

Assessing students’ digital literacy and lecturers’ perception of digital literacy in Oman: Implications for educational development

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Abstract

In an increasingly digitized educational landscape, digital literacy has become a crucial competency for effective teaching and learning. This study investigates the level of digital literacy among lecturers and students at the Preparatory Studies Center of the University of Technology and Applied Sciences–Ibri, with a particular focus on lecturers’ and students’ familiarity with digital technologies, the factors influencing technology use, and satisfaction with digital tools. A mixed-methods research design was employed. Quantitative data were collected from 100 Omani students through a questionnaire, while qualitative data were obtained through semi-structured interviews with seven EFL lecturers. Student data were analyzed using descriptive statistics, and lecturer interviews were analyzed thematically. The findings reveal lecturers’ awareness of concepts and skills associated with digital technology and their belief that digital technologies have a positive impact on lesson planning, communication with students, and the preparation of classroom activities. Omani students also reported that they were digitally competent, particularly in internet use, digital tools, web-search skills, and engagement with digital technologies for learning and communication purposes. However, more advanced forms of digital identity-creation tools and specialized software, such as graphic design software, spreadsheets, concordance tools, blogs, and wikis, appear to be used less frequently. Overall, the findings highlight the positive digital orientation of both students and lecturers while identifying areas requiring further development in advanced and specialized digital skills within the higher education context examined.

Keywords: Digital literacy, EFL, Lecturer, Perception, Students.

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Contribution of this paper to the literature

This study contributes to the existing literature by examining both lecturers' perceptions of digital literacy and students' digital competencies in the Omani context. It identifies areas of strength as well as gaps in digital competencies. Addressing these gaps through targeted training, the structured integration of digital content-creation tools, and sustained professional development initiatives may enhance digital literacy and support more effective technology-enhanced language learning environments.

1. Introduction

Dictionaries define literacy as the ability to read and write. However, in the modern world, literacy goes beyond this naive and simplistic definition. According to the most recent definition proposed by UNESCO (2026), a literate person is someone who can achieve their goals, develop their knowledge and potential, and participate fully in the community and wider society. The need to know how to use digital technology emerged during the COVID-19 pandemic, when on-site teaching shifted to online classes.

In today's digital age, digital literacy (Hereafter DL) is increasingly becoming a prerequisite for career advancement and professional success. Modern life requires DL. It is a prerequisite for finding a job, obtaining an education, and meeting our daily needs. Changes in the educational landscape in recent years have necessitated new teaching methods, which, in turn, require teachers to possess digital literacy in order to fulfill students' needs. Due to rapid technological developments, students' digital knowledge is often more advanced than that of their teachers. This means that teachers need to be more creative and digitally literate. The integration of digital technology in the classroom is largely influenced by the way teachers and students perceive its effectiveness in enhancing student motivation and preparing students for a digitalized society. Thus, providing teachers with digital training and integrating digital competencies into education can play a significant role in promoting creativity and critical thinking, as well as bridging traditional print literacy with technology. Furthermore, there is a need for professional development programs that align with teachers' and students' values and beliefs. Hockly (2012) underscores the significance of digital literacy for teachers and learners because of the implementation of digital tools in education.

However, not everyone who uses digital technology is aware of the potential benefits and pitfalls of the digital world. Integrating digital technology into teaching is a challenging task. DL can prepare teachers and students to use technology more efficiently and critically. It can enhance students' engagement and learning outcomes. However, there is a possibility of falling prey to hackers.

According to the statistics, there were 4.58 million internet users in Oman in January 2024, when internet penetration stood at 97.8%. This means that digital devices have penetrated every household and every aspect of our daily lives. Oman, as a developing country, is not exceptional in this regard, and Omani educational institutions should focus more on digitalizing teachers and students to address Oman Vision 2040, which focuses on three strategies, namely the National Strategy for Education, the Scientific Research Strategy, and the Innovation Strategy. Thus, by evaluating the current level of digital literacy among lecturers (Omani and non-Omani) and students at UTAS-Ibri and providing recommendations, this study can contribute to enhancing student engagement and preparing students for the demands of Oman Vision 2040.

1.1. Statement of Problem

Keeping in mind that the digital world requires digital literacy, awareness of how to navigate the digital world is essential for all generations. The study aims to highlight the multifaceted nature of digital literacy implementation in educational settings. The review of the related literature indicates that few studies on digital literacy in the Omani context exist. To bridge this gap, the current study aims to explore the digital literacy of Omani and non-Omani lecturers and students at UTAS-Ibri in Oman. It further aims to evaluate their awareness of digital technology and the challenges they face in using it. The author believes that investigating lecturers and students' digital literacy can reveal how technology has transformed education. In addition, addressing the struggles and challenges they currently face in educating themselves digitally can help raise their awareness of how to overcome and mitigate these challenges.

1.2. Objectives of Study

This study aims to fulfill the following objectives:

1. To investigate lecturers' and students' level of familiarity with digital technology.
2. To explore the factors that affect lecturers and students' use of digital technologies.
3. To examine lecturers' and students' level of satisfaction with digital technologies.

2. Review of Literature

2.1. Digital Literacy: Definition and Components

Gilster (1997) coined the term "digital literacy" for the first time in 1997. He defined digital literacy as "the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers" (p. 1).

Various terms are used to refer to digital literacy, such as computer literacy, ICT literacy, data literacy, or data fluency. Various definitions have been proposed for digital literacy. However, what is common among all these definitions is possessing the skills to use technology to locate and use information from various sources, evaluate the credibility of online information, create and share digital content, use digital devices safely and securely, understand and observe the ethical implications of social networking use, and communicate information responsibly. Thus, basic technological knowledge and security-awareness skills, along with critical-thinking skills, are the foundations of digital literacy.

Twing (2013, as cited in Zhang and Zhu (2016)) defines digital literacy as the ability to be an effective citizen in the 21st century by using digital technology to manage, comprehend, assess, share, and communicate information. According to Koltay (2011), if an individual can use information and communication technology (ICT) efficiently, they are digitally literate. Martinez Zayas and Rofi'ah (2022) define digital literacy as “a person's ability to utilize existing technology so that the available technology really provides extraordinary benefits for increasing knowledge” (p. 169).

Soifah, Jana, and Pratolo (2021) highlight several skills that contribute to digital literacy, including technological and critical-thinking skills for accessing various online sources and the ability to digest, incorporate, and present knowledge in a clear and accessible way (p. 3).

2.2. Assessing Digital Literacy

The method we use to assess digital literacy depends on the context in which we are assessing it and the target audience. The most common methods we use to assess DL are quizzes, questionnaires/surveys, interviews, and performance-based evaluations, which require the completion of a series of digital tasks.

There are various online sources for improving our personal digital literacy, such as YouTube tutorial videos, Mozilla Web Literacy, Microsoft Learn, Coursera, and Alison.

According to the classification of Oblinger and Oblinger (2005), those who were born between 1965–1982 are “digital immigrants,” and those who were born between 1982–1991 are the “Net Generation”/“digital natives.” Prensky (2001) highlights the existing gap between digital immigrant teachers and digital native students that needs to be bridged by implementing new teaching methods.

Raman and Yamat (2014) study of twelve English teachers indicates that age is one of the obstacles to implementing information and communication technology (ICT) in teaching. They further stated that older teachers with more teaching experience were not in favor of using ICT tools in their teaching because they believed that traditional teaching methods were more effective. Additionally, they thought that they were too old to learn new technologies. In other words, the difference in attitudes toward technology is the main gap between digital-native students and digital-immigrant teachers.

Khan (2022) highlights ‘shortage of electronic devices’, ‘low speed net connection’ and ‘inconsistent electricity supply’ as the main challenges teachers, students and parents face in the process of digitalization.

2.3. Background Studies

Abbas, Hussain, and Rasool (2019) investigated the effect of digital literacy on the academic performance of higher education students in Pakistan. Using a quantitative research design, data were collected from university students through a questionnaire. The findings indicated that digital literacy had a significant positive effect on students’ academic performance, suggesting that students with stronger abilities to access, evaluate, and use digital information were more likely to achieve better academic outcomes. The study therefore emphasizes the growing importance of digital literacy as an essential competency in higher education. However, the findings should be interpreted within the specific context of Pakistani higher education, which may limit their generalizability to students in other educational and cultural settings. In addition, the reliance on questionnaire-based data may not fully capture students’ actual digital practices or competencies. Nevertheless, the study provides useful empirical evidence supporting the relationship between digital literacy and academic achievement. It also highlights the need for universities to integrate digital literacy development into teaching and learning. This finding supports the need for further research on digital literacy among university students in different contexts, including Oman.

