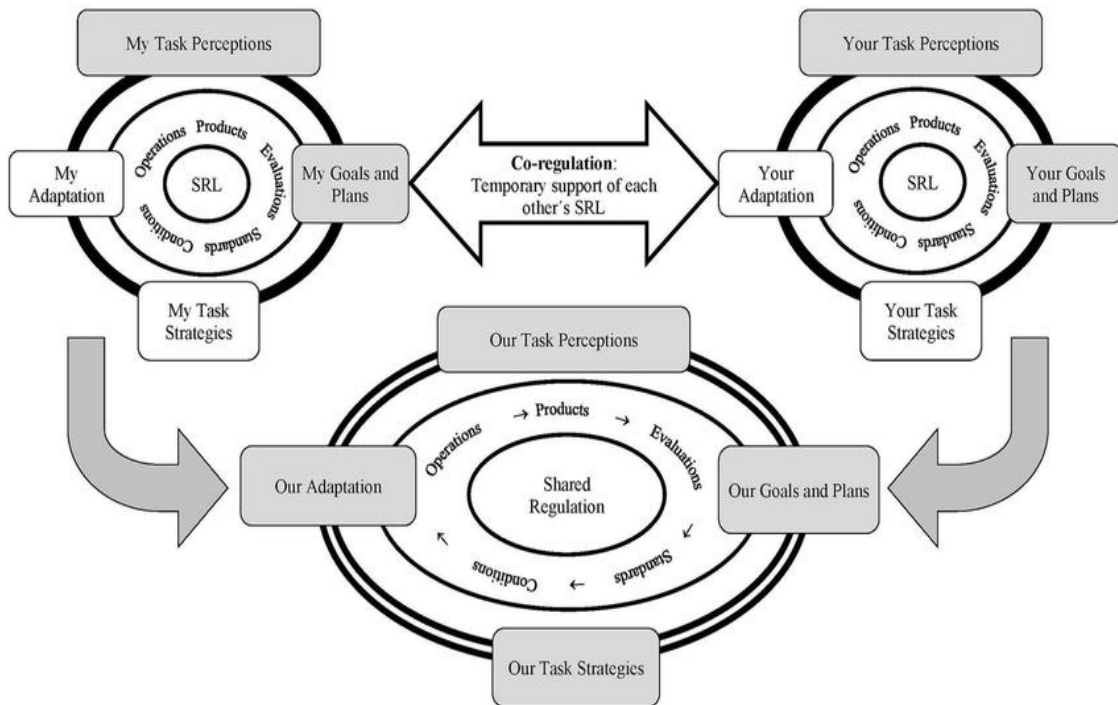


Figure 7: Socially shared regulated learning model (2011, p. 80)

2.1.3 Components of self-regulated learning:

Self-regulated learning (SRL) entails a set of interrelated mechanisms which enable learners to take control of their own learning. These components come together as an integrated system, helping students to be active participants in their educational journey rather than passive recipients of knowledge.

Self-monitoring stands as a basic element of SRL, encompassing the ability to attend to both internal factors (sensations, thoughts, feelings) and external factors (environment, physical movements) during the learning process. This meta-cognitive consciousness becomes particularly vital once goal-setting abilities have been set. As (Man-Chih A. , 2006) points out, learners with various learning styles react differently to internal and external distractions, and goal setting may prove ineffective if students lack self-monitoring skills. Through self-monitoring, learners ameliorate awareness of their own cognitive processes and can make changes when needed. **Self-efficacy** is another crucial component, referring to students' beliefs about their abilities to perform

tasks correctly. Garrido-Vargas (2012, p. 15) emphasizes that "self-efficacy skill has little to no value" without the motivation to apply it. If learners own strong self-efficacy, they will be able to modify their performance based on personal traits and environmental factors to improve learning outcomes. Self-evaluation is about comparing one's current performance and previous one. Ross (1999) describes this as learners' perception of their actual performance in comparison to old ones.

Motivation is the internal force behind learning activities, initiating and sustaining progress toward aim achievement. Besides being a cognitive competence, motivation works as a protective factor for self-worth. According to Garrido-Vargas (2012), the belief in making notable progress enhances self-efficacy and increases motivation till goal achieved. **Goal setting** aids students with opportunities to check and enhance their learning. Gajowski (2014) suggests that challenging goals help students gain progress and stay motivated. Effective goals must be attainable enough to provide a sense of accomplishment. This component acts as a guide for all other self-regulatory processes. **Self-reflection**, as described by Venter (2011), plays as a meta-cognitive skill dependent on one's level of meta-cognitive knowledge. It helps students to retrieve previous knowledge when acquiring new information. Through reflective thinking, students improve real understanding and make more informed decisions about future learning strategies.

Self-reinforcement includes personal growth with goal achievement satisfaction to improve self-efficacy and sustain motivation. Man-Chih (2006) compares this to self-reaction, noting that environmental support happens when learners perceive a non-threatening learning environment. This component involves creating positive reactions to one's own learning accomplishments. **Self-controlling** is the good management of motivation, behaviours, cognitions, and contextual factors when learning. Schunk (2005) describes this as the phase where learners attempt to control different aspects of their learning based on monitoring. Cognitive control involves tasks to adapt cognitions, with learners evaluating progress and adjusting strategies to enhance the achievements.

These eight components self-monitoring, self-efficacy, self-evaluation, motivation, goal setting, self-reflection, self-reinforcement, and self-controlling work in concert to create an effective self-regulated learning process. By understanding and developing these components, educators can help students become more autonomous, motivated, and successful learners who take responsibility for their own educational development.

2.1.4 Strategies of self-regulation Learning

2.1.4.1 Definition of Self-regulation strategies

Self-regulated learning strategies (SRL) are combination of cognitive approaches and learning techniques, these strategies allow students to monitor and manage their own learning process. They also introduce and integrate various tactics to independently plan and manage their study time. The active Students need to schedule their work, establish objectives, and keep track of their studying time and comprehension. When combined, these exercises might be referred to as self-regulated learning strategies (SRL). (Zimmerman, 1986)

Self-regulated learners serve as engaged participants throughout the entire learning journey, demonstrating both behavioural and meta-cognitive involvement not just during learning activities, but also in preparation and reflection phases. The SRL approach incorporates various task approaches, thinking processes, and regulatory mechanisms. These self-directed learners begin by clarifying the assignment requirements, establishing personal objectives, and developing implementation plans. Following task completion, they engage in reflective assessment by evaluating their accomplishments against their predetermined goals,(Schunk, 2005) .

2.1.4.2 Self -regulated Strategies:

Self-regulated learning strategies entail numerous mechanisms that empower students to take control of their learning processes. These strategies can be categorized into several key domains that work together to ameliorate academic performance and learning achievements.

Meta-cognitive strategies, encompasses planning, monitoring, and regulating behaviours (Pintrich, 1991). When students set educational goals, analyse tasks, and determine wanted outcomes, they engage in effective planning. As Zimmerman (1989) notes, self-regulated learners actively "define particular learning or performance outcomes, check their success, and respond to evaluations." Self-monitoring proves essential for learning improvement, helping students distinguish between effective and ineffective performance while identifying inadequate learning tactics. Zimmerman and Paulsen (1995) further highlight that these strategies contribute significantly to time management skills.

Cognitive strategies primarily consist of organization, elaboration, and rehearsal techniques. Elaboration strategies create connections between new and existing knowledge through deeper processing activities like paraphrasing, summarizing, generating analogies, questioning, and creative note-taking. Rehearsal strategies involve content repetition to enhance memory retention, such as reading aloud. De Boer et al. (2012, p. 10) recommend visualization tactics including "picking important ideas, outlining chapters, sketching networks or maps, and recognizing expository structures" to improve learning outcomes.

Physical and social environment management involves optimizing study spaces and seeking assistance (Zimmerman, B. J., & Risemberg, R., 1997). Effective study environments should be calm and free from distractions to maximize concentration. According to Zimmerman and Chen (2007), high achievers more frequently employ environment management compared to poor achievers, while self-regulated learners often customize their physical environment to meet specific learning needs.

Help seeking from others can foster self-regulation and autonomous achievement (Volet, S., & Karabenick, S. A., 2013). Students with achievement-motivated, active, master/task-oriented learning styles demonstrate greater willingness to seek help if necessary, indicating that seeking academic assistance and help is a strategic response to learning (Karabenick, S. A., & Knapp, J. R., 1991). Unlike other learning processes, help seeking uniquely entails social interaction, with social motivations likely impacting how individuals seek assistance (Ryan, A. M., & Pintrich, P. R.).

Time management involves scheduling, planning, and managing study time effectively. (Weinstein, et al., 2000) Found that time management and planning instruction can enhance students' self-regulation of study time, resulting in higher grade-point averages. Britton and Tessor (1991, p. 405) discovered a correlation between student time management practices and cumulative GPA in college students, with students' perspectives on time management and short-term planning showing stronger correlations with academic achievement than their scores.

To end, **motivational strategies** aim to improve specific types of inducements, including creating learning objectives, valuing tasks, developing positive attribution styles, and building self-efficacy. De Boer et al. (2012) Emphasize that improving motivation can significantly increase task engagement and enhance overall learning outcomes.

2.1.5 Characteristics of Self-regulated Learners

Self-regulated learners are those who actively engaged in their learning through meta-cognitive, motivational, and behavioural approaches. As Zimmerman (2001, 2002) established, self-regulating students demonstrate distinct characteristics that differentiate them from their non-self-regulating peers.

Studies show that high-achieving students often exhibit strong self-regulation skills, while those with learning challenges often lack these abilities (Reyero, M., & Tourón, J., 2003). However, it's important to note that "with proper training in these areas, all students can enhance their control over their learning and performance", (Zimmerman, 2002, p. 65).

Multiple studies identify **six key traits** that characterize self-regulating learners, **First**, they own and use different cognitive strategies for information processing, including repetition, elaboration, and organization that help them transform and retrieve information effectively (Weinstein, et al., 2000) .**Second**, they demonstrate strong meta-cognitive abilities, planning, managing, and directing their cognitive processes to achieve personal objectives (Zimmerman, 2000).**Third**, they have adaptive emotional reactions and positive motivating beliefs. These

students acquire a strong sense of academic self-efficacy and pursue learning objectives with positive emotions while effectively managing these impulses, Zimmerman (1998). **Fourth**, they systematically manage their time and effort, creating conducive learning environments. Self-regulating students understand how to establish and organize appropriate learning environments and seek assistance when necessary. **Fifth**, they actively participate in academic oversight, understanding evaluation methods, task requirements, and classroom structures, Wine (inherent details in self-regulated learning. , 1995). **Finally**; they implement intentional strategies to minimize distractions, maintaining concentration and motivation during academic tasks, Zimmerman (2001).

Notably, self-regulating students view themselves as active agents in control of their learning process. They approach education with intrinsic motivation and employ specific techniques to achieve their academic goals. Most importantly, as (Schunk, 2005) emphasizes, these skills can be developed through appropriate instruction and practice, offering hope for improved performance among all students, regardless of their current achievement level.

2.2 Digital Literacy:

2.2.1 Definition of Digital Literacy:

It is a set of competences that individuals need to use digital technologies effectively. This includes accessing, understanding, evaluating, creating, and communicating digital content using devices such as smart phones. Digital literacy has emerged as a critical ability in the twenty-first century, influencing how people obtain, evaluate, and disseminate information in a world where technology is taking over. Being able to successfully navigate online settings has become essential rather than optional as digital technology becomes more integrated into social relationships, work, and education. The technical capacity to use digital tools, the cognitive ability to critically assess online content, and the ethical awareness to interact appropriately within digital frameworks are just a few of the many abilities that make up digital literacy. (Pritika Reddy, July-December 2020).

Digital literacy has benefits and challenges for EFL (English as a Foreign Language) learners. Technology offers unmatched access to real language resources, like podcasts, films, and interactive learning environments, but it also necessitates new abilities that go beyond traditional language instruction. EFL students need to improve their abilities to recognize trustworthy sources, protect their online privacy, and use digital technologies efficiently in addition to understanding language components. However, things like disparities in past digital experience, language challenges, and unequal access to technology can hinder their progress. (Wahyuddin, 2024)

“The ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers” (Zheng, Examining the influencing effect of EFL students’ digital literacy on their online learning power: the mediating role of perceived teacher support., 2025, p. 45) .It encompasses different technical, cognitive and socio-emotional skills needed for learners in order to master digital tools and resources. It is essential EFL learners to access online material, join online lectures and engage in virtual meetings discussions. Digital literacy related skills enable students to complete digital assignments and quizzes. Thus, individuals need a wide range of abilities, competencies, and skills to adapt to the technological era. (Chaudhary, July-December 2020)

Digital literacy in its overall meaning encompasses all aspects of life like education, work, and social interactions. The definition of literacy has changed over time as technology has advanced and society has become more reliant on technology, these days everyone depends on technology, and literacy is described as the capacity to apply knowledge of digital tools, capabilities, and applications to the effective, efficient, and customized use of digital instruments.

It involves the mastery of various digital technical skills and other competencies including information literacy, communication and collaboration skills, critical thinking and digital citizenship.

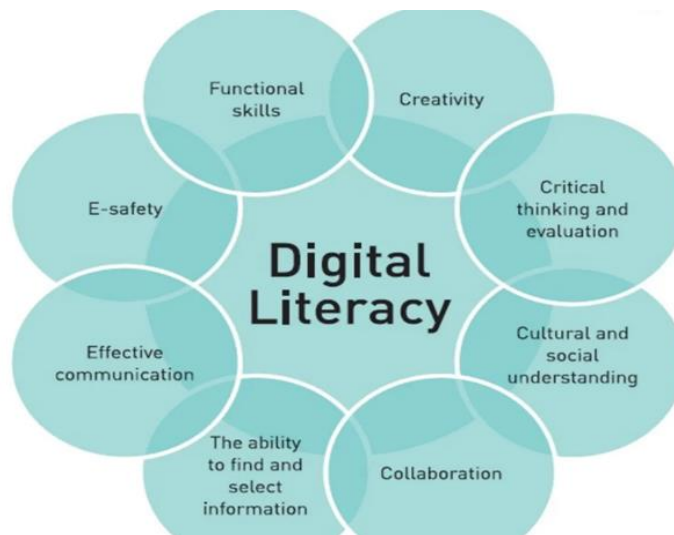


Figure 8: Digital Literacy skills (Baptiste 2019)

2.2.2 Competencies of Digital Literacy

Owing to the rapid technological advancements and the integration of digital tools in education, digital literacy skills have evolved significantly particularly in the field of higher education, Where students need to master a set of digital competences to cope with the requirements of online instruction.

2.2.2.1 Technical skills

Technical skills are fundamental to digital literacy. Without these abilities, people could find it difficult to communicate clearly, obtain information, and engage fully in the digital world. In order to succeed in the digital age, people must acquire technological abilities. These abilities allow people to acquire information, communicate clearly, use digital tools and technology efficiently, and fully engage in the digital environment. Teachers and legislators can assist close the digital gap and enable people to thrive in a society that is becoming more digital by emphasizing the development of technical skills.

In today's digitally-driven world, mastering essential technical skills has become fundamental for effective participation in education, work, and daily life. At the most basic level, digital literacy begins with core technical competencies like operating devices, using input peripherals such as

mice and keyboards, managing files and folders, and understanding operating system fundamentals. These foundational skills form the bedrock upon which more advanced digital capabilities are built. (Klara Nelson, 2011)

Moving beyond basic operations, proficiency with common software applications represents a crucial component of digital literacy. The ability to effectively use word processors, spread sheets, presentation software, and online learning platforms enables users to create, modify, and share various types of digital content. Equally important is internet navigation competence, which encompasses using web browsers efficiently, conducting online searches, evaluating source reliability, and understanding website structures - all vital skills for information gathering in the digital age. (YORAM ESHET-ALKALI, Number 4, 2004)

Digital communication has emerged as another critical skill set, involving the effective use of email, instant messaging, video conferencing tools, and social media platforms. This technical ability must be coupled with cyber security awareness, including creating strong passwords, identifying phishing attempts, and using security software to protect devices and personal information. As digital content creation becomes increasingly prevalent, skills in multimedia production and editing - working with images, audio, and video files - have grown in importance. (Madhow, 2008)

The modern digital landscape also demands competence in data management and analysis, requiring familiarity with spread sheet software and data visualization tools to organize, interpret, and present information effectively. Finally, troubleshooting skills complete the digital literacy profile, enabling users to diagnose and resolve common technical issues with hardware, software, and network connections independently. Together, these interconnected technical competencies form a comprehensive digital skill set essential for navigating and succeeding in today's technology-dependent world. (Jeremy Rie, 2012)

2.2.2.2 Information literacy

The ability to find, evaluate, organize and use information effectively in digital environments. “The fundamental concepts of information management and the techniques and methods related to information management”. (Siriwatchana Kaeophanuek, 4, April 2018, p. 2)

This competence includes problem description, topic searches, strategies and tactics for obtaining analysis, synthesis, content organization, assessment, interpretation, and information use for problem-solving or efficient operation. (R. N. Mishra, JULY 2010). This includes the various abilities needed to learn and use a variety of software programs, use digital tools for everyday convenience and goal achieving, manage and resolve simple computer issues, communicate effectively, manage personal data on networks, and use technology for ethics and teamwork. (Dr. Chinwe Anunobi).

Information literacy encompasses several critical competencies that enable individuals to effectively navigate today's knowledge-driven world. First, it involves accessing information efficiently by mastering search techniques across diverse sources like online databases, digital libraries, and the internet, including the ability to refine queries for optimal results. Equally important is evaluating information, which requires analysing content for accuracy, assessing source credibility, and identifying potential biases to ensure reliability. Once obtained, using information effectively becomes crucial—this means synthesizing data from multiple sources, organizing it logically, and applying it to problem-solving, decision-making, and knowledge creation in clear, meaningful ways. Finally, information literacy includes sharing information ethically by adhering to copyright laws, avoiding plagiarism, and respecting intellectual property rights when disseminating knowledge. Together, these interconnected skills empower individuals to become discerning consumers and responsible producers of information in both academic and professional contexts. (Dr. Chinwe Anunobi)

The development of strong information literacy skills is shaped by several key factors. Formal education plays a fundamental role, as structured learning environments provide essential training

in research methods, critical evaluation of sources, and ethical information use. Equally important is access to technology, including computers and reliable internet connections, which serve as the foundation for practicing digital information-seeking behaviours and developing technical proficiency. For younger learners, parental mediation significantly impacts skill development - when parents actively engage with their children's digital activities, guide their online information searches, and discuss source credibility, they foster more sophisticated information literacy from an early age. These three factors - education, technology access, and parental guidance - interact dynamically to shape an individual's ability to effectively locate, evaluate, and use information in our increasingly digital world. (Reddy, 2023).