The results of the study by Son, Park, and Park (2017) on two groups of students, 100 EAP University students in Australia and 70 EFL university students in Japan, show that the digital literacy levels of language learners differ in two contexts: Australia and Japan. The study underscores that learners’ backgrounds and experiences impact their engagement with digital literacy skills. Consequently, researchers must consider the diverse expectations and needs of respondents when designing digital literacy questionnaires for various contexts. I do agree with the findings of this study and underscore the significance of recognizing the influence of learners’ backgrounds and prior experiences with digital technology on their digital competency.

Believing in the facilitating role of digital technology in EFL learners’ English language learning, Li, Cao, and Wang (2020) explore the level of digital literacy awareness among 147 Chinese university students. The results of the data collected via survey highlight the positive attitude of the participants towards the use of digital technology and their tendency to use it in learning English and daily life activities. They further address factors such as interest in learning, knowledge and skills to use digital technology, time and personal budget that impact the participants’ use of digital technology. As the result of the study reveals that motivation to learn is a key concept in the learning process. Furthermore, time and money are among the influential factors in utilizing digital technology in the busy modern life where the majority of people struggle with financial issues.

To find out students’ and teachers’ perceptions of digital literacy, Yükselir and Yuvayapan (2019) explored 136 EFL students and 27 instructors who enrolled in various departments in a university in southeast Turkey. The results of their study reveal the difference between teachers’ and students’ understanding of digital literacy. Whereas for students, digital literacy means the skill to obtain and analyze information available on the net, for teachers, it is a means of social interaction and communication.

Mehrvarz, Heidari, Farrokhnia, and Noroozi (2021) explored the relationship between students’ digital competence, digital informal learning, and academic performance among 319 higher education students at Shiraz University in Iran. Using structural equation modeling (SEM), the study found that students’ digital competence had a positive effect on both digital informal learning and academic performance. Furthermore, digital informal learning played a mediating role in the relationship between digital competence and academic performance. In other words, digitally competent students were more likely to engage in informal learning through digital technologies,

which in turn contributed to improved academic outcomes. The findings emphasize that developing digital competence alone may not be sufficient; providing opportunities for students to use digital technologies for independent and informal learning can further enhance their academic performance. The authors therefore highlight the importance of considering both digital competence and digital informal learning when designing curricula and educational practices (Mehrvarz et al., 2021).

In a qualitative study, Kurniawati, Maolida, and Anjaniputra (2018) examined the use of digital technologies by EFL teachers and students in Indonesia. The researchers categorized teachers as “digital immigrants” and students as “digital natives”. Data were collected using a combination of classroom observations, questionnaires, and interviews. The study employed the Apple Classroom of Tomorrow (ACOT) as its theoretical framework. The findings revealed that both teachers and students attempt to adapt to digital literacy. Teachers, as digital immigrants, demonstrated greater practical proficiency in integrating digital media into their teaching practices. Students perceived English classes as more engaging and comprehensible when digital technologies were incorporated. Moreover, the students responded positively to teachers’ use of digital tools, which enhanced their learning experiences by making classes more enjoyable and accessible. The study emphasizes the critical need for teachers to enhance their digital literacy to meet the evolving demands of the digital era.

Martinez Zayas and Rofi'ah (2022) conducted a theoretical study to investigate the impact of digital literacy skills on teachers’ creativity by reviewing academic papers within the field of education. Their findings indicate that the integration of digital technology fosters the development of various skills, including problem-solving, productivity, collaborative imagination, curiosity, and other creative-enhancing factors. Furthermore, their study highlights that digital technology has positive effects on teachers’ motivation, cooperation, and capacity for innovation and creation.

To explore EFL teachers’ understanding of digital literacy practices and the associated challenges in implementing them within the classroom, Soifah et al. (2021) conducted a qualitative study. The study involved semi-structured interviews with 15 in-service teachers and data collection through an online questionnaire. The findings emphasize the advantages of digital literacy, including access to authentic materials, enhanced student motivation and creativity, and improved teaching effectiveness through greater participation and engagement. Nonetheless, the study also identifies several challenges, such as limited access to reliable equipment and the internet, as well as intrinsic barriers like attitudes toward digital tools and students’ willingness to adopt digital technology.

To address the connection between home and school and how they play out in relation to digital literacies, Henderson and Honan (2008) conducted a study in two middle-years classrooms, situated in low socioeconomic suburbs in a regional city area of south-east Queensland, Australia. Two teachers’ approaches to teaching students how to use digital technologies during one school term. They stress the connections between home and school and how these play out in relation to digital literacies. With these points in mind, this article reports on an investigation into the usage of digital technologies in two middle-years classrooms in low socioeconomic suburbs in a regional Australian city. Using a range of ethnographic techniques, the study explored two teachers’ approaches to teaching students how to use digital technologies in one school term. Through snapshots of digital practices in the two classrooms, three issues are considered: teachers’ pedagogical approaches; students’ access to digital technologies at home and at school; and the teachers’ recognition of students’ prior knowledge of digital technologies. The article concludes by reflecting on the need for teachers to draw on the digital literacies that students are using in their out-of-school lives, to build bridges to school learning and thus address the challenge of preparing students to be literate in the 21st Century.

Zakir et al. (2025) investigated the relationship between digital literacy and academic performance, with particular attention to the mediating roles of digital informal learning, self-efficacy, and digital competence. Using a quantitative approach and structural equation modeling (SEM), the study found that digital literacy positively influences students’ academic performance. The findings also indicated that students with higher levels of digital literacy were more likely to engage in digital informal learning and demonstrate stronger digital self-efficacy. In addition, digital competence, digital informal learning, and self-efficacy partially mediated the relationship between digital literacy and academic achievement. These findings suggest that digital literacy contributes to academic success not only directly but also indirectly by strengthening students’ confidence, competence, and engagement in technology-supported learning. The study therefore highlights the importance of developing students’ digital skills and creating learning environments that encourage effective and independent use of digital technologies (Zakir et al., 2025).

In their study, Ahmed and Tümen Akyıldız (2022) investigated the perspectives of in-service secondary school and high school Turkish teachers regarding the impact of digital literacy on their teaching practices. The study also aimed to examine the benefits of digital literacy and the challenges teachers encounter when integrating digital technologies in the classroom. The participants included nine secondary schools and nine high school teachers, all teaching grades 5–12, who were randomly selected. Data collection was carried out through focus group discussions conducted via Zoom. The findings revealed notable differences in how secondary school and high school teachers define digital literacy. For secondary school teachers, digital literacy primarily involves the ability to effectively utilize digital devices and platforms, whereas high school teachers emphasized broader competencies, including accessing, producing, analyzing and safely using digital tools. Additionally, the study highlighted several challenges faced by teachers in adopting digital technologies, such as the continuous need to adapt to rapidly evolving digital skills, the limitations of the classroom environment (e.g., inadequate institutional support, restrictive curricula, insufficient resources), and technical difficulties.

Ashiq, Hira, and Saeed (2026) examined the relationship between information literacy (IL) and students’ academic performance through a meta-analysis of 23 studies involving 22,054 participants. Following PRISMA guidelines, the researchers found a moderate positive relationship between information literacy and academic performance ($r = .33$, $p < .001$), indicating that students with stronger information literacy skills tend to demonstrate better academic outcomes. Subgroup analyses showed that the strength of this relationship varied according to geographical location and publication period. The association was stronger in studies conducted outside the United States ($r = .39$) than in U.S.-based studies ($r = .24$). Similarly, studies published between 2008 and 2018 reported a stronger association than those published between 2019 and 2024. Overall, the findings highlight the importance of information literacy in

students’ academic achievement while also suggesting that academic performance is influenced by other factors, including cognitive and psychological characteristics, teaching and learning environments, socioeconomic conditions, technological resources, curriculum integration, institutional support, and access to digital resources.

Feng and Sumettikoon (2024) examined the digital literacy of EFL teachers. The research involved 92 EFL teachers from two universities and a higher vocational college in China. The findings revealed that while the participants demonstrated strong digital awareness, this did not consistently translate into the practical application or acquisition of digital knowledge and skills. The study also identified a specific relationship between digital awareness and digital knowledge and skills. Moreover, digital knowledge and skills were found to indirectly influence professional development via digital awareness, while professional development directly impacted the practical use of digital applications. The study further highlighted the need for EFL teachers to have increased access to digital training programs to prevent a decline in their awareness of emerging digital technologies.

2.4. Conceptual Framework

The developed conceptual frameworks for the current study illustrate the key components of students’ and lecturers’ DL. The Son et al. (2017), DL scale for language learners is typically multidimensional, measuring learners’ abilities and practices related to digital technology. The questionnaire encompasses five dimensions including 1) General digital knowledge (Five questions to evaluate students’ foundational understanding of digital technologies and their applications, 2) Skills to use digital tools (20 questions to assess students’ ability to effectively operate and utilize various digital tools for educational purposes), 3) Frequency of using digital technology (17 questions to measure the regularity with which digital technologies are incorporated into daily activities by students), 4) Digital proficiency (27 questions to check students’ overall competency and expertise in engaging with digital technologies), and 5) Satisfaction with digital technology (11 questions to measure the level of students’ contentment and perceived usefulness derived from using digital tools). These interconnected dimensions collectively provide a comprehensive framework for assessing students’ digital literacy levels and their implications for learning.

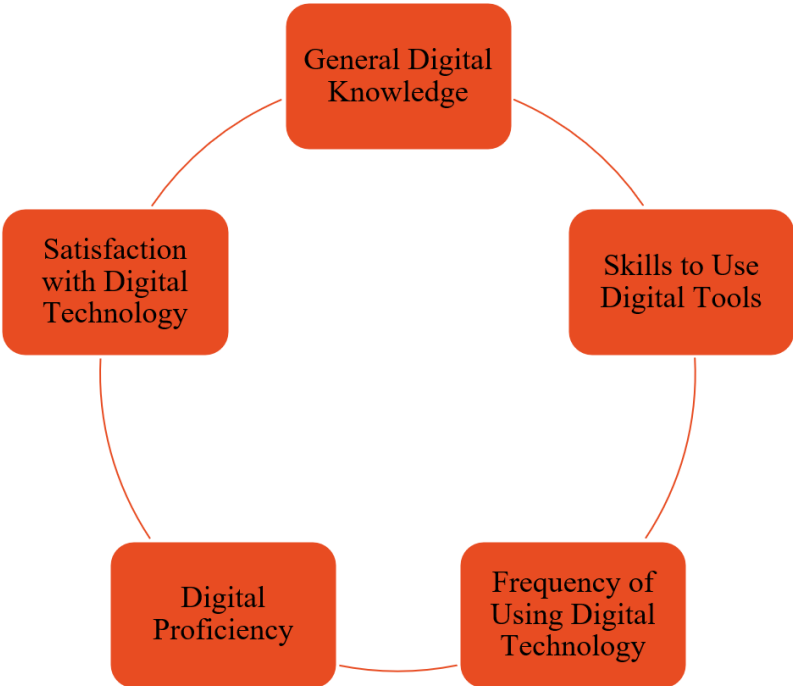


Figure 1. A conceptual framework of students’ DL.

Figure 1 illustrates the conceptual framework used to examine students’ DL through five interrelated dimensions: general digital knowledge, skills in using digital tools, frequency of digital technology use, digital proficiency, and satisfaction with digital technology. Together, these dimensions provide a comprehensive picture of students’ knowledge, practical skills, technology-use patterns, and overall experience with digital technologies.

A semi-structured interview comprised seven questions designed to examine lecturers’ DL across four key dimensions: Perceptions, instructional practices, challenges and institutional support.

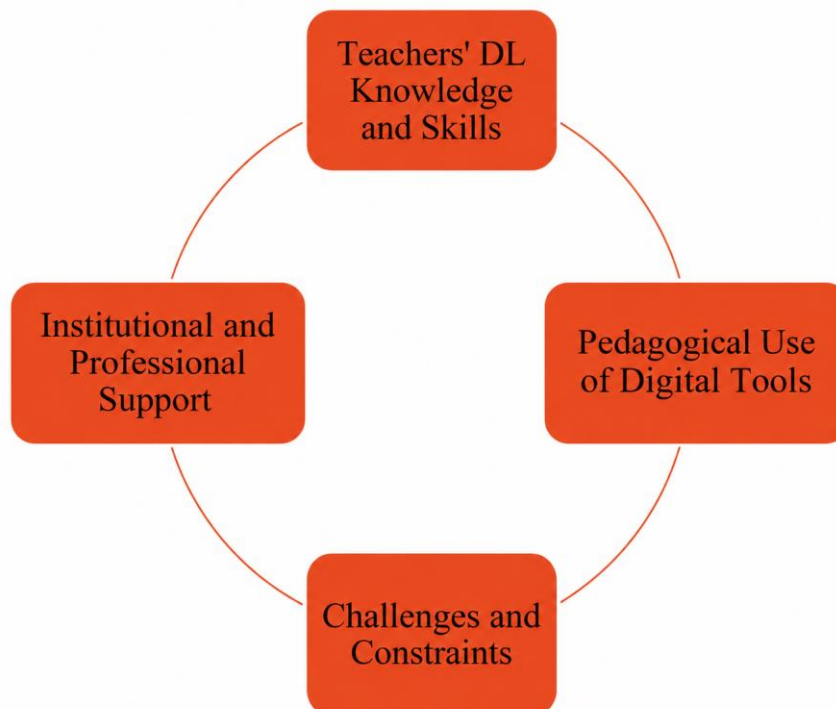


Figure 2. A Conceptual framework illustrating dimensions of lecturers' DL.

Figure 2 displays the conceptual framework used to explore lecturers' DL through four interrelated dimensions: teachers' DL knowledge and skills, pedagogical use of digital tools, challenges and constraints, and institutional and professional support. Together, these dimensions provide a comprehensive understanding of lecturers' digital competencies, their integration of technology into teaching, the challenges they encounter, and the support available for developing their DL.

3. Methodology

3.1. Research Design

Students' DL was explored quantitatively using a questionnaire developed by Son et al. (2017). Teachers' DL was obtained qualitatively through semi-structured interviews and analyzed using thematic analysis. This qualitative analysis was employed to complement and contextualize the quantitative findings related to students' DL. The integration of quantitative and qualitative findings allowed for a more comprehensive understanding of both teachers' and students' DL.

3.2. Participants

The study comprised 107 participants, including 100 Omani students (65 female and 35 male, age range 18-23) and seven EFL lecturers from the Preparatory Studies Center at UTAS-Ibri in Oman. Following ethical approval from the Research and Consultancy Department, instructors were requested to allocate 15 minutes of class time for students to complete the questionnaire. In addition, seven EFL lecturers were interviewed to elicit their perceptions, experiences, practices, and challenges related to DL in English language teaching. Participants were informed about the purpose of the study, assured of confidentiality and anonymity, and informed that their participation was voluntary, with the right to withdraw at any stage of the interview.

3.3. Instruments

This study incorporates a questionnaire developed by Son et al. (2017) to assess the digital literacy of students who study in Foundation and Post Foundation programs at Preparatory Studies Center, UTAS-Ibri during the spring semester, AY 2025-26. The first section of the questionnaire collects general demographic and background information to evaluate the participants' familiarity with digital technology. The second section consists of self-reported responses about participants' proficiency and skill level in using digital tools. The third section addresses the frequency and extent of participants' digital device usage. Finally, the fourth section examines the factors influencing participants' utilization of digital technology and their overall satisfaction with these technologies (see Appendix 1). To measure internal consistency of the questionnaire, Cronbach's alpha was calculated for each subscale and the overall scale. The results demonstrated high internal consistency ($\alpha = 0.89$), with the reliability of each subscale ranging from 0.76-0.84.