2.2.2.3 Communication and collaboration skills

Effective communication and collaboration skills are vital in many areas of contemporary life, such as education, the workplace, and online interactions. (Sonali N. Tholia, April 7, 2022). These abilities are necessary for students to thrive in their professional careers and for successful teamwork within work settings. Additionally, in today's digital era, having strong communication and collaboration skills is essential for sustaining social relationships and utilizing collaborative technologies effectively. (Wardhani, 2021)

Communication and collaboration abilities are increasingly acknowledged as vital skills for students. Current educational methodologies seek to enhance critical thinking by empowering students' collaboration, communication, and information literacy capabilities. An inter-disciplinary method can be employed to educate undergraduates on communication and information literacy, promoting critical thinking. (Nonnecke, 2010) In addition, pre-service teachers believe that incorporating twenty-first-century skills, such as communication and collaboration, into the curriculum is essential. (Andrea L. Dinkelman, 2010)

2.2.2.4 Critical thinking:

In an age characterized by digital interactions that significantly influence our perceptions, decision-making processes, and even the construction of our identities, critical thinking transcends its traditional role as merely an academic competency it emerges as an essential instrument for survival. In addition to possessing fundamental digital literacy (the capability to utilize technological tools), it is imperative that we foster critical digital fluency: the aptitude to interrogate, analyse, and engage ethically with the multifaceted nature of the digital realm. (Dwi Agus Kurniawan, April 2023)

Digital literacy embodies a range of skills that enables to access, manage, integrate, evaluate, and create information using digital technologies while critical thinking involves analysing and evaluating information to form a final conclusion or judgment about its accuracy, credibility and reliability (Bertrand Audrin, 2024)

To cultivate a profound level of critical digital fluency, it is imperative that we first embrace a sceptical disposition, consistently posing the inquiry, "On what basis should I accept this information as credible?" prior to acquiescing to the veracity of online content. This critical scepticism ought to be complemented by a deliberate effort to diversify our information sources actively seeking dissenting opinions in order to extricate ourselves from the confines of algorithmic filter bubbles and echo chambers. (Saddhono & Sukmono, 2024)

The enhancement of our digital verification capabilities can be achieved through the acquisition of practical tools, including reverse image search functionalities, reputable fact-checking platforms, and technologies designed to safeguard privacy, which collectively fortify our capacity to authenticate and safeguard our online presence.

In addition to individual practices, participation in dialogues and discourses concerning digital ethics serves to refine our analytical reasoning and reveals a myriad of perspectives. Ultimately, engaging in regular self-reflection, examining our screen time, data-sharing behaviours, and

emotional responses to digital stimuli ensures that we remain cognizant of the ways in which technology influences our cognitive processes and behaviours. Collectively, these methodologies promote a more discerning, ethically conscious, and empowered framework for navigating the complexities of the digital landscape. (Feola, 2016)

2.2.2.5 Digital citizenship:

Digital citizenship involves the standards of suitable, responsible, and ethical conduct regarding the use of technology in online spaces. It is a developing concept that focuses on right online behaviour and the education of future digital users (Prasetyo, 2024) Teaching digital citizenship is crucial for promoting responsible and engaged civic participation in the digital era.

True digital citizenship extends far beyond technical proficiency, representing a comprehensive framework for responsible and ethical participation in the digital world. At its foundation lies digital literacy, which empowers individuals to effectively navigate, evaluate, and create digital content while understanding technology's broader societal and ethical implications. Equally crucial is online safety, involving protective measures against cyber threats like bullying, scams, and privacy violations that compromise personal and collective security. The concept also emphasizes digital ethics, guiding users to respect intellectual property, avoid plagiarism, and contribute positively to online communities. Furthermore, digital citizenship encourages civic engagement, motivating participation in digital democracy through political discourse, social advocacy, and community-building initiatives. Underpinning all these elements is critical thinking - the essential ability to discern credible information, identify misinformation, and make reasoned judgments in our complex digital ecosystem. Together, these interconnected dimensions form a robust model for meaningful, conscientious, and empowered digital participation (Aytekin ISMAN, January 2014).

2.2.3 Digital Literacy in Higher Education

Digital literacy has become an essential competency in today's technologically driven environment, especially in higher education. It goes beyond just basic computer skills and includes a variety of abilities necessary for effective teaching and learning, accessing information, and participating meaningfully in society. The COVID-19 pandemic has further emphasized the urgency of enhancing students' digital skills as higher education institutions are relying increasingly on digital platforms.

Modern language programs in higher education must prioritize curriculum enhancement by focusing on two critical dimensions: resource modernization and pedagogical balance. The first aspect involves moving beyond traditional textbooks to incorporate dynamic digital resources that resonate with contemporary learners. By integrating online articles, multimedia materials, social media platforms, and collaborative digital projects, educators can create learning experiences that align with students' professional aspirations and digital-native preferences. The second crucial element involves establishing equilibrium between theoretical knowledge and practical application. While students must master foundational digital literacy concepts—including information evaluation, online safety protocols, and ethical technology use—they equally need hands-on opportunities to apply this knowledge. Practical implementation might involve creating digital content, critically analysing online sources, participating in virtual collaborations, and solving real-world problems using digital tools. (Wibowo Heru Prasetyo, December 2021)

This dual focus on modernized resources and experiential learning ensures graduates develop both the conceptual understanding and practical skills needed to thrive in increasingly digital academic and professional environments.

Effective integration of digital literacy in education requires comprehensive teacher training and sustained professional development. Recognizing this imperative, China's Educational Ministry established a ground-breaking industry standard for Teacher Digital Literacy (TDL) in 2022,

creating a robust framework that addresses multiple dimensions of digital competency for educators. (Juma, 2022). However, proper implementation demands more than just standards - it requires equipping teachers with practical training and adequate resources to transform these guidelines into classroom practice. Moreover, given the rapid evolution of digital technologies, educators must engage in continuous professional growth through various channels such as specialized workshops, online certification courses, academic conferences, and peer learning communities. These ongoing development opportunities enable teachers to stay current with emerging digital trends, tools, and pedagogical approaches, ensuring they can effectively prepare students for the demands of our increasingly digital world. This two-pronged approach of establishing clear standards while supporting continuous learning creates a sustainable ecosystem for maintaining educator digital proficiency over time. (Jeremy Rie, 2012)

Addressing the digital divide is crucial for ensuring equitable learning opportunities in higher education, as technological disparities can significantly impact students' academic performance, career competitiveness, and overall educational experience. Institutions must implement comprehensive strategies to guarantee equal access to digital resources, including device loan programs, campus-wide Wi-Fi availability, and targeted technical support services. Equally important is developing inclusive curricula that accommodate diverse technological backgrounds through differentiated instructional approaches and specialized assistance for students facing digital challenges. By combining these access initiatives with pedagogically inclusive practices that foster supportive learning environments, universities can effectively mitigate digital inequalities. This dual approach not only removes technological barriers but also creates conditions where all students - regardless of their prior digital experience - can develop the necessary competencies to thrive in increasingly digital academic and professional landscapes. (Jeremy Rie, 2012)

HI-TOP Model: The Harmonized Information Technology and Organizational Performance model (HI-TOP) offers a cohesive framework that highlights the relationship between technology adoption and organizational effectiveness (Enstroem, 2024, p. 12). This model can guide the

incorporation of digital literacy into higher education curricula by stressing the importance of aligning technology with organizational aims and performance indicators.

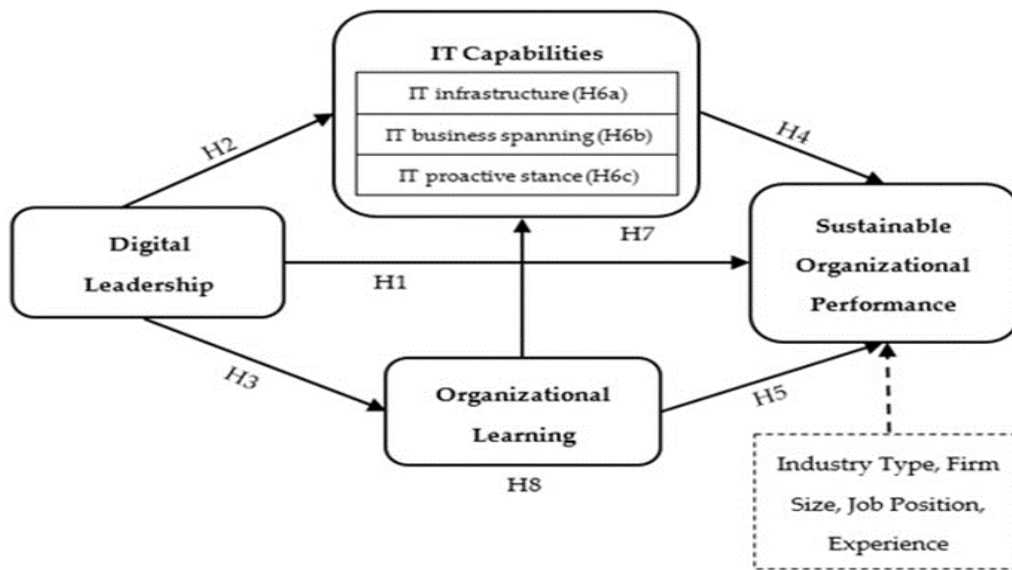


Figure 9: Proposed figure HI-TOP model (Md Alamgir Mollah, 2023, p. 7)

Integration of Curriculum, Teaching Methods, and Information Literacy: A model that combines curriculum, pedagogy and learning theories, information literacy theories, standards, personnel, and collaboration can furnish a framework for embedding information literacy across various courses in an undergraduate degree program in higher education. (Wang, 2010)

AI in Academia: Artificial intelligence is transforming education, presenting opportunities for tailored learning and lifelong educational frameworks. However, it also introduces ethical dilemmas and concerns regarding data privacy. Higher education curricula should consider these ethical issues and prepare students to utilize AI in a responsible manner.

To ensure the effectiveness of digital literacy initiatives, institutions must implement comprehensive evaluation systems that measure program outcomes against established objectives. A robust assessment framework should incorporate multiple methodologies, beginning with student surveys to capture subjective perceptions and attitudes toward digital literacy development. Quantitative measures such as standardized tests provide valuable data about conceptual understanding and technical competencies, while performance-based assessments offer authentic

evaluation of students' ability to apply digital skills in real-world scenarios. By triangulating data from these complementary approaches - combining learner feedback, knowledge verification, and practical demonstration - educators gain a multidimensional understanding of program efficacy. This evidence-based evaluation process enables continuous improvement of digital literacy curricula, ensuring higher education institutions can effectively prepare students with the critical digital competencies required for academic and professional success in our technology-driven society. (Lan Anh Thuy Nguyen, 2024).

2.2.4 Digital Literacy Challenges for EFL Students:

In our increasingly digital world, the development of digital literacy has become essential for academic and professional success. However, EFL learners face unique challenges in acquiring these crucial skills. This essay examines the significant barriers EFL learners encounter while developing digital literacy, which encompasses the ability to effectively find, evaluate, use, and create digital content.

One of the primary challenges stems from the English-dominant nature of digital spaces. Most digital tools, platforms, and educational resources are designed for native English speakers, creating immediate accessibility issues. EFL learners often struggle with technical jargon, idiomatic expressions, and complex instructions that are commonplace in digital interfaces. Even assistive technologies like autocorrect and predictive text frequently fail to accommodate the specific needs of language learners, potentially leading to frustration and incorrect language acquisition.

Many EFL learners face practical barriers in accessing the necessary technology for digital literacy development. Socioeconomic factors often limit consistent access to devices like computers or tablets, as well as reliable high-speed internet connections. This digital divide becomes particularly apparent when premium educational applications or platforms remain financially out of reach for some students, creating unequal learning opportunities before accounting for language challenges. (Purmayanti, 2022).

The process of evaluating online information presents special challenges for EFL learners. Limited language proficiency can impair their ability to distinguish credible sources from misinformation or biased content. Cultural differences in media literacy standards may further complicate their capacity to critically assess digital content, potentially leading to uncritical acceptance of unreliable information.

Privacy and security in digital environments pose additional hurdles. EFL learners may struggle to understand English-language privacy settings, data protection policies, or scam avoidance strategies. Recognizing cyber threats like phishing attempts or online harassment becomes significantly more difficult when language barriers obscure warning signs and safety information. (Chun, 2022).

Many traditional EFL programs focus predominantly on conventional language skills while neglecting digital literacy development. This oversight leaves learners unprepared to utilize valuable digital tools like online dictionaries, grammar checkers, or language learning applications effectively. Without proper guidance, students may remain unaware of resources that could significantly enhance their language acquisition process.

The vast quantity of available digital content can overwhelm EFL learners, making it difficult to identify appropriate learning materials. Algorithm-driven content on social media platforms often fails to prioritize educationally valuable resources, potentially exposing learners to irrelevant or even misleading information instead of quality language learning materials.

The development of digital literacy for EFL learners involves navigating a complex web of linguistic, technological, and pedagogical challenges. From language barriers in digital interfaces to unequal access to technology, from safety concerns to institutional gaps in training, these obstacles collectively hinder the acquisition of crucial digital competencies. Addressing these challenges requires a multifaceted approach that combines language instruction with digital literacy education, improves access to technology, and develops culturally sensitive, language-appropriate digital resources. By acknowledging and working to overcome these barriers, educators and policymakers

can help ensure EFL learners develop the comprehensive digital skills needed for success in our interconnected world. (Kundi, 2010).

2.3 Online Learning

2.3.1 Definition of Online Learning

The literature presents online learning as instruction delivered through Internet-connected computers or mobile devices. (Ally, 2004) expands this definition to include "the use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience" (p. 5).

Online learning can be also defined as instruction delivered on a digital device that is intended to support learning. In the literature, several advantages of online learning have been highlighted: studying from anywhere, at any time; possibility of saving significant amounts of money; no commuting on crowded buses or local trains; flexibility to choose; and saving time. Its significant evolution in over the past few decades, transforming from simple correspondence courses to sophisticated digital learning environments, made it the focus of research highlighting its effectiveness, challenges, technological innovations, and future directions. As (Akyol, Z., & Garrison, D. R, 2011, p. 183) noted, ‘‘Online learning is not simply a new medium for distance education but represents a new learning ecology’’.

2.3.2 Theoretical Background of the On Line Learning:

Numerous strong theoretical frameworks that offer crucial intellectual foundations for study, design, and implementation in digital learning environments have influenced the development of online learning.

Constructivist learning theory, pioneered by Piaget and expanded by later scholars, has significantly shaped online learning design approaches. (Jonassen, 1999) Characterized constructivist learning environments as Student-centred, knowledge-centred, assessment-centred

and community-centred settings that help learners deepen their understanding rather than simply reproducing others' ideas. Building on this foundation, **social constructivism** emphasizes knowledge as a social construct. (Chiong, R., & Jovanovic, J., 2012) Noted that online collaborative learning theory stems from social constructivism, positioning instructors as facilitators who help. Rather than simply communicating information, learners can create and affirm knowledge through debate and cooperative knowledge growth.

As digital technologies transformed educational landscapes, **connectivism** emerged as a learning theory specifically addressing networked knowledge. Siemens and Downes (2015) articulated that Connectivism emphasizes that learning occurs in numerous forms through collaborative communities, personal networks, and by engaging in job-related tasks in contexts where comprehending both what and how to accomplish something is strengthened by knowing where to obtain the necessary information. Further conceptualized knowledge as the collection of links produced by actions and experiences, with learning reflecting the process of creating new links and patterns. Moore's (2013) **Transactional Distance Theory** has provided valuable insights for online education research, defining transactional distance as the psychological and communicative distance between students and instructors is shaped by course structure, participant interactions, and learner autonomy. Zhang (2003) observed that in online environments, a lower transactional distance is related to improved student satisfaction and perceived learning, highlighting the importance of communication-focused course design.

Perhaps the most influential in contemporary online learning research is the Community of Inquiry framework developed by Garrison, Anderson, and Archer (2001), which positions teachers and students as the primary players in the educational process who form a Community of Inquiry to facilitate meaningful educational experiences. The framework identifies three basic components cognitive presence, social presence, and instructional presence, work together to support learning. Garrison and Arbaugh (2007) emphasized that this framework provides a complete theoretical model that could guide research into online learning and online education. It is assumed that for

online learning to be effective, a community that encourages in-depth learning and meaningful inquiry must be formed.

Online education effectiveness draws on three key theoretical frameworks. Zimmerman's (2008) **Self-regulated learning theory** emphasizes self-generated thoughts, feelings, emotions, and actions adapted for personal goals, with research showing time management, meta-cognition, and critical thinking correlate positively with online academic success. **Knowles' Andragogy** recognizes that adult learners are driven by internal motivations rather than external rewards, Knowles et al, (2014). With Cercone (2008) recommending online environments that respecting various learning styles, allow for self-direction, take into account learners' pre-requisites, and address relevance. Finally, Davis' (1989) **Technology Acceptance Model** explains that technology adoption depends on perceiving utility and usability , later expanded by Venkatesh and Davis (2000) to include social influences and cognitive processes that impact acceptance of technology-mediated learning. Together, these theories provide a comprehensive framework for understanding and improving online learning experiences.

2.3.3 Historical Development of Online Learning:

From basic correspondence courses to advanced digital platforms, the development of online learning is an intriguing journey. By the middle of the 20th century, remote learning had progressively integrated new technologies like radio and television transmissions, having started with mail-based correspondence study in the late 19th century. Then, for non-traditional students, open colleges' democratized access to higher education. The internet revolution was made possible by the introduction of synchronous communication capabilities during the teleconferencing era of the 1980s and early 1990s. The late 1990s saw the introduction of Learning Management Systems (LMSs), which offered extensive platforms for assessment, student interaction, and material delivery. By enabling schools to quickly expand their online services, these tools changed the nature

of education from being location-dependent to becoming a service that is accessible from any location with internet connectivity. (Paulsen, 2003).

The ensuing growth of MOOCs (Massive Open Online Courses), mobile learning apps, and AI-enhanced adaptive learning systems that define modern online education was made possible by this technological basis. According to Siemens et al (2015, p. 87)"The development of learning management systems in the late 1990s provided the technical infrastructure for the rapid expansion of online learning in higher education".

2.3.4 Effectiveness of Online Learning

The research on online learning effectiveness presents a nuanced picture with important implications for educational practice. As Means et al. (2013) discovered in their influential meta-analysis, Students who learned online often outperformed those who received in-person teaching by a small margin. Their critical distinction between blended and purely online formats revealed that when comparing blended learning to traditional face-to-face education, the advantage over in-person sessions was significant; however, this was not the case when comparing exclusively online and in-person situations .This suggests the particular strength of hybrid approaches that combine digital and traditional methodologies.

Bernard et al. (2014) provided further context with their comprehensive meta-analysis spanning 74 studies, concluding that Comparing distant learning to traditional schooling, the overall results showed effect sizes of nearly nil on achievement, attitude, and retention outcomes. This implies that in-person and online learning are similar to each other.

Broadbent and Poon (2015) identified specific success factors, noting that in online learning environments, academic accomplishment was substantially correlated with time management, metacognition, effort regulation, and critical thinking (p. 11). These findings highlight the importance of self-regulation skills in digital learning contexts, where students must independently manage their educational experience without the external structure provided by physical classrooms. The research

collectively suggests that online learning's effectiveness depends not on the medium itself but on implementation quality, student characteristics, and the thoughtful integration of supportive learning strategies.

2.3.5 Self-Regulation on Online Learning and EFL Learners

Over the past decade, online learning has grown significantly with the help of learning management systems, video conferencing platforms, and social learning networks, despite setbacks caused by the Covid-19 pandemic. Effective online learning requires self-regulation skills, which have been linked to improved academic achievement (Kulusaklı, 2022). (Viriya, 2022), Has identified statistical correlation with academic achievement in online settings. SRL is crucial for online courses, since students must self-regulate in limited support contexts. According to Van Alten et al. (2020), learners are more likely to adopt SRL methods in online learning environments than in traditional classrooms.

Recent research highlights the growing importance of Self-Regulated Online Learning (SOL) in English as a Foreign Language Contexts. Su et al. (2018) note increased interest in SOL dynamics within EFL education, while Xu et al (2022) document SOL's positive effects on language skill development and student attitudes, resulting in greater active engagement. Technology integration in language instruction has been shown to enhance learner self-regulation capabilities (Chien, 2019). Importantly, Viriya's (2022) research demonstrates that the alignment between student characteristics and behaviours with their specific online learning mode plays a critical role in either facilitating or hindering self-regulated learning outcomes in tertiary-level EFL students.

Recent research demonstrates various approaches to enhance self-regulated online learning (SOL) in EFL contexts. L. Zheng et al (2018) developed a mobile system for reading English passages that significantly improved both academic performance and SOL skills. While Meşe and Mede ((2023) found differentiated instruction (DI) had limited impact on overall self-regulated

learning, it did enhance specific strategies including help-seeking strategies, aim planning, and self-assessment.

In collaborative EFL learning environments, Su et al. (2018) identified a partial connection between SOL methods and learner attitudes toward wiki-based collaborative learning practices. Li et al. (2020) Discovered two distinct self-regulation profiles among Chinese EFL learners: reflective-oriented competent and average (Erdel, 2023), with competent students demonstrating stronger engagement in collaborative regulation and more effective social-emotional regulation strategies.

Research has established connections between SOL and digital literacy. Blau et al. (2020) positioned self-regulation as a fundamental component of digital literacy frameworks, while Anthony et al. (2020) found that self-regulated learning techniques significantly enhanced students' digital literacy skills in online learning environments.

Motivational factors strongly influence SOL effectiveness in EFL contexts. C. Zheng et al (2018) determined that learners with positive future perspectives and intrinsic interest in target language cultures demonstrated higher SOL capacities. Su et al. (2018) identified strong connections between self-regulation and self-efficacy beliefs among Chinese EFL learners. Xu et al, (2022) Ensured the crucial role of self-efficacy for effective self-regulated learning, noting that self-efficacy levels for SOL were influenced by task types, learner dynamics, course features, and students' technology level.

The COVID-19 pandemic's educational disruptions prompted researchers to examine EFL learners' self-regulated learning (SRL) specifically in online learning environments. Do (2022) found Vietnamese tertiary-level EFL students exhibited high self-regulation during online education with correlation between cognitive understanding and cognition control, though no significant relationship emerged between academic achievement and online SRL methods. Lien (2022) discovered Vietnamese university students lacked awareness of their SRL profiles during

online learning. In Turkey, Kulusaklı (2022) observed university students in online distance education demonstrated good environment management skills while showing moderate meta-cognitive skills, persistence, help seeking, and time management. Self-regulation ability is particularly crucial for effective online learning, as highlighted by the challenges students faced in governing their language acquisition during remote and hybrid instruction. Since SRL varies dynamically across online learning contexts, studies of diverse learner groups in different online educational settings continue to provide valuable insights to the field. (Barnard, 2009).

2.3.6 Factors Influencing Self-Regulated Learning in L2 Online Learning

Research studies the factors affecting self-regulated learning (SRL) in L2 online learning environments. Academic achievement positively correlates with SRL, particularly, meta-cognitive behaviours like monitoring and planning, with a positive correlation between self-regulation abilities and language achievement of second language learners in online environment (Dent, A. L., & Koenka, A. C., 2016). **Individual factors** affecting SRL include motivation, with learners having a clear vision for foreign language learning demonstrating more effective self-regulation. Highly motivated learners can better manage their time and will consider and adjust their own learning methods (Hromalik, C. D., & Koszalka, T. A. , 2018).

Language proficiency also influences SRL, as learners with higher English proficiency have higher self-regulation ability in mobile vocabulary learning, Liang (2016). Additionally, self-efficacy influences SRL, as learners who have a higher sense of self-efficacy are more likely to engage in self-regulating behaviours. (Csizér, K., & Tankó, G., 2017). **External factors** such as guidance and intervention significantly impact SRL development. Studies show "providing learners with learning strategy guidance can improve self-regulation and academic performance" (Bandalos, 2003). Various interventions demonstrate effectiveness, including Chang's (2007) online monitoring guidance, Deng's five-aspect cultivation approach, and mobile applications with SRL guidance functions (Kondo et al. (2012) Prompt interventions during learning processes prove effective, with

research indicating motivational cues are more helpful and effective than meta-cognitive ones. (Daumiller, M., Dickhäuser, O., & Dresel, M. , 2019).

Conclusion

The integration of DL and SRL creates a powerful framework for enhancing English language learning outcomes. As digital technologies continue to transform educational landscapes, EFL learners require both technical competency to navigate digital environments and meta-cognitive strategies to manage their learning process effectively. When combined, these skill sets address the multifaceted challenges facing language learners today. DL provides access to authentic language resources and global communication opportunities, while SRL enables learners to set meaningful goals, maintain focus despite online distractions, and evaluate their progress independently. This synergy is particularly valuable in online learning environments, where students must simultaneously navigate technical platforms while managing their own learning journey without constant teacher supervision. As we move forward in an increasingly connected digital world, EFL students who develop both digital literacy and self-regulation will be better positioned not only for academic success but also for lifelong learning and meaningful participation in global digital communities.

³ **Chapter two:**

Methodology, Data Analysis and Findings Discussion

Introduction

This chapter outlines the research methodology employed to collect, analyse, and interpret data in order to achieve the study's objectives and answer the research questions. It explains the systematic approach used. The chapter is divided into three sections. The first section presents the overall research design, including the methodology, research methods, setting, materials, and procedures applied in this study. However, the second section focuses on the analysis and interpretation of the collected data and section three is about discussing the findings and demonstrating how these findings address the research questions and contribute to achieving the study's aims.

3.1 Section One: Research Methodology

3.1.1 Research Method Design

This study employs a Quantitative research method and adapts a correlation research design, a structured plan, outlining data collection and analysis procedures to systematically address the research questions and achieve the intended objectives. As (McNabb, 2015) notes, quantitative approaches are primarily used to measure variables through numerical data, allowing researchers to test hypotheses, generalize findings with objectivity and reliability, or examine relationships between variables.

In this investigation, a quantitative methodology has been selected to assess students' proficiency levels in both Self-Regulated Learning (SRL) and Digital Literacy (DL) within an online learning environment. The design specifically aims to determine the relationship between these two critical educational components in the context of online education. Furthermore, the study seeks to establish whether a statistically significant correlation exists between English as a Foreign Language (EFL) student's self-regulation capabilities and their digital literacy competencies.

3.1.2 Research Setting and Sample

According to (Flyvbjerg¹, 2011), a case study is particularly useful when one is trying to gain a wealth of details and insights about participants' views according to their experiences in a particular context. Accordingly, to answer the research questions, the case study method was implemented due to the fact that it aids the researcher to obtain comprehensive understanding. The case focused on Master students, On Line Program, Didactics and applied Languages, at the University of Mohamed Boudiaf in M'sila.

A sample 50% is taken as the whole population number is too small (Master Didactics On Line Second year = 65 students.) that represents thirty (30) students, who are chosen randomly, through simple random sampling, to represent the whole population, as well as to ensure objectivity and unbiased findings.

Total population N= 65 percentages = 50%

Sample size n = $65 \times 50 / 100 = 32,5$

Margin of error 0,05% n \approx 30

3.1.3 Data Collection Methods:

In order to gather the required data for answering the research questions and achieving the research aims, one method is employed which is questionnaire. According to some researchers, data collection instrument refer to the means either physical or non-physical of producing quantitative or qualitative data to be analysed and interpreted. For the current study, data were collected through questionnaires that were shared on line to the sample chosen.

3.1.3.1 Description of the Questionnaires:

Questionnaire is a type of quantitative data collection tools. This tool aids the researcher to gather data from large number of participants; as it has many other advantages, economical, practical, not time consuming and acquire large amount of data and information in a short period of

time. Two standardized and widely used questionnaires are adopted in this study; they have been administered on **May 1st, 2025** and shared on line (Telegram group) of master two students.

The OSLO:

The Online Self-Regulated Learning Questionnaire (OSLQ) was developed by Barnard et al. in 2009 (Barnard, 2009) as a measurement tool to assess students' self-regulation skills specifically in online and blended learning environments. The OSLQ is a 24-item self-report instrument designed to measure six dimensions of self-regulated learning in online contexts:

1. **Goal Setting** - Planning specific learning outcomes and objectives.
2. **Environment Structuring** - Creating favourable conditions for learning.
3. **Task Strategies** - Approaches to processing and applying information.
4. **Time Management** - Planning and allocating time for learning activities.
5. **Help Seeking** - Reaching out for assistance when needed.
6. **Self-Evaluation** - Assessing one's own learning progress and outcomes.

Students respond to items using a 5-point **Likert scale** ranging from "strongly disagree" to "strongly agree."

DLQ-LL:

Digital Literacy Questionnaire – Language Learners (DLQ-LL) developed by Jeong-Bae Son in 2015 (Son, J. B., Park, S. S., & Park, M, 2017), it is designed to measure DL skills and use of digital technologies among language learners. The DL questionnaire is built on five sections:

1. Background information (demographic, native language, and prior computer experience).
2. Self-assessment of computing and digital abilities.
3. Exploration of digital technology usage patterns.
4. A practical digital literacy evaluation.

5. An examination of factors influencing technology adoption for language learning along with personal perspectives on digital devices.

The statistical tools that were used helped to analyse the levels and correlation between the two variables (DL and SRL). Therefore, the statistical tools that were used are:

The mean: the average, the most common value in a collection of number.

The standard deviation: is the measure of how dispersed the data is in relation to the mean.

The T test: statistical test used to compare the means of two groups.

3.1.4 Ethical Considerations

Ethical considerations represent a highly important element that researchers should take into account when conducting his research. (Lichtman, 2010)states a variety of principles for research ethics. Such as, harmlessness, privacy and anonymity, confidentiality, informed consent, no intrusiveness and data misinterpretation.

Concerning this study, participants were not involved in any situation that might be harmful. In addition, they were informed about the purpose of the study, moreover their identities were protected and they were ensured that the data collected will be used only for research sake only.

3.2 Section two: Data Analysis

After gathering the required data, the researcher needs to analyse those data. Analysing involves number of closely related operations, such as classification or categorization, coding and tabulation. In this study, quantitative data collected from students' questionnaires were calculated and transferred to figures and graphs using "SPSS" software.

3.2.1 The first questionnaire: OSLQ

3.2.1.1 Reliability of the Questionnaire

Reliability is to the ability of the questionnaire to yield the same results if it were redistributed multiple times under the same conditions. **Cronbach's Alpha** coefficient was used to determine its reliability; as it is one of the most commonly used and widely accepted measures in such studies.

Note: **OSLQ** is a standardized questionnaire which means it is valid and reliable; Statistics are given only for illustration.

Table 1: Reliability statistics of OSLQ

Reliability Statistics	
Cronbach's Alpha	N of Items
0,718	24

The value obtained is **0.718**, based on **24 items**. A Cronbach's Alpha value of **0.7 or higher** is generally considered **acceptable** in social science research. Therefore, the obtained result of **0.718** indicates a **good level of internal consistency**. This means that the responses provided by the participants are consistent across the items, and the instrument can be considered **statistically reliable** for further analysis and interpretation.

Construct validity of the study

dimensions:

Table 2: Construct validity of OSLQ

Pearson	Sig
0.783	0.000

The construct validity of the study dimensions was assessed using **Pearson's correlation coefficient**. The obtained value is **0.783**, with a **significance level (p-value) of 0.000**. These results suggest that the dimensions of the study are **strongly and significantly related to the overall concept**, confirming that the instrument has **good construct validity**. In other words, the questionnaire items are effectively measuring the theoretical construct they were intended to assess.

3.2.1.2 Descriptive Analysis

Section one: Goal Setting: Planning a specific learning outcomes and objectives

Table 3: Descriptive Statistics of Goal setting data

Goal Setting Items	Fr	Str Dis	Disagre	Neutral	Agree	Str Agr	Mean	STD	Results	Rank
1- I set standards for my assignments in online courses	Fr	0	0	3	26	1	3,93	0,365	Agree	3
	%	0	0	10	86,67	3,33				
2-I set short-term (daily or weekly) goals as well as long-term goals (monthly/semester).	Fr	1	3	4	18	4	3,70	0,952	Agree	4
	%	3,33	10	13,33	60	13,33				
3-I keep a high standard for my learning in my online courses.	Fr	0	0	3	18	9	4,20	0,610	Dis Ag	1
	%	0	0	10	60	30				
4-I set goals to help me manage study time for my online courses.	Fr	1	1	3	18	8	4,10	0,712	Agree	2
	%	3,33	3,33	10	60	26,67				
5-I don't compromise the quality of my work because it is online.	Fr	3	10	9	6	2	2,80	1,095	Agree	5
	%	10	33,33	30	20	6,67				
Section one : Goal setting							3,7467	0,37850	Agree	

The first item, "I set standards for my assignments in online courses," has a **high mean** score of **3.93** with a relatively low standard deviation (**0.365**), reflecting that most participants **agree** and show consistency in setting personal standards for their online assignments.

The second item, "I set short-term (daily or weekly) goals as well as long-term goals (monthly or for the semester)," received a high mean of **3.70**, which also indicates **agreement**. However, the higher standard deviation (**0.952**) shows a wider range of responses, suggesting that while many set either short- or long-term goals, some may not do.

The third item, *"I keep a high standard for my learning in my online courses,"* received the highest mean of **4.20**, with a standard deviation of **0.610**, demonstrating that participants **strongly agree** with maintaining high academic standards even in an online learning context.

The fourth statement, *"I set goals to help me manage study time for my online courses,"* also represents a strong agreement with a mean of **4.10**, which reflects that most students actively set time-management goals for their studies.

In contrast, the fifth item, *"I don't compromise the quality of my work because it is online,"* received the lowest mean score of **2.80**, and a relatively high standard deviation (**1.095**). This suggests that **many participants disagree** with the statement, meaning that some may indeed compromise quality when studying online, or feel uncertain about the quality of their online work.

Table 4 Statistics show the scores obtained by participants in Goal Setting

N	Mean	Std. Dev	T	Df	Sig. (2-tailed)	Score
30	3,7467	0,37850	54,217	29	0,000	High

Overall, in **GOAL SETTING** section, participants achieved a **mean score of 3.7467** on a 5-point Likert scale, with a **low standard deviation of 0.37850**, indicating a **high level** of agreement among responses. The **t-test result** ($t = 54.217$, $df = 29$, $p = 0.000$) confirms that the mean is significantly higher than the neutral point, and this difference is **statistically significant**. The score is classified as **"High"**, which shows that participants **demonstrate strong awareness and practice of goal setting** in their learning.

Section two: Environment Structuring: Creating favourable conditions for learning

Table 5 Frequency and descriptive statistics of Environment structuring

Environment structuring items		Strongly Dis	Disagree	Neutral	Agree	Strongly Agr	Mean	STD	Results	Range
I choose the location where I study to avoid too much distraction.	Fr	0	0	0	14	16	4,53	0,507	Str	1
	%	0	0	0	46,67	53,33				
I find a comfortable place to study.	Fr	1	0	1	18	10	4,20	0,805	Str	2
	%	3,33	0	3,33	60	33,33				
I know where I can study most efficiently for online courses.	Fr	0	3	2	19	6	3,93	0,828	Agr	3
	%	0	10	6,67	63,33	20				
I choose a time with few distractions for studying for my online courses.	Fr	1	2	2	20	5	3,87	0,900	Agr	4
	%	3,33	6,67	6,67	66,66	16,67				
Section 2: Environment Structuring							4,1333	0,42918	Agr	

The first item, *"I choose the location where I study to avoid too much distraction,"* received the **highest mean** score of **4.53** with a very low standard deviation (**0.507**), indicating that participants **strongly agree** with this practice. The consistency of the responses reflects that students are highly aware of the effect of physical environment on their focus during online learning.

Similarly, the statement *"I find a comfortable place to study"* had a high mean of **4.20**, which also reflects **strong agreement** among participants. The slightly higher standard deviation (**0.805**) implies a bit more variation in responses, but the overall trend shows a preference for comfort when selecting a study environment.

The third item, *"I know where I can study most efficiently for online courses,"* received a mean score of **3.93**, indicating that respondents generally **agree**. However, the standard deviation of **0.828** shows that some students may be still exploring or unsure about their ideal study setting.

The fourth statement, "I choose a time with few distractions for studying for my online courses," had a mean of **3.87** with a standard deviation of **0.900**, indicating **agreement**, although responses were slightly more dispersed. This suggests that while many students try to schedule study time strategically, some face challenges maintaining this habit consistently.

Table 5 Statistics show the scores obtained in Environment Structuring section

N	Mean	Std. Dev	T	df	Sig. (2-tailed)	Score
30	4,1333	0,42918	52,750	29	,000	High

In **Environment Structuring** section, participants reported a **mean score of 4.1333** on a 5-point Likert scale, with a **standard deviation of 0.42918**, indicating a **high degree** of agreement among responses. The **t-test result** ($t = 52.750$, $df = 29$, $p = 0.000$) confirms that this high mean is **statistically significant** and well above the neutral point.

The overall **Score is classified as "High"**, which confirms that participants are **actively engaged in managing their physical and digital learning environments** and minimizing distractions.

Section three: Task Strategies - Approaches to processing and applying information.

Table 6: Descriptive Statistics show scores in Approaches to processing and applying information

Task Strategies Items		Str Dis	Disagr	Neutra	Agree	StrAgr	Mean	STD	Result	Rank																																								
I try to take more thorough notes for my online courses because notes are even more important for learning online than in a regular classroom.	F	0	6	1	16	7	3,80	1,031	Agr	1																																								
	%	0	20	3,33	53,33	23,33					I read aloud instructional materials posted online to fight against distractions.	F	1	9	5	11	4	3,27	1,143	Neut	4	%	3,33	10	16,67	36,67	13,33	I prepare my questions before joining in discussion forum.	F	0	6	6	13	5	3,57	1,006	Agr	2	%	0	20	20	43,33	16,67	I work extra problems in my online courses in	F	2	3	6	18
I read aloud instructional materials posted online to fight against distractions.	F	1	9	5	11	4	3,27	1,143	Neut	4																																								
	%	3,33	10	16,67	36,67	13,33					I prepare my questions before joining in discussion forum.	F	0	6	6	13	5	3,57	1,006	Agr	2	%	0	20	20	43,33	16,67	I work extra problems in my online courses in	F	2	3	6	18	1	3,43	0,971	Agr	3												
I prepare my questions before joining in discussion forum.	F	0	6	6	13	5	3,57	1,006	Agr	2																																								
	%	0	20	20	43,33	16,67					I work extra problems in my online courses in	F	2	3	6	18	1	3,43	0,971	Agr	3																													
I work extra problems in my online courses in	F	2	3	6	18	1	3,43	0,971	Agr	3																																								

addition to the assigned ones to master the course content.	%	6,67	10	20	60	3,33	
Section three : Task Strategies							3,5167 0,60506 Agr

The first statement, *"I try to take more thorough notes for my online courses because notes are even more important for learning online than in a regular classroom,"* received a mean score of **3.80** with a standard deviation of **1.031**, demonstrating that most participants **agree** with this practice. The relatively higher standard deviation reflects some variability in how consistently students take notes, but overall, the importance of note-taking in online learning is well recognized.