Lecturers' data were collected through semi-structured interviews. All interviews were audiotaped, transcribed word for word, and inductively coded to identify recurring patterns related to lecturers' DL. The codes were then grouped into broader themes, reviewed and refined to ensure consistency and analytical rigor. To enhance trustworthiness, a requirement for qualitative analysis, member checking was conducted by sharing summarized interpretations with participants for confirmation. This approach allowed for in-depth exploration while maintaining consistency across interviews (see Appendix 2).

3.4. Data Analysis

Braun and Clarke (2006) and Braun and Clarke (2021) six-step thematic analysis approach was used to analyze the qualitative data collected through semi-structured interviews with lecturers. According to this approach, in the first step, the interviews were transcribed verbatim, and then each transcription was read closely by the author to familiarize herself with the data. This initial step was followed by identifying significant sections and recurring

patterns as keywords. In the third step, segments of data that carry core messages are assigned as codes and a codebook is created for reference. Subsequently, similar codes are grouped into categories to develop themes which depict patterns and relationships. To check the validity, themes are reviewed and refined to make sure that 1) they do not overlap, 2) they are supported by sufficient data, and 3) they reflect teachers’ voices. And finally, the analysis is compiled and written as a coherent narrative. To check trustworthiness and rigor, a researcher colleague is requested to review codes (Peer debriefing).

4. Findings and Discussion

The data collected through semi-structured interviews with EFL lecturers were analyzed using thematic analysis following Braun and Clarke (2006) six-phase framework. Inductive coding was generated through close reading of the interview transcripts. Table 1 presents the codes that emerged directly from the data.

Table 1. Inductive codes generated from semi-structured interviews on EFL lecturers’ DL.

Inductive code	Description (Data-driven meaning)	Illustrative indicator (From interviews)
Skills/Competencies associated with DL	Teacher’s awareness of concepts and skills associated with digital technology	“I am able to use digital tools effectively, critically and ethically”
Significance of DL in ELT	Belief that technology increases engagement	“DL strongly influences my lesson planning, classroom activities and communication with students”
Integrating digital tools into teaching	Using multimedia resources to enhance ELT	“I sometimes integrate AI tools such as ChatGPT, Gemini for writing support”
Time pressure	Lack of sufficient time to implement digital tools	“It is time-consuming to teach students how to use new tools and prepare digital tasks”
Resource availability	Updated resources and services are available	“University updates resources and provides services through Educational Technology Center”
Students’ readiness concern	Concern about students’ digital skills	“Many Omani students have uneven digital skills”
Activities/Strategies to use digital tools	Teaching activities/Strategies to improve students’ DL	“I encourage collaborative digital activities like online discussions”
Professional Development Programs/Workshops	Programs/ Workshops to introduce new digital tools and improve basic digital skills	“These workshops are effective if attendees apply them in their teaching”
Self-initiated learning	Learning digital tools independently without formal training	“I develop my DL by engaging in self-directed learning, online courses and peer collaboration”
Future-oriented mindset	Motivation to develop DL further	“While technology offers many opportunities to improve learning, it also requires careful and balanced use to ensure independent thinking and critical skills”

In the next step, the generated inductive codes were refined and clustered into broader themes aligned with lecturers’ perceptions, practices, and experiences related to DL.

Table 2. Themes generated from inductive codes on EFL lecturers’ DL.

Theme	Description (Analytical meaning)	Supporting Inductive Codes
Lecturer’s DL awareness and competence	This theme reflects lecturers’ understanding of DL as a combination of technical, pedagogical, and critical skills necessary for effective and ethical technology use in ELT context.	Skills/ competences associated with DL
Perceived pedagogical value of DL	This theme captures lecturers’ beliefs about the significance of DL in enhancing teaching effectiveness, lesson planning, classroom interaction, and student engagement.	Significance of DL in ELT
Pedagogical integration of digital tools in ELT	This theme represents how lecturers practically incorporated digital tools and multimedia resources into their instructional practices to support language learning.	Integrating digital tools into teaching; Activities/strategies to use digital tools
Institutional support and resource provision	This theme highlights the role of institutional infrastructure, availability of resources, and organizational support in facilitating lecturers’ DL practices.	Resource availability
Structural and time-related constraints	This theme reflects challenges that hinder effective implementation of digital tools, particularly time limitations within teaching schedules.	Time pressure
Student readiness as a mediating factor	This theme focuses on lecturers’ concerns regarding students’ varying levels of digital skills and how learner readiness affects the successful integration of digital tools.	Students’ readiness concerns

Professional learning and development pathways	This theme captures both formal and informal professional development experiences that contribute to lecturers' DL growth.	Professional development programs/ workshops; self-initiated learning
Future-oriented DL mindset	This theme reflects lecturers' motivation to further develop their DL while maintaining a balanced and critical approach to technology use in education.	Future-oriented mindset

Table 2 presents the themes generated from the inductive analysis of EFL lecturers' responses regarding DL. Together, these themes highlight lecturers' knowledge, practices, challenges, support needs, and perspectives on the effective integration and continued development of DL in English language teaching.

To evaluate students' DL, a questionnaire designed by Son et al. (2017) was used with Omani students at the Preparatory Studies Center, UTAS-Ibri, during the second semester of the 2025-26 academic year. The result of data analysis indicates that most Omani students have been using computers for five years or more (66.6%). The responses to Q9 reveal that 49.05% of students own laptop, 41.5% have desktop PC, 9.4% possess tablet, 5.6% have MacBook, 5.6% own smart phone, 3.7% have iPad, and 3.7% own smart watch while the main purpose of using digital tools is: Watching video, playing game, phone call, studying, listening to music, writing assignments, sending email, web search, surfing in social media, online learning, chatting, taking photo, research, school project, internet browsing, and fitness tracking.

In response to the question that from whom they learned how to use digital tools (Q 10), as it is presented in Table 3, the most common source through which Omani students found out about new digital technologies was by self-exploration (33.8%), followed closely by teacher/trainer (30.9%).

It can be inferred from Table 3 that both personal initiatives and formal instruction play major roles in enhancing technology awareness. Family members accounted for 23.9%, indicating that the informal social environment also contributes significantly to technology awareness within the Oman context.

Table 3. Various sources to find out about new digital technologies.

How do you find out about new digital technologies?	Teachers	30.9%
	Friends	13.2%
	Family	23.9%
	Books	2.8%
	Magazines	0%
	Newspapers	0%
	TVs	4.2%
	Radios	0%
	Websites	3.6%
	Blogs	0%
	Email lists	0%
	Social networks	21.4%
	Other (please specify)	0%

In contrast, traditional sources such as books (2.8%), videos, and friends (13.2%) were reported less frequently as sources of technology awareness for Omani students. Overall, it suggests that participants rely primarily on personal exploration and educational contexts rather than print media or miscellaneous sources to learn about new digital technologies.

Section II: Q11-Q15

This section of the questionnaire is allocated to collect data on students' self-assessment of computing skills. Figure 3 depicts the results.