The second item, *"I read aloud instructional materials posted online to fight against distractions,"* scored a mean of **3.27**, which is closer to a **neutral** stance. This suggests that participants are divided on this strategy, with some supporting it and others not, considering it particularly helpful in maintaining focus.

The third question, *"I prepare my questions before joining in discussion forums,"* had a mean of **3.57** and a standard deviation of **1.006**, reflecting a general **agreement**. This indicates that many students value preparation before participation, though some may not consistently apply this strategy.

The fourth item, *"I work extra problems in my online courses in addition to the assigned ones to master the course content,"* received a mean of **3.43**, showing agreement but with some diversity in responses (standard deviation **0.971**). This reflects that while extra practice is a recognized strategy by many, it is not universally adopted.

Table 7 Statistics show Scores obtained in Task Strategies Section

N	Mean	Std. Deviation	t	df	Sig. (2-tailed)	Score
30	3,5167	0,60506	31,834	29	0,000	High

Overall, Task Strategies Section statistical results show that participants achieved a **mean score of 3.5167** on a 5-point Likert scale, with a **standard deviation of 0.60506**, indicating a relatively consistent response pattern. The **t-test result** ($t = 31.834$, $df = 29$, $p = 0.000$) shows that this mean is **statistically significant**, and clearly above the neutral value. The **Score is rated as “High”**, which indicates that participants employ **effective strategies when handling learning tasks**, especially in processing and applying digital or academic information.

Section four: Time Management

Table 8 Descriptive Statistics of Time Management Section

Time Management Items		Str Dis	Dis Agree	Neutral	Agree	Str Agr	Mean	Std	Results	Rank
I allocate extra studying time for my online courses because I know it is time demanding.	Fr	2	3	6	18	1	4,00	0,871	Agr	1
	%	6,67	10	20	60	3,33				
I try to schedule the same time every day or week to study for my online courses, and I observe the schedule.	Fr	0	8	4	15	3	3,43	1,006	Agr	3
	%	0	26,67	13,33	50	10				
Although we don't have to attend daily classes, I still try to distribute my studying time evenly across days.	Fr	0	1	3	23	3	3,93	0,583	Agr	2
	%	0	3,33	10	76,67	10				
Section four: Time Management							3,7889	0,50653	Agr	

The first statement, *"I allocate extra studying time for my online courses because I know it is time demanding,"* received a mean score of **4.00** with a standard deviation of **0.871**, referring to strong agreement among participants. This indicates that learners are aware of time commitment required for online courses and are willing to invest additional time accordingly.

The second item, *"I try to schedule the same time every day or every week to study for my online courses, and I observe the schedule,"* had a mean of **3.43** with a standard deviation of **1.006**, showing general agreement but with more variability. This shows that while many students attempt to maintain a consistent study routine, some may struggle to adhere to it regularly.

The third item, "Although we don't have to attend daily classes, I still try to distribute my studying time evenly across days," had a mean score of **3.93** and a lower standard deviation of **0.583**, which refers to clear agreement and less variation among participants. This reflects a common strategy to manage time effectively by spacing study sessions even without formal daily class attendance.

Table 9 Statistics show scores obtained in Time Management section

N	Mean	Std. D	t	df	Sig. (2-tailed)	Score
30	3,7889	,50653	40,970	29	,000	High

In this section, participants recorded a **mean score of 3.7889** on a 5-point Likert scale, with a **standard deviation of 0.50653**, indicating a moderate variation in answers. The **t-test result** (t = 40.970, df = 29, p = 0.000) reflects that the mean score is **statistically significant** and substantially higher than the neutral midpoint. The overall **Score is rated "High"**, which means that participants demonstrate **strong time management practices** in their learning.

Section five: Help Seeking: Reaching out for assistance when needed

Help seeking Items	Fr	Str Dis	Disagre	Neutral	Agree	Str Agr	Mean	Std	Results	Range
I find someone who is knowledgeable in course content so that I can consult with him or her when I need help.	Fr	0	2	0	16	12	4,27	0,785	Str.	1
	%	0	6,67	0	53,33	40				
I share my problems with my classmates online, so we know what we are struggling with and how to solve it	Fr	0	3	2	9	16	4,27	0,980	St.	1
	%	0	10	6,67	30	53,33				
If needed, I try to meet my classmates face-to-face.	Fr	0	3	9	14	4	3,63	0,850	Ag	3
	%	0	10	30	46,67	13,33				
I am persistent in getting help from the instructor through e-mail.	Fr	1	0	2	15	12	4,23	0,858	Str.	2
	%	3,33	0	6,67	50	60				
Section four : Help Seeking							4,100	0,5892	Agr	

Table 10: Descriptive Statistics of Help Seeking Section

The first statement, *"I find someone who is knowledgeable in course content so that I can consult with him or her when I need help,"* had a mean score of **4.27** with a standard deviation of **0.785**, indicating strong agreement among participants. This indicates that learners actively seek knowledgeable peers or individuals to consolidate their learning when they encounter difficulties.

The second item, *"I share my problems with my classmates online, so we know what we are struggling with and how to solve our problems,"* also scored a mean of **4.27**, but with a slightly higher standard deviation of **0.980**. This reflects strong agreement with a bit more variability, indicating that collaborative problem-solving through online communication is a common practice, though some students may engage more actively than others.

The third statement, *"If needed, I try to meet my classmates face-to-face,"* had a mean score of **3.63** with a standard deviation of **0.850**, indicating general agreement. While students generally prefer online communication, many still value in-person meetings when needed.

The last statement, *"I am persistent in getting help from the instructor through e-mail,"* scored a mean of **4.23** and a standard deviation of **0.858**, showing strong agreement. This reflects that students are proactive and determined in seeking instructor assistance via digital means.

Table 11: Statistics show scores obtained in Help seeking section

N	Mean	Std. Dev	t	df	Sig. (2-tailed)	Score
30	4,1000	,58942	38,100	29	,000	High

In **Help Seeking** section, participants reported a **mean score of 4.1000** on a 5-point Likert scale, with a **standard deviation of 0.58942**, indicating a **high degree** of agreement among responses. The **t-test result** ($t = 38,100$, $df = 29$, $p = 0.000$) confirms that this high mean is **statistically significant** and well above the neutral point.

The overall **Score is classified as “High”**, reflecting a strong consensus that help-seeking behaviours, both online and face-to-face, are essential strategies in managing their online learning experiences.

Section six: Self-Evaluation: - Assessing one's own learning progress and outcomes

Table 12 Descriptive statistics of Self-evaluation Items

Self-evaluation items		Str Dis	Dissagr	Neutral	Agree	Str Agr	Mean	Std	Result	Rank
I summarize my learning in online courses to examine my understanding of what I have learned.	Fr	1	0	2	15	12	4,23	0,858	Str Agr	1
	%	3,33	0	6,67	50	40				
I ask myself a lot of questions about the course material when studying for an online course.	Fr	0	4	3	16	7	3,87	0,937	Agr	3
	%	0	13,33	10	53,33	23,33				
I communicate with my classmates to find out how I am doing in my online classes.	Fr	0	4	3	12	11	4,00	1,017	Agr	2
	%	0	13,33	10	40	36,33				
I communicate with my classmates to find out what I am learning that is different from what they are learning	Fr	0	4	5	12	9	3,87	1,008	Agr	3
	%	0	13,33	16,67	40	30				
Section Six Self-Evaluation							3,9917	0,59264	Agr	

The first statement, "I summarize my learning in online courses to examine my understanding of what I have learned," scored a mean of **4.23** with a standard deviation of **0.858**, reflecting strong agreement among participants. This reflects that participants actively engage in summarizing their knowledge as a way to guide their comprehension.

The second item, "I ask myself a lot of questions about the course material when studying for an online course," had a mean of **3.87** with a standard deviation of **0.937**, showing general agreement. This suggests that self-questioning is a common strategy among learners.

The third statement, "I communicate with my classmates to find out how I am doing in my online classes," had a mean score of **4.00** and a standard deviation of **1.017**. This indicates that

many learners value peer communication to monitor their progress, despite the higher standard deviation indicates differences in how frequently this happens.

The fourth statement, "I communicate with my classmates to find out what I am learning that is different from what they are learning," had a mean of **3.87** with a standard deviation of **1.008**, suggesting that students also engage in peer comparisons to better understand course content even though in different ways.

Table 13: Statistics show obtained scores Self-evaluation Section.

N	Mean	Std. Devi	t	df	Sig. (2-tailed)	Score
30	3,9917	,59264	36,891	29	,000	High

Participants in this section achieved a **mean score of 3, 9917** on a 5-point Likert scale, with a **standard deviation of 0.59264**, reflecting moderate variability in responses. The **t-test result** (t = 36.891, df = 29, p = 0.000) confirms that the mean is **statistically significant**, and above the neutral point. The **Score is rated as “High”**, indicating a general agreement that self-evaluation through summarizing, questioning, and peer communication is an important part of the online learning process.

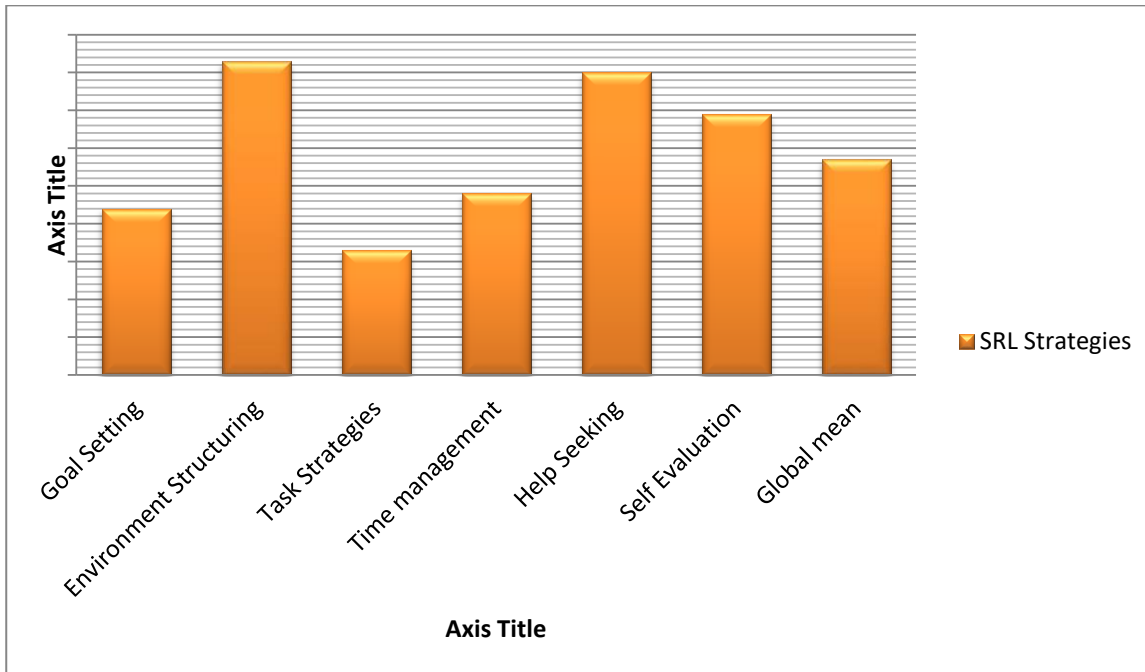
Overall Scores of Self-regulated Learning Questionnaire

Table 14: Global descriptive statistics indicate the participant’s level in SRL

N=30 Likert scale	Mean	Std. Dev	t	df	Sig. (2-tailed)	Score
Goal Setting	3,7467	0,37850	54,217	29	0,000	High
Environment structuring	4,1333	,42918	52,750	29	,000	High
Task strategies	3,6396	0,50653	31,834	29	0,000	High
Time Management	3,7889	,50653	40,970	29	,000	High
Help Seeking	4,1000	,58942	38,100	29	,000	High
Self-evaluation	3,9917	,59264	36,891	29	,000	High
Total	3.8795	0.31743	66.940	29	,000	High

Global mean 3,8795 this indicates that the overall respondents scored well on SRL Questionnaire (above the neutral point 3,00). The value of St Deviation 0, 31743, which is relatively small, confirms the balance of Self- regulated learning dimensions.

Graph comparing the means of all sections of SRL questionnaire.



3.2.2 The Second Questionnaire: DLQ-LL:

3.2.2.1 Reliability of the Questionnaire:

Note: **DLQ-LL** is a standardized questionnaire which means it is valid and reliable; Statistics are given only for illustration.

Table 15 DLQ-LL Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
0,893	69

According to **Table 1 above**, we notice that the Cronbach’s Alpha value for the overall questionnaire is **0.893**, which is **very high**. So, the questionnaire used in this study demonstrates **high reliability**, and its items are consistent and dependable for measuring the intended variables.

3.2.2.2 Pearson Correlation:

The **Pearson correlation coefficient** (r) measures the linear relationship between two variables.

Interpretation Guidelines:

-
- **0.70-1.00**: Very strong relationship
 - **0.50-0.69**: Strong relationship
 - **0.30-0.49**: Moderate relationship
 - **0.10-0.29**: Weak relationship
 - **0.00-0.09**: Negligible relationship
-

Construct validity of the Study dimensions:

Table 16: Construct validity of the study dimensions

Pearson	Significance Level
0.681	0.000

The **Pearson** correlation coefficient between the study dimensions is **0.681** as it is represented in Table 2 above with a significance level of **0.000**. Therefore, the study dimensions show good construct validity, indicating that the instrument effectively measures the intended relationship between self-regulated learning and digital literacy among EFL master's students in online programs.

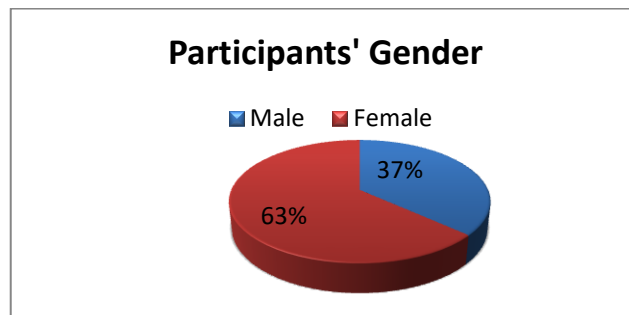
Section one: Background information:

The **Digital Literacy Questionnaire – Language Learners (DLQ-LL)**'s first section describes the participants' gender, age, native language, their target language to learn and improve, their academic level and their experience using computers, the types of computers they use and what for. In addition to, who taught them to use computers, what type of mobile advice they own, what is their purposes and finally, how do they find out about new digital technologies. These kinds

of information help to build up a profile of the involved participants and allow considering any potential influence these factors have on the study's findings.

Question 01: Participants' Gender.

As it is represented in **Graph 01** below, we notice that among the 30 respondents, 63.33% are female while 36.67% are male. This shows that the majority of the participants in the study are female students enrolled in the online master's programs at M'sila University. The difference in gender distribution is remarkable. so, it can be said that the sample for this study is predominantly female.

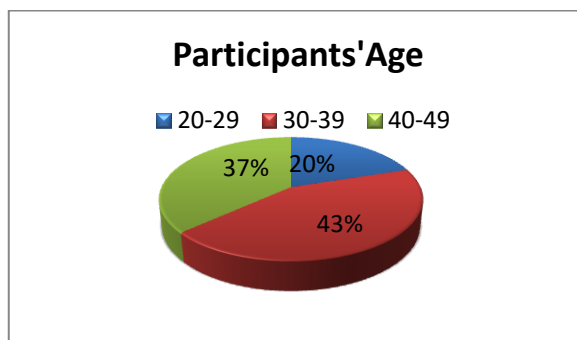


Graph 01: Participants' Gender.

Question 2: The Participants' Age.

Graph 2 below represents the age distribution among the 30 respondents, which is as follows: 20% are aged 20-29 years, 43.33% are aged 30-39 years, and 36.67% are aged 40-49 years.

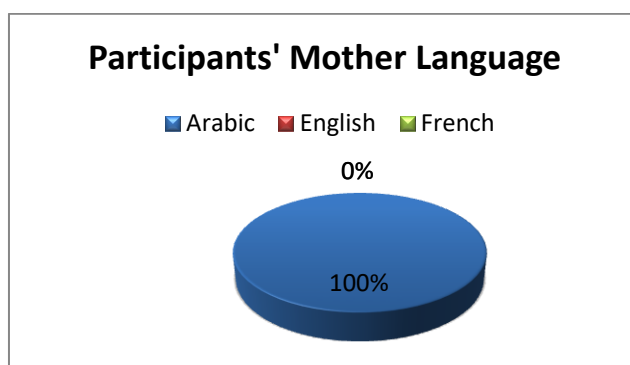
The majority of participants aged between (30-49 years), indicates that the most of the participants are mature students. This suggests that many students in this online program may be balancing their studies with work or family responsibilities. 20% of the students aged (20-29 years), this percentage shows less representation of early-career learners. Age can influence both SRL and DL, as older students might have different learning preferences and levels of proficiency with technology compared to younger students.



Graph 02: Participants' Age.

Question 03: Mother Language

Graph3 below, Represents that all 30 respondents (100%) reported **Arabic** as their mother tongue. No participants reported **English** or **French** as their first language. This finding is expected and natural because the research was conducted among students in Algerian learning environment, where **Arabic is the official and predominant mother language**.



Graph 3: Participants' Native Language.

Question 4: The target language participants want to learn and improve.

Table 17: Targeted Languages to improve by the Participants.

Languages	Frequencies	Percentages	Percentages of case
Chinese	1	3,03	3,33
English	23	69,7	76,67
French	4	12,12	13,33
German	2	6,06	6,67
Italian	1	3,03	3,33
Spanish	1	6,06	3,33
Total	33	100	138,33

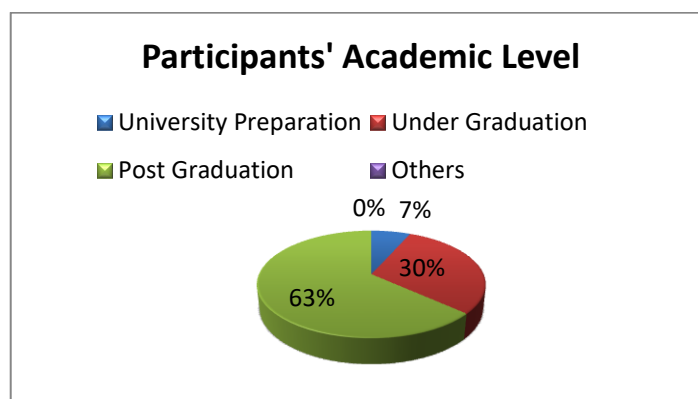
According to **Table 17** above, the majority of respondents (69.7%) opted for English as the target language they want to learn and improve. This is followed by French at 12.12%, German and Spanish both at 6.06%, and smaller percentages for Chinese and Italian at 3.03% each.

It is notable that the total frequency exceeds the total number of participants (33 responses from 30 participants), indicates that some participants opted for more than one language, reflecting a multilingual interest among the students.

The dominance of English aligns to the participants being EFL students pursuing an online master's degree, reflecting the critical role of English language competency in their academic pursuits. The representation of French and other European languages indicates broader linguistic interests that may reflect Algeria's multilingual context and diverse cultural heritage.