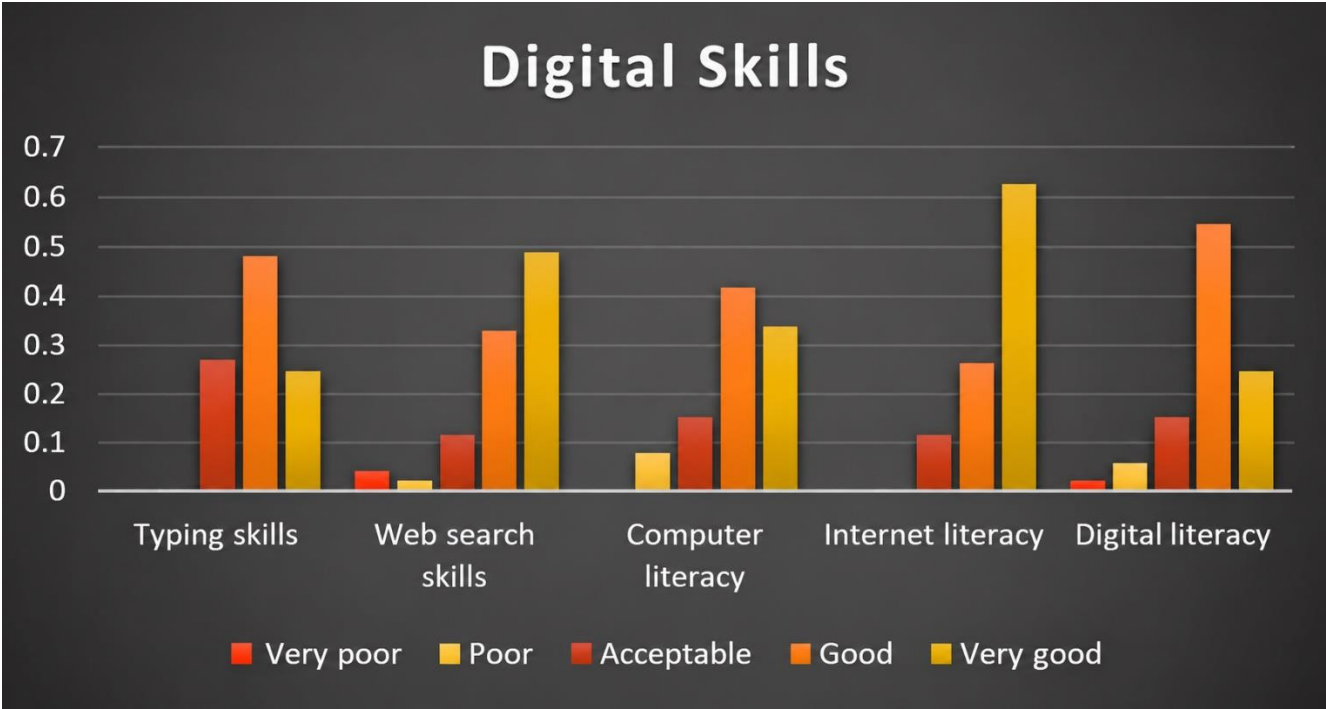


Figure 3. Students' self-assessment of digital skills.

Figure 3 illustrates Omani students’ self-assessment across five areas of typing skills, web search skills, computer literacy, internet literacy and digital literacy. Overall, the majority of students rated their skills as good or very good across most categories. As it is clearly seen, students rated their Internet literacy with the highest confidence (62.2%) as very good and 26% as good. In general, as it is depicted in the Figure Omani students perceive themselves as digitally competent particularly in internet, digital, and web search skills, with minimal reports of low proficiency.

The next section of the questionnaire evaluates digital familiarity, engagement, and learning -related digital competence. It comprises 10 Yes/No questions. Figure 4 shows the results of the data analysis.

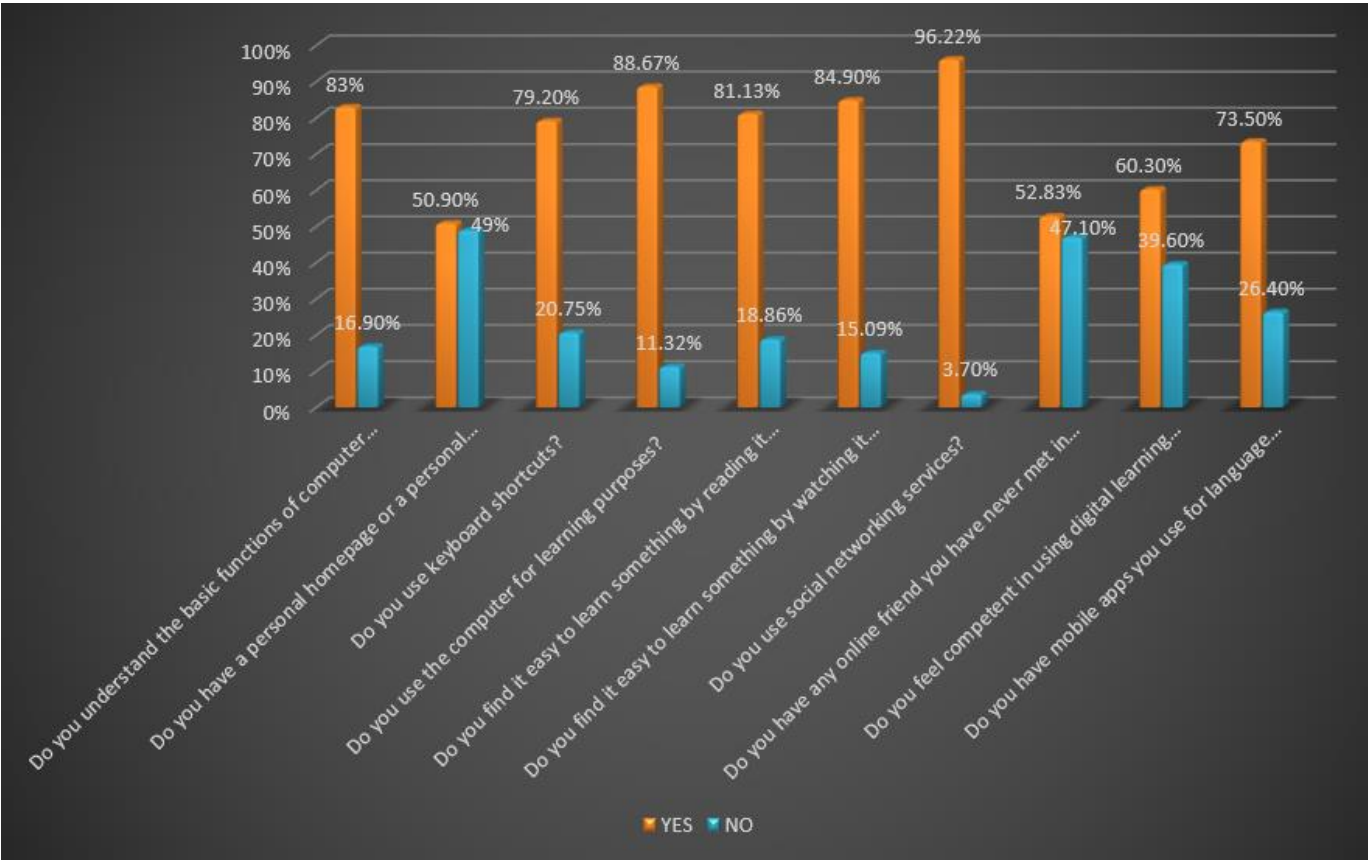


Figure 4. Students' digital usage and learning behavior.

As it is shown in Figure 4, a large majority of Omani students reported active engagement with digital technologies for learning and communication purposes. Using social networking services (96.22%), followed by using a computer for learning purposes (88.6%), finding it easy to learn by watching content on screen (84.9%), understanding basic functions of hardware components (83%) and find it easy to learn something by reading it on the computer screen (81.1%) suggest that while students demonstrate strong functional and learning -oriented digital engagement, more advanced forms of digital identity creation (e.g., maintaining a personal homepage) are less common among Omani students. Overall, the figure indicates a high level of digital familiarity and positive engagement with digital tools among participants. However, their comparatively lower competency in using digital learning resources and creating a personal online presence indicates areas in which further digital skills development may be beneficial.

Operational digital skills and content-creation competence of students, with a focus on technical skills, procedural knowledge and applied digital literacy, are evaluated in the next section of the questionnaire. It includes 10 “Can” questions. Figure 5 illustrates the results.

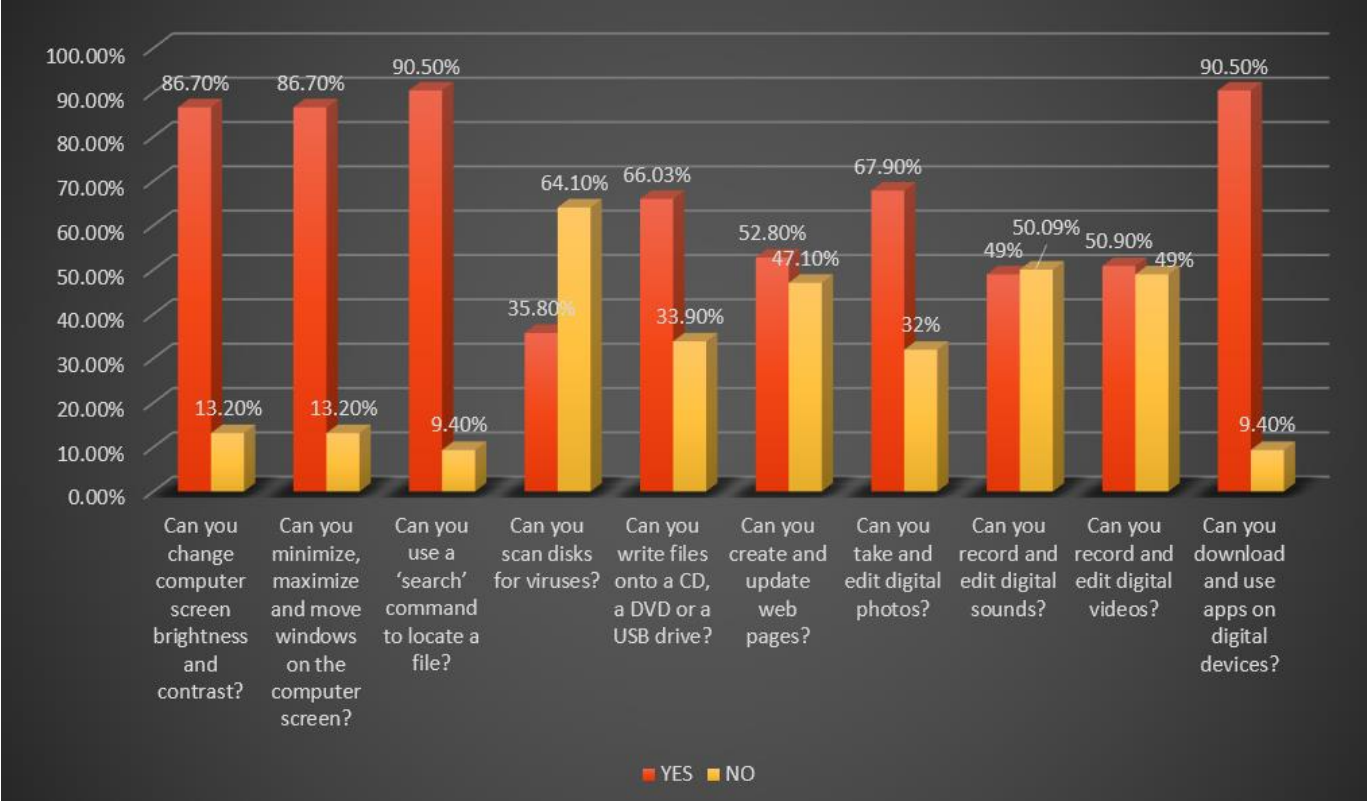


Figure 5. Students' self-assessment of practical digital competences.

As presented in Figure 5, Omani students reported a high level of competence in performing basic digital tasks. Most students (90.5%) can download and use apps on digital devices and use “search” command to locate a file. In addition, 86.7% of students can minimize, maximize, and move windows on the computer screen as well as adjust screen brightness and contrast. However, a comparatively lower level of competence was reported in more advanced digital tasks, particularly scan disk for viruses (64.1%), and recording and editing digital sounds (50.9%).

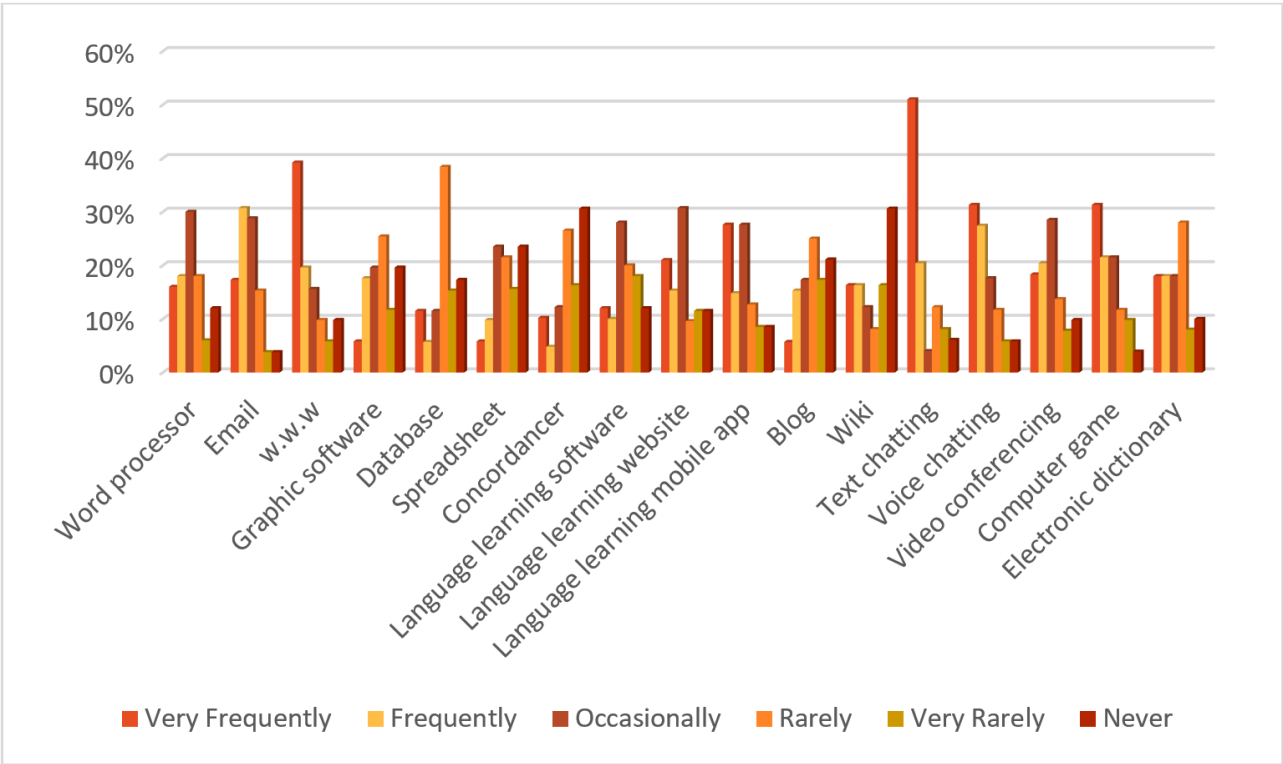


Figure 6. Frequency of Omani students' use of computer and internet applications.

Figure 6 illustrates the frequency with which students use various computer and internet applications. Overall, the results indicate that Omani students use communication and academic-related applications more frequently than technical or advanced software tools. Applications such as Web browsing, email, text chatting, language learning mobile apps, voice chatting and computer games are used frequently, which suggests that Omani students primarily use computers and the internet for personal use.

More specialized software such as graphic software, spreadsheet, concordance, blog, Wiki appear to have lower frequency which indicates Omani students limited engagement with technical and content-creation tools.