Consequently, English serves as the main target language for the majority of participants, however, the interest in the other languages demonstrates varied linguistic aspirations among the study participants.

Question 05: Academic Level.



Graph 04: The Academic Level of the Participants.

Graph 4 above, indicates that the majority of respondents (63.33%) are currently at the **postgraduate** level. Meanwhile, 30% are at the **undergraduate** level, and a small portion (6.67%) is in **university preparation** programs. No participants selected "Others."

This distribution demonstrates that most participants are engaged in advanced academic studies, which aligns with the focus on online master's programs at M'sila University. The presence of undergraduate and preparatory students suggests a broader participant base or possible enrollment in bridging programs.

Academic level is important because it impacts students' SRL skills and DL, with postgraduate students possibly having more experience and motivation for autonomous learning. Therefore, the study sample is predominantly postgraduate learners.

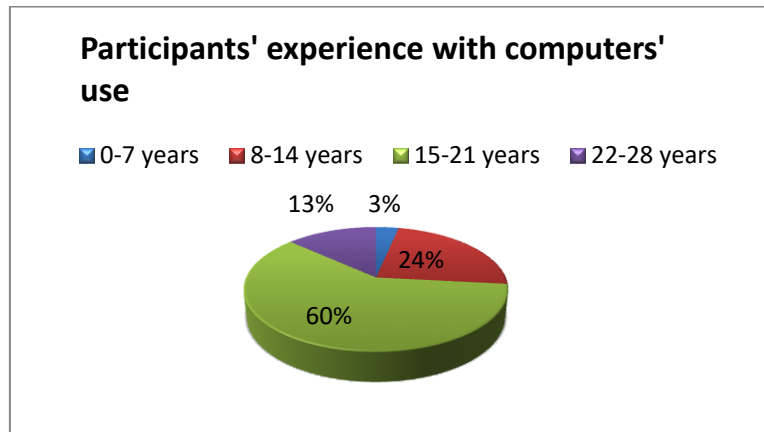
Question 6: How long they have been using Computers?

Table 18 and **Graph 5** below illustrates that the majority of respondents (60%) have been using computers for **15 to 21 years**. moreover, 23.33% have an experience ranging from **8 to 14 years**, 13.33% have used computers for **22 to 28 years**, and only a small minority (3.33%) have been using computers for **0 to 7 years**. This data demonstrates that most participants are quite experienced with computers, which is relevant to their level of DL. Longer exposure to computers is likely to improve digital skills that can positively affect their ability to engage in SRL in an online learning.

As a result, the sample mostly consists of participants with considerable experience in computer use, which contributes to higher DL among the students.

Table 18: How long have the participants been using computers?

Periods of using computers	Frequencies	Percentages
0-7 years	1	3,33
8-14 years	7	23,33
15-21 years	18	60
22-28 years	4	13,33
Total	30	100

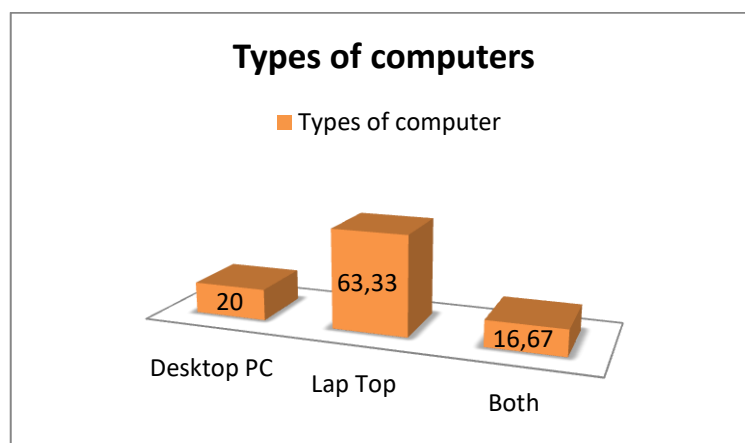


Graph 05: participants experience with computer use.

Question seven: What type of computer have they used?

The questionnaire results shown in **Graph 6** reveal that the majority of respondents (63.33%) use **laptops**, while 20% use **desktop PCs**, and 16.67% have used **both types** of computers.

This distribution reflects the current trends in computer usage, especially among university students who often prefer laptops for their portability and convenience in online learning settings. The smaller percentage using desktop PCs might be due to limited mobility or preference for stationary setups. Using both types of computers reflect flexibility and adaptability in digital tool usage that could positively affect students' DL and SRL. Therefore, most students prefer laptops, which ameliorate their ability to engage effectively in online learning due to the mobility and convenience laptops offer.



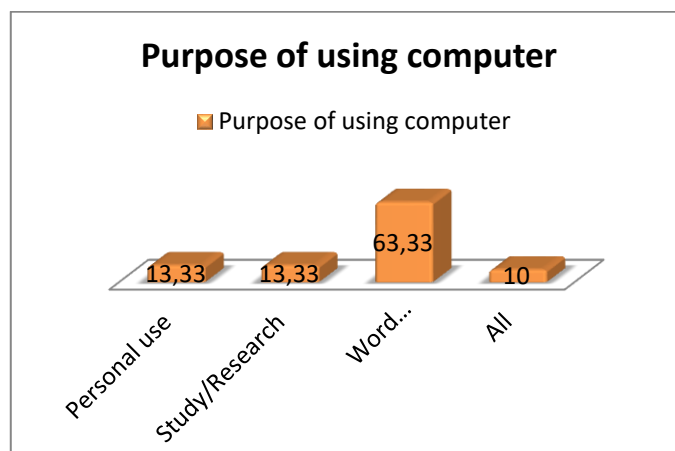
Graph 6: Types of Computers participants' use.

Question 08: Purpose

The **Graph 7** below indicates that (63.33%) of the participants use computers mainly for **word processing**. Both **personal use** and **study/research** purposes were selected by only 13.33% of the respondents and (10%) reported using computers for **all the listed purposes**.

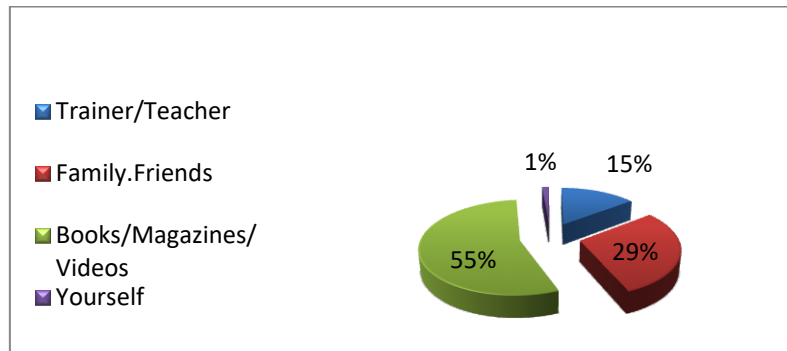
This finding reflects the academic orientation of the participants. The dominance of word processing as the primary purpose shows the participants' focus on assignments, reports, and other educational tasks in their online master's program. The low percentage for "**all purposes**" suggests that many students may use digital tools in a more focused or limited way.

These results also reveal the role of digital tools in supporting academic productivity, which is vital in SRL environments. **So**, it can be said that most participants use computers mainly for academic writing and preparation, which aligns with their status as postgraduate students and the needs of online education.



Graph 07: Purpose of using computer by participants.

Question 09: Who taught you how to use the computer in the first place?



Graph 8: The participants’ resources to learn how to use computers

It is notable in **Graph 8** that half of the participants (50%) reported that they learned how to use the computer through **books, magazines, or videos**. A significant portion (26.67%) mentioned they were taught by **family or friends**, while 13.33% learned from a **trainer or teacher**. Only 10% indicated that they taught **themselves**.

This distribution reflects that informal and self-guided learning sources (like books and videos) play a pivotal role in computer literacy among students. Additionally, the influence of family and friends also points to the importance of social learning in developing digital skills. The relatively small percentage of participants who learned from teachers might reflect limited formal training opportunities in earlier educational stages. These results are significant in the context of SRL, where the ability to independently acquire digital skills is a crucial factor for success in online programs. Hence, it is concluded that most students have developed their computer skills through independent or informal means, which reflects their adaptability and autonomy in managing digital learning tools.

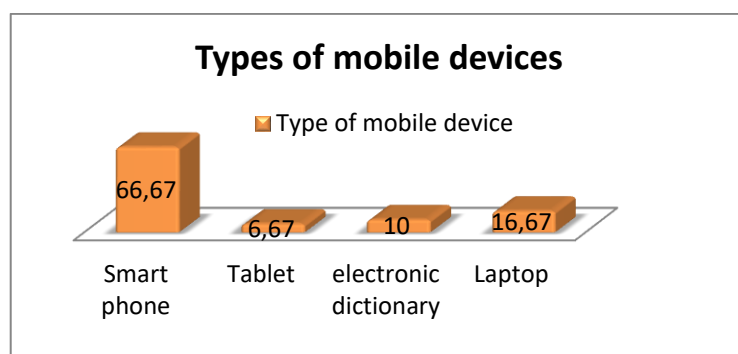
Question10: What type of mobile device do you own?

According to **Graph 9** below, the majority of respondents (66.67%) own a **smart phone**, followed by **laptops** (16.67%), **electronic dictionaries** (10%), and finally **tablets** (6.67%).

This result demonstrates the widespread accessibility and usage of smart phones among students, making them the most useful mobile device. Smart phones provide multiple functionalities

such as browsing, communication, and app-based learning, which consolidate SRL and DL. The relatively low percentages for tablets and electronic dictionaries indicate that they are less preferred or less practical by learners in the Algerian context. The moderate presence of laptops as mobile devices suggests that while they are essential for academic tasks, smart phones still dominate daily digital engagement due to their portability.

Consequently, smart phones are the most widely used mobile devices among the participants, which implies that any educational digital content should be optimized for smart phone use to enhance accessibility and learning efficiency.



Graph 09: Type of mobile device the participants own.

Question 11: The Participants' Purposes of Using These Mobile Devices.

Table19 below represents the various purposes behind using mobile devices among the participants of the study. (73.33%) use their mobile devices for **assignments, lecture notes, and web search**, which clearly highlight their academic orientation. A smaller portion (16.67%) reported using them primarily for **studying at home**, which also supports educational purposes, though in a more general sense. On the other hand, only 6.67% use their mobile devices for **web search, watching videos, and playing games**, and even smaller percentage (3.33%) use them for **communication and entertainment** like phone calls, emails, and music.

These findings show that most participants rely heavily on mobile devices as significant tools for academic tasks. This is particularly relevant in the context of online master's programs where

DL and access to course materials via mobile technology are necessary for success. **As a consequence**, the primary use of mobile devices among students is for educational objectives, reflecting a strong alignment between DL and SRL goals in the online learning environment.

Table 19: Participants’ purpose behind using mobile devices.

Purposes	Frequency	Percentages
Home study	5	16,67
Phone calls, emails, listening to music	1	3,33
Web search, watching videos ,playing games	2	6,67
Assignments, lectures, notes, web search	22	70,33
Total	30	100

Question 12: How do you find out about digital technologies? (Choose more than one option)

Table 20: How do participants find out about digital Technologies?

How?	Frequency	Percentages	Percent of case
Teachers	6	15.38	20
Friends/family	10	25.64	33,33
Magazines /books /newspapers	2	5.13	6,67
Websites/blogs/emails	12	30.77	40
/TVs’ /Radios/Social net works	9	23.08	30
Total	39	100	130

Table 20, indicates that the most common sources through which students discover new digital technologies are **websites, blogs, and emails**, selected by 40% of the participants. This reflects a strong reliance on online platforms as primary tools for staying updated in the digital age.

Friends and family is the second most selected option with 33.33%, suggesting that interpersonal communication and informal social networks also play a vital role in digital awareness. In third place, **TV, radio, and social networks** accounted for 30%, which emphasizes the influence of mass media and social platforms in shaping students' exposure to digital tools. **Teachers** were selected by

only 20% of participants, indicating that formal education still contributes but may not be the main channel for digital updates. Finally, **magazines, books, and newspapers** were the least selected option, with only 6.67%, highlighting a decline in traditional media use for digital learning.

These results indicate the significance of online and social sources in enhancing students' DL, especially in a SRL environment where initiative and access to relevant tools are essential.

Accordingly, students primarily rely on web-based and social resources rather than traditional or formal educational sources to learn about new digital technologies, reinforcing the idea that DL development is largely informal and self-driven.

To sum up, the first section of the DLQ-LL reflects that the study population is predominantly female, with 80% of participants being adults aged 30 and above. All participants share Arabic as their native language, while 70% express a strong interest in improving their English proficiency. This aligns with the educational profile of the sample, as over 63% are pursuing postgraduate studies.

Regarding digital literacy, participants represent an extensive technological experience, having used computers, lap tops and smart phones for more than 25 years. Their main usage focus on academic tasks, including: study, research, and word processing, indicating a learning-oriented approach to technology adoption. Notably, participants acquired knowledge about digital technologies through informal channels, particularly blogs, email communications, and social networking platforms, rather than through formal ones.

Section 2: Self-assessment of computing and digital abilities.

In this section, participants are asked to tick 1 option so as to assess their computing digital abilities.

Table 21: Descriptive Statistics of self-assessment of computing and digital abilities section

Questions:	Fr	V.Poor	poor	Accept	Good	Vgood	Mean	Std	Result	Rank
1-How would you rate your typing skills?	Fr	0	1	13	12	4	3,63	0,5656	Good	5
	%	0	3,33	43,33	40	13,33				
2- How would you rate your web search skills?	Fr	0	0	14	12	4	3,67	0,6992	Good	4
	%	0	0	46,66	40	13,33				
3- How would you rate your computing literacy?	Fr	0	0	11	12	7	3,87	0,7630	Good	1
	%	0	0	36,67	40	23,33				
4- How would you rate your internet literacy?	Fr	0	0	9	17	4	3,83	0,6369	Good	2
	%	0	0	30	56,67	13,33				
5- How would you rate your digital literacy?	Fr	0	1	10	15	4	3,73	0,73	Good	3
	%	0	3,33	33,33	50	13,33				
Total score							3,7467	0,59407	Good	

Table 22: Total scores of Digital abilities section

N	Mean	%	Std. Dev	T	df	Sig. (2-tailed)	Score
30	3,7467	68,67	0,59407	34,544	29	0,000	High

The results for the *Self-assessment of computing and digital abilities* among the participants demonstrate a **mean score of 3.7467** on a 5-point Likert scale. The **standard deviation is 0.59407**, indicating relatively consistent responses among participants. The **t-test result** ($t = 34.544$, $df = 29$, $p = 0.000$) confirms that the mean is statistically significant and **greater than the hypothetical mean**, with **high confidence**. The score is classified as **“High“**.

Section three: Exploration of digital technology usage patterns.

Question one: Please respond to each of the following questions by putting a tick (✓) in the box at the appropriate spot: ‘Yes’ or ‘No’

Questions	Yes		No		Scores according to Yes			
	F	%	F	%	Mean	Std	Level	R
1- Do you understand the basic functions of computer hardware components?	23	76,67	7	23,33	0,767	0,430	Mod	5
2- Do have a personal home page or per. portfolio on the web?	8	26,67	22	73,33	0,267	0,450	Low	8
3- Do you use keyboard short cuts?	24	80	6	20	0,800	0,407	High	4
4- Do you the computer for learning purposes?	30	100	0	0	1,000	0,000	V.High	1
5- Do you find it easy to learn s.th by reading it on the comp S?	26	80	4	20	0,867	0,346	High	4
6- Do you find it easy to learn S.th by watching it on the comp S?	29	96,67	1	3,33	0,967	0,183	V.High	2
7- Do you use social network services?	29	96,67	1	3,33	0,967	0,183	V.High	2
8- Do you have any online friend you have never met in person?	22	73,33	8	26,67	0,733	0,450	Mod	7
9- Do you feel competent in using digital learning resources?	23	76,33	7	23,33	0,767	0,379	Mod	6
10-Do you have mobiles apps you use for language learning?	25	83,33	5	16,67	0,833	0,379	High	3
Total Scores					0,7968	0,326	High	

Table 23 Descriptive Statistics of Digital Tech use in learning

Table 24: Statistics show scores obtained in using digital Tech in learning

N	sum	Mean	percentage	Std. Dev	T	df	Sig. (2-tailed)	Score
30	1,2033	0,7968	79,68%	0,11885	55,454	29	0,000	High

The results of this section reveal a **mean score of 0.7968**, with 79, 68% of participants saying yes and a **standard deviation of 0.11433**, indicating very little variation among participants' responses .Show a **high level of consistency** across responses. The **t-value of 86.814** with a **p-value of 0.000** confirms that the result is **highly statistically significant**. The overall "**High**" score implies that participants frequently use digital technology in their learning process.

Question two: Please respond to each of the following questions by putting a tick (✓) in the box at the appropriate spot: 'Yes' or 'No'

Table 25: Descriptive Statistics of digital skills and functions

Questions	Yes		No		Scores according to Yes			
	Fr	%	Fr	%	Mean	Std	Level	R
1- Can you change your screen brightness and contrast?	26	86,67	4	13,33	0,867	0,346	Mod	4
2- Can you minimize, maximize and move windows on the computer screen?	24	80	6	20	0,800	0,407	High	6
3- Can you use a search command to locate a file?	28	93,33	2	6,67	0,933	0,254	Low	3
4- Can you scan disks for viruses?	22	73,33	8	26,67	0,733	0,450	High	8
5- Can you write files onto a CD, a DVD and a USB drive?	26	86,67	4	13,33	0,867	0,346	Mod	4
6- Can you create and edit digital photos?	12	40	8	26,67	0,400	0,498	High	9
7- Can you take and edit digital photos?	29	96,67	1	3,33	0,967	0,183	Low	2
8- Can you record and edit digital sounds?	25	83,33	5	26,67	0,833	0,379	Mod	5
9- Can you record and edit digital videos?	23	76,67	7	23,33	0,767	0,423	High	7
10- Can you download and use apps on digital devices?	30	100	0	0	1,000	0,000	High	1
Total Scores					0.8361	0.134	High	

Table 26: Statistics show scores obtained in digital skills perception

N	sum	Mean	Percentage	Std. Deviation	T	df	Sig. (2-tailed)	Score
30	1.8167	0,8361	83,6%	0,13412	48,325	29	0,000	High

The results show a **mean score of 0,8361** on a binary scale and 83,6%, with a **standard deviation of 0.13412**, reflecting very consistent responses among participants. The **t-test result** ($t = 74.189$, $df = 29$, $p = 0.000$) confirms that the mean is **statistically higher than the theoretical average**, and this difference is highly significant. The **Score is classified as “high”**, which means that **participants report a strong command of digital skills**.