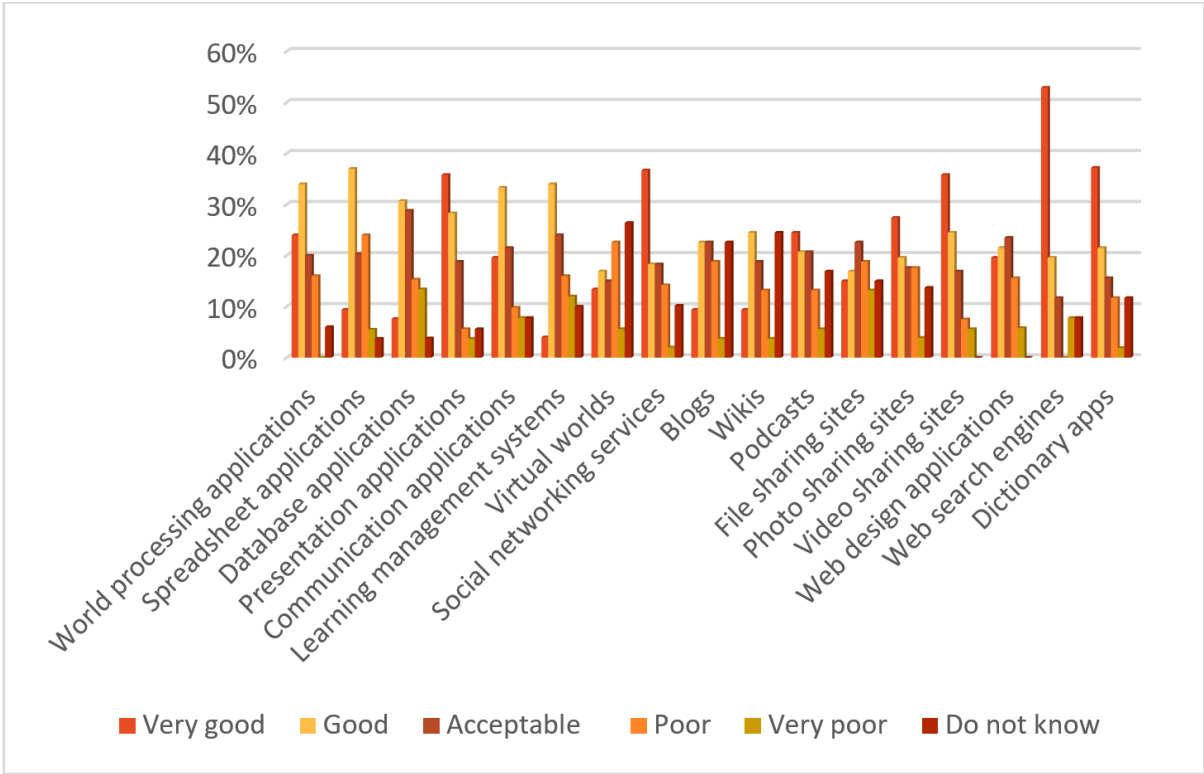


Figure 7. Self-reported skills for working with computer and internet applications.

Figure 7 presents the distribution of participants' self-reported proficiency levels in various computer and internet-related skills. A closer examination of the figure reveals that higher levels of proficiency are more frequently reported for fundamental skills such as:

- Word processing application (e.g., MS Word).
- Spreadsheet application (e.g., MS Excel).
- Presentation applications (e.g., MS PowerPoint).
- Social networking services (e.g., Facebook).
- Photo and video sharing sites (e.g., Picasa, YouTube).
- Web search engines (e.g., Google).
- Dictionary apps (e.g., Dictionary.com).

These findings indicate that Omani students demonstrate stronger competence in everyday academic and communication-related digital tasks, while most technical or specialized digital skills are less developed.

A one-sample *t*-test was conducted to compare students' mean score on the general areas of the DL test with the hypothesized value of 7 out of 10, which represents the expected/moderate performance level¹. The value of 7.00 was used as the theoretical midpoint of the test score range and represented the expected moderate level of DL. Accordingly, mean scores that did not differ meaningfully from 7.00 were interpreted as being around the midpoint of the test, whereas scores significantly above or below this value indicated performance above or below the reference level, respectively.

Table 4. Overall digital literacy test scores: Descriptive and inferential statistics (see Appendix 3).

N	Mean	Standard Deviation	Test value	df	t- test	P-value
100	6.98	2.52	7.00	99	-0.08	0.94

Table 4 shows that the students' mean score on the general areas of the DL test was 6.98 (SD=2.52), indicating a moderate level of performance overall.

A one-sample *t*-test was conducted to determine whether the mean score differs significantly from the test value (7.00). The results show that:

$t(99) = -0.08$

$p = 0.94$

Since the *p*-value (0.94) is considerably higher than the significance level of 0.05, this indicates no statistically significant difference between the observed mean and the reference value. Thus, the students' mean performance did not differ meaningfully from the specified reference level.

Table 5 illustrates the percentage of correct responses for each question in the 'general areas of digital literacy test (See Appendix 3). The highest percentage was recorded for Question 2 (98%), suggesting that Omani students demonstrated strong competence in this specific area. In contrast, Question 4 (50.9%) received the lowest percentage, suggesting that this item may have been more challenging or that participants had limited knowledge in this domain. Overall, the result of the test indicates that participants demonstrate a satisfactory level of general digital literacy in most areas.

¹ A reference value of 7.00 was adopted based on the scoring criterion established by Son et al. (2017) according to which a score of 7 represents moderate/satisfactory performance.

Table 5. Results of general areas of DL test.

Question No.	Correct Response (%)
1	73%
2	98%
3	62.2%
4	50.9%
5	75%
6	66%
7	65.3%
8	69.9%
9	75%
10	73.3%

Section V of the questionnaire deals with the factors affecting the use of digital technologies for language learning.

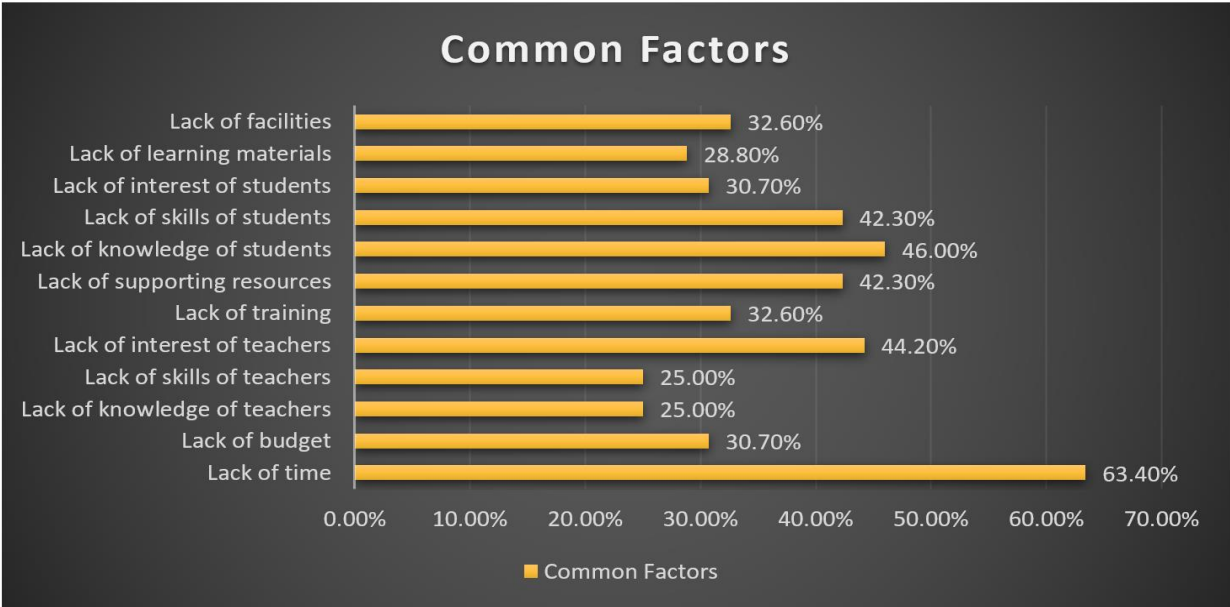


Figure 8. Common factors affecting the use of digital technologies².

Figure 8 presents the common factors that influence Omani students’ use of digital technologies. The results show that time-related constraints are among the most influential factors, with *lack of time* showing a higher percentage than other variables. Institutional and instructional factors also demonstrate noticeable influence. These include:

- Lack of teachers’ interest
- Lack of supporting resources
- Lack of students’ knowledge and skills

The final section of the questionnaire asks about the general attitude of the Omani students toward the use of digital technologies.