Question Three: Please indicate your level of frequency of using each of the followings by putting a tick (✓)

Table 27 Descriptive statistics show rates of using fundamental skills

Practical items	V.freq	Fre	Occasiss	Rarely	Vgrarely	Never	Mean	Std	Level
1- Word processor	8	12	2	6	0	2	3,533	1,547	High
2- Email	18	10	2	0	0	0	4,533	0,681	v.high
3- World wide Web	10	10	0	6	3	1	3,500	1,500	High
4- Graphics software.	1	5	6	12	3	3	2,333	1,243	Low
5- Database.	2	9	8	8	1	2	2,900	1,374	Moder
6- Spread sheet(Data organization)	1	2	8	12	3	4	2,133	1,224	Low
7- Concordance (for text analysis)	2	6	7	11	0	4	2,567	1,406	Moder
8- Language learning software (CD-ROM	2	1	8	9	7	3	2,100	1,424	Low
9- Language learning website	7	12	9	2	0	0	3,800	1,031	High
10- Language learning mobile app.	9	11	5	5	0	0	3,800	1,095	High
11- Blog.	3	1	7	10	3	6	2,100	1,540	Low
12- Wiki	1	7	8	5	3	6	2,333	1,474	Low
13- Text Chatting	13	12	3	2	0	0	4,200	0,961	v.high
14- Voice chatting	6	9	4	8	1	2	3,167	1,440	High
15- Video conferencing.	3	7	13	5	2	0	3,222	1,517	High
16- Computer games	1	4	9	6	5	5	2,167	1,441	Low
17- Electronic Dictionary.	8	12	7	2	0	1	3,767	1,135	High
Total score							3,1569	0,56513	

Table 28: Scores obtained in digital academic skills

N	Mean	%	Std. Dev	t	df	Sig. (2-tailed)	Score
30	3,1569	73,30%	,56513	30,596	29	,000	Moderate

The statistical results for this section reveal that participants have a **mean score of 3.3294** on a 5-point Likert scale, with a **standard deviation of 0.61162**, which reflects moderate dispersion in responses. The **t-test result** ($t = 29.816$, $df = 29$, $p = 0.000$) indicates that the score is **statistically significant and higher than the theoretical midpoint**.

The overall score is classified as “**Moderate**”, indicating that participants demonstrate a **reasonable but not advanced** ability in using digital academic skills.

Question 4: How would you rate your skills for using each of the followings? Put a tick (√).

Table 29 Descriptive statistics of digital academic skills

Practical items	V.Good	Good	Acceptabl	Poor	V.poor	Don't kn	Mean	Std
Word processing applications (MS Word)	10	11	9	0	0	0	4,0333	0,8087
Spreadsheet applications (e.g., MS Excel)	6	10	8	6	0	0	3,5333	1,0417
Database applications (e.g., MS Access)	3	3	10	6	2	0	2,9583	1,1221
Presentation applications (MS PowerPoint)	10	5	10	3	2	0	3,6000	1,2484
Communication applications (e.g., Skype)	11	9	4	1	5	0	3,6667	1,4464
Learning management systems (eMoodle)	7	13	8	2	0	0	3,8333	0,8743
Virtual worlds (e.g., Second Life)	19	7	4	0	0	0	4,5000	0,7311
Social networking services (e.g., Facebook)	1	6	6	10	5	2	2,5714	1,1362
Blogs (e.g., Blogger)	2	7	14	3	1	3	3,2222	0,8916
Wikis (e.g., PB works)	3	3	7	6	3	8	2,8636	1,2458
Podcasts (e.g., Apple Podcasts)	4	3	8	6	5	4	2,8077	1,3272
File sharing sites (e.g., Dropbox)	7	5	7	4	3	4	3,3462	1,3548
Photo sharing sites (e.g., Picasa)	4	7	8	5	4	2	3,0714	1,2745
Video sharing sites (e.g., YouTube)	16	6	7	1	0	0	4,2333	0,9353
Web design applications (Dreamweaver)	1	1	5	8	3	12	2,3889	1,0369
Web search engines (e.g., Google)	16	12	2	0	0	0	4,4667	0,6288
Dictionary apps (e.g., Dictionary.com)	10	11	7	2	0	0	3,9667	0,9279
Total score							3,3294	0,61162

Table 30: Statistics show rates in Digital Academic Skills

N	Mean	%	Std. Dev	t	df	Sig. (2-tailed)	Score
30	3,3294	54%	,61162	29,816	29	,000	Moderate

The statistical results for this section reveal that participants have a **mean score of 3.3294** on a 5-point Likert scale, with a **standard deviation of 0.61162**, which reflects moderate dispersion in responses. The **t-test result** ($t = 29.816$, $df = 29$, $p = 0.000$) indicates that the score is **statistically significant and higher than the theoretical midpoint**.

The overall score is classified as “**Moderate**”, indicating that participants demonstrate a **reasonable but not advanced** ability in using digital academic skills.

Section four: A practical digital literacy evaluation:

The following questions cover general areas of DL. You may not know the answers to all questions, but please attempt to answer them without asking others or referring to books.

Table 31: Descriptive Analysis of Digital Literacy Evaluation

Questions	Correct answers score	% %	Wrong answers Score	%	Level
Which device do you need to install on your computer in order to have a video conference with your friends?	25	83,33	5	16,67	High
Where does a digital camera store its pictures?	25	83,33	5	16,67	High
What are AVI and MP4 examples of?	17	56,67	13	43,33	Moderate
Which technology is the process of converting spoken words into text?	12	40	18	60	Low
What is Bluetooth?	28	93,33	2	6,67	Vhigh
Which of the following does not need to be asked when evaluating information provided on websites?	14	46,67	16	53,33	Low
What is the term for junk emails or unsolicited messages sent over the Internet?	20	66,67	10	33,33	Moderate
What is the process of confirming your username and password on the computer?	21	70	9	30	Moderate
What is the fraudulent attempt to acquire sensitive information such as passwords and credit card details in an electronic communication?	13	43,33	17	56,67	Low
Which of the following is not considered to be safe password practice?	19	62,33	11	36,67	Moderate
Total of scores of section 4	194/300	64.67%	106	35.33%	High

The results of section four show a **total score of 194 out of 300**, which represents **64.67% correct answers**. This is interpreted as a **Moderate to High score**, reflecting that participants demonstrated a relatively good level of practical digital literacy.

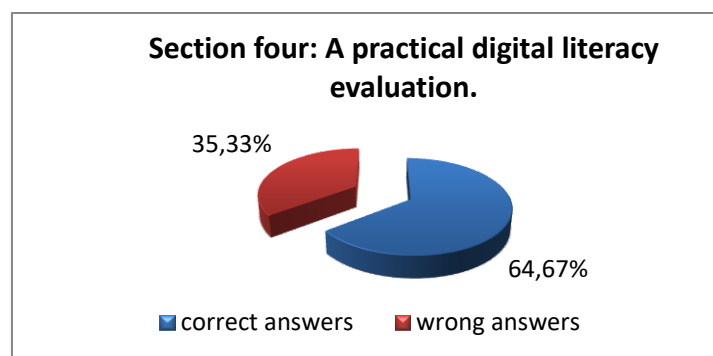
Most participants were able to answer basic technical questions correctly. For instance, **83.33%** knew that a webcam is needed for video conferencing and where a **digital camera stores its pictures**, both receiving a “**High**” score. A **very high level of knowledge** was shown regarding **Bluetooth technology** (93.33%), suggesting strong familiarity with common wireless connectivity

tools. In contrast, **some digital concepts were less understood**. Only **40%** could identify speech-to-text technology, and **43.33%** could define “phishing.” These questions had “**Low**” scores, showing weaknesses in cyber security and recent digital applications. Other areas, such as recognizing **file formats (AVI, MP4)** or identifying **spam emails**, received “**Moderate**” scores (56.67% and 66.67%, respectively), representing average awareness.

Table 32 scores obtained in digital literacy evaluation

N=30	Mean	%	Std	Median	Mode
10 questions	19,4	64,67%	5,48	19,5	25

Overall, the table 32 illustrates the **solid basic skills participants possess** in digital literacy, but there are **gaps in more advanced or conceptual knowledge**, especially in **information evaluation and cyber-security**.



Graph 10 represents success of DL Evaluation.

Section five: An examination of factors influencing technology adoption for language learning along with personal perspectives on digital devices.

Question one: What do you think are the factors affecting the use of digital technologies for language learning? Please tick (✓) all that apply.

Table 33: Factors may impact the use of D Tech in language learning

Factors:	Frequency	Percentages of case	Percentages 100%
Lack of time	11	36,67	5,34
Lack of budget	13	43,33	6,31
Lack of knowledge of teachers	10	33,33	4,85
Lack of knowledge of students	28	93,33	13,59
Lack of skills of teachers	12	40	5,83
Lack of skills of students	17	56,67	8,25
Lack of interest of teachers	3	10	1,46
Lack of interest of students	2	6,67	0,97
Lack of training	30	100	14,56
Lack of learning materials	30	100	14,56
Lack of supporting resources	20	66,67	9,71
Lack of facilities	30	100	14,56
Other (please specify)	00	00	00
Total	206	-	76,98%

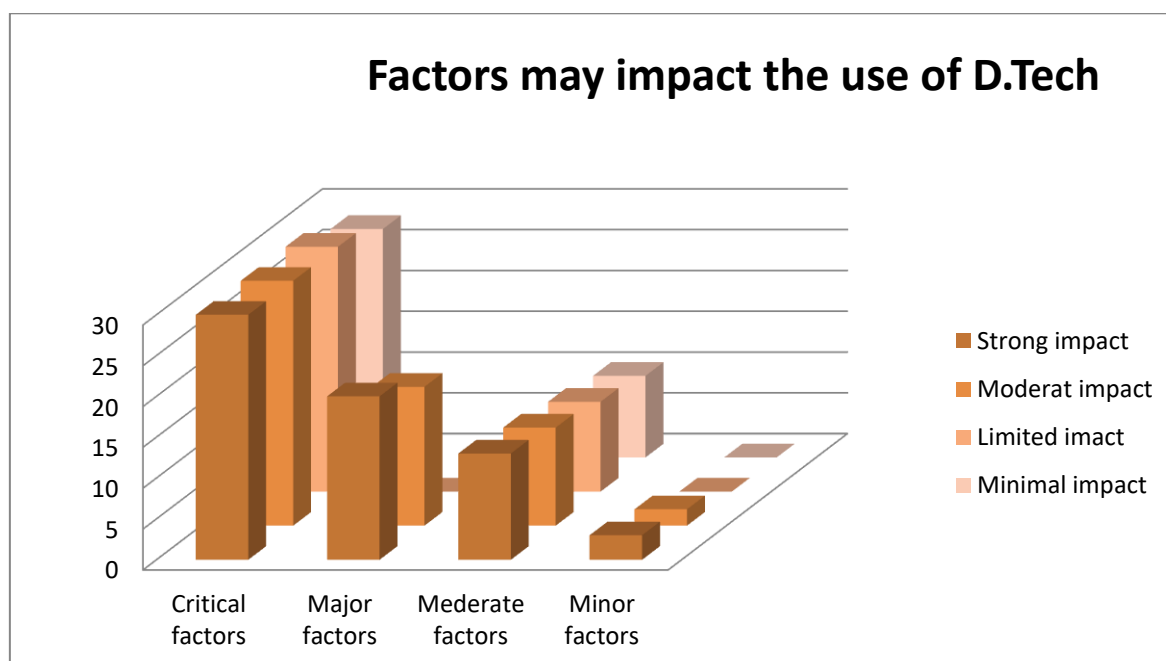


Table 34 Frequency grouped data of factors impacting D. Tech use in LL

Critical factors (more than 90%)	Major factors (50-89%)	Moderate factors (25-49%)	Minor factors (less than 25%)
Lack of training	Lack of supporting resources	Lack of budget	Lack of interest of teaches
Lack of learning materials	Lack of skills of students	Lack of skills of teachers	Lack of interest of students
Lack of facilities		Lack of time	
Lack of knowledge of Students		Lack of knowledge of teachers	

Table 35 Descriptive statistics show the distribution of factors affecting the use of D.T in LL

N	Factors	Total Reponses	Mean freq	%	Mode	Median freq	Std	Range	Max	Min
30	13	206	17,17	76,98%	30	16,5	10,0489	28	30	2

The tabulated data demonstrate considerable variation in the identified factors influencing digital technology adoption in language learning contexts. The analysis reveals a mean frequency of 17.17 with a standard deviation of 10.0489, indicating substantial dispersion within the dataset. This high variability is further corroborated by the extensive range of 28, which underscores the wide spectrum of responses.

The mode value of 30 represents the predominant factors that critically impact participants' integration of digital technology in their language learning processes. The presence of additional major, minor and moderate factors creates a heterogeneous distribution pattern, reflecting diverse educational obstacles that necessitate strategic, prioritized interventions to address the varying levels of technological barriers encountered by learners.

Question two: Please indicate the extent to which you agree or disagree with the following statements by putting a tick (√) in the box at the appropriate spot: ‘strongly agree’, ‘Agree’, ‘Uncertain’, ‘Disagree’ or ‘Strongly Disagree’.

Table 36: Descriptive statistics represent attitudes toward digital tech

Attitudes	F	Str.Agr	Agr	Uncert	Disagr	Str.dis	Mean	Std	Result	Rank																																																																																																																																																															
I enjoy using digital devices.	F	14	13	3	0	0	4,37	0,67	high	4																																																																																																																																																															
	%	47	43,33	10	0	0					I feel comfortable using digital devices.	F	9	17	4	0	0	4,17	0,65	high	7	%	30	56,67	13,33	0	0	I am aware of various types of digital devices.	F	7	18	4	1	0	4,03	0,72	high	8	%	23,33	60	13,33	3,33	0	I understand what digital literacy is.	F	11	17	2	0	0	4,30	0,60	high	5	%	36,67	56,67	6,67	0	0	I am willing to learn more about digital technologies.	F	19	10	1	0	01	4,60	0,56	high	2	%	63,33	33,33	3,33	0	3,33	I feel threatened when others talk about digital technologies.	F	1	3	5	15	6	2,27	1,01	low	9	%	3,33	10	16,67	50	20	I feel that I am behind my fellow students in using D.Tech	F	3	6	7	11	3	2,83	1,18	low	9	%	10	20	23,33	36,67	10	I think that it is important for me to improve my digital fluency.	F	15	12	1	1	1	4,30	0,60	high	6	%	50	40	3,33	3,33	3,33	I think that my learning can be enhanced by using digital tools and resources.	F	15	15	0	0	0	4,50	0,67	high	3	%	50	50	0	0	0	I think that training in tech-enhanced language learning should be included in language education programs.	F	19	11	0	0	0	4,63	0,49	high	1	%	63,33	36,67	0	0	0	Total scores					
I feel comfortable using digital devices.	F	9	17	4	0	0	4,17	0,65	high	7																																																																																																																																																															
	%	30	56,67	13,33	0	0					I am aware of various types of digital devices.	F	7	18	4	1	0	4,03	0,72	high	8	%	23,33	60	13,33	3,33	0	I understand what digital literacy is.	F	11	17	2	0	0	4,30	0,60	high	5	%	36,67	56,67	6,67	0	0	I am willing to learn more about digital technologies.	F	19	10	1	0	01	4,60	0,56	high	2	%	63,33	33,33	3,33	0	3,33	I feel threatened when others talk about digital technologies.	F	1	3	5	15	6	2,27	1,01	low	9	%	3,33	10	16,67	50	20	I feel that I am behind my fellow students in using D.Tech	F	3	6	7	11	3	2,83	1,18	low	9	%	10	20	23,33	36,67	10	I think that it is important for me to improve my digital fluency.	F	15	12	1	1	1	4,30	0,60	high	6	%	50	40	3,33	3,33	3,33	I think that my learning can be enhanced by using digital tools and resources.	F	15	15	0	0	0	4,50	0,67	high	3	%	50	50	0	0	0	I think that training in tech-enhanced language learning should be included in language education programs.	F	19	11	0	0	0	4,63	0,49	high	1	%	63,33	36,67	0	0	0	Total scores							4,00	0,408	High	9												
I am aware of various types of digital devices.	F	7	18	4	1	0	4,03	0,72	high	8																																																																																																																																																															
	%	23,33	60	13,33	3,33	0					I understand what digital literacy is.	F	11	17	2	0	0	4,30	0,60	high	5	%	36,67	56,67	6,67	0	0	I am willing to learn more about digital technologies.	F	19	10	1	0	01	4,60	0,56	high	2	%	63,33	33,33	3,33	0	3,33	I feel threatened when others talk about digital technologies.	F	1	3	5	15	6	2,27	1,01	low	9	%	3,33	10	16,67	50	20	I feel that I am behind my fellow students in using D.Tech	F	3	6	7	11	3	2,83	1,18	low	9	%	10	20	23,33	36,67	10	I think that it is important for me to improve my digital fluency.	F	15	12	1	1	1	4,30	0,60	high	6	%	50	40	3,33	3,33	3,33	I think that my learning can be enhanced by using digital tools and resources.	F	15	15	0	0	0	4,50	0,67	high	3	%	50	50	0	0	0	I think that training in tech-enhanced language learning should be included in language education programs.	F	19	11	0	0	0	4,63	0,49	high	1	%	63,33	36,67	0	0	0	Total scores							4,00	0,408	High	9																													
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	%	36,67	56,67	6,67	0	0					I am willing to learn more about digital technologies.	F	19	10	1	0	01	4,60	0,56	high	2	%	63,33	33,33	3,33	0	3,33	I feel threatened when others talk about digital technologies.	F	1	3	5	15	6	2,27	1,01	low	9	%	3,33	10	16,67	50	20	I feel that I am behind my fellow students in using D.Tech	F	3	6	7	11	3	2,83	1,18	low	9	%	10	20	23,33	36,67	10	I think that it is important for me to improve my digital fluency.	F	15	12	1	1	1	4,30	0,60	high	6	%	50	40	3,33	3,33	3,33	I think that my learning can be enhanced by using digital tools and resources.	F	15	15	0	0	0	4,50	0,67	high	3	%	50	50	0	0	0	I think that training in tech-enhanced language learning should be included in language education programs.	F	19	11	0	0	0	4,63	0,49	high	1	%	63,33	36,67	0	0	0	Total scores							4,00	0,408	High	9																																														
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	%	63,33	33,33	3,33	0	3,33					I feel threatened when others talk about digital technologies.	F	1	3	5	15	6	2,27	1,01	low	9	%	3,33	10	16,67	50	20	I feel that I am behind my fellow students in using D.Tech	F	3	6	7	11	3	2,83	1,18	low	9	%	10	20	23,33	36,67	10	I think that it is important for me to improve my digital fluency.	F	15	12	1	1	1	4,30	0,60	high	6	%	50	40	3,33	3,33	3,33	I think that my learning can be enhanced by using digital tools and resources.	F	15	15	0	0	0	4,50	0,67	high	3	%	50	50	0	0	0	I think that training in tech-enhanced language learning should be included in language education programs.	F	19	11	0	0	0	4,63	0,49	high	1	%	63,33	36,67	0	0	0	Total scores							4,00	0,408	High	9																																																															
I feel threatened when others talk about digital technologies.	F	1	3	5	15	6	2,27	1,01	low	9																																																																																																																																																															
	%	3,33	10	16,67	50	20					I feel that I am behind my fellow students in using D.Tech	F	3	6	7	11	3	2,83	1,18	low	9	%	10	20	23,33	36,67	10	I think that it is important for me to improve my digital fluency.	F	15	12	1	1	1	4,30	0,60	high	6	%	50	40	3,33	3,33	3,33	I think that my learning can be enhanced by using digital tools and resources.	F	15	15	0	0	0	4,50	0,67	high	3	%	50	50	0	0	0	I think that training in tech-enhanced language learning should be included in language education programs.	F	19	11	0	0	0	4,63	0,49	high	1	%	63,33	36,67	0	0	0	Total scores							4,00	0,408	High	9																																																																																
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Table 37 statistics show rates of attitudes toward digital tech

N	Mean	%	Std. Dev	t	df	Sig. (2-tailed)	Score
30	3,9967	81,67%	,40894	53,531	29	,000	High

In this section, participants achieved a **high mean score of 3.9967** on a 5-point Likert scale, with a **low standard deviation of 0.40894**, indicating strong agreement among respondents. The **t-**

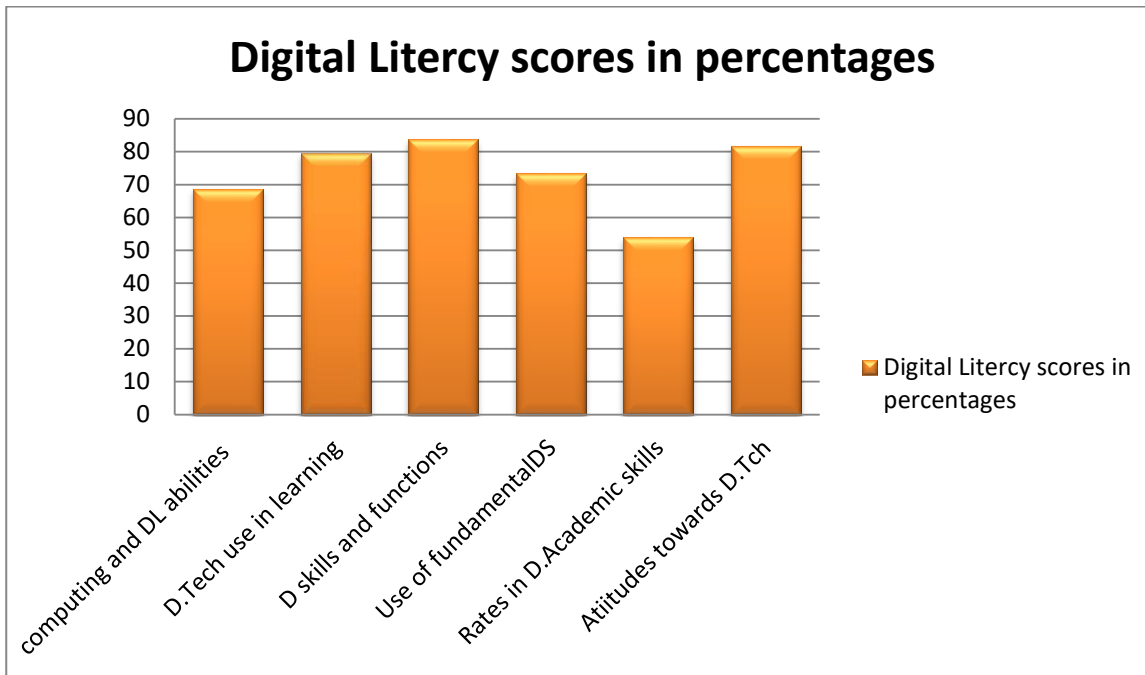
test result ($t = 53.531$, $df = 29$, $p = 0.000$) shows a **statistically significant result**, with the mean clearly higher than the neutral midpoint.

The overall score is classified as **“High”**, indicating that participants **hold positive attitudes toward digital technology**.

Overall Scores of Digital Literacy in Language Learning Questionnaire

Table 38 Global descriptive statistics reflects the participants’ levels in DL

N=30 Likert scales Binary scales	Mean	%	Std. Dev	df	Sig. (2-tailed)	Score
Section two Self-assessment of computing and digital abilities	3,7467	68,67	0,37850	29	0,000	High
Section three 1-Digital technology use in learning	0,7968	79.68	0,11885	29	0,000	Low
2- Digital skills and functions	0,8361	83,61	0,13412	29	0,000	Low
3- Use Of Fundamental digital skills.	3,1569	73,30	0,56513	29	0,00	Moderate
4- Rates in digital Academic Skills.	3,3294	54%	,61162	29	,000	Moderate
Section five 1-Attitudes towards Digital Tech	3,9967	81,67%	,40894	29	,000	High
Total	/		/	29	0.000	Moderate



Graph11 represents the Total means of DL sections

3.3 Section three: Discussion of the Findings

3.3.1 **Summarizing the findings:** The overall findings of the current research, after analysing the submitted questionnaires were as follow:

N=30 Likert scales Binary scales	Mean	Percentages	Std. Dev	t	df	Sig. (2-tailed)	Level
SRL	3.8795	77,60%	0.1743	66.940	29	0,000	High
DL	3,6622 0,8165	72,64%	2,17976 0,25297	53.337	29	0.000	Moderate

3.3.2 Interpretation of the Findings

Global mean 3,8795 this indicates that the overall respondents scored well on SRL Questionnaire (above the neutral point 3,00). The value of St Deviation 0,174, is relatively small confirming the balance of Self- regulated learning dimensions.

The same for DL findings, the global mean is 2,9764 which reflects a moderate score close to the neutral point 3,00 and high ST Deviation 0,30565 , which indicates a notable variation of the questionnaire dimension.

Both variables are statistically significant $p= 000$ confirming that these patterns are not due to chance.

3.3.3 Discussion of Research Questions and Hypotheses

This study is which examines the interrelation between SRL and DL among EFL students in Masters online program at Mohamed Boudiaf at M'sila University, is guided by two questions. The findings illustrated above will help to answer the questions as follow:

Question 1: What are EFL students' **levels** of **SRL** in Masters online program at M'sila University?

In order to answer this question we formulate the following Hypotheses:

- **Null Hypothesis:** EFL students in the Master's online program at Msila University **do not have** a moderate to high level of self-regulated learning (SRL).
- **Alternative Hypothesis:** EFL students in the Master's online program at Msila University have a moderate to high level of self-regulated learning (SRL).

To accept one hypothesis and reject the other one we have the following data:

Table 39: data needed to accept or reject the first question's hypothesis

N=30 6 sections	Mean	Std. Deviation	t	df	Sig
SRL	3.8795	0.1743	66.940	29	0,000

Where:

The Mean is the arithmetic average of all scores of the six sections of the OSLQ.

Std. Deviation: measures how spread out the data point are from the mean.

t: distribution test statistics

df: degree of freedom (**which is the sample size minus 1**).

Sig: significant level (**P-value**)

According to the **Table 38** above, the mean score is **3, 8795**, which is above the mid-point, this places it within the **moderate range** of self-regulated learning.

The t-value (66.940) is very high, indicating a large difference between the observed mean and the null hypothesis reference (which presumably was 2.5 or lower).

The p-value (sig.) is 0.000, which is less than 0.05, meaning the result is statistically significant. Since the p-value < 0.05, we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1).

Therefore, it can be said that EFL students in the Master's online program at Msila University do indeed have a moderate to high level of self-regulated learning (SRL).

Question two: What are EFL students' levels of **DL** in Masters Online program at Msila University?

In order to answer this question we formulate the following Hypotheses:

- **Null Hypothesis (H_0):** EFL students in the Master's online program at Msila University do not have a good level of digital literacy (DL).
- **Alternative Hypothesis (H_1):** EFL students in the Master's online program at Msila University have a good level of digital literacy (DL).

Table 40: Data needed to accept or reject the hypotheses of question two

N=30					
Likert scales	Mean	Std. Deviation	t	df	Sig
Binary scales					
DL	3,6622 0,8165	2,17976 0,25297	53.337	29	0.000

The mean score obtained was **3,6622**, with a standard deviation of **2,17976**. Given that the hypothesized value for a "good" level on the Likert scale, the results revealed a **t-value of 56.332** with **29 degrees of freedom**, and a **significance level (p-value) of 0.000**.

Since the p-value is less than 0.05, the null hypothesis is rejected in favor of the alternative hypothesis. This means there is a statistically significant indication that students demonstrate a **good level of digital literacy**. **Therefore**, it can be inferred that EFL students in the Master's online program at Msila University exhibit a good and consistent level of digital literacy.

Being a correlation study, its ultimate role is to examine the relation between the Students' SRL and DL levels .The following question is formulated:

Question three: Is there a statistically significant correlation between EFL students' levels of **SRL** and their **DL**?

To answer the above questions the following hypotheses are formulated

- ✓ **Null Hypothesis (H₀):** There is no statistically significant correlation between the EFL students' levels of SRL and their DL.
- ✓ **Alternative Hypothesis (H₁):** There is a statistically significant correlation between the EFL students' levels of SRL and their DL.

	N	Pearson Correlation	Sig
SRL	30	0.683	0.048
DL			

To test the correlation statistically, a **Pearson correlation test** was conducted. The results revealed a **correlation coefficient (r) of 0.683**, with a **significance level (p-value) of 0.048**, based on a sample of **30 participants**.

Since the p-value is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis is accepted. This indicates that there is a **statistically significant positive correlation** between SRL and DL among the students. In other words, the higher the students' level of self-regulated learning, the higher their digital literacy is likely to be.

This result supports the theoretical assumption that self-directed learners are more capable of using and benefiting from digital tools effectively in online learning environments.

3.3.4 Comparing To Existing Literature

The present findings align with several international studies that have explored the relationship between (SRL) and (DL) across diverse educational contexts. Yang and Kim (Yang, M., & Kim, B. , 2014) investigated this correlation within a Korean university e-learning environment, surveying 321 students and establishing a significant positive relationship between these two constructs. Similarly, Broadbent and Fuller-Tyszkiewicz (Broadbent, J., & Fuller-Tyszkiewicz, M., 2024) demonstrated in their educational technology research that students' positive attitudes and digital literacy competencies significantly enhanced self-efficacy, subsequently improving various dimensions of online learning engagement.

Furthermore, an Indonesian study conducted by (Meilani, R., et al. , 2022-12-06) examined how self-regulated learning and digital literacy influence students' economic learning outcomes, revealing robust correlations between self-efficacy, self-regulation, and academic performance. These convergent findings across different cultural and educational settings strengthen the validity of the observed relationships.

However, several methodological considerations must be acknowledged when interpreting these comparative results. Each study employed distinct measurement instruments to evaluate the target variables. Additionally, these investigations were conducted with varying sample sizes and within different educational contexts, spanning Korean e-learning environments, general online learning platforms, and Indonesian economic education settings, factors that may have impacted the statistical significance of the reported correlations.

Despite these methodological variations, the consistent pattern of positive associations across studies provides robust support for the relationship between digital literacy and self-regulated learning competencies.

3.3.5 Theoretical and practical Implications

The findings of the current research participate significantly to the theoretical understanding of the relationship between DL and SRL in higher education settings. These results consolidate and extend existing educational theories by illustrating that digital competencies and self-regulatory skills are interconnected rather than independent concepts. This has essential implications for educational theory, suggesting that models of 21st-century learning should conceptualize digital literacy and self-regulated learning as mutually reinforcing competencies that develop collaboratively in technology-enhanced learning environments.

From a practical perspective, these findings have direct implications for curriculum design, stakeholders and pedagogical approaches in higher education. Educators and institutions should adopt integrated instructional strategies that simultaneously ameliorate students' digital competencies and self-regulatory skills rather than treating them as separate learning objectives. This suggests the need for professional development programs that equip faculty with the knowledge and skills to design learning experiences that explicitly connect digital tool usage with meta-cognitive learning strategies, primarily enhancing student academic performance and engagement.

The study also has important policy implications for educational institutions and decision-makers. Resource allocation and program development should prioritize initiatives that address both digital literacy and self-regulated learning competencies. Moreover, assessment practices should be redesigned to evaluate students' integrated capabilities in both fields, while support services should be structured to help students develop these interconnected skills. These findings call for a more

holistic approach to student development that recognizes the fundamental relationship between digital competence and autonomous learning in contemporary educational contexts.

3.3.6 Limitations of the study

Sample and Methodological Limitations

This study encounters several significant limitations related to sample characteristics and methodological approach. The research may be constrained by a limited sample size, which could reduce the statistical power necessary to detect meaningful correlations and restrict the generalization of findings to broader student populations. Additionally, the sample is demographically homogeneous which is female based, and over-representing specific age groups, mature adult group, thereby limiting the applicability of results across diverse educational contexts. Furthermore, conducting the research within a single institutional context may not adequately represent the varied educational settings, technological infrastructures, and pedagogical approaches found across different universities or educational systems.

Contextual and Analytical Limitations

Many factors significantly impact the interpretation and application of study results. The research context, institutional policies, and cultural educational practices, may not be representative of other educational environments, limiting the transferability of findings across different institutions or countries. External variables such as students' prior academic achievement, motivation levels, socioeconomic backgrounds, and previous technology exposure may serve as confounding factors that influence both digital literacy and self-regulated learning, yet these variables may not be adequately controlled or measured in the analysis. The timing of data collection could also introduce temporal bias, particularly if conducted during periods of significant educational disruption or technological transition. Moreover, statistical assumptions underlying correlation analyses may not be fully satisfied, mainly affecting the accuracy of reported data.

3.3.7 Recommendations

Recommendations for Future Research

Given the established statistical correlation between self-regulated learning (SRL) and digital literacy (DL) demonstrated in this study, future researchers should consider expanding this line of inquiry in two key directions:

First, investigators should replicate these findings with larger, more diverse participant samples to enhance the generalize-ability and robustness of the observed SRL-DL relationship. Larger sample sizes would provide greater statistical power and allow for more nuanced analyses across different demographic groups and educational contexts.

Second, building upon the confirmed SRL-DL correlation, researchers should explore the potential relationship between self-regulated learning and academic performance. This investigation would help determine whether students with stronger self-regulatory skills not only demonstrate higher digital literacy but also achieve better academic outcomes. Such research could examine whether SRL serves as a mediating factor between digital competence and academic success, potentially revealing important pathways for educational intervention and support.

This two-phase approach would strengthen the theoretical foundation of SRL research while providing practical insights for educators seeking to enhance both digital skills and academic achievement in their students.

An interdisciplinary approach to digital literacy

It is essential for preparing students to navigate and leverage technology effectively in an increasingly digital, complex and interconnected world. Integrating digital literacy as a standing pillar across various disciplines ensures that students recognize its broad applicability and relevance in diverse academic and professional contexts. For instance, digital tools and critical thinking about technology can enhance learning language. For instance; teachers adopt strategies like digital storytelling, visualization of different language aspects, and digital games.

To achieve this, collaborative efforts among faculty from different departments are crucial, mainly English language department and technology and information department. Interdisciplinary projects and assignments should be designed to encourage students to apply digital skills in varied contexts such as combining information skills with public statement analysis, using multimedia tools in literature studies. This approach not only reinforces technical competencies but also fosters critical digital awareness, ethical considerations, and problem-solving skills across disciplines.

In addition, institutions should support faculty through professional development workshops, shared resources, and curriculum design initiatives that promote cross-disciplinary integration of digital literacy. By embedding these skills into the instructional content, students will be better equipped to adapt to evolving technological demands in their future careers and civic lives.(Hwang, Wang, & Chiu-Lin, 2021)

Continuous Professional Development

Integrating digital literacy across curricula requires prioritizing **ongoing, structured faculty development programs**. Decision makers must ensure these curricula's potential to empower educators with both **technical proficiency** and **innovative pedagogical strategies** to enhance digitally literate learning environments. Hence, faculty must be well-equipped to target fostering digital fluency, design engaging learning experiences, and critically assess emerging tools so as to meet the students' rising needs.

Administering effective faculty training should aim at strengthening core digital competencies via programming workshops that supply instructors with essential skills, including digital information literacy, teaching them to evaluate online sources, and guide students in responsible research practices. This training must also cover basic data literacy, enabling faculty to interpret visualizations, understand introductory analytics, and incorporate data-driven approaches into language teaching demands. In addition, organizing sessions on privacy are necessary for both educators and students. Discipline-specific training ensures relevance and effectiveness like voice

recognition vocabulary learning applications and grammar teaching games. (Peggy A. Ertmer, 2013)

This training should include formation in pedagogical strategies that improves the mastery technology to enhance learning. Faculty should focus on designing active, technology-infused lessons, such as project-based learning using collaborative wikis or podcast assignments that target constructing both subject mastery and digital skills. Gaming techniques and role-playing scenarios can increase engagement while developing problem-solving abilities.

Ongoing Support and Resources for Digital Literacy Initiatives in Higher Education:

A Research-Based Framework

Effective implementation of digital literacy initiatives requires comprehensive, sustained support systems for faculty. Research consistently demonstrates that one-time training is insufficient for meaningful technology integration (Peggy A. Ertmer, 2013).

The rapid digital transformation in higher education is driven by technological innovations, global trends, and institutional needs. Key technological drivers include AI for personalized learning, cloud computing for remote access, LMS platforms for course management, and MOOCs that democratize education. Worldwide, the post-COVID acceleration of digital adoption emphasizes the importance of resilient digital infrastructures. In the Algerian higher education, universities are responding to demands for flexible, modular learning mediums that cater to diverse student needs and promote access and equity for underserved populations, exploiting digital tools to support these goals.

Moreover, Effective digital transformation in higher education relies on coherent policies at national, institutional, and international levels. National policies set long-term strategic goals for digital literacy, infrastructure, inclusion, and quality assurance, ensuring standardization and accountability across the sector. Institutions translate these strategies into operational policies for blended learning, digital pedagogy, infrastructure, and cybersecurity, turning strategic visions into

practical actions. International organizations like UNESCO, OECD, and the World Bank provide guidelines and frameworks that promote inclusive access, innovation, and global collaboration, helping countries and institutions address challenges such as the digital divide and uphold standards in digital education. (Grace Adam, 2025)

Towards an open-source curriculum for teacher development –the role of OERs

Enhancing teacher development through open educational resources (OERs) may provide freely accessible, customizable, and pedagogically valuable materials that promote active involvement by teachers and learners. While various universities have supported and adopted OER developing countries, there is little coordinated effort to develop resources specifically for higher education online settings. This urges for a more open approach that empowers teachers to take active roles as designers and creators of educational content. As being highly flexible, OERs facilitates addressing the diverse needs of teacher preparation, adaption to a fluid digital landscape, and challenging socio-cultural and political influences on teaching, ultimately enabling teachers to move beyond simply adopting resources toward innovative curriculum design. (Anna Gruszczynska, 2013)

Digital Literacy in university students

There is a significantly rising need for university students to develop digital literacy skills due to the fact that digital communication has reshaped literacy practices and how essential it becomes for knowledge development in the 21st century. Tailored training for university students should incorporate digital literacy as a core competency, enabling effective, appropriate, and contextualized use of ICT in education. The training incorporates the components of digital competence, including basic skills, didactic competence with ICT, learning strategies, and cyber-security, which are increasingly regarded as essential for university students to function as digitally competent citizens. (Nieves Gutiérrez-Ángel, 2022)

Addressing Challenges and Future Directions

Addressing limited internet connectivity and ensuring equal access to technological devices among students are crucial for enhancing digital literacy through sustained programs aiming at improving digital infrastructure to support widespread digital literacy and (Delfani, 2024). This helps ending inequalities in learning opportunities and learning readiness particularly marginalized groups, including rural populations, low-income communities who face significant barriers in accessing online courses like the unavailability of reliable internet or digital devices. Decision makers must make plans for Collaborative investments in infrastructure, providing affordable devices, and inclusive digital literacy programs to guarantee equal learning opportunities.