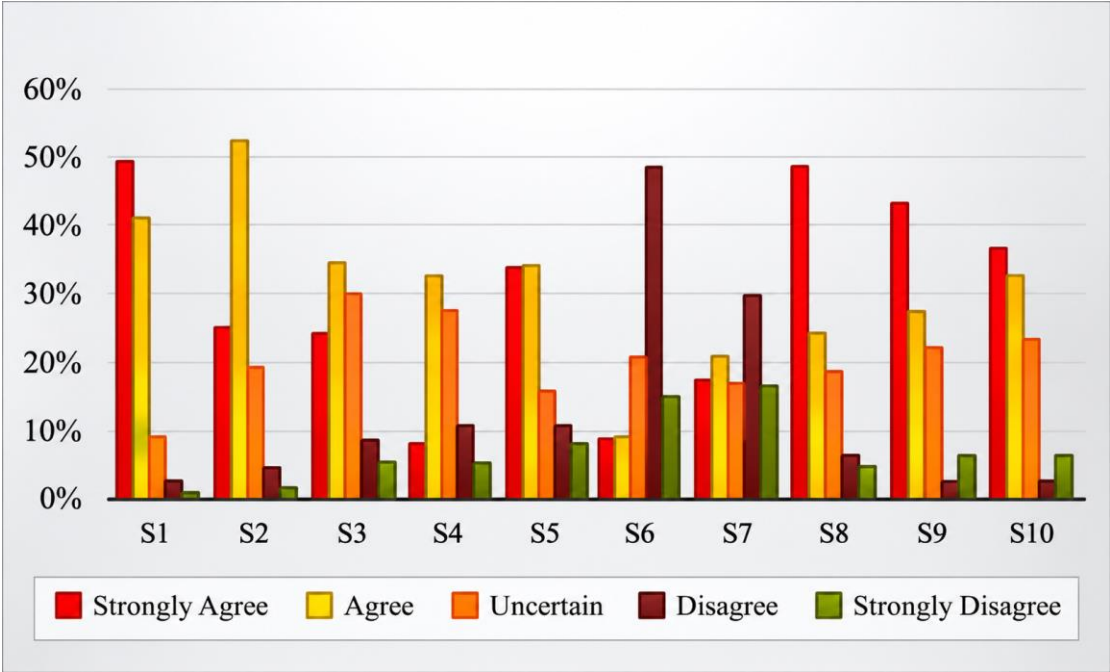


Figure 9. General attitude toward the use of digital technologies.

² No=231 (students were allowed to choose Multiple responses).

As illustrated in Figure 9, the results indicate predominantly Omani students' positive attitude toward digital technology. For statements 1 and 2, which measure enjoyment and comfort in using digital devices, the high percentage indicates participants' confidence and familiarity with digital tools. Similarly, for statements 3 and 4, which assess awareness of digital literacy, most responses fall within the agreement category, suggesting Omani students' awareness of digital literacy and various types of digital devices.

In relation to willingness to learn more about digital technology (S5) and perceived significance of improving digital fluency (S8), agreement level remains relatively high, demonstrating Omani students' willingness to improve their digital competencies. Furthermore, the pedagogical benefits of digital tools and the inclusion of technology-enhanced language learning programs (S9 & S10) were endorsed positively by participants. In a similar line, the responses to S6 & S7 indicate that most Omani students do not see digital technology as a threat nor perceive themselves as lagging behind their peers in using digital technologies.

5. Conclusions

This study explored students' and lecturers' digital literacy and attitudes toward digital technology and the integration of digital tools in English language teaching in the Omani context. From the lecturers' perspective, all interviewed instructors reported confidence in using digital tools effectively and demonstrated awareness of digital literacy concepts. They emphasized the role of digital technologies in lesson planning, classroom interaction, and communication. They believed that the integration of AI-powered tools such as Kahoot, ChatGPT, and Gemini reflected an emerging shift toward technology-enhanced language learning in Oman.

Omani lecturers highlight challenges such as limited time to implement digital tools in teaching and students' uneven digital skill levels, whereas Ahmed and Tümen Akyıldız (2022) refer to limitations such as inadequate institutional support, restrictive curricula, insufficient resources, and technical difficulties as key challenges in the Turkish context. Likewise, Khan (2022) highlights 'shortage of electronic devices', 'low-speed internet connection', and inconsistent electricity supply' as major challenges faced by teachers, students and parents in the process of digitalization.

Omani lecturers also stress the need for ongoing professional development programs and workshops to introduce new digital tools and strengthen foundational digital competency. This perspective aligns with the findings of Feng and Sumettikoon (2024), who emphasize the significance of digital training programs.

The findings indicate that Omani students primarily gain awareness of new digital technologies on their own or through their teachers, while traditional sources play a minimal role. In addition, students perceive themselves as digitally competent, particularly in internet use, web searching, and basic digital skills. They demonstrate a high level of familiarity with digital tools and report positive engagement with technology in their academic and personal lives.

The results further reveal that Omani students possess strong technical competence in fundamental tasks such as downloading applications, using search functions, and managing files. However, comparatively lower levels of competence were observed in more advanced content-creation skills, such as editing digital videos and audio files, and in performing system-related technical tasks, such as scanning disks for viruses. Similarly, while communication and academic applications (e.g., MS Word and Excel) are frequently used, engagement with more specialized software, such as graphic design tools, concordance programs, blogs, and wikis, remains limited. This suggests that students' digital strengths are concentrated on everyday academic and communication-related tasks, whereas advanced and specialized digital skills are less developed.

Omani students exhibit a positive attitude toward digital technology. They acknowledge the pedagogical benefits of digital tools and express willingness to further develop their digital competencies. Most students do not perceive digital technology as a threat, nor do they consider themselves disadvantaged compared with their peers in their use of digital tools.

5.1. Significance of Study

This study underscores the significance of DL in an educational setting like Oman by evaluating lecturers' and students' digital competences. The findings highlight the positive digital orientation of both students and lecturers while identifying gaps in advanced and specialized digital skills. Addressing these gaps through training, structured integration of digital content-creation tools, and sustained professional development initiatives may enhance digital literacy and support more effective technology-enhanced language-learning environments.

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Appendices.

Appendix 1. Digital Literacy questionnaire for learners.

DIGITAL LITERACY QUESTIONNAIRE – 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 ☐

University preparation ☐

Postgraduate ☐

Secondary school ☐

Undergraduate ☐

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
Example: Desktop PC (Windows)	1 year	Personal use at home, word processing, email
Example: Laptop Macintosh (OS X)	6 months	Computer lab at school, email, web search

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

Teacher/trainer ☐

Family ☐

Magazine ☐

Yourself ☐

Friend ☐

Book ☐

Video ☐

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

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'.

		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 friends 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'.

		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 following 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.

		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 following? 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

Q20. 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)			

Q21. 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’.

No.	Statement	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.					

Q22. If you have any comments you would like to make regarding digital literacy, please write them below.

Thank you for completing the questionnaire!

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Appendix 2. Semi-structured interview on digital literacy in English language teaching.

No.	Interview focus area	Main interview question	Probing questions
1	Conceptualization of digital literacy	How do you define and conceptualize digital literacy within the context of your teaching practice?	What skills or competencies do you associate with digital literacy? Why do you consider digital literacy important for English language teachers?
2	Role of digital literacy in teaching	In your view, what role does digital literacy play in your English language teaching?	How does digital literacy influence your lesson planning or classroom practices? Can you provide examples of digital tools you use?
3	Challenges in integrating digital literacy	What challenges do you experience when integrating digital tools into English language teaching?	Are these challenges related to time, resources, training, or institutional support? How do they affect your instructional practices?
4	Supporting students’ digital literacy	How do you support and facilitate your students’ development of digital literacy skills?	What activities or strategies do you use to enhance students’ digital literacy? How do students respond to these activities?
5	Institutional support	In what ways does the university support teachers in enhancing their digital literacy?	Are professional development programs or workshops available? How effective is the institutional support provided?
6	Professional development and self-improvement	What strategies or practices do you employ to further develop your own digital literacy as an educator?	Do you engage in self-directed learning or online professional development? What motivates you to improve your digital literacy skills?
7	Reflection (Closing question)	Is there anything else you would like to share about your experiences with digital literacy in English language teaching?	Any additional comments or experiences not addressed in the previous questions?

Appendix 3.

Section V

➤ 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.

Q23. Please choose the best answer for each question and put a tick (✓) in the box at the appropriate spot.

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
- 2. Where does a digital camera store its pictures?
 - (1) Battery
 - (2) Film
 - (3) Adapter
 - (4) Memory card
- 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
- 4. Which technology is the process of converting spoken words into text?
 - (1) Audio analysis
 - (2) Audio compression
 - (3) Speech synthesis
 - (4) Speech recognition
- 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
- 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
- 7. What is the term for junk emails or unsolicited messages sent over the Internet?
 - (1) Spam
 - (2) Firewall
 - (3) Malware
 - (4) Spyware
- 8. What is the process of confirming your username and password on the computer?
 - (1) Authorization
 - (2) Authentication
 - (3) Hacking
 - (4) Defamation
- 9. 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
- 10. 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