Improving Higher Education Students' Learning Proficiency by Fostering their Self-regulation Skills

To enable students to construct effective self-regulation skills, skate holders should design online environments that are conducive to fostering students' self-regulatory and cooperative learning skills, transferable knowledge, and a disposition toward competent thinking and problem solving. (Corte, 2016)

Curricula designers must provide educational content that integrates training learners on the strategies of time management, meta-cognition, effort regulation, and critical thinking which are positively associated with academic outcomes. (Aikaterini Alexiou, 2010)

Teachers promoting SRL

Teachers need to help students become aware of SRL processes, learn to control them, and apply relevant strategies. This includes setting clear instructional goals, providing specific criteria for performance, and giving constructive feedback to encourage students to take charge of their learning. Teachers are also required to promote self-assessment, helping students make systematic judgments about their work, which in turn supports the use of SRL activities like self-monitoring, evaluation, and response. Teachers can adopt external resources and leverage students' past successful experiences to build their confidence.

For students who lack knowledge of SRL strategies and tend to overestimate their understanding, significant training programs that teach SRL strategies and allow students to practice them have been shown to improve both skills and achievement over long term learning processes. (Liliya Mansurovna Sirazieva, 2017)

Today's teachers should also be creative and unique at designing effective instructional methods and strategies, including encouraging the use of Self-Regulated Learning (SRL) and its strategies. Understanding these mechanisms is essential, as it not only strengthens students' SRL abilities but also enhances their overall academic performance and success.

Conclusion:

This study aimed to evaluate the levels of self-regulated learning (SRL) and digital literacy (DL) among EFL students enrolled in the Master's online program at Msila University, as well as to examine the relationship between these two variables.

The first analysis focused on the students' levels of self-regulated learning. The results indicated that the SRL levels among the participants were around an average score. This suggests that the students generally possess a moderate ability to plan, monitor, and evaluate their own learning processes during the online program. While there were some individual differences, the overall capability to manage learning autonomously is reasonably developed.

The second analysis investigated the students' digital literacy levels. The findings revealed that students demonstrated a good level of digital literacy, with a mean score close to the "good" benchmark on the Likert scale. The low standard deviation reflected a consistent level of digital skills across the sample. This result indicates that the students are adequately equipped with the necessary digital competencies to navigate and benefit from the online learning environment effectively.

The third analysis examined the correlation between SRL and DL. Using Pearson's correlation coefficient, the study found a statistically significant positive correlation between the

two variables. This means that students with higher levels of self-regulated learning tend to also have better digital literacy skills. This significant relationship supports the theoretical premise that learners who can regulate their learning autonomously are more capable of utilizing digital tools effectively in online education contexts.

In summary, the EFL students participating in the Master's online program at Msila University display satisfactory to good levels of self-regulated learning and digital literacy. Furthermore, the strong positive correlation between these variables highlights the importance of fostering both SRL and DL skills to enhance students' overall performance in digital learning environments.

4 *General Conclusion:*

This correlation quantitative research has successfully explored the relationship between Self-Regulated Learning (SRL) and Digital Literacy (DL) among English as a Foreign Language (EFL) students engaged in online learning at Mohamed Boudiaf University in Algeria. The statistical analysis showed a significant positive correlation between students' self-regulation abilities and their digital literacy skills, ensuring that stronger SRL is related to high DL proficiency. These results highlights a complementary and corporative connection, where improvements in managing one's learning processes go hand in hand with better digital technology use.

The study underscores important implications for online EFL education in Algeria. It suggests that educational programs should adopt integrated approaches that simultaneously develop both SRL and DL competencies, rather than treating them separately. Curriculum designers and instructors are encouraged to embed explicit training in these areas to support students' success, especially as online learning becomes more prevalent.

Additionally, the research provides valuable clear insights into how Algerian EFL students navigate the combined challenges of language acquisition and digital adaptation in multicultural online environments. These findings can inform similar educational settings in the region. While the study's scope was limited to one institution and a relatively small sample, it offers a foundation for further research across multiple universities and disciplines.

In conclusion, this work contributes to understanding the critical interplay between self-regulation and digital literacy in online language learning. Moreover, providing evidence-based recommendations for educators and policymakers aiming to enhance student outcomes in Algeria's evolving digital education landscape.

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Appendixes:

Questionnaire one: SRLQ

PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA
MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH
UNIVERSITY OF MOHAMED BOUDIAF - M'SILA



Dear Participant,

Thank you for taking part in this research study. This questionnaire aims to understand how you regulate your learning in online educational environments. Your responses will help us better understand self-regulated learning behaviours and potentially improve online learning experiences.

Your participation is voluntary, and your responses will remain confidential. The survey should take approximately 10-15 minutes to complete.

Instructions

Please read each statement carefully and indicate how well it describes your approach to online learning using the scale below:

1-Strongly disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree

There are no right or wrong answers. Please respond based on your actual behaviours and experiences, not what you think is the "correct" answer.

Online Self-Regulated Learning Questionnaire (OSLQ) (Barnard et al., 2009)

Section one: Goal Setting

Item GS1: I set standards for my assignments in online courses.

Item GS2: I set short-term (daily or weekly) goals as well as long-term goals (monthly or for the semester).

Item GS3: I keep a high standard for my learning in my online courses.

Item GS4: I set goals to help me manage study time for my online courses.

Item GS5: I don't compromise the quality of my work because it is online.

Section two: Environment Structuring

Item ES1: I choose the location where I study to avoid too much distraction.

Item ES2: I find a comfortable place to study.

Item ES3: I know where I can study most efficiently for online courses.

Item ES4: I choose a time with few distractions for studying for my online courses.

Section three: Task Strategies

Item TS1: I try to take more thorough notes for my online courses because notes are even more important for learning online than in a regular classroom.

Item TS2: I read aloud instructional materials posted online to fight against distractions.

Item TS3: I prepare my questions before joining in discussion forum.

Item TS4: I work extra problems in my online courses in addition to the assigned ones to master the course content.

Section four: Time Management

Item TM1: I allocate extra studying time for my online courses because I know it is time demanding.

Item TM2: I try to schedule the same time every day or every week to study for my online courses, and I observe the schedule.

Item TM3: Although we don't have to attend daily classes, I still try to distribute my studying time evenly across days.

Section five: Help-Seeking

Item HS1: I find someone who is knowledgeable in course content so that I can consult with him or her when I need help.

Item HS2: I share my problems with my classmates online, so we know what we are struggling with and how to solve our problems.

Item HS3: If needed, I try to meet my classmates face-to-face.

Item HS4: I am persistent in getting help from the instructor through e-mail.

Section six: Self-Evaluation

Item SE1: I summarize my learning in online courses to examine my understanding of what I

have learned.

Item SE2: I ask myself a lot of questions about the course material when studying for an online course.

Item SE3: I communicate with my classmates to find out how I am doing in my online classes.

Item SE4: I communicate with my classmates to find out what I am learning that is different from what they are learning

Reference:

Barnard, L., Lan, W. Y., To, Y. M., Paton, V. O., & Lai, S.-L. (2009). Measuring self-regulation in online and blended learning environments. *The Internet and Higher Education*, 12(1), 1–6. <http://dx.doi.org/10.1016/j.iheduc.2008.10.005>

Questionnaire two: DLQ-LL

Digital Literacy Questionnaire – For Language Learners.

Thank you, for your participation in answering this questionnaire. Your responses will be treated in strict confidence and individuals will not be identified in any report or publication. Please answer all questions as accurately as you can.

SECTION I

For each question, please mark your response with a tick (✓), unless otherwise indicated. For ‘Other’ responses, provide a brief response.

Q1. Gender

Male Female

Q2. Age (please specify)

.....years old

Q3. Your native language (mother tongue)

.....

Q4. Your target language you want to learn and improve further

.....

Q5. What is your current academic level?

- Primary school Secondary school
- University preparation Undergraduate
- Postgraduate Other (please specify)

Q6. How long have you been using computers?

.....year(s)

Q7. What type of computer have you used? Please fill out the following table.

Type of computer	Length of time	Purposes
<i>Example: Desktop PC (Windows)</i>	<i>1 year</i>	<i>Personal use at home, word processing, email</i>
<i>Example: Laptop Macintosh (OS X)</i>	<i>6 months</i>	<i>Computer lab at school, email, web search</i>

Q8. Who taught you how to use the computer in the first place?

- Teacher/trainer Friend
- Family Book
- Magazine Video
- Yourself Other (please specify)

Q9. What type of mobile device do you own? Please fill out the following table.

Type of mobile device	Length of time	Purposes
<i>Example: Electronic dictionary</i>	<i>2 years</i>	<i>Studying at home and school</i>
<i>Example: Smartphone (Galaxy S5)</i>	<i>1 year</i>	<i>Phone calls, email, listening to music</i>
<i>Example: Tablet computer (iPad)</i>	<i>10 months</i>	<i>Web search, watching videos, playing games</i>
<i>Example: Laptop (Microsoft Surface)</i>	<i>6 months</i>	<i>Assignments, lecture notes, web search</i>

Q10. How do you find out about new digital technologies? Please tick (√) all that apply.

- Teachers Friends
- Family Books
- Magazines Newspapers
- TVs Radios
- Websites Blogs
- Email lists Social networks
- other (please specify)

SECTION II

Q11. How would you rate your typing skills? Please tick (✓) one that best applies.

Very Poor Poor Acceptable Good Very Good

Q12. How would you rate your web search skills? Please tick (✓) one that best applies.

Very Poor Poor Acceptable Good Very Good

Q13. How would you rate your computer literacy (the ability to use the computer)? Please tick (✓) one that best applies.

Very Poor Poor Acceptable Good Very Good

Q14. How would you rate your Internet literacy (the ability to use the Internet)? Please tick (✓) one that best applies.

Very Poor Poor Acceptable Good Very Good

Q15. How would you rate your digital literacy (the ability to use digital technologies)? Please tick (✓) one that best applies.

Very Poor Poor Acceptable Good Very Good

SECTION III

Q16. Please respond to each of the following questions by putting a tick (✓) in the box at the appropriate spot: 'Yes' or 'No'.

	Questions	YES	NO
1	Do you understand the basic functions of computer hardware components?		
2	Do you have a personal homepage or a personal portfolio on the web?		
3	Do you use keyboard shortcuts?		
4	Do you use the computer for learning purposes?		
5	Do you find it easy to learn something by reading it on the computer screen?		
6	Do you find it easy to learn something by watching it on the computer screen?		
7	Do you use social networking services?		
8	Do you have any online friend you have never met in person?		
9	Do you feel competent in using digital learning resources?		
10	Do you have mobile apps you use for language learning purposes?		

Q17. Please respond to each of the following questions by putting a tick (✓) in the box at the appropriate spot: 'Yes' or 'No'.

	Questions	YES	NO
1	Can you change computer screen brightness and contrast?		
2	Can you minimize, maximize and move windows on the computer screen?		
3	Can you use a 'search' command to locate a file?		
4	Can you scan disks for viruses?		
5	Can you write files onto a CD, a DVD or a USB drive?		
6	Can you create and update web pages?		
7	Can you take and edit digital photos?		
8	Can you record and edit digital sounds?		
9	Can you record and edit digital videos?		
10	Can you download and use apps on digital devices?		

Q18. Please indicate your level of frequency of using each of the followings by putting a tick (√) in the box at the appropriate spot: 'Very Frequently', 'Frequently', 'Occasionally', 'Rarely', 'Very Rarely' or 'Never'. If there is any item you do not know, it can be assumed that you do not have any experience with the item.

Questions		Very frequently	Frequently	Occasionally	Rarely	Very Rarely	Never
1	Word processor						
2	Email						
3	World Wide Web						
4	Graphics software						
5	Database						
6	Spreadsheet (for data organization)						
7	Concordancer (for text analysis)						
8	Language learning software (CD-ROM, DVD)						
9	Language learning website						
10	Language learning mobile app						
11	Blog						
12	Wiki						
13	Text chatting						
14	Voice chatting						
15	Video conferencing						
16	Computer game						
17	Electronic dictionary						

Q19. How would you rate your skills for using each of the followings? Please put a tick (√) in the box at the appropriate spot: 'Very Good', 'Good', 'Acceptable', 'Poor', 'Very Poor', or 'Do Not Know'.

Working with:		Very good	Good	Acceptable	Poor	Very Poor	Do Not Know
1	Word processing applications (e.g., MS Word)						
2	Spreadsheet applications (e.g., MS Excel)						
3	Database applications (e.g., MS Access)						
4	Presentation applications (e.g., MS PowerPoint)						
5	Communication applications (e.g., Skype)						
6	Learning management systems (e.g., Moodle)						
7	Virtual worlds (e.g., Second Life)						
8	Social networking services (e.g., Facebook)						
9	Blogs (e.g., Blogger)						
10	Wikis (e.g., PBworks)						
11	Podcasts (e.g., Apple Podcasts)						
12	File sharing sites (e.g., Dropbox)						
13	Photo sharing sites (e.g., Picasa)						
14	Video sharing sites (e.g., YouTube)						
15	Web design applications (e.g., Dreamweaver)						
16	Web search engines (e.g., Google)						
17	Dictionary apps (e.g., Dictionary.com)						

SECTION IV

The following questions cover general areas of digital literacy. You may not know the answers to all questions, but please attempt to answer them without asking others or referring to books.

Q20. Please choose the best answer for each question and put a tick (✓) in the box at the appropriate spot: '1', '2', '3' or '4'.

1-Which device do you need to install on your computer in order to have a video conference with your friends?

- (1) Scanner
- (2) Webcam
- (3) Printer
- (4) DVD player

1	2	3	4

2-Where does a digital camera store its pictures?

- (1) Battery
- (2) Film
- (3) Adapter
- (4) Memory card

1	2	3	4

3-What are AVI and MP4 examples of?

- (1) Digital audio file formats
- (2) Digital video file formats
- (3) Digital graphic file formats
- (4) Digital text file formats

1	2	3	4

4-Which technology is the process of converting spoken words into text?

- (1) Audio analysis
- (2) Audio compression
- (3) Speech synthesis
- (4) Speech recognition

1	2	3	4

5-What is Bluetooth?

- (1) A digital tool to add special effects to recorded audios and videos
- (2) A program designed to disrupt or damage a computer system
- (3) A technology standard for the short-range wireless interconnection of mobile devices
- (4) A network security system that controls the incoming and outgoing network traffic

1	2	3	4

6-Which of the following does not need to be asked when evaluating information provided on websites?

- (1) Accuracy
- (2) Authority
- (3) Computation
- (4) Currency

1	2	3	4

7-What is the term for junk emails or unsolicited messages sent over the Internet?

- (1) Spam
- (2) Firewall
- (3) Malware
- (4) Spyware

1	2	3	4

What is the process of confirming your username and password on the computer?

- (1) Authorization
- (2) Authentication
- (3) Hacking
- (4) Defamation

1	2	3	4

What is the fraudulent attempt to acquire sensitive information such as passwords and credit card details in an electronic communication?

- (1) Synthesizing
- (2) Crowdsourcing
- (3) Phishing
- (4) Streaming

1	2	3	4

Which of the following is not considered to be safe password practice?

- (1) Do not share passwords with others
- (2) Increase the strength of a password with symbols
- (3) Avoid using the same password across multiple user accounts
- (4) Generate a password that is easy to guess systematically

1	2	3	4

SECTION V

Q21. What do you think are the factors affecting the use of digital technologies for language learning? Please tick (✓) all that apply.

- Lack of time
- Lack of budget
- Lack of knowledge of teachers
- Lack of knowledge of students
- Lack of skills of teachers
- Lack of skills of students
- Lack of interest of teachers
- Lack of interest of students
- Lack of training
- Lack of learning materials
- Lack of supporting resources
- Lack of facilities
- Other (please specify)

Q22. Please indicate the extent to which you agree or disagree with the following statements by putting a tick (✓) in the box at the appropriate spot: ‘Strongly Agree’, ‘Agree’, ‘Uncertain’, ‘Disagree’ or ‘Strongly Disagree’.

		Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
1	I enjoy using digital devices.					
2	I feel comfortable using digital devices.					
3	I am aware of various types of digital devices.					
4	I understand what digital literacy is.					
5	I am willing to learn more about digital technologies.					
6	I feel threatened when others talk about digital technologies.					

7	I feel that I am behind my fellow students in using digital technologies.					
8	I think that it is important for me to improve my digital fluency.					
9	I think that my learning can be enhanced by using digital tools and resources.					
10	I think that training in technology-enhanced language learning should be included in language education programs.					

Q23. If you have any comments you would like to make regarding digital literacy, please write them below.

يشهد التعلم الإلكتروني تطوراً متسارعاً في مؤسسات التعليم العالي، حيث أصبح يتطلب من الطلاب مهارات متخصصة للنجاح في البيئات الافتراضية. يعتبر التعلم المنظم ذاتياً والثقافة الرقمية من أهم الكفاءات المطلوبة للتفوق في هذا النمط التعليمي الحديث. حيث تفحص هاته الدراسة الكمية العلاقة بين التعلم المنظم ذاتياً والثقافة الرقمية بين طلاب اللغة الإنجليزية كلغة أجنبية في بيئات التعلم الإلكتروني. شملت الدراسة 30 مشاركاً من طلاب السنة الثانية ماستر في برنامج التعليمية واللغات التطبيقية - عن بعد - بجامعة محمد بوضياف بالمسيلة، الجزائر، أي ما يمثل 50% من إجمالي المجتمع الأصلي. في عملية جمع البيانات تم استخدام استبيانين معتمدين دولياً: استبيان التعلم المنظم ذاتياً عبر الإنترنت واستبيان الثقافة الرقمية لمتعلمي اللغات. تناولت الدراسة ثلاثة أسئلة بحثية تفحص مستويات التعلم المنظم ذاتياً للطلاب، وكفاءة الثقافة الرقمية لديهم، والارتباط بين هذين المتغيرين. حيث كشف التحليل الإحصائي عن وجود ارتباط إيجابي دال إحصائياً بين قدرات التعلم المنظم ذاتياً وكفاءات الثقافة الرقمية للمشاركين، مما يؤكد الفرضية البديلة. فقد أظهر الطلاب ذوو مهارات التنظيم الذاتي الأعلى كفاءة مقابلة في الثقافة الرقمية. تسد النتائج المقدمة ثغرة في الأدبيات وتقدم أدلة تجريبية على الطبيعة المترابطة للتعلم المنظم ذاتياً والثقافة الرقمية وتقدم رؤية قيمة لتطوير المناهج وتحسين التقييم وتحسين أنظمة الدعم لطلاب اللغة الإنجليزية كلغة أجنبية عبر الإنترنت، مما يوجه الممارسين التعليميين في تطوير استراتيجيات فعالة تعزز كلا الكفاءتين في أن واحد.

Résumé

L'apprentissage en ligne se développe rapidement dans l'enseignement supérieur, exigeant des compétences spécifiques pour réussir. L'apprentissage autorégulé et la culture numérique sont essentiels dans ce contexte. Cette étude quantitative examine la relation entre ces deux compétences chez 30 étudiants de 2eme année Master (programme « Didactique et Langues Appliquées – à distance ») à l'Université Mohamed Boudiaf de M'sila, représentant 50 % de la population ciblée. Deux questionnaires internationaux ont été utilisés : l'un sur l'apprentissage autorégulé en ligne, l'autre sur la culture numérique chez les apprenants des langues. Les résultats révèlent une corrélation positive et significative entre les deux variables : les étudiants les plus autonomes sont aussi les plus compétents numériquement. Cette étude comble une lacune dans la littérature et offre des pistes pour améliorer les programmes, l'évaluation et le soutien aux apprenants d'anglais en ligne